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Film historiography, digitised archives and digital research dispositifs
Olesen, C.G.

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Film History in the Making
Film Historiography, Digitised Archives and Digital Research *Dispositifs*

Christian Gosvig Olesen
Doctoral thesis, University of Amsterdam, 2017
Film History in the Making: Film Historiography, Digitised Archives and Digital Research

Dispositifs

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aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
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# Table of Contents

0.0 Film Historiography, Digitised Archives and Digital Research Dispositifs

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 Theoretical Framework: Film History ‘in the Making’</td>
<td>14</td>
</tr>
<tr>
<td>Developing A Metahistorical Approach to Digital Film Historiography</td>
<td>14</td>
</tr>
<tr>
<td>Digital Film Historiography's Places of Production</td>
<td>22</td>
</tr>
<tr>
<td>Practices and Techniques</td>
<td>26</td>
</tr>
<tr>
<td>Writings – Dispositifs</td>
<td>28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2 Structure of Research, Key Examples and Case Studies</td>
<td>32</td>
</tr>
</tbody>
</table>

## Part I – Sources, Repertories and Theories of Film History

### 1.0 Film Archives and Film Historiography

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Film as Historical Document</td>
<td>40</td>
</tr>
<tr>
<td>Boleslas Matuszewski and Public Sovereignty in 19th Century Archives</td>
<td>42</td>
</tr>
<tr>
<td>The ‘First Wave’ of Historical Film Archives</td>
<td>46</td>
</tr>
<tr>
<td>1.2 Film as Art</td>
<td>50</td>
</tr>
<tr>
<td>Cinephilia and the Historical View of the First French Film Avant-Garde</td>
<td>52</td>
</tr>
<tr>
<td>Léon Moussinac’s Film Historiography and Cinema’s Patrimonialisation</td>
<td>55</td>
</tr>
<tr>
<td>International Film Club Culture and the Foundation of Film Archives in the 1930s</td>
<td>58</td>
</tr>
<tr>
<td>General Film Histories and Early Film Scholarship</td>
<td>62</td>
</tr>
<tr>
<td>1.3 (Re)Visions of Early Cinema: Academic Film Historiography and its Mediations</td>
<td>66</td>
</tr>
<tr>
<td>Apparatus Theory and Film Historiography</td>
<td>68</td>
</tr>
<tr>
<td>Early Cinema Studies and New Film History</td>
<td>71</td>
</tr>
<tr>
<td>Archival Film Festivals and Restoration Theory</td>
<td>76</td>
</tr>
<tr>
<td>Audiovisual Film Histories</td>
<td>79</td>
</tr>
<tr>
<td>Contemporary Dialogues of Filmic Appropriation, Archiving and Historiography</td>
<td>87</td>
</tr>
</tbody>
</table>

### 1.4 Conclusion

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 Conclusion</td>
<td>89</td>
</tr>
</tbody>
</table>

### 2.0 Film Heritage Digitisation in Europe Between Europeanisation and Cinephile, Curatorial Agendas

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Film Heritage Digitisation in Europe: Agendas, Debates, Platforms</td>
<td>93</td>
</tr>
<tr>
<td>The Expansion and Professionalisation of Film Archiving in Europe</td>
<td>99</td>
</tr>
<tr>
<td>Digital Access to Cultural Heritage and Europeanisation</td>
<td>104</td>
</tr>
<tr>
<td>The European Film Gateway as Repertory of (Film) History</td>
<td>108</td>
</tr>
<tr>
<td>Controversies of Access and Digital Realities in European Film Archives</td>
<td>112</td>
</tr>
<tr>
<td>2.2 Taste-Making and the DVD Repertory of European Film Heritage Institutions</td>
<td>116</td>
</tr>
<tr>
<td>The Repertoires of Video Distribution Formats and Taste-Making</td>
<td>116</td>
</tr>
<tr>
<td>The Shared DVD Repertory</td>
<td>123</td>
</tr>
<tr>
<td>Local Traditions and the Shared Repertory of European Film Heritage Institutions</td>
<td>126</td>
</tr>
<tr>
<td>Periodising the DVD Repertory</td>
<td>134</td>
</tr>
<tr>
<td>The Rise and Fall of a Format?</td>
<td>135</td>
</tr>
<tr>
<td>Archival Hardware Aesthetics and the Digital Image’s Historicity</td>
<td>138</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3 Conclusion</td>
<td>143</td>
</tr>
</tbody>
</table>
Filmography

Appendix

1. Use of previously published work in the dissertation 348
2. List of DVD releasing European film heritage institutions 351
3. Occurrences of National (co-)Productions in Titles Released by European Film Heritage Institutions - breakdown 353
4. Numbers of film titles released per decade on DVD – breakdown 1 354
5. Numbers of film titles released per decade on DVD – breakdown 2 356
6. Number of DVD releases by European film heritage institutions per year - breakdown 357

Film History in the Making: Film Historiography, Digitised Archives and Digital Research Dispositifs 358
(English Summary)

Film History in the Making: Film Historiography, Digitised Archives and Digital Research Dispositifs 361
(Nederlandse samenvatting)

Acknowledgements 365
Moi, je fais de la peinture abstraite, mais j'ai une ambition concrète...

- Maxence in Jacques Demy's *Les Demoiselles de Rochefort* (France, 1960)
Introduction

0.0 Film Historiography, Digitised Archives and Digital Research Dispositifs

The ways in which film historians study archival sources are changing. In the past decades, a growing number of film heritage institutions have begun digitising parts of their collections of films and film-related sources. As a consequence, film historians can obtain access to, organise and study archival sources in new ways. They can contemplate them in their own research settings, arrange them in personal databases, analyse them with digital tools and disseminate their results in a variety of multimedia formats.1 In the past approximately twenty years, this has reflected in how film and media historians working within different traditions have begun using computational, quantitative tools to analyse and visualise data patterns in digitised archival sources. In stylistic film history, tools such as Cinemetrics and ImageJ are becoming increasingly prominent for measuring and visualising historical developments in genres, editing and narration.2 And in socio-economic cinema history, geographic information system (GIS) technologies and digital cartography are opening new avenues for historical network analysis of film distribution and exhibition using spatial data.3 The research results obtained with such tools are for the most part visual. They appear as various forms of data visualisation - diagrams, graphs and interactive maps - which scholars use to reason from as the basis for historical interpretation of developments in film aesthetics and cinema-going. Moreover, scholars attribute them evidentiary status by giving them a structuring function in traditional, written scholarship and in multimedia publications such as websites, DVDs, and audiovisual essays.

Several scholars embrace this development enthusiastically and consider it a welcome re-invigoration of film studies because it allows them to interact more freely with audiovisual objects than in written publications.4 For scholars who work with textual structured data, data visualisations allow for making patterns visible that are otherwise too time-consuming or difficult to detect.5 Furthermore, in media studies an important reason for embracing

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this development is also that it puts scholars in a particularly privileged position as it invites them to
draw on their vast knowledge of visual theories to develop visualisations, interfaces and multimedia
formats for analysis and knowledge dissemination. In recent years, this enthusiasm has gained
momentum in the concurrently emerging field of the digital humanities which proffers and
facilitates visual research methods and publication formats. As stated in one of the digital
humanities' key introductory monographs the field allows scholars to "explor[e] a universe in which
print is no longer the primary medium in which knowledge is produced and disseminated".

In addition to marking a shift in the analytical and representational practices of film historians
this development also forges collaboration between fields of knowledge that have traditionally
remained separate. It nourishes an encounter between computer science, film archiving and film
historiography. Emerging uses of visual analytics software - often originating from the natural
sciences - for analysis of films or related materials testify to this. Consequently, historians begin to
look at and historicise their source material differently. An example of how scientific visual
analytics can change the way scholars analyse their sources is the use of the ImageJ software for
style analysis - a software which combines microscopy with computation - by media scholars such
as Lev Manovich and Kevin L. Ferguson. Recently, Ferguson's work used ImageJ to produce genre
studies of Westerns, gialli and various national cinemas, focusing on colour and lighting patterns.

To give an example, using the software to layer large image sets of frames, which he had
extracted from digital video files of films, Ferguson created a so-called summary visualisation, or
simply a “sum”, as he refers to them. In statistical terms, a sum shows the median values of the
colour events which take place in a film’s frame. The predominance of one hue, saturation or
brightness in one area of the frame reflects a persistent occurrence of its specific value in that
particular area of the frame along the film's entire length. The image below (fig. 1) is a “sum” of
Nicholas Ray's *Johnny Guitar* (USA, 1954) created by Ferguson with ImageJ in 2013. On the basis
of such a visualisation, one may study a film's chromatic events and characteristics, compare it to
other films in a director’s work or to films from the same period. In doing so, one may discover
unexpected conventions of for instance framing and lighting and may be prompted to reconsider
hitherto established assumptions.

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As Ferguson noted with regard to his experiments, making such visualisations reflects a drastically new analytical intervention which affects how he contemplates, analyses and researches film style. The software, he argues, defamiliarises his object of study and challenges a traditional analytical mode of film viewing because it directs his attention to characteristic stylistic features beyond the films’ narrative regime which he might not otherwise have observed. This invites him to identify stylistic features of potential analytical interest to develop new research questions about for instance lighting. Among other things, this has allowed him to discover developments, similarities and differences in features such as vignetting in films in remarkably different genres, periods and production contexts and make concrete inferences about the relation between lighting in exterior and interior scenes and the overall lighting schemes of films. By facilitating such observations, ImageJ can invite scholars to articulate new questions and research paths to potentially challenge and undermine hitherto established assumptions about film style’s conventions. To provocatively highlight the value of such visual analytics, Ferguson has invoked the cinephile surrealists’ belief in the automatisms of cinematography in the 1920s to alter our perception of reality. If scholars embrace visual analytics with such an attitude, he contends, scholars might nurture fundamental reconsiderations of their assumptions.

While still reflecting a limited tendency in film studies - and film historiography more

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10 Ibid., 286.
specifically - digital research projects currently proliferate at the nexus of film archiving, film studies and computer science. When I embarked on my PhD research in the fall of 2012, the development which I have described above, and which Ferguson's visualisation work exemplifies, had sparked my curiosity. As I saw visual research methods, software and dissemination formats increasingly becoming signifiers of film historiography I felt an urge to understand what implications they have for scholarly practices and their traditions' epistemologies. Beyond a personal interest my curiosity was also nourished by what I considered to be a larger problem for the field of media studies, namely the circumstance that most film and media historians today are not familiar with making nor analysing such visualisations. Broadly speaking, scholars tend not to have critical insights into their underlying, methodological procedures and the processes and conditioning factors through which they establish historical discourse. Media scholar Deb Verhoeven succinctly articulated this when she recently remarked concerning the preponderance of visualisations in digital research formats, that their making is largely blackboxed and characterised by a "technical and methodological invisibility [which] has led to a deficit in our understanding of the very processes by which we simultaneously produce and derive meaning from our data in visual forms". It was the gap constituted by this knowledge deficit that I wished to contribute to filling with my research by analysing the emergence of digital methods in greater depth. I felt that if we do not shed light on the procedures and epistemological implications of making visualisations and reasoning from them in digital research formats, we risk losing our ability to critically navigate among today's research methods for historical analysis and evaluate their results.

In my research I identified three key questions in relation to the overall problem of the knowledge deficit I have just described. I would like to introduce these questions by discussing a brief example of making a sum visualisation. Eager to become familiar with film data visualisation and reflect on its methodological implications and analytical potential I began experimenting myself. One and a half years into my PhD trajectory an opportunity presented itself to do this when, in 2014, I became involved in a small research project funded by the Netherlands Organisation for Scientific Research (NWO) titled Data-driven Film History: a Demonstrator of EYE's Jean Desmet Collection. The project's aim was to build a digital interface for studying the business and film archives of film distributor and cinema owner Jean Desmet, preserved at the EYE Filmmuseum in Amsterdam. In the project we experimented with mapping distribution data on the films as well as stylistic analysis by making, as Ferguson, sum visualisations. Thus, using the ImageJ software, I

11 Deb Verhoeven, "Visualising Data in Digital Cinema Studies: More than Just Going through the Motions?", in Alphaville: Journal of Film and Screen Media, No. 11 (2016)
broke down digitised films from the collection into image sequences to visualise their colour patterns. One such film was *L’obsession du souvenir*, a Gaumont production from 1913 directed by Léonce Perret, which consisted of 20543 film frames. With the software I summarised and merged the film's stenciled, tinted, toned and combined tinted and toned sequences into a colourful, abstract image. The result can be seen below (fig. 2). Having produced this image, the participants in the project could now experiment with comparing the colour patterns in the collection's films.

The reflections which producing this image sparked in me were in many ways similar to those which Ferguson has articulated. Indeed, such a visualisation invites us to look differently at films because it shows a film’s colour and light patterns condensed in one single image. However, I also felt that there were several fundamental aspects of creating such a visualisation, which Ferguson's discussion had not fully considered and which appeared crucial for me to elucidate to understand how they form a basis for historical interpretation.

It struck me how many scholarly and institutional processes of interpretation had conditioned this visualisation of Perret's film, from the film's making over 100 years ago to my analytical intervention with ImageJ. Consider for instance the circumstances which have fundamentally shaped its making and appearance today which, though they are not immediately visible, are embedded in the visualisation. First of all, this image was created on the basis of a digitised version of the restored film and thus reflects the archival life of a filmic element preserved in a film heritage institution. The digital video file I worked with was created from a copy of the film preserved at EYE Filmmuseum in Amsterdam where it has been the subject of shifting preservation and
restoration procedures. In addition to its history within EYE, the element also bears the marks of the print’s distribution history from before it entered the archive. Both the film's archival life and distribution history have shaped its material characteristics and appearance, for instance its colour features, and thus greatly affect the analysis of it today. Second, the visualisation has also been conditioned by academic scholarship. Research on the film's director, Léonce Perret, saw an invigoration in the early 2000s. Among other things, this was marked by two retrospective programmes at the important archival film festival Il Cinema Ritrovato in Bologna as well as the publication of monographs which re-evaluated Perret’s place in film history. Thus, the access to and study of Perret’s films, is also conditioned by shifting priorities of film historiography marked, in this particular case, by a recently increased scholarly interest in and archival research on his work. Third, and finally, to make the visualisation I drew on emerging methods in the digital humanities and the expertise of other scholars - in particular that of Lev Manovich and Kevin L. Ferguson - to use visual analytics software from the natural sciences in media history research. In doing so, while seeking to critically ideate and position my own analysis within the field to the greatest possible degree, my analysis also relied on and reproduced a set of formalised procedures and its specific discursive implications.

In my reflection on these analytical interventions I began realising that in order to understand the epistemological implications of digital methods in film historiography, there is a need to develop a deeper understanding of how the archive and the field of historiography influence their interpretation. Digital research methods and techniques should be considered in a historical perspective focusing on the very development of the discipline of film studies and, more specifically, on the intertwined history of film historiography and film archiving. Rather than, as Ferguson, pointing primarily to the present perspective of how technological change seems to transform our objects of study, it appeared urgent to understand how these techniques became embedded in and shaped by scholarly discourses, archival practices and traditions. This led me to articulate three key questions concerning the epistemology of emerging digital methodologies in film historical research, which fall into three interrelated lines of inquiry and which I follow throughout my dissertation.

The first line of inquiry focuses on the following question: how do film heritage institutions, their restoration and preservation deontologies and in particular their digitisation work, condition film historical research with digital techniques and methods? With this question I wish to analyse

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Introduction

how the steps and processes of digitisation in (film) archives determine both what digitised material scholars can study and which analytical interventions they can make. The selection of sources for preservation, restoration and digitisation by film heritage institutions follow specific institutional values and models of history which develop in interrelation with film historians, critics and policy makers and establish reference frames for scholarship. In this regard, I wanted to understand if there are (institutional) patterns in the digitisation work of film heritage institutions and if they privilege for instance specific genres, periods or countries of production or types of source material. Furthermore, the question addresses how technical aspects of digitisation bear upon scholarly analytical interventions. For instance, with regard to the visualisation of median values of colour in Léonce Perret's L'obsession du souvenir it is pertinent to consider how a whole range of interventions in the restoration and scanning process affect the scholarly analytical process. More broadly, the technical specificites of a file, its resolution or the appearance of its colours to a great extent determine how scholars can intervene with digital tools and consequently how they can conceptualise it as a historical source. Such details are also crucial to attend to for film-related text sources where for instance scan quality equally plays a great role.

My dissertation's second line of inquiry, revolves around the following research question: how have digital methods travelled from other disciplines into the film historian's toolkit and which disciplinary negotiations do they undergo in this process? Beyond the example of ImageJ, digital research methods in film studies draw heavily on techniques and visual analytics from diverse fields such as medicine, the earth sciences, human and cultural geography and statistics. While film studies has always been inherently interdisciplinary, especially in the years of its institutionalisation in the 1960s and 1970s, where it lent theoretical models from semiotics, literary studies and critical theory, digital methods are to a greater degree indebted to the natural sciences. With regard to this development I wanted to know how these methods are appropriated to meet the analytical objectives of established film historical research traditions and correlated to their objects of analysis. In this regard, what do historians consider to be the affordances of different digital methods and how do they distinguish the results and approximations they create to their objects of analysis with them from written film history? What is the difference of studying for instance the work of a director or a genre through a data visualisation included on a DVD, instead of in front of a viewing table in an archive? And, how do historians give shape to their visualisations to attribute them an evidentiary function? These are some of the central questions that branch out from this

over-arching question and which need to be analysed in order to understand the epistemologies of
digital methods.

The third, and final, line of inquiry revolves around the research question: how may digital tools
allow for expressing reflexivity, ambiguity and multiple viewpoints in historical interpretation? My
reason for raising this question is that film historians, and humanities scholars broadly, value and
wish to highlight such aspects in historical interpretation and that a lot of work has currently not
been done on this subject. For the most part, film historians do not, as scientists, seek to establish
scientific truth and/or hard facts but wish to allow for multiple historical genealogies and to
foreground the contingency of historical interpretation and of their source material. Yet, as emerging
methods derive primarily from the sciences they are frequently not tailored to visualising the
specific complexities of film historians' work. Thus, beyond the question of understanding how
scholars appropriate tools from the sciences to fit the scope of their respective research traditions, I
also wish to analyse which strategies they develop to express criticality and reflexivity to a greater
degree. Furthermore, the results of my tripartite inquiry will also serve to, finally, develop
suggestions for conceiving digital research methods which to a greater degree reflect ambiguity and
multiple viewpoints.

By answering the questions I have articulated above, I hope that my dissertation will contribute
to advancing the discussion of digital film historiography's representational practices and counter
our current deficit in understanding them through a critical elucidation of its research methods'
epistemological underpinnings, origins in the sciences and conditioning institutional factors. In this
regard, the goal of my research is not to normatively reinstate a particular notion of history nor to
suggest best practices for research. Rather, I propose a metahistorical perspective on current
methods which produces a framework for understanding how film historians conceive of digitised
sources as historical objects. With this I wish to incite scholars to use and critically discuss digital
methods following their respective, scholarly interests while at the same time nourishing further
reflections which may lead scholars to conceive approaches with which to express a wider, and
more complex, range of historical models.

0.1 Theoretical Framework: Film History ‘in the Making'

Developing A Metahistorical Approach to Digital Film Historiography

To answer these research questions, I suggest a metahistorical framework which combines
perspectives from theory of (film) history, contemporary media theory, epistemology and visual studies. The term metahistory is closely associated with theorist of history and literature Hayden White's seminal work *Metahistory: Historical Imagination in the Nineteenth Century* (Johns Hopkins University Press, 1973) and used as a denominator for approaches which study history as discourse. In *Metahistory*, White proposed an ironic stance towards history which did not seek to normatively ground historiography in a specific methodology, but instead elucidated history's underpinning narrative conventions by analysing its shared affinities with contemporary literary fiction. In doing so, White illustrated how historians emplotted events into different modes and chains of causality and highlighted their contingencies and limitations to create a typology of nineteenth century historical discourses.\(^{14}\) While inspired by White's metahistory I take, as I will discuss below, the core of my theoretical framework primarily from historian and anthropologist Michel de Certeau's theory of history. Different from White's primary focus on language and narrative, de Certeau's notion of 'historiographical operation', developed in *The Writing of History* (first published in French as *L'écriture de l'histoire*, Editions Gallimard, 1975), also attends to history's social and technical circumstances of production. It analyses history as a situated, socio-technical operation which, through a “combination of a social place, 'scientific' practices and writing”, follows specific institutional conventions and traditions, in order to challenge and possibly develop new historical approaches.\(^{15}\) In this regard, I consider digital film history as the product of both poetic and scientific gestures or - as Michel de Certeau once labelled computational history - as a “science-fiction” which combines historical narration and metaphors with technical practice.\(^{16}\)

Before discussing what de Certeau's theory entails in greater detail in the following sections, I would like to stress why I find a metahistorical perspective particularly relevant for studying digital methods in film historiography and, with regard to existing debates in film studies, what I believe such a framework should take into consideration.

There are two main reasons why I find a metahistorical perspective particularly relevant for my research and for digital scholarship in film studies in general. First, because metahistory is to a large extent not concerned with reinstating a normative notion of history but rather with understanding its production at a distance. Therefore, it is highly suited for developing typologies which elucidate how methods establish historical discourse. Concretely, I believe that a metahistorical study which


produces a typology of current methods will be of great benefit for other scholars in several aspects. It may lead them to think more critically about their methods' discursive implications, in order to revise or improve them or make more informed choices. It may also awaken the interest of scholars who have not yet used nor considered the relevance of digital methods for specific types of historical inquiry and in this way contribute to greater methodological plurality and insights in film historical research. Second – and admittedly this is perhaps an aspect in which metahistory is normative - I believe this approach may nourish the development of digital methods which can express greater reflexivity, ambiguity and complexity. By continuously confronting and problematising the underlying assumptions and enabling tools of historical interpretation, metahistory foregrounds the distance which separates the scholar from its object of study to a greater degree than other approaches. In doing so it can nurture the development and discovery of new interpretive frameworks which break free from conventions and traditions, rather than trying to close this gap by establishing best practices or perfecting methodologies. As I will discuss further on in my dissertation, I believe this is urgently needed at a point in time when digital methods are yet relatively new.

What then, does a metahistorical framework need to consider in order to analyse the discourses of contemporary digital methods in film historical research and answer the research questions I have raised? In this regard I would like to briefly consider the important work which has already been done to theorise the consequences of the digital turn in film archives for historiography in film and media studies with regard to my questions, to position my research and clarify how and why I will develop this work.

With regard to the first question on how film heritage institutions condition film historical research, a number of scholars and curators have attended to and produced in-depth analyses of archival practices of restoration, curation and access drawing on media theory and critical theory to address its challenges for different institutions and deontologies. In this regard, especially film curator and theorist Giovanna Fossati's *From Grain to Pixel. The Archival Life of Film in Transition* (Amsterdam University Press, 2009) has been vital in developing an analytical framework for understanding how contemporary digital restoration procedures are underpinned by a wide array of divergent historical discourses which shape archival films as historical artefacts. Moreover, Paolo Cherchi Usai, David Francis, Michael Loebenstein and Alexander Horwath's book *Film Curatorship: Archives, Museums and the Digital Marketplace* (SYNEMA, 2008) presents a conversation around the challenges which film heritage institutions face in order to maintain or
rearticulate a position as critical institutions in the face of increased marketisation of cultural heritage and planned technological obsolescence. These publications have produced fundamental insights into restoration and curation deontologies after the digital turn and their bearings upon archival films' historicity. However, as they attend mainly to museum presentation and projection, the implications for film scholarship fall outside their scope. In this regard, I believe a metahistorical framework would need to build on this work, by focusing on how different curatorial policies delimit the types of analytical interventions which scholars can make with their tools into digitised archives, for instance in terms of availability and technical and material specificities.

Concerning the second and third research questions, several media theorists have theorised the interrelation between the digitisation of audiovisual archives and historiography as constituting an end point for the latter. Recently, media theorist Wolfgang Ernst, in the lineage of Friedrich Kittler’s post-hermeneutical media theory, has focused on the material and technical specificities of digital archives to study their consequences for historiography. Ernst argues that the technical configuration of digital archives essentially undermine narrative historiography's causality and that they are inherently reflexive. In particular, Ernst argues that a characteristic technique such as hyperlinking, which constantly refreshes and adds new links between documents, strips sources of their historically constituted narratives and stable referentiality and instead situates them in a constantly changing network of relations. This argument can be regarded as a ramification of early new media theory. Along similar lines, media theorist Lev Manovich argued in the early 2000s that hyperlinking is essentially anti-hierarchical and breaks down established narratives because it invites open-ended navigation through digitised sources. Consequently, the relations between items are never fixed, just as their signs become inherently dynamic and lose their indexicality.

While I appreciate and value these analyses for highlighting historiography's and narration’s contingent nature, I consider the conclusion that digitisation marks an end point for history making problematic. I find that the circumstance that historians formalise methodological procedures to create visualisations, as I discussed above, to contemplate and analyse patterns in historical sources instead suggests that a reconfiguration of historical interpretation is taking place. Rather than experiencing a loss of history, historians make digital tools to reimagine their traditions and

19 Ibid., 87 & 45.
21 Ibid., 230-231.
attribute meaning to digitised sources. In this regard, I consider, along the lines of film scholar Philip Rosen's discussion of the digital turn, Ernst’s and Manovich’s analyses representative of a utopianist and techno-determinist strand in new media theory, because it identifies a radical rupture between the interpretive realms of old and new - analog and digital - technologies.\footnote{Philip Rosen, Change Mummified. Cinema, Historicity, Theory. (Minneapolis and London: University of Minnesota Press, 2001) 314} This stance implies that digitised sources’ are on a technical level essentially devoid of indexicality and are “practically infinitely manipulable” across different contexts which leads to the loss of a stable historicity as a consequence of digitisation.\footnote{Ibid., 319.} I find the central problem with this stance’s premise succinctly elicited in media historian Steve F. Anderson’s contention that ”[c]ultural theories that describe contemporary historical consciousness in terms of debasement and loss mendaciously imply that there once was a secure access to an authentic past, when past and present spoke to each other more directly.”\footnote{Steve F. Anderson, Technologies of History. Visual Media and the Eccentricity of the Past. (Hanover, New Hampshire: Dartmouth College Press, 2011) 10.} What I lack from current theorisations is a deeper understanding of how methods are formalised, how discursive formations emerge and a typology of their historical epistemologies. Therefore, I believe a metahistorical framework should step away from predominantly essentialist accounts of media change, to equally focus on media representations, uses and users, in order to identify and elucidate how scholars produce historicity in the digital age.

To illustrate what I miss today, I find it helpful to consider how film historians in the past produced metahistorical perspectives on written histories and created typologies of their discourses. As film scholar André Gaudreault has remarked, during the 1970s and 1980s, when film studies became a widely institutionalised academic discipline, film historians created close alliances with theory of history as well as with film archives to critically reconceptualise and challenge existing film historiography.\footnote{André Gaudreault, Film and Attraction. From Kinematography to Cinema. (Urbana, Chicago and Springfield: University of Illinois Press, 2011) 11-13.} In what has later been characterised as a 'historical turn' in film studies, these years nourished intense metahistorical reflection on the discourses and contingencies of history writing among film scholars, to critically question previous methodological assumptions and conceive new critical and often politically informed approaches.\footnote{Richard Maltby, “On the Prospects of Writing Cinema History from Below”, in Tijdschrift voor Mediageschiedenis, vol. 9, no. 2 (2006) 76.} Emerging from contemporary marxist film criticism, such theoretical endeavours arguably epitomised in Jean-Louis Comolli’s influential Technique et idéologie article series (1971-1972). Confronting and problematising prevailing notions of teleology, periodisations and origin points, Comolli’s articles reframed the
history of cinema's emergence by attending to cultural and ideological conventions rather than privileging its roots in scientific cinematography.\textsuperscript{27}

<table>
<thead>
<tr>
<th>ASPECTS OF HISTORICAL \ TIME</th>
<th>RAMSAYE</th>
<th>OGLE</th>
<th>GOMERY</th>
<th>COMOLLI</th>
</tr>
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<tbody>
<tr>
<td>CAUSE</td>
<td>Linear (events, anecdotes; non-historiographic entities)</td>
<td>Relations among Technologies (science)</td>
<td>Economic Context (long-run profits; industrial organization theory)</td>
<td>Social and Economic Context (Marxist economic theory)</td>
</tr>
<tr>
<td>CHANGE</td>
<td>Evolution (birth, growth, death)</td>
<td>Perfection of technique</td>
<td>Economic Cycle (invention, innovation, diffusion)</td>
<td>Marxist Class (dialectical change)</td>
</tr>
<tr>
<td>SUBJECT (role of individual)</td>
<td>Organic Metaphor and Anecdotes about Individuals (psychology)</td>
<td>Inventions and Cinematographers</td>
<td>Creative Management</td>
<td>Member of Economic Class and Subject in Ideology</td>
</tr>
</tbody>
</table>

Fig. 3 Metahistorical table from Edward Branigan's article "Color and Cinema: Problems in the Writing of History" (1979).

Thinking along the lines of White's Metahistory, in addition to Comolli, a number of scholars formulated similar critiques by drawing on literary theory to analyse the assumptions of previous histories.\textsuperscript{28} In this regard, an illustrative example of the resonance of metahistory in film studies can be seen in Edward Branigan's article "Color and Cinema: Problems in the Writing of History" from 1979.\textsuperscript{29} Analysing and charting the narrative conventions and historical agents of early as well as contemporary film histories in a table outlining their different "types of historical inquiry", it suggested a reflexive, industrial history of film colours which pointed to the contingent assumptions of its own writing (see fig. 3). By making this analysis, Branigan suggested a new history which, while not suggesting it was better than previous histories, produced new insights while highlighting the problems of their assumptions.

In the following decades, several monographs and anthologies produced critical typologies of research methods and stimulated in-depth discussions among scholars along these lines. Film scholar Michèle Lagny's *De l'histoire du cinéma. Méthode historique et histoire du cinéma* (Armand Colin, 1992) provided a critical catalogue of developments and methods in film history writing, perhaps the most comprehensive of its kind, by thoroughly eliciting their relations to different traditions in art, literary and socio-economic history. The multi-authored anthology *Recherche*:


\textsuperscript{29} Edward Branigan, “Color and Cinema: Problems in the Writing of History” in *Film Reader* 4 (1979) 29
Film Historiography, Digitised Archives and Digital Research Dispositifs

Film – Quellen und Methoden der Filmforschung (CineGraph, 1997) edited by Hans-Michael Bock and Wolfgang Jacobsen, focused in particular on the historiography of German cinema while including articles on different, historiographic traditions in especially France and the US. Likewise, North American and French journals such as Film Reader, Iris, Film History, Les Cahiers de la cinémathèque and Cinema Journal, have, throughout the years, devoted special issues to theory of film history which have been vital in creating overviews of current epistemological discussions in film historiography. Not to forget the landmark discussion of Robert C. Allen and Douglas Gomery's Film History. Theory and Practice (Knopf, 1985) which articulated a model for socio-economic film history as a critical response to conventionalist critiques of empiricism, as articulated in the classic reflections on epistemology in the works of Thomas Kuhn and Paul Feyerabend.

It is along these lines that I situate my research to suggest a metahistorical framework for analysing digital methods and their "types of historical inquiry". I wish to reinvigorate metahistorical debates which, as film scholar Jane M. Gaines has recently contended in her article "Whatever Happened to the Philosophy of Film History?", are less prominent in scholarly debates today but urgently needed to reconsider how digitisation condition our historical models. However, written throughout the 1970s, 1980s and the 1990s, the large part of these key texts, remain within a moment which, in addition to being qualified as a "historical turn", is also often referred to as the "linguistic turn" in theory of history, that critically analysed methodologies by attending to their language, narrative modes and discourses. With regard to the currently emerging digital research methods and their strong reliance on visual analytics, this reference literature’s emphasis on language seems to offer insufficient frameworks for elucidating the implications of producing historical knowledge. Therefore, while I find inspiration in the metahistorical perspectives produced in this period, I believe that they need reframing through new theoretical alliances – in particular with media theory, visual studies and philosophy and history of science - to analyse digital analytical and representational practices. At this moment, this has only sparsely, and mostly sporadically, been suggested. For instance, media theorist Trond Lundemo has advocated for historicising the technological transitions of the film historian's tools and techniques to understand the digital turn’s consequences for historical interpretation. More recently The Arclight Guidebook

31 Jane M. Gaines, "Whatever Happened to the Philosophy of Film History", in Film History, Vol. 25, No. 1-2 (2013) 77
33 See Trond Lundemo, "Towards a Technological History of Historiography?", in Alberto Beltrame, Giuseppe Fidotta and Andrea Mariani (eds.), At the Borders of (Film) History. Temporality, Archaeology, Theories. (Udine: Forum Editrice Universitaria Udinese SRL, 2015).
to Media History and the Digital Humanities (REFRAME Books, 2016) edited by media scholars Charles Acland and Eric Hoyt made a significant contribution to bringing media historians and the digital humanities into closer dialogue and invited practitioners to take a reflexive stance towards digital methods, by providing an extensive overview of case studies from primarily a North American context. Yet, focusing either primarily on technological change, methodological best practices or case studies, these publications have to a lesser extent explored the questions which I have raised above to fill the gap of our understanding of especially film historiography’s visual forms and their underlying procedures.

To analyse the methodological procedures and representational practices of digital methods and their underlying discourses it no longer suffices to attend to history as a language system which establishes causal relations or follows narrative conventions. Instead, we need a framework which considers how digital techniques and visual analytics are used to establish analogies between historical events, motifs and moments to study historical tropes with data visualisations. Therefore, beyond literary studies and linguistics-inspired theories of history, metahistory needs to engage with philosophy and sociology of science and visual studies. For examples of how such theoretical perspectives can be productively combined, the disciplinary subfield of digital historiography provides a productive point of comparison. A good example is historian David J. Staley's monograph Computers, Visualization, and History. How New Technology Will Transform Our Understanding of the Past (M.E. Sharpe, 2003). As Staley observed in this work, there existed a number of visual formats in the discipline of history in the early 2000s which had not yet been perceived or discussed as historical sources on their own terms. As he wrote: "Without our recognising them as such, visual secondary sources do exist in our profession in the form of diagrams, maps, films, dramatic recreations, and museum displays. While these visual secondary sources surround us daily, historians accord them supplementary status to the 'real history' we believe is written". Staley's monograph raises similar questions and identifies a similar deficit, as those I have discussed above with regard to film historiography and the digital turn. He answered them by combining perspectives from classic media theory (McLuhan), philosophy of history and science (White) and visual studies (Rudolf Arnheim), to elucidate how visual forms mediate historical research. While not suggesting the entirely same theoretical coordinates for my research,

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the combination of media theory, theory of history and visual studies in Staley's book provided an inspiration for combining my own theoretical framework to analyse the discourses of digital methods. In this regard I find de Certeau's theory, as the primary theory of history I draw on, at the same time systematic and open enough to be complemented by theoretical insights from other fields and it is therefore along the lines of his notion of 'historiographical operation' that I develop a metahistorical approach to digital film historiography. In the following sections, I shall lay out, how I apply this notion and its analytical foci in the present dissertation and how I develop them.

Digital Film Historiography's Places of Production

The “historiographical operation”, as de Certeau characterises it, is partly constituted by a place of production which follows a set of socially accepted conventions, values and rules to constitute its object of study and methods.\(^\text{36}\) In this respect, historiography's claims to “objectivity” and establishment of “facts”, de Certeau argues, are always conditioned by the specificity of the place and milieu it emanates from and should therefore be regarded as the results of a localised, “collective fabrication” of knowledge, akin to the product of factory or laboratory work.\(^\text{37}\) The institutional conventions which condition historical knowledge production can be manifold. The geographical region and language of a place can determine the sources which a historian chooses, as can its doctrine, methodology or legislative or political framework.\(^\text{38}\) Thinking along these lines, I analyse primarily academic settings – in addition to film heritage institutions - as the primary socio-cultural conditioning places of digital film historiography to yield an understanding of why film historians attribute importance to specific digitised sources, analytical interventions and tools in their research.

In a present perspective, it may to a certain extent seem counter-intuitive to put an analytical emphasis on the places and institutions of knowledge production when the digital turn is so frequently taken to forecast a dissolution of institutions and their replacement with on-line platforms. Yet, I find this analytical focus particularly necessary, when considering that one of the most visible consequences of the digital turn in media studies is the proliferation of media and digital humanities labs as spaces for knowledge production and transfer between scholars. As new media scholars Theo Röhle and Bernhard Rieder point out, while the sciences have made use of

\(^{36}\) Michel de Certeau, op.cit., 1988 [1975], 56.

\(^{37}\) Ibid., 64.

\(^{38}\) De Certeau evokes for example how the geographical scope of French historiography at the time appeared to be confined by language, by studying mainly regions in which Romance languages are spoken such as Southern Europe and South America.
Introduction

laboratories for centuries, the humanities in particular began doing so in the 1960s - in history, in the social and political sciences and the arts – to incorporate mechanising equipment as heuristic tools in methodological chains. This tendency has increased significantly with the digital humanities' emergence. Attending to this development, media theorists Lori Emerson and Jussi Parikka have for instance recently argued that the current proliferation of media and digital humanities labs should be seen as one of its most significant implications and requires our analytical attention to understand how these spaces' organisation sustain and (re)produce modern conceptions of knowledge and scientificity. Writing at an earlier point, in the late 1990s, cultural and political theorist Régis Debray observed a similar tendency when he contended with regard to archives and museums that:

In our day of delocalized on-line access and long-distance digital consultation, electronic circulation should for all intents and purposes render the concentration of materials in physical sites useless. But in fact the centrifugal dematerialization of data's supporting base increases our collective need to recenter ourselves on the basis of symbolic reference points.

With regard to increased digitisation and, more broadly, technology’s rapid development, Debray argued that institutions tend to respond by founding new institutions to make sense of these developments. As a consequence new techniques become embedded in ideas and mentalities with a longue durée and turn them into techniques of tradition through institutional processes of formalisation. In order to apprehend the digital turn then, it is necessary, first, to take a diachronic look at how traditions' "founding ideas [were] themselves founded" to then apply a synchronic perspective which analyses how contemporary techniques transmit established ideas and change them and their institutions. In line with Debray I find it crucial to understand how established traditions and tropes anchored in film historiography’s institutions play a vital role in giving film history's digital representations scientificity and determine their success as socially accepted scholarly practices.

43 Ibid.
From this vantage point, I create a typology of scholarly traditions within the contemporary field of digital film historiography and analyse how they are being recast with digital tools of analysis and visualisation. I do so by analysing a variety of research projects as case studies and attending in each case to the institutions they emanate from and their conventions. First, I am attentive to the ways in which the place of production affects the selection of source material as historical object of study. As an example, one might consider how, as film scholar Jan-Christopher Horak has argued with attention to North American academia, the choice of films for film studies curricula or scholarly publications in the digital age continues to reflect established canons for the reason that it facilitates quicker and more easily publishable research, than entirely original archival research.46 Mindful of this circumstance, I am interested in understanding how the selection of specific digitised films and documents as source material pertain to and reproduce local research traditions and value systems such as for example concepts of authorship, style, canons or a focus on cinema exhibition, with attention to the shifting knowledge formations of these places over time.

Second, I observe how places of production attribute evidential status to digital formats and techniques to render historical research factual. As sociologists of science Bruno Latour and Steve Woolgar have argued with regard to scientific diagrams, their use and development in research laboratories always depend upon a social place's literary inscriptions of knowledge, such as papers and articles, to which it provides evidence and upon which they are in turn constructed.47 Drawing on this perspective, I understand how a place's knowledge, in the form of research publications, is mobilised in developing digital methods for film historical research, lend scientificity to analytical visualisations and in turn how digital tools become evidential in film historical research. When considering, as I shall do further on, how contemporary digital research tools draw heavily on the 1970s film historiographical frameworks by engaging some of its key theorists, I attend to the dynamic between scholarly publications and their discourse as a unifying body of knowledge in tool creation.

While the dissertation's primary focus is devoted to academic institutions, I am also attentive to the role of different film heritage institutions which condition film historical research: film archives, archival film festivals and political bodies. With regard to film archives, film preservationists and scholars Christophe Gauthier and Karen F. Gracy, have for instance analysed –

drawing on sociologist Pierre Bourdieu's notion of *habitus* – how these places' social systems (re)produce and sustain notions of film art, heritage and history through critical appreciation and taste-making. Christophe Gauthier, studying the roots of film archiving in 1920s film club culture, has foregrounded how the emergence of French film criticism and its listings of aesthetically significant films led to a theoretical discernment of cinema as an art form with its own aesthetic history which legitimised and guided collection building and film preservation in the 1930s to today.⁴⁸ Along similar lines, Karen F. Gracy’s sociological research on film archiving in the US, has brought to the fore how archival and scholarly processes of taste-making fundamentally shape film preservation, by determining for example archival taxonomies and the selection of films for restoration.⁴⁹ Drawing on such insights and perspectives, my discussion of digital film historiography's social places also considers the values and priorities which permeate these institutions as important conditioning factors on different levels. For example, individual archival policies determine the scope of digitisation, restoration and forms of access granted to scholars and in this respect condition the range of sources to choose from and the analytical interventions which scholars can make. I also attend to the programming at archival festivals such as Le Giornate del Cinema Muto in Pordenone and Il Cinema Ritrovato in Bologna which constitute meeting places between cinephiles, film historians and film archivists and, often surrounded by an aura of “rewriting film history”, are crucial in bringing scholarly attention to rediscovered archival films.⁵⁰ Lastly, official entities such as ministries and councils of culture or work committees in the European Union, reflect political priorities of film heritage digitisation which affect the priorities of film heritage institutions.

By bringing to the fore the social dimension and values of these places of film historiography, I aim at emphasising to a greater degree than current debates suggest how historians mobilise existing historical scholarship in selecting their sources and reconceptualise their methodologies with new tools. In doing so, I do not imply, nor necessarily endorse, that digital film historiography runs in a direct continuous line from existing scholarship and traditions, but emphasise that social systems of knowledge institutions often induce a less dramatic rupture with existing historiographies than debates surrounding media change tend to suggest.

⁵⁰ Francesco di Chiara and Valentina Re, “Film Festival/Film History: The Impact of Film Festivals on Cinema Historiography. *Il cinema ritrovato* and beyond.” in *Cinémas- Revue d'études cinématographiques/Journal of Film Studies*, vol. 21/Nos. 2-3 (2011) 136.
Film Historiography, Digitised Archives and Digital Research Dispositifs

Practices and Techniques

Within de Certeau's framework, the “historiographical operation” cannot be analysed solely by focusing on the social value systems which determine scholarly research. It equally necessitates an analysis of how historicities become embedded in a set of formalised methods, techniques and inscription devices which are used to organise and analyse archival sources. In turn it should also attend to how these apparatuses' material properties condition and confine how historians perceive of, intervene in and mediate their source material. In other words, in addition to being the product of a social place, history making is also a technical operation and practice. As historian of science Luce Giard has pointed out, de Certeau's framework can be aligned with Actor-Network Theory's analysis of the socio-technical constellations and interactions of scientific laboratories, which seek to avoid both social and technical determinism in its accounts of scientific knowledge production. Or, as Jonathan Crary has put it with regard to late nineteenth-century instruments of scientific visualisation, while techniques acquire discursive identities in specific settings as bearers of meaning, they also force us to observe our objects of analysis differently and make us reach new knowledge. For this reason, the historian's toolkit must be understood as constitutive of historical knowledge rather than merely auxiliary; from inscriptions in stones in ancient times, to computer-generated statistics in the late-twentieth century, the materialities of the historian's instruments change his or her interpretative enterprise. Mindful of the shifting material specificities of historiography's techniques, de Certeau argues that one must draw on insights from a number of adjacent fields to understand them - epigraphy in the case of stone inscriptions, or computer science in the case of late-twentieth century historiography. In my analysis of digital film historiography I am attentive to the material specificities of respectively digital archives and techniques of visual analytics, drawing insights from archival, film and media theory as well as on technical practices of visual analytics in a number of adjacent disciplines such as statistics, (human) geography and the natural sciences.

For instance, I consider the implications for film historiography of the shift that occurs with the organisation of film archives in the transition from index cards to databases. As de Certeau notes

51 Michel de Certeau, op. cit., 1988 [1975], 73.
54 Michel de Certeau, op. cit., 1988 [1975], 69.
55 Ibid.
with regard to historiography, the use of computers in archiving for example introduces “seriality”, statistics or mathematical structurations of the archive which change the historian's hermeneutic enterprise in accessing or indexing archival sources – a development which also holds true for moving image archiving. Around ten years ago, database systems became increasingly complex, enabling for example the inclusion of not only text descriptions in index files, but also audiovisual items. While still only used to a limited extent, this has led to new forms of archiving moving image material, where patterns of editing and style can be automatically recognised by software and included in metadata descriptions to enable new access points for retrieving archival film. Furthermore, there exist a broader range of database systems of which some rely on distinct institutional systems of interlinking, while others can be linked to other institutional databases or put online. With regard to this development, I consider how different forms of metadata, annotations and descriptions condition analysis of archival film, mindful of the different access points it enables for digital techniques of analysis.

Second, I consider the implications which different analytical techniques and their combinations hold for film historical research traditions. Here, I distinguish between different types of techniques which film historians have adopted and combined in a wide variety of formats; for instance digital editing and annotation, data mining, hyperlinking, mapping with geographic information system (GIS) software as well as techniques of semantic recognition and visualisation. Digital editing and annotation are for instance becoming prominent techniques in film historical research to develop analytical forms of moving image appropriation. In discussing the digital turn's consequences, several scholars have retrospectively cited film theorist Raymond Bellour's famous essay “The Unattainable Text” (first published in french as “Le texte introuvable”, 1975) and Jean-Luc Godard's plea for an “iconographic criticism”, which lamented the impossibility of including moving image excerpts in written publications while heralding a time when this would become possible. Along those lines, scholars today edit, appropriate and annotate digitised archival films

56 Ibid., 75.
59 Werner Südendorfer and Jürgen Keiper, op.cit.
to their own analytical ends by comparing fragments, manipulating playback speed and zooming in on them. With regard to this development, my analysis of the digital film historian's toolkit considers among other things how digital editing and annotation form the basis for stylistic analysis, DVD editing and essayistic appropriation practices.

Furthermore, in databases, DVDs, CD-ROMs and websites, hyperlinking has been central in analysing archival films, by enabling the inclusion of links between annotated films and related sources in multimedia presentations to facilitate analogous comparison between film segments or contextualisation through archival documents or explanatory notes. In addition, the emergence of an array of algorithmic data mining approaches enable different forms of pattern recognition in text documents or in moving images to study for instance movement, editing, colour and sound within a binary analytical regime. In particular socio-economic film historians have used data mining approaches for the analysis of digitised newspapers to discern patterns in cinema consumption, exhibition and distribution. With regard to stylistic analysis, algorithmic approaches enables the discernment of larger patterns in style and aesthetics. Concerning this development, Lev Manovich has been a key instigator in exploring applications of visual analytics for data sets which are significantly larger than film historians were previously able to process.

These techniques will be discussed in greater depth in the dissertation's third, fourth and fifth chapters. In my analysis of them I consider, how and if they have led scholars to discern new series and patterns of inquiry in film historical research, and I consider their emergence and applications in adjacent disciplines, their material specificities and the analytical interventions which they enable.

*Writings - Dispositifs*

In de Certeau's framework, the last part of the 'historiographical operation' constitutes a *writing*; an edited and “staged” end product, which functions as a representation and dissemination format for historical research. Contrary to scientific practice which, while formalised, is more experimental in nature, historical writing mediates a scientific discourse through the arrangement of textual elements to serve a didactic function for a readership. It does so by structuring research results into a chronologically ordered text which establishes causal chains between events and results to create

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61 Jeffrey Klenotic, op.cit., 58.


63 Michel de Certeau, op. cit., 1988 [1975], 86.
a historical narration. Writing is in this respect a figuration, which redistributes the insights and symbolic references yielded in and with its social place and techniques of production, to provide a reader a lesson about history by telling a story.\textsuperscript{64}

While the notion of \textit{writing} proposed by de Certeau is mindful of history's mediation and its multifarious technical practices, it attends primarily to literary forms of publications. As pointed out by David J. Staley, as opposed to written histories where writing tends to work by ordering historical events in causal chains in a linear fashion, “visual secondary sources” are non-linear, have multiple entry points and depend on different forms of interaction between a representation and its user.\textsuperscript{65} In this respect, digital formats inarguably instantiate new ways of representing and experiencing history and require a different analytical framework than the one offered by literary theory. Therefore, with regard to the 'staged' formats I analyse - DVD editions, GIS maps, data visualisations, websites and audiovisual essays – though I remain inspired by it, I do not strictly follow this part of de Certeau's framework. Instead, I propose an appropriation of de Certeau's notion of writing by way of recent film and media theory to analyse how they mediate film historical research. Instead of thinking in terms of writing I use the concept of \textit{dispositif}, taken from and widely used in film and media theory, to understand non-linear publication formats as composite devices that combine and arrange different techniques, media and modes of access, according to a specific, situated scientific epistemology.

Appearing in French around 1860, the word \textit{dispositif} first denoted the arrangement of components in mechanical devices as the "way in which the organs of an apparatus are disposed".\textsuperscript{66} Later, in the 1870s, the word's meaning became extended to also mean an "ensemble of mechanical elements combined to an effect a result" in for example patents.\textsuperscript{67} In the 1970s, the term was developed into a theoretical concept in philosophy and in film theory used for analysing the configuration and structuring role of technology in social situations. In film theory, Jean-Louis Baudry's Marxist-Freudian “apparatus theory”, used the term to characterise and criticise the ideological and psychological foundations of the cinematic screening situation upon the spectator, by regarding cinema as rooted in bourgeois, Western conventions such as for example renaissance perspective.\textsuperscript{68} Jean-Louis Baudry's two texts "Effets idéologiques de l'appareil de base” (1970) and

\textsuperscript{64} Ibid., 87.
\textsuperscript{65} David J. Staley, op.cit., 55.
\textsuperscript{66} François Albera and Maria Tortajada, "Le dispositif n’existe pas!", in François Albera and Maria Tortajada (eds.), \textit{Ciné-dispositifs. Spectacles, cinéma, télévision,littérature}. (Lausanne: L’age d’Homme, 2011) 13. Original quote: "la manière dont sont disposés les organes d’un appareil”.
\textsuperscript{67} Ibid. Original quote: "d’ensemble d’éléments mécaniques combinés en vue d’un effet, d’un résultat”.
"Le dispositif: Approches métapsychologiques de l'impression de réalité” (1975) gradually introduced and developed the concept, first as “disposition” then as “dispositif”. In philosophy, Michel Foucault developed the concept in particular in his work Discipline and Punish: The Birth of the Prison’s (first published in French as Surveiller et Punir: Naissance de la prison, Gallimard, 1975) investigation of how power, punishment and social order were maintained and reformed in the nineteenth century through the spatial arrangement and bodily control of penitentiary surveillance institutions. Using the concept in several works, Foucault defines it - in an oft-cited passage - in an interview from 1977 as:

...an absolutely heterogeneous assembly which involves discourses, institutions, architectural structures, regulatory decisions, laws, administrative measures, scientific enunciations, philosophical, moral, and philanthropic propositions; in short: as much the said as the un-said, these are the elements of the dispositive. The dispositive is the network which is arranged between these elements.69

In this respect Foucault, as Baudry, suggests that a dispositif is a heterogeneous socio-technical ensemble, a machinery of seeing, of which the arrangement reflects a specific knowledge formation or episteme to a user, who becomes inscribed within this structure.

The concept, as applied in my dissertation, is conceived along the lines of these definitions. However, I apply it in a pragmatic fashion, mindful of critiques which have been put forward with regard to Foucault's and Baudry’s definitions in the fields of philosophy and media theory. In these fields their definitions have been critiqued for implying too rigid a conception of power, which does not account for multiple configurations, appropriations and agencies on different levels. For example, Michel de Certeau criticises Foucault's use of the concept for suggesting that every micro-technique of a dispositif's arrangement confines its subject within a specific power formation, thereby neglecting that appropriations of it can occur within its structure which may turn its purpose in a different direction.70 In a like-minded fashion, media theorist and film historian Frank Kessler, with regard to early cinema distribution, contests Baudry's concept by analysing how the meaning of a film changes in different viewing situations and institutional framings to argue that spectators play an active role in shaping film exhibition, contrary to what Baudry's concept implies.71

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with these points, I use the concept to analyse a multiplicity of technical arrangements and modes of access in digital dissemination formats as film historical knowledge formations. On a technical level, I understand how different combinations of techniques, tools and visualisations in dissemination formats represent film historical knowledge. In the case of for example a DVD, this means that I am attentive to the numerous ways in which such a format can be arranged to represent digitised archival material; while some DVDs only enable playback of a film without additional features, others make use of a wide range of functions and analytic tools in addition to a playback mode; a diagram, an annotation, or for example a ROM-section which connects the DVD to a website. Specifically with regard to diagrams and visual analytics I also think along the lines of visual studies, which intersect the histories of art and science to analyse how scientific visualisations guide our attention, understanding and analysis of observed phenomena. For the digital humanities, especially Johanna Drucker and Edward Tufte, from very different standpoints, have brought to the fore the importance of attending to the graphic arrangement of visualisations to understand the forms of reasoning they sustain. Beyond the field of digital humanities, epistemologists and art historians such as Lorraine Daston, Peter Galison and Horst Bredekamp have produced groundbreaking, historical studies on the role of scientific and technical images in research. In my case studies, I draw on such perspectives to elucidate the role which data visualisations play in structuring information and readings of it.

In addition to analysing the technical and visual arrangements of the dispositifs discussed in my case studies, I also consider how they involve users by positioning them in certain ways and require specific bodily gestures to engage with them and in some cases allow for alterations of their representation. In this respect, I draw on a set of questions which film scholars François Albera and Maria Tortajada have outlined to sketch a method and analytical scheme for discerning the interrelations between spectators and machinery which constitute a dispositif. For example, one can ask whether a spectator is mobile or immobile when using a format, what the dimensional relation are between the user and the format - is one watching a representation on a small screen or surrounded by multiple screens - and to what degree the user can alter the representation or...
Film Historiography, Digitised Archives and Digital Research Dispositifs

rearrange a format’s configuration. In total, Albera and Tortajada outline the following five human-machinery interrelations: (1.) The relation between the spectators and the machinery, (2.) The relation between, on the one hand, the spectators and, on the other, the machinery and the representation, (3.) The relation between the spectators and the representation, (4.) The relation between the machinery and the representation, (5.) The overall qualification of the dispositive.

In my case studies I use the guiding questions concerning these interrelations as an analytical scheme to discern how scholars are positioned by, interact with and have the possibility of changing digital research dispositifs to develop them in new directions. This line of inquiry ties in with both de Certeau’s and Kessler’s approach which, by drawing on Foucault and Baudry, holds that a dispositif confines a user within a certain knowledge formation, but that users in turn may also affect the configuration of a representation.

In this way, by replacing de Certeau's notion of writing with that of a pragmatic understanding of the dispositif, I argue it is possible to obtain a detailed understanding of the ways in which digital formats represent film historical discourse through specific user-machinery interrelations and visual arrangements, while being mindful of how different configurations and modes of access sustain them and may allow for changing and challenging them.

0.2 Structure of Research, Key Examples and Case Studies

The dissertation is divided into three parts, containing five chapters in total. Part One, Sources, Repertories and Theories of Film History which contains the first two chapters, analyses the interrelation between film archiving and film historiography and how different institutions and agents have shaped it.

Chapter One, "Film Historiography and Film Archives”, provides a historical perspective on the interrelation between historiography and film archiving, its shifting material basis, and the discourses which have underpinned shifting conceptualisations of film and related material as historical source material. In doing so, the chapter gives an account of how a network of institutions, sites, social groups and techniques – in particular cinephile film critics, historians, archivists, filmmakers, laboratories and projection technologies - has emerged and inflected changing definitions of film historiography. The chapter spans the late nineteenth century's early pleas for scientific film archives, the 1920s' cinephile canon formation and universalist model of

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75 Ibid., 37.
76 Ibid.
film history in especially France, the creation of the International Federation of Film Archives (FIAF) in the 1930s, the emergence of general, universalist film histories in the post World War II years and the 1970s and 1980s style history and New Film History. With this account I produce an outline of historical epistemologies, which I regard as a matrix within which the interrelation between film archiving and historiography develops, and which I refer to in my case studies to understand how different traditions are currently brought into play and being recast with contemporary digital techniques and dispositifs.

Chapter two, "Film Heritage Digitisation Between Europeanisation and Cinephile, Curatorial Agendas" discusses digitisation of archival film and related materials in European film archives against the backdrop of especially the European Commission's Digital Agenda and its goal to turn cultural heritage collections into an asset for a digital economy. The chapter’s focus on European film heritage institutions results at the same time from pragmatic and historical considerations. First of all it reflects my research’s situatedness in a European context. Being situated in Europe I have had a more immediate access to and understanding of the sociopolitical implications of the frameworks which European film heritage institutions work within. For this reason I find that this focus offers a feasible delimitation for my research instead of pursuing a global outlook. Second, the emergence of film preservation is also in many aspects a phenomenon which first occurred in Europe, especially from the 1920s onwards. For this reason, a European focus productively allows for discerning changes in the interrelation between film historiography and archiving in a longer perspective. The chapter first attends to FIAF’s expansion and increased professionalisation from the 1960s onwards to analyse how this created closer ties to governmental institutions and cultural policy making. The part in particular investigates how recent decades’ emerging cultural policies of Europeanisation have shaped cultural heritage digitisation in the European Union and created fundamental challenges, as well as opportunities, which individual film heritage institutions need to negotiate in relation to their respective curatorial agendas. Second, the chapter goes beyond the framework of the European Commission to analyse which values and historical models characterise the discussions around film heritage digitisation, restoration and access among film archives. This part of the chapter considers in particular a site such as Il Cinema Ritrovato in Bologna, and the status which especially the DVD format has held in the past decade as an interface between film archives and historians. Combining institutional analysis and basic descriptive statistics I investigate how European film heritage institutions' DVD releases represent for instance specific periods, countries and reflect different curatorial strategies of programming and restoration to understand
how digitisation conditions scholarly research.

The dissertation's second part, *Data-Driven Mediations of Film History: Traditions, Techniques and Dispositifs*, focuses on the methodological steps which scholars take when conceptualising and conducting film historical research with digital tools of analysis. It analyses how various digital techniques are used within the two primary scholarly research traditions discussed in Chapter One – style analysis and New Cinema History – to produce historical facts from digitised sources and mediate them using visualisations in digital formats. In doing so, the chapter attends to how scholarly traditions function as hermeneutic antecedents in digital research projects and inform the choice and methodical uses of digitised source material and techniques to create new research dispositifs. Through two separate case studies, and a number of key examples, the chapters analyse these processes by focusing on the interplay between scholarly traditions and techniques such as annotation, hyperlinking, montage and data mining and formats such as DVDs, and interactive maps. Summarising the key points of the case studies, each chapter's final discussion and conclusion proposes an outline of the dispositifs' methodological assumptions, steps and user-machinery interrelations, using Albera and Tortajada's categories to discuss their key differences and shared characteristics. The discussions focus on how and why the respective dispositifs are becoming accepted scholarly formats for a visually anchored film historical interpretation, while recasting their traditions’ assumptions, methods and instrumentations. My discussion of these new digital dispositifs also suggests points for further developments, which could help make the methods more reflexive or more internally consistent with their respective approaches.

The second part falls into two chapters, respectively the third and fourth of my dissertation. Chapter Three, “Microscopic Visions of the Film-Text: Stylometry, Film Philology and DVD editions”, analyses how the DVD format has been developed into a 'philological' research dispositif at a juncture of quantitative style analysis, scientific visualisation and film philological restoration theory. I consider in particular how video editing, hyperlinking and pattern recognition software enable the visualisation and comparative study of micropatterns in cutting rates, movements and colours in archival films. These techniques, I argue, play a vital role in conceptualising the DVD as a scholarly format by lending scientificity to the philological study of archival film. I support this conclusion by attending to the adoption of these techniques in academic contexts and projects rooted in stylistic and philological analysis. For example in the academic Hyperkino DVD editions and the scholarly discussions of the University of Udine's FilmForum throughout the 2000s and its commitment to developing digital, historical-critical annotations of archival films. As the primary
case study which exemplifies this dynamic between tradition and techniques, the part analyses the Austrian Filmmuseum's DVD release of Soviet director Dziga Vertov's two films Šestaja čast' mira Odinnadcatyj (A Sixth Part of the World, USSR, 1926) and Odinnadcatyj (The Eleventh Year, USSR, 1928) and its comparison of digitised film prints and supporting use of film related sources.

Chapter Four “Writing Film History from Below and Seeing it from Above: GIS Mapping and New Cinema History's Macroscopic Vision” analyses the use of data mining and GIS techniques in New Cinema History research. Attentive to this research tradition’s primarily contextual focus and use of film related sources, I discuss how information on locations, dates and persons is extracted from digitised collections of periodicals and business documents with data mining techniques to visualise and historicise distribution and exhibition networks with interactive maps. With regard to these techniques’ use in New Cinema History research, I argue that they draw on the methodologies of especially socio-economic and Annales historiography’s serial, quantitative approaches to discern macrostructures in film distribution. I base this argument on the theoretical underpinnings of the discussions taking place within the scholarly network History of Moviegoing, Exhibition and Reception (HoMER), which connects research projects from especially the UK, Australia, Belgium and the Netherlands. As its central case study the chapter discusses the project Data-driven Film History: a Demonstrator of EYE’s Jean Desmet Collection developed in collaboration between the University of Amsterdam, the EYE Filmmuseum and the University of Utrecht, in which I was involved as a researcher and project manager. The project sought to combine both textual and contextual techniques of analysis and required a methodological reflection and apprehension of them from its participants. Observing the project develop as a participant, it provided particularly fruitful insights for discussing the epistemological implications and the negotiation between techniques and tradition in New Cinema History research. Furthermore, as literary scholar and digital humanist Stephen Ramsay has polemically argued, it is crucial for humanities scholars to build new tools, projects and presentation formats in order to understand how they work and not only use them to support the writing of traditional, scholarly articles.\(^7\) The very process of building is a valuable learning process in itself which provides an in-depth understanding of the complex hermeneutical processes of the digital humanities. This project provided such an opportunity for me. Drawing on this experience, I also suggest in the chapter's conclusion a couple of points for further development for New Cinema History research, which in particular considers the longue durée model of Annales historiography.

Film Historiography, Digitised Archives and Digital Research Dispositifs

Taking the second part's discussions and conclusions as a departure point, the dissertation’s final part, *Further Perspectives and Conclusions*, contains a short fifth chapter and a conclusion, which suggest ways of making existing methods more reflexive and critical. It does so by discussing the possibility of combining to a greater degree different annotation and visualisation techniques at an intersection of scientific and artistic research to nurture more idiosyncratic and less methodologically rule-bound data visualisations. In Chapter 5, “From Figures to Figurations – The Subjective Projections of Cinephilia and Data Art”, I present further suggestions for challenging scientistic conceptions of software operations and statistical figures to give way to an understanding of histories as contingent figurations which may sustain more idiosyncratic and anecdotal observations. To argue this I find a departure point in recent critiques of cinemetric methods and visualisations by film scholars Tom Gunning, André Habib and Kevin L. Ferguson which point back to the subjective, anecdotal and poetic strategies of cinephile historiography and its appropriations of scientific, analytic procedures. The chapter also thinks along the lines of the neo-cinephile stance of audio-visual essayists such as Catherine Grant, Christian Keathley and Laura Mulvey and their techniques of appropriation to suggest new scholarly approaches and collaborations with media artists.

In the dissertation's conclusion I reflect on the prospects of integrating and developing the methods discussed in the dissertation into film and media studies curricula considering a set of both conceptual and institutional challenges.
Part I – Sources, Repertories and Theories of Film History
Chapter 1

1.0 Film Archives and Film Historiography

This chapter discusses how shifting paradigms of historiography have shaped the conception of film as an archival medium, and the networks within which this occurs. As such, it provides the basis for the analyses of the dispositifs of the case studies and examples in Chapters Two, Three, Four and Five. In three parts, the chapter maps a set of central definitions of archival film in relation to film historiography as respectively historical document, as art and as culture, to form the basis of Chapter Two’s discussion of the film histories reflected in contemporary mediations of digitised material. The temporal frame of the chapter’s examples spans from the late nineteenth century’s first pleas for scientific film archives and historical documentation, to the establishment of film history as an academic discipline and its turn to cultural theory in the 1970s and its repercussions in today’s film historiography.

As the chapter’s outline below testifies to, the range of examples it discusses are well-known within film archiving history and film historiography. However, the chapter’s perspective differs from the majority of film archiving histories in two respects. First of all it does not focus primarily on the biographies of its canonical figures, for example Iris Barry of the Museum of Modern Art, Henri Langlois of the Cinémathèque française, or Ernest Lindgren of the National Film and Television Archive. Instead, the chapter proposes a closer analysis of some of the foundational texts and institutions with an eye to theory of history and sociology of art to understand the foundation of film history and archiving as products of such. Consequently, I downplay the focus on the achievements of singular individuals or the frequent emphasis on technological developments - such as film’s transition to sound – which have hitherto provided prominent explanatory frameworks. Second, unlike existing studies, the chapter’s final part puts greater emphasis on the role of experimental uses of viewing and projection technologies in film archives, academia and contemporary art as a significant agent in film historiography, to open a discussion of today’s reliance on technology in digital research formats and the shifting technical basis and mediations of film history.

The chapter's first part, ”Film as Historical Document”, discusses the first pleas for film archives as well as the ”first wave” of historical and scientific film archives of the 1910s. The part focuses on the intricate links between contemporary scientific historiography around 1900 and the conception of film as an archival medium which could serve as finite historical documentation in government institutions, both as a medium of historical documentation and regulation. The discussion in this part will take its point of departure in the foundational writings of Polish
photographer Boleslas Matuszewski which have been widely perceived as anticipating the later foundation of film archives. However in contrast to the widely held conception of Matuszewski as a precursor to the later film archives, this chapter will understand his writings as reflecting a fundamentally different film history rooted in contemporary scientific historiography and republican archiving of nation-states. In this sense Matuszewski will be seen as an example which can elucidate the dynamic between historiography and film archiving also with regard to later film archives.

Part two, "Film as Art", discusses the formation of critical aesthetic discourses on film within specialised film culture in the 1920s as a precondition for film’s patrimonialisation in the early 1930s. The first section of this part discusses how early cinephile film criticism, theory and distribution networks in the 1920s formed notions such as film history and film heritage, with particular attention to the writings of French critic Léon Moussinac as a key example. The second section of part two discusses the conceptual relation between the view of film history developed in the early cinephile film histories, the early film archives and the general film histories emerging in the post-World War II era. In casting this perspective, the chapter follows contemporary research on film archiving history of scholars, archivists and conservators such as Karen F. Gracy, Malte Hagener and Christophe Gauthier, who each in their respective ways focus on the social contexts of the film heritage institutions’ emergence with attention to the hierarchies of taste reference frames that emanated from specialised film criticism in the 1910 and 1920s.

The chapter's third part, "(Re)Visions of Early Cinema: Academic Film Historiography and its Mediations", discusses the revision of early cinema in the 1970s and 1980s as the foundation for rethinking of archive-based film historiography. However, this part goes beyond the scope of the previous two parts of mainly written film histories, to include also discussions of experimental film and research practice with a visual foundation. In doing so, the part takes its cue from film scholar Bart Testa's tripartite division of what he labels as "counter-myths" of film history emerging in the 1970s. This perspective allows for considering the period's revisionism as an interplay between contemporary ideological critiques of film technology, new empirical directions in film historical research and artistic appropriation practices in avant-garde filmmaking. Casting this perspective upon the period's film historiography, the part elucidates how artistic practice contributed to film historiographical debates in film criticism and academia. In doing so my discussion goes beyond the scope of primarily written film histories, in order to bring greater attention to the consequences of technological change and different technical practices for historical inquiry.

Summarising the key points from these parts in the chapter's conclusion, I make the case that different historical models must be regarded as existing synchronically today as a basis for
understanding the historical perspectives on film archives which digitisation have given rise to. Throughout Chapters Two, Three, Four and Five I continuously return to these historical models to discuss how they underpin contemporary digital access and research formats and how film archives and scholars respectively condition and shape them. Furthermore, the conclusion singles out two focal points around which the subsequent chapters will be organised: first, the repertory and canons of films and their associated models and narratives of history, and, second, the technological basis through which archival material is researched and mediated. These aspects will frame the dissertation's following discussion to understand current dissemination of digitised film heritage and the fundament which new technologies provide for film historical research.

1.1 Film as Historical Document

We need to accord this perhaps privileged source of History the same authority, the same official existence, the same access that already established archives have.\(^78\)

The epigraph quotes one of the earliest visions of a historical film archive. The words appear in the pamphlet entitled *Une Nouvelle Source de l’Histoire (Création d’un dépôt de cinématographie historique)* which was written and published in 1898 by Boleslas Matuszewski, a Polish photographer and cameraman based in Paris who advertised his enterprise as that of being official photographer for the Russian Tsar Nicolas II. The vision expressed by Matuszewski has become widely regarded as a foundational text within the histories of the archives gathered within the International Federation of Film Archives (FIAF) and film preservation as a visionary plea for film archiving *avant la lettre*. More recently however, scholars have also brought to light how the pamphlet’s conception of film as historical document closely reflects turn of the century historiography and can be seen in connection to what film scholar Paula Amad has characterised as a “first wave” of historical film archives in Europe: city archives, scientific and ethnographic archives.\(^79\) With attention to this recently developed perspective on the relation between Matuszewski’s writings, contemporary historiography and a first wave of film archives, this section discusses early film archiving as a prelude to later film preservation as a foundation for understanding the interrelation between historiography and film archiving.


Boleslas Matuszewski and Public Sovereignty in 19th Century Archives

Boleslas Matuszewski's *Une Nouvelle Source de l'Histoire* regarded cinema as a means of historic, scientific and judiciary documentation. As the pamphlet's title suggests, film could in its nature be considered a historical source. To lend a characterisation of Matuszewski's pamphlet given by film scholar Penelope Houston, Matuszewski propagated a view of film as first and foremost “...historical evidence a primary source in its own right”.  

Central to Matuszewski's idea of film as a historical document was that its depiction of real events represented an inherently truthful and incontestable link to reality. Because of this truthfulness, film could be, according to Matuszewski, the medium that would put an end to political conflicts as its ability to depict reality would leave no questions or doubtful points in dispute.

On the basis of this conception of film, Matuszewski presented an elaborate vision of how to organise and conceive a historical film archive. In the complementary pamphlet *La Photograpie Animée - Ce qu'elle est ce qu'elle doit être*, also published in 1898, Matuszewski presented a detailed outline of a film institution comprising both a museum function and a legal deposit for films, explaining its potential role and benefits within society. A film archive, the pamphlets argue, should ideally be state-sponsored and belong to the sector of archives, libraries and museums under the tutelage of the Ministry of Internal Affairs. It should be equipped with publicly accessible projection rooms which would enable citizens to consult cinematographic sources that had been carefully selected by a committee. *Une nouvelle source de l'Histoire* describes the acquisition and access activities of such an institution in detail:

A competent committee will accept or discard the proposed documents after having appraised their historic value. The rolls of *negatives* that are accepted will be sealed in cases, labelled and catalogued; these will be the *standards* that will remain untouched. The same committee will determine the conditions under which the *positives* will be presented and will place in reserve those which, for certain reasons of propriety, cannot be released until after a certain number of years have elapsed.

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81 Boleslas Matuszewski, op. cit., 1898a, 9.
82 Ibid., 10.
83 Boleslas Matuszewski, op. cit., 1898b, 58.
84 Boleslas Matuszewski, op. cit., 1898a, 10 (emphasis in original). Original quote: "Un comité compétent recevra ou écartera les documents proposés, après avoir apprécié leur valeur historique. Les rouleaux *négatifs* qu’il aura acceptés seront scellés dans des étuis, étiquetés, catalogués; ce seront les *types* auxquels on ne touchera pas. Le même comité décidera des conditions dans lesquelles les *positifs* seront communiqués et mettra en réserve ceux qui, pour des raisons de convenance particulière, ne pourront être livrés au public qu’après un certain nombre d’années écoulées" (emphasis in original), Translation taken from Boleslas Matuszewski, trans. Laura U. Marks & Diane Koszarski, ”A New Source of History”, *Film History*, Vol.7(3), (1995): 324.
In retrospect, this vision of a future film archive's organisation has been considered a remarkably concise definition *avant la lettre* of later film archives' core activities: selection, cataloguing, conservation and access. For this reason, the texts have appealed widely to film preservationists, and have become a reference point in film preservation literature after their reemergence in the 1950s in the context of FIAF.

However, striking as Matuszewski's vision may seem from a present-day perspective, it is important to keep in mind that its conception of the archive's core activities represents an ideal of historical and state archives typical of its time. For instance, Matuszewski argues that film, in addition to being able to depict and give access to significant historical events, could also be used as identity records of citizens, to serve a regulatory function of surveillance. This aspect is reflected in the language which pervades Matuszewski's suggestions for cataloguing. It adheres to official bureaucratic discourses of surveillance by using for example terminology from contemporary criminology. This is seen in *La photographie animée* which refers to the classificatory terminology of French criminologist Alphonse Bertillon when it states about a film archive that "It would be a system of *cinematographic index cards* next to anthropometric cards. It would be the absolute description..."

Moreover, film scholar Paula Amad has pointed out how closely Matuszewski's pamphlets reflect contemporary historiography and archiving with particular attention to the texts' French and international context. In France, the *école méthodique*, of which the text *Introduction aux études historiques* (1898) authored by historians Charles-Victor Langlois and Charles Seignobos is foundational, represented the dominant historiography in the late nineteenth century. This historiography relied on the archiving which had been consolidated as a scientific and republican discipline with the foundation of the École Nationale des Chartes in 1821, of which the educational program gained worldwide recognition as reflecting state-of-the-art archiving.

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88 Boleslas Matuszewski, op. cit., 1898b, 53. Original quote: "Ce serait un système de fiches cinématographiques à côté des fiches d'anthropométrie. Ce serait le signalement absolu..." (emphasis in original). *Description* is meant here in the sense of a report given on the appearance of a culprit by a victim of a crime used in *Anthropometry*. This was a descriptive system used for cataloguing criminals in France at the time. Alphonse Bertillon is widely credited for having created this criminological identification system and for inventing for example the "mug shot" taken of culprits upon arrestation.

of Amad, this paradigm regarded the archive as “a scientifically organised depository of interest to future historians”. It represented a predominantly positivist conception of archival documents as containing a truthful and transparent testimony to history if studied rigorously by professional historians. In this view, documents were produced and conserved in Republican archives to sustain and produce national histories and identities.

Matuszewski also emphasised the importance of privileging public access to historical archives. This reflects how, internationally, and in particular in France, the period of the late-nineteenth century saw archival institutions becoming increasingly public. The conception of archival access changed from being more exclusively restricted to professional historians and the state to become regarded as a civic right. State archives underwent a fundamental transformation which replaced secrecy and privacy in state archiving with notions of popular sovereignty and accountability by granting citizens unprecedented archival access. The consultation of sources would allow not only historians but also citizens to study past events themselves in an institutional setting regulated by the state. This archival access allowed citizens to consult documents which were regarded as foundational and truthful records of an authoritative official history to nurture a process of identity formation for citizens and for the nation-state.

By situating Matuszewski within this context, Amad argues that his vision should be regarded as an intricate appeal to contemporary historiography, rather than as an isolated early attempt to found a film archive. As Amad writes with regard to Matuszewski:

> Archivists were held in the highest esteem – even considered to be national heroes – within government circles. It is not an exaggeration to claim that to be an archivist in the Third Republic was to be on the frontlines of the battle for the modern French nation-state. No wonder then, that the recently arrived Polish immigrant Matuszewski would look to the institution of the history archive to launch his film archive in France.

From this perspective, the idea of film as a primary source of history, conserved in a publicly accessible state archive, can be seen as a reflection of the period's scientific historical and archival

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90 Paula Amad, op.cit., 145.
91 Ibid.
93 Ibid.
96 Paula Amad, op.cit., 146.
paradigm. Matuszewski's vision of selection, cataloguing, conservation and access was thus closely tied to a conception of the archive as both authoritative and republican of which access reflected a contemporary prevalence for public sovereignty. While not immediately materialising, historical film archives relying on this model did emerge some twenty years later.

The “First Wave” of Historical Film Archives

While Matuszewski's pamphlets had little direct influence upon the foundation of historical film archives, its ideas had repercussions in subsequent pleas for film archiving in France and in some instances internationally. The pamphlets appear to capture the foundational thoughts of a number of historical film archives founded in the 1910s and 1920s which appeared in the form of military, city and private archives. Significant archives which were created in this early period in France were for example the conversion of the photographic military archive Section Photographique de L'Armée in 1917 into the Section Photographique et Cinématographique de L'Armée, which marked an extension of its activities to comprise filmic documentation in addition to photographic. The Cinémathèque scolaire de la Ville de Paris, which exists today as the Cinémathèque Robert-Lynen, opened its doors in 1926 as an initiative to integrate pedagogical film and artistic forms of filmmaking into teaching in the French educational system. Finally, the ethnographic and geographical Archives de la Planète founded by philanthropic banquier Albert Kahn represents a unique private initiative to establish a scientific archive of photographic and filmic documentation. Launching its activities in 1909, the aim of the archive was to document the surface and people of the world making use of the recently invented Autochrome color photography system developed by the Lumière brothers for the production of ethnographic photography in conjunction with films and written descriptions. What is particularly striking about Les Archives de la Planète, is that the films produced in this institutional context were never intended for distribution and were practically never lent to other institutions. The films were conceived exactly as historical documents in the sense that they could be consulted in an archive and not in a cinema. More, broadly, as Paula Amad points out, it is interesting to note that these early archives sustained a “myth of the archive as a site of unmediated access to the past” upon which scientific historiography relied. But they pushed this

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98 Paula Amad, op.cit., 152. This archive is known today as the Etablissement de Communication et de Production Audiovisuelle de la Défense (ECPAD).
99 Ibid. See also Emmanuelle Devos, “Des principes d'une cinémathèque dédiée aux 'jeunes publics': La cinémathèque Robert Lynen” in Conserveries mémorielles, No. 16 (2014)
100 Ibid., 154.
logic further by advocating for film as a particularly privileged medium which could be considered even more indexically accurate than paper documents.\textsuperscript{101}

Also internationally, did this conception of film as historical document reflect itself in several pleas for and foundations of film archives. In Germany, Hermann Häfker's text *Der [sic] Kino und die Gebildeten* from 1915 formulated the idea of founding a public film archive of cultural interest as a part of the Royal Library in Berlin, without however leading to the foundation of such an archive.\textsuperscript{102} At the same time though, a number of historical film archives reflecting this conception were founded in Italy, Denmark and the Netherlands, primarily with the aim of collecting and saving the depictions of state leaders and significant historical events.\textsuperscript{103}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig4.jpg}
\caption{Film as Truth. *Kong Frederik VIII Besøger Island* (King Frederik VII visits Iceland, Nordisk Films Kompagni, 1907) a Nordisk production depicting a visit of the Danish King Frederik VIII to Iceland.}
\end{figure}

In Copenhagen, a national historical film archive, Statens Arkiv for Historiske Film og Stemmer, was founded April 9, 1913, under the custodianship of the Danish Royal Library.\textsuperscript{104} Parts of its films were shot by journalist Anker Kirkeby of the newspaper Politiken in the period between 1911-1913 in collaboration with photographer Peter Elfelt and director Ole Olsen of the Danish production

\textsuperscript{101} Ibid., 146.

\textsuperscript{102} Anna Bohn, *Denkmal Film. Bind 1: Der Film als Kulturerbe*. (Wien: Böhlau Verlag, 2013) 159.

\textsuperscript{103} Ibid., 160.

\textsuperscript{104} Esben Krohn, "The First Film Archive", in Dan Nissen, Lisbeth Richter Larsen, Thomas C. Christensen and Jesper Stub Johnsen eds., *Preserve, then Show*. (Copenhagen: Danish Film Institute, 2002) 188.
company Nordisk Films Kompagni. Other of the archive's films were earlier productions that were collected by the archive. The films documented significant historical events and customs of the Danish people, depicting for example visits of state leaders and royalties to Denmark and abroad as well as lectures given by contemporary intellectuals (see fig. 4).

Not unlike Matuszewski, Anker Kirkeby stated in retrospect concerning the selection of these films: “artistic films were in this period, in 1911, on a rather weak level, in such a way that we preferred to choose documentary films”\(^{105}\). In the Netherlands, a similar archive was founded in 1919: the Nederlandsch Centraal Filmarchief which collaborated closely with director Willy Mullens for the production of its films of historical documentation.\(^{106}\)

As film historian Anna Bohn has playfully suggested, monarchs and state leaders could be considered the “stars” of these first historical film archives, due to their frequent depiction in the historical films produced and conserved by them.\(^{107}\) In this respect, though several of the early film archives were short-lived and were eventually absorbed by later film archives which defined film primarily as an art form, they developed their own set of conventions in the creation of historical records.\(^{108}\)

However, it is again important to recall, that to depict state leaders in historical documentation was in no way an original convention of the production of filmic archival documents propagated by Matuszewski and his pamphlets' promotion of himself as Tsar Nicolas II's photographer. To create documents of state leaders can be ascribed to contemporary historiography's paradigm. In an international perspective, archives were generally conceived within a scientific paradigm of history focusing on state activities, best illustrated by the paradigmatic historiography of German historian Leopold von Ranke. Rankean historiography propagated a methodology based uniquely on primary sources as the basis for historical study.\(^{109}\) As within the école méthodique, this paradigm held that only the systematic study of primary sources by professional historians could reveal the sources' truth, to show, as says the line which has famously become associated with Rankean historiography “how things really were” (wie es eigentlich gewesen).\(^{110}\) Such studies would produce historical

\(^{105}\) Raymond Borde, op. cit.: 39. Original quote: "les films artistiques étaient de niveau assez faible, de sorte que nous choisisions de préférence les films documentaires". This statement was put forward in the context of the third conference of the International Federation of Film Archives (FIAF) in Paris in 1946.


\(^{107}\) Anna Bohn, op.cit., 161.

\(^{108}\) The National Film Archive for Historical Films and Voices is now a part of the Danish Film Institute, whereas the Nederlandsch Centraal Filmarchief is now part of the Algemeen Rijksarchief/The National Archive of the Netherlands.


narratives of nation-states not only for professional historians but also for the benefit of a larger public. Archival scholars Francis X. Blouin and William G. Rosenberg provide a precise characterisation of Rankean historiography in historical archives, which can serve as an elucidation of the early film archives' focus on state leaders:

The documents they contained were not direct links to any random elements of the past, but to the functions and actions of the dominant political authorities whose transactions they reflected and whose interests and needs were served by their preservation. These logically became the agents to which scientific history assigned primary historical purpose.

The early film archives conceived within official contexts, it can be said, reflected such a conception of the archival record in their creation of records focusing on monarchs and state leaders. While film in this period, was imagined and conceived as an archival medium which could be regarded as a source of history, the majority of early historical film archives were short-lived or characterised by shifting custodianship in the years following their foundation. One of the reasons which plausibly seems to explain this is that although these archives were founded upon enthusiastic visions, the idea of film as historical documentation was less enthusiastically received by professional historians. Film historians and archivists have emphasised this on numerous occasions, arguing that historians have not seriously embraced film's potential as a source of history. For example, film historian Jay Leyda in his classical study of propaganda and compilation films Films Beget Films from 1964 writes that:

...in all these years and experience that have passed since Matuszewski's declaration this opportunity to use a new kind of research material has not (to my knowledge) lured one professional historian to associate himself with such a suspect medium.

Film, in other words, would become regarded primarily as a form of entertainment rather than history. In further support of such a viewpoint, film archivist of the Library of Congress Paul C. Spehr also critiqued in the mid-1990s that notions of visual film history, methodology and filmic source criticism were consistently lacking from academic curricula leaving film unexplored as a historical source.

111 Georg G. Iggers, op.cit.: 25.
114 Anna Bohn, op. Cit., 147.
Chapter 1

Conclusively, it could be suggested that because of their conception of film as historical documentation, the examples discussed in this section can appear as an apocryphal point of departure for understanding the film archives founded in the 1930s which regarded film as art. As Matuszewski clearly stated in his pamphlets, film could document existing art forms – for example a symphonic concert or a painting – but did not in itself represent an independent artistic potential.\(^{115}\) However, I would argue that these examples can provide relevant insights into the later film archives' conceptions of film as an archival object in two aspects. First of all, the scientific archives attitudes prompt us to think about the interrelation between historiography and film archiving with regard to the status of film as a source of history, also in history writing on film as an art form. Although rigorous historical methodologies were not immediately as pronounced in the 1930s film archives, they did reflect and sustain specific ideas of history in the ways in which film as an archival object was conceived. Clearly, the films preserved in later film archives did not regard monarchs and state leaders as its film stars. Yet, the scientific paradigms of historiography did determine how especially the later generalist film historians conceived of and studied archival documents as the basis for histories of film as an art form.

Second, it is also important to keep in mind that historical archives in several cases became absorbed by later FIAF-member archives. As a consequence, the notion of film as historical document remains, albeit if less prominent, an important part of the film history which film archives keep safeguarding and to which, as will be discussed in chapter two, film archives keep alluding in their promotion and legitimation of film heritage preservation and, today, digitisation.

Keeping these points in mind, the next section discusses the interrelation between film archives and film historiography with attention to the foundational moment of the 1930s and the written film histories which emerged around it, in the period between the 1920s and 1960s.

1.2 Film as Art

When film archives emerged in the 1930s they conceived film history in a way which was fundamentally different from the historical film archives. The foundational document of the Museum of Modern Art's Film Library (MOMA Film Library) penned in 1935, "An Outline of a Project for Founding the Film Library of the Museum of Modern Art", succinctly illustrates this: "The art of the motion picture is the only art peculiar to the twentieth century"\(^{116}\). Mainstream and avantgarde cinema which had emerged throughout the 1910s and 1920s had become considered

\(^{115}\) Boleslas Matuszewski, op. cit., 46/137.

expressions of a new independent art form which it was deemed necessary to preserve. In this respect it can be said that the logic of Matuszewski's vision and the early film archives had been flipped around. Film was now worth preserving because it was an art form, not because of its evidentiary potential as a source of history.

Based on this conception, film archives were established in the 1930s throughout Europe and North America. The four most profiled archives – referred to also as the "Big Four" - were the Reichsfilmarchiv in Berlin (1934), the MOMA Film Library in New York (1935), the British Film Institute Film Library in London (1935) and La Cinémathèque Française in Paris (1936). While these institutions relied on very different institutional models, they largely shared a similar model of film history. Institutionally, La Cinémathèque Française emerged out of the Parisian film club Le Cercle du Cinéma founded by cinéphiles and film collectors Georges Franju, Jean Mitry and Henri Langlois. It appealed to mainly a young audience of cinephiles. Conversely, the BFI's Film Library was granted public subsidies by arguing its relevance for the British educational sector. It addressed itself not only to film enthusiasts but also served an important function for public schools. In spite of these different institutional models, these film archives' collections reflected remarkably similar histories of film by largely deeming the same European and North American films from the late silent era as masterpieces, and operating with similar notions of aesthetic “schools” and styles to explain film art's development.

To understand how this film history had emerged, it is necessary to look back at the formation of specialised film culture in the late 1910s and 1920s. In this decade an appreciation of cinema as an art form and as cultural heritage emerged in film criticism and programming in film clubs in large capital cities outside of mainstream distribution circuits. In these film clubs, debates on film art took place and distribution catalogues of films were created, which established an evolutionary historical view on film’s aesthetic development, relying on notions such as film auteurs and classics. In this

117 Raymond Borde, op.cit., 57-70. Besides "the Big Four" also the Svenska Filmsamfundet founded in 1933 in Stockholm, and La Cinémathèque de Belgique in Brussels founded in 1938 were significant early film archives. In addition, Raymond Borde has discussed in his Les Cinémathèques a handful of film archives which were established in parallel to these archives as less official entities that prefigured later fully fledged institutions and institutions that disappeared after a short period: the Mario Ferrari Collection in Milan later to become the Cineteca Italiana (1935) the film archive of the VKIG - the national film school in Moscow - in 1934 which later became the Gosfilmofond and a short-lived film archive in Mexico, La Filmoteca Nacional, founded in 1936.

118 Penelope Houston, op.cit., 18.


120 Penelope Houston, op.cit., 22.

121 Malte Hagener, op.cit., 32.

Chapter 1

respect, cinephile culture in Paris in these years, can be considered a particularly apt entry point for understanding this history's emergence and subsequent preservation. 123 As film scholar Robert Stam has pointed out, referring to French sociologist Pierre Bourdieu, early French film clubs constituted a "cultural field" of judgment which distinguished aesthetically significant films:

With its many specialized film journals and important figures (Jean Epstein, Abel Gance, Louis Delluc, Germaine Dulac, and Riciotto Canudo), France became a privileged site of reflection on both commercial and avant-garde cinema. A constellation of institutions (a "cultural field" in Bourdieu's terminology) facilitated the exhibition and discussion of films. 124

In addition, film scholar and preservationist Christophe Gauthier has analysed, along the lines of a Bourdieuvian perspective, how French film club culture developed an aesthetic film history in an interplay between theoretical manifests, periodicals, conferences and museum exhibitions functioning as "modalities of legitimation", through which cinema becomes recognised as an art form worthy of preservation. 125 In a two-fold movement, Gauthier suggests, cinema was patrimonialised through these forms of legitimation by first being appreciated as a distinct art form with its own aesthetic history which was then deemed worthy of preservation. 126 Taking the cue from this perspective, the following sections discuss the patrimonialisation of film in early film club culture to expand its scope to the case of French critic Léon Moussinac's early film histories and foundation of film heritage institutions in the 1930s.

Cinephilia and the Historical View of the First French Film Avant-Garde

...film history is first and foremost a history created by cinephiles of whom the choices impose themselves in the specialised press in the beginning of the 1920s before being taken up by ciné-clubs. 127

In its broadest sense, cinephilia can mean simply the intense pleasure of "a strongly felt connection with the cinema" which a film experience can produce in a spectator. 128 Yet, cinephilia is

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123 David Bordwell, op. cit., 23.
125 Christophe Gauthier, op.cit., 65. Christophe Gauthier employs the term “modalités de legitimation”.
126 Ibid., 292-297.
127 Ibid., 88. Original quote: “On peut donc avancer que l'histoire du cinéma est d'abord une histoire faite par des cinéphiles dont les choix s'imposent dans la presse spécialisée du début des années 1920 avant d'être relayés par les ciné-clubs.”.
a phenomenon with complex - but important - theoretical underpinnings. In the French context of cinephilia, the concept of photogénie of film directors and theorists Louis Delluc and Jean Epstein played a key role to claim cinema as an independent art form with an aesthetic history, consisting of important directors and national schools.\textsuperscript{129} Photogénie was here used a concept to claim the experience of a particularly sublime cinematic moment during the screening of a film. To have seen photogénie in a film was to have experienced a moment which held artistic properties essential to the medium and to understand what distinguished cinema as an independent art form. However, as a concept, photogénie is notoriously elastic and vaguely defined as it does not formulate a specific set of properties that define such a moment.\textsuperscript{130} What qualifies as photogénie depends: it can be the editing or rhythm of a film, a specific acting style or a particular type of mise-en-scène. As film scholar Mary Ann Doane has pointed out, cinephiles broadly used the notion to celebrate the ”...detail, the moment, the gesture, the trace”.\textsuperscript{131}

In spite of its elasticity, the concept provided a structuring principle for 1920s film criticism to discern particularly significant films. In specialised film reviews in the early twenties, it was used to establish lists of the most significant films and to create a history of film, which would be used to educate cinema-goers and incite them to demand higher aesthetic quality.\textsuperscript{132} This is for example seen in the years 1918 to 1925 where film theorists and critics such as Riciotto Canudo, Léon Moussinac and Louis Delluc alongside critics and cinema directors such as Pierre Henry, Henri Diamant-Berger and Jean Tedesco sought to legitimise cinema as a respectable art form. Appealing at the same time to a specialised audience of cinephiles and to the French bourgeoisie their position discerned a historical line of cinema’s aesthetic development.\textsuperscript{133} Pierre Henry for example in 1920 proposed a periodisation of French cinema in to three periods in his article ”l’Évolution de l’art de l’image animée”.\textsuperscript{134} A first period which lasted till around the mid 1910s which was considered a theatrical form of cinema of which the staging and perspective conformed to theatre conventions of the period. A second period which saw the rise of film stars, characterised by actors whose acting could be regarded as more filmic than stage actors, for example that of Douglas Fairbanks. And finally, a third period, which Henry identified in the appearance of film auteurs in the form of directors whose films discovered cinema’s essential properties, in particular French directors Louis

\textsuperscript{129} Christophe Gauthier, op.cit., 84.
\textsuperscript{131} Ibid.
\textsuperscript{132} Christophe Gauthier, op.cit., 94.
\textsuperscript{133} Ibid., 292.
\textsuperscript{134} Ibid., 288.
Chapter 1

Delluc and Marcel L’Herbier. Films which from this perspective had contributed to the development of film became considered "mature classics of the medium" which demonstrated the medium's evolution into an emancipated art form.\(^{135}\)

This historical view manifested itself extensively in what film historian Richard Abel has characterised as an "alternate cinema network", which formed the basis for the creation of film repertories and collections of classics for programming and distribution in specialised film clubs, leading to their subsequent preservation.\(^{136}\) In this respect, to create a catalogue could represent laborious efforts, in that it sometimes entailed striking or buying new prints. In Paris, perhaps the most illustrative example of this practice was the initiative of managing director Jean Tedesco of the Vieux-Colombier cinema to create a repertory of significant films representative of the medium’s development as an art form.\(^{137}\) In 1927, Jean Tedesco would for example strike a new print of Swedish director Victor Sjöström's *Körkarlen* (*The Phantom Carriage*, 1921) and buy several prints of Charlie Chaplin films for the specific purpose of programming.\(^{138}\)

Beyond the example of the Vieux-Colombier, from the early 1920s it became gradually more common to include film "classics" in cinema programming and to systematise repertory programming. In France, the foundation of an association such as the Ciné-Club de France in 1924 upon the initiative of directors and critics belonging to the circle around film critic Riciotto Canudo marked a unification of film club activities which formulated a common goal to work for the recognition of film as an art form through improved programming, conferences and exhibitions.\(^{139}\) In the late period of the silent era, repertory programming constituted, according to Gauthier, around sixty-four percent of projections in specialised cinema circuits in Paris.\(^{140}\) In this respect, as Jean Tedesco pointed out: "…from the film repertory to film history, there is but one step.".\(^{141}\) It is on this ground, that Gauthier argues that cinephiles can be seen to have founded film history as we continue to encounter it today.\(^{142}\)

But more importantly, with regard to the foundation of film archives, the repertory also nourished a conception of film as a heritage object in need of preservation.\(^{143}\) At the same time, the development of a historical view on film as an art form gave rise to concerns about the preservation

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135 David Bordwell, op.cit., 20.
137 Christophe Gauthier, "1927, Year One of the French Film Heritage?", in *Film History*, volume 17 (2005) 289.
139 Christophe Gauthier, op.cit., 1999, 111.
140 Ibid., 191.
141 Quoted in Gauthier. Ibid., 120. Original quote: "…du répertoire du film à l’histoire du cinéma, il n’y a qu’un pas."
142 Ibid., 1999, 88.
143 Richard Abel, op.cit., 272.
of its future memory, thus representing a tandem between history writing and collection building which moved towards film art's patrimonialisation. The next section discusses this movement, through the key example of film critic and historian Léon Moussinac.

Léon Moussinac's Film Historiography and Cinema's Patrimonialisation

To illustrate how the step was taken from the repertory established in the alternate cinema network to film history and preservation, film critic Léon Moussinac’s film histories *Naissance du Cinéma* (1925) and *Panoramique du Cinéma* (1929), are particularly illustrative. They show how a frame of reference titles, schools and directors was created around the *photogénie* concept to form the basis of film historiography and how the preservation of these reference works became an increased concern.

*Naissance du cinéma* for instance, is pervaded by the concept which it lays out as a structuring principle in its first part, entitled "Conception théorique", as the foundation for an evolutionary history of film art. It provides an overview of the most significant stages of this history, ”étapes”, in a list preceding this first part. These stages comprise highlights of mainly the late silent American, Scandinavian, French and German cinema from 1895 to 1924, which reflect the repertory programming of classics in early 1920s Paris. To understand how Moussinac’s writings on film propagated an essentialist and evolutionary history of film and showed the cinephiles' concern of legitmising film art, one needs only read the first lines of *Naissance...*s introduction:

> We are living in admirable and profoundly touching times. In the great turmoil of the modern an art is born, develops, discovering one after one its proper laws, marches slowly towards its perfection, an art which will be the very expression, bold, powerful, orginal, the ideal of the new times. And it is a long and hard stage, towards the beauty in which too few yet believe because they have not fully understood its astounding truth.

144 Christophe Gauthier, op.cit., 1999, 120.


147 Léon Moussinac, op.cit., 7. Original quote: "Nous vivons des heures admirables et profondément émouvantes. Dans le grand trouble moderne, un art naît, se développe, découvre une à une ses propres lois, marche lentement vers sa perfection, un art qui sera l’expression même, hardie, puissante, originale, de l’idéal des temps nouveaux. Et c’est une longue et dure étape, à la beauté de laquelle trop peu croient encore parce qu’ils n’en ont pas compris pleinement la formidable vérité.”

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Chapter 1

If one looks a bit closer at how this development is depicted in the book's list of stages, it becomes clear how closely it reflects the repertory programming in Paris and early film criticism's evolutionary model of film history with its notions of stars, national schools and auteur films. As an example, the films from the 1921 stage in the book's list includes Marcel L’Herbier’s *El Dorado* (France, 1921), Louis Delluc’s *Fièvre* (France, 1921), Robert Wiene’s *Das Cabinet des Dr. Caligari* (Germany, 1920) and *The Mark of Zorro* (USA, 1920) directed by Fred Niblo starring Douglas Fairbanks. In other words, it is a frame of reference which clearly reflects recently established notions of schools such as French Impressionism, German Expressionism and the American star system which had been discerned in cinephile film criticism.

Moussinac’s book *Panoramique du cinéma*, published four years later, is equally illustrative of the use of the *photogénie* concept as the basis of a historical understanding of cinema. Its use of the concept can be seen in how Moussinac discusses a moment of revolt in Soviet director Sergei Eisenstein's *Battleship Potemkin* (1925) as a powerful moment to discern it as a particularly important film. As Moussinac writes about *Battleship*...:

> The screen has never seen anything more powerful before, neither more photogenically pure: the faces show the character, they express everything they have to and only what they have to, when they have to.\(^{149}\)

In this example Moussinac identified *photogénie* in the facial expressions in Eisenstein's film hailing it as a moment of unprecedented power on screen. In the same text, demonstrating the concept’s elasticity, Moussinac discusses the film's lesser moments which are not examples of *photogénie* but on the contrary demonstrate how the medium could be tied to the conventions of other art forms. Moussinac reproached *Battleship Potemkin* for having too many intertitles, making it appear too literary in some sequences.\(^{150}\) Nonetheless, he thought the film stood out because of this particularly cinephiliac moment and thus deserved a particular place in film history. *Panoramique du cinéma*, discusses fourteen European and North American films all from the late silent era which are considered in his work to be particularly significant for film art’s development in the 1920s, reflecting again central notions such as a film classic, national schools and stars.\(^{151}\)

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148 Ibid., 19. Please note that the years indicated in Moussinac's book refer to their French premiere and not their year of production or completion.


150 Ibid.

151 These films are *The Big Parade* (King Vidor, 1925), *The Gaucho* (Douglas Fairbanks, 1927), *Variété* (Ewald André Dupont, 1925), *Napoléon*
In addition to affirming early film criticism's historical view, *Panoramique du cinéma* is also an early example of influential film history. According to film preservationist Raymond Borde, it became the early cinephile's "bible" and has in addition been widely perceived as reflecting an emerging concern for film preservation and film studies.\(^\text{152}\) For instance, in *Panoramique* Moussinac laments the condition or absence from distribution of prints of certain film classics and the destruction of negatives, highlighting the efforts of some film clubs, in particular the communist film club *Les Amis de Spartacus* - of which Moussinac was a driving force - to locate film prints of classics for repertory programming.\(^\text{153}\) More specifically, Moussinac discusses how these difficulties emerged when Jean Tedesco began to establish his repertory, in a manner which clearly underlined the necessity of preserving the early canon.\(^\text{154}\) Moreover, one of *Panoramique*...s last sections, "Sur la création et l'organisation d'une bibliothèque du Cinématographe", an article initially published in the review *La gazette des 7 arts* in 1927, articulates the need for establishing an international library of writings on cinema for the sake of cultivating the critical study on cinema, comprising themes on diverse aspects such as cinema history, aesthetics, criticism, technology, copyright and production.\(^\text{155}\)

Considered in relation to Gauthier’s typology of French cinephilia in the 1920s, Moussinac's publications illustrate the development of both a historical view on film art and of its patrimonialisation in film criticism. As pointed out by Richard Abel, this aspect of *Panoramique*... can be seen to reflect a larger tendency. *Panoramique*... appeared at a point in the late silent era which saw several notable efforts to present the works of forgotten directors anew or to ensure the sustained programming and history of works by acclaimed directors.\(^\text{156}\) The cinema of Louis Delluc, deemed so important to film art’s development, was ensured by creating new prints of his most highly regarded films, and a retrospective screening of Georges Méliès’ work, of which eight titles had been reconstructed and tinted, was presented by Jean-Placide Mauclaire, co-founder of avant-garde cinema Studio 28, in December 1929.\(^\text{157}\)

One can conclude from this, that when the film archives emerged in the 1930s, a specific film...
history and to a certain extent also film preservation existed. As film scholar David Bordwell has suggested, the lists created in the late 1910s and 1920s cinephile culture formed a canon of silent films which persists up to this day and which constitutes the core of the majority of film archives:

The canon established during the 1910s and the 1920s remains with us today. It is the substance of most film history textbooks, most archives, repertory programming, most video releases of silent classics.¹⁵⁸

Evidently, this quote suggests that lists as the ones developed in 1920s cinephilia reflected a prevalence in the US and in Europe of regarding late silent era avant-garde and mainstream cinema from these geographical areas as constitutive masterpieces of film art. If seen in relation to the film criticism of the 1920s, the emergence of cinémathèques and film archives in the 1930s thus seems less to be caused uniquely by cinema’s transition to sound nor the particular individual efforts of the prominent founding figures of the first cinémathèques, but rather as a product of the cinephile historical view produced within its cultural field.

International Film Club Culture and the Foundation of Film Archives in the 1930s

While the section above has regarded the example of the French film avant-garde as a blueprint for understanding the emergence of film history and heritage, similar notions of film history existed concurrently in other countries, such as Germany, Great Britain, Belgium, Italy, Sweden and the US. Similar lists and discussions on what made a film "classic" could be seen in the influential Swiss film review Close-Up which counted contributions from several significant European critics.¹⁵⁹ Close-Up reflects to what degree this historical consciousness of the film medium flourished among filmmakers and critics at the time. In the journal's January edition of 1929 a praising letter penned by Sergei Eisenstein containing a photographic self-portrait to the editor of the review, K. MacPherson, was printed in the journal with a caption presenting Eisenstein's contribution as "A valued tribute from S. M. Eisenstein, maker of film history".¹⁶⁰ Cinephile film culture and history was a transnational phenomenon in the 1920s. As pointed out by film scholar Jamie Sexton, this was clearly demonstrated in a journal such as Close-Up of which the film criticism reflected an international exchange between for example the Film Arts Guild in New York, the Film Society in London and the Vieux Colombier in Paris.¹⁶¹

¹⁵⁸ David Bordwell, op. cit., 12.
¹⁶⁰ Ibid., ix.
¹⁶¹ Jamie Sexton, “The Film Society and the Creation of an Alternative Film Culture in Britain in the 1920s”, in Andrew Higson ed., Young and
As film scholar Malte Hagener has pointed out, an explanation of how film club culture spread between these venues can be found in the establishment and sustainment of repertory programming in an avant-garde distribution network between the larger European cities that connected film clubs, critics and filmmakers internationally. Film programming in the capital cities - London, Paris, Amsterdam, Berlin and Moscow - exchanged related conceptions between the cities' individual film societies through shared programming and developed similar models of film criticism reflecting them. An illustrative example of such international exchange can be found in the circumstance that a central French critic and director such as Louis Delluc regarded the magazine *Vogue* in its London, New York and Paris editions as a standard for cultural journalism in the fields of theater and the arts for French film criticism to follow. According to Malte Hagener, the foundation of the 1930s film archives thus represented an institutionalisation of the film history that had been established within this network.

Several of the individuals involved in creating the first film archives had a background in film club culture. Thereby they maintained, to the lend the words of David Bordwell "...the canon that had emerged in the silent era". In collection building, in particular the choices of "the Big Four" can be seen as an example which reflected the repertories of film club culture and the early film criticism and written film histories from the 1920s in France, Germany, the US and Great Britain. In New York, British film historian and archivist Iris Barry was largely responsible for the creation of the MoMA Film Library in 1935. She had been a key figure in the development of intellectual film criticism in Britain as a co-founder of the Film Society in London and as author of the book *Let's Go to the Pictures* (1926). When creating MOMA's Film Library she relied heavily on her film club experience and on the then existing film histories to select films: Guillaume-Michel Coissac's *Histoire du cinématographe* (1925), Léon Moussinac's *Naissance du cinéma* (1925), Hans Richter's *Filmgegner von heute – Filmfreunde von morgen* (1929) and Maurice Bardèche and Robert Brasillach's *Histoire du cinéma* (1935). Also Paul Rotha's *The Film till Now* (1930) played...
Chapter 1

a central role in MOMA's collection policy\textsuperscript{168}. As for programming, MOMA was a particularly active institution of which the earliest programs clearly sustained the early canon. In the mid-1930s MoMA would show a program of films by French painter and director Fernand Léger in October 1935 followed by early American films and D.W. Griffith films in early 1936 to demonstrate the development of the distinguishing stylistic and narrative features of film art.\textsuperscript{169}

In Paris, one finds a similar connection in film critic and later film historian Jean Mitry who had been a central part of the ciné-club Le Cercle du Cinéma and one of the active youngsters in the cinephile circles throughout the 1920s\textsuperscript{170}. Working as the archivist of La Cinémathèque Française between 1936 and 1946 his work was as he explained "to constitute the documentary archives of the Cinémathèque, so to make this filmography (...) to establish the basis of a possible history".\textsuperscript{171} As in the case of MOMA, this filmography would largely be shaped by the historical understanding of cinephile culture of Paris' ciné-clubs and the existing film histories and repertories. Mitry later hinted at this connection to the early literature on film, when pointing out its significance in defining film as an art form:

> The publishing on cinema before 1940 was very sparse. At least in numbers, because it is from these few works published in the twenties, in France, as abroad, that the first theoretical approaches, and the first recognition of cinema as an art take shape.\textsuperscript{172}

The Reichsfilmarchiv in Berlin which opened in 1935, represents a quite different institutional model with an overt nationalist conviction, yet to a large degree shared the legitimising position of cinephilia and its historical view on film as an art form. The Reichsfilmarchiv was founded by the National Socialist German Workers' Party's shortly after their election in 1933, and opened in 1935 following a charter by minister of propaganda Joseph Goebbels.\textsuperscript{173} The document \textit{Übersicht über die Filme des Reichsfilmarchivs nach Stande vom 15. September 1934}, indicates the composition of

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\textsuperscript{169} Haidee Wasson, op. cit., 2005,196.

\textsuperscript{170} Raymond Borde, op. cit., 50-51.

\textsuperscript{171} Patrick Olmeta, \textit{La Cinémathèque française – de 1936 à nos jours}. (Paris: CNRS Editions, 2002) 60. Original quote: "Mon travail était de constituer des archives documentaires de la Cinémathèque, donc à faire cette filmographie (...) de façon à établir les bases d’une histoire possible”.


\textsuperscript{173} Anna Bohn, op. cit., 98-99, 101.
the archive's film collection which counted 1085 films at this time.\textsuperscript{174} It predominantly included a wide variety of early one-reeler fictions, military films from the first world war and a small selection of thirteen silent feature films.\textsuperscript{175} These thirteen films reflected international cinephile tastes by including for example both Sergei Eisenstein's \textit{Battleship Potemkin} and \textit{Variété} (Ewald André Dupont, 1925), which, to recall the cinephile list-making in Paris, both appeared as masterpieces in Moussinac's \textit{Panoramique du cinéma}.

Through this collection policy, it can be argued that the Reichsfilmarchiv reflected a combination of the conception of archival film as historical document, which it privileged quantitatively, alongside film as an art form. Whereas the remaining three of the "big four" equally included educational, scientific and documentary films in their collections in smaller quantities, they restrained themselves mostly to titles that had been included in avant-garde film programming displaying scientific cinematography, graphic abstractions or a play with formal conventions akin to the avant-garde's experiments. In this respect, a film heritage institution resembling the Cinémathèque Française, the National Film and Television Archive and MoMA seems rather to appear in Germany with the foundation of the Deutsche Kinemathek in 1962 based on the collection of film director and collector Gerhard Lamprecht, more firmly rooted in the independent collector and repertory tendency of interwar film club culture.\textsuperscript{176}

Yet, the Reichsfilmarchiv has often been foregrounded as an exemplary institution in propagating a conception of film as an art form in spite of its collection's priorities and political convictions. Within FIAF, the Reichsfilmarchiv played a crucial role in establishing exchanges between collections, especially between France and Germany by clandestinely securing the safeguarding of numerous French classics, in spite of the apparent contradictions this represented in relation to the Nazi regime.\textsuperscript{177} For example, the role of director of the Reichsfilmarchiv appointed by Goebbels, Frank Hensel, remains emphasised as a particularly enigmatic cinephile gesture given the ideological circumstances under which he worked.\textsuperscript{178} What testifies to this is the Reichsfilmarchiv's leading role within FIAF, shortly after its foundation in 1938, in an atmosphere which seemed the least intensified by the prospect of war. As co-founder of the Cinémathèque française and film director Georges Franju vividly recalls in a radio interview with film critic Serge Daney from 1986, Frank Hensel, upon arriving in Paris in nazi uniform would be elected president of FIAF at the

\textsuperscript{174} Ibid.
\textsuperscript{175} Ibid.
\textsuperscript{177} Raymond Borde, op.cit., 88.
\textsuperscript{178} Ibid.
Chapter 1

general assembly in July 1939 shortly before the outbreak of World War II. Or, as Director of the Cinemateca Portuguesa José Manuel Costa has described this moment, “the FIAF founding members sealed a pact above ideological or state barriers”.

To conclude, in spite of significant differences in organisational structure and political foundations, the early FIAF film archives shared a commitment to collecting cinematic masterpieces from primarily the late European and American silent era according to very similar aesthetic criteria of appraisal. Their collection policies emphasised the stylistic features of cinema as an art form with attention to distinct national styles as they had been discerned in 1920s film culture drawing extensively on the small number of film historical publications appearing throughout the 1920s. The collections in these early institutions reflected this historical view primarily through collection building, while a few also reflected it in programming. In the 1930s, a film history concerned with a masterpiece tradition developed in the 1920s was thus institutionalised.

In the post-World War II era, the landscape of film historiography changed significantly. The first general film histories emerged, which were more explicitly concerned with placing cinema in a broader historical context, and in developing scholarly methodologies. What characterises this development is that some of the early cinephiles also became the first general film historiographers, such as for example Jean Mitry, Lewis Jacobs and Georges Sadoul. Thus, the first avant-garde's historical view developed into a more elaborate art history based on a larger range of source materials.

General Film Histories and Early Film Scholarship

As a scholarly discipline, film history slowly emerged inside and outside of academic institutions in especially the US and in France. Within academia, film had been the subject of sociological and psychological studies in the 1910s and 1920s, as early film theory testifies to, whereas film history had been less prominent as a separate subject in academic curricula. As film scholar Dana Polan has pointed out, the courses taught by film historian Terry Ramsaye at the New School for Social Research in New York in the academic year 1926-27 shortly after the publication of Ramsaye's *A Million and One Nights* (1925) can be regarded as an influential early example. Its focus on great inventors, key directors and actors, forms a frame of reference for a great wealth of subsequent film

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179 “Georges Franju; 2: Cinémathèque, cinéma”, Microfilms, France Culture, Paris, 05/10/1986, 00:11:40 – 00:12:00.


Historiography, following a conception of film as an art form focusing prevalently on film stars. However, in the US it appears that film studies is emerging later, in the early 1940s, when film historian Jay Leyda received funding from the Rockefeller Foundation to conduct research on Soviet director Sergei Eisenstein using MOMA's collections. As Haidee Wasson points out also cultural theorist Siegfried Kracauer received funding from the foundation to carry out his psychosocial studies on German Expressionism using MOMA's collections, resulting in his classic study *From Caligari to Hitler: A Psychological History of the German Film* (Princeton University Press, 1947). In France, the inclusion of the recently founded Institut de Filmologie at the Sorbonne University in 1948 marked the foundation of film studies. This setting provided the institutional backdrop for French film critic and historian Georges Sadoul's teachings on the "evolution" of cinematic expression.

In the years leading up to and after World War II, the most influential film histories that appeared were monographs on national cinemas and general histories of film, which relied heavily on the canon of European and American films established in the 1920s, now accessible and circulating through the recently established archives' film libraries. In retrospect, American film historian David Bordwell has referred to these histories as a *Standard Version*. They were a more systematic version of earlier film histories which argued in an international perspective and with an emphasis on social, economic and psychological societal aspects "...that film style could be understood as a development toward the revelation of cinema’s inherent aesthetic capacities". In this respect, they shared the views of the earliest film histories, such as Moussinac's, that cinema had slowly evolved to discover "its proper laws". These histories, identify this "revelation" in particular in the development of narrative film editing. Film editing was a central focal point in the film historical reference works that emerged in the US and France after the 1930s: Lewis Jacobs' *Rise of the American Film: A Critical History* (1939), Georges Sadoul's *Histoire Générale du cinéma I-VI* (1946 to 1952) and later Jean Mitry's *Histoire du Cinéma I-V* (1967-1980).

To illustrate this, one can consider how Jacobs, Sadoul and Mitry structure their film histories around the development of film editing. With reference to their geographical origin Sadoul's film history discerns in the early British films such as George Albert Smith's *Grandma's Reading Glass* (1900), James Williamson's *Attack on a China Mission* (1901) and *The Big Swallow* (1901) a so-
Chapter 1

called “Brighton” school of filmmaking. According to Sadoul, these films demonstrate a primitive use of close-ups and editing, which anticipates the emancipation of later cross-cutting and continuity editing in the American films of Edwin Stanton Porter. Sadoul claims that Porter was influenced by the Brighton school by stressing in particular the similarities between Williamson's film *Fire* (1901) and the editing style in Porter's *The Life of an American Fireman* (1903). Based on this observation, Sadoul's film history considers Porter one of the first to fully develop cross-cutting into a narrative form reminiscent of later cinema.

This idea was widespread, though it was not unanimously accepted amongst Sadoul, Jacobs and Mitry. Jacobs for example rejected this idea, claiming instead that Porter had been influenced by the editing in the films of French director Georges Méliès.\(^{187}\) Jean Mitry's later film history reflected this by basing its discussions of Porter on the histories and sources of Sadoul and Jacobs proposing a middleground which argued that Porter had been influenced by both the Brighton School and Méliès, sustaining the director's importance to the development of continuity editing.\(^{188}\) By having “invented” continuity editing, Mitry's history asserts in line with Sadoul and Jacobs, that Porter had developed cinema into an accomplished art form. Mitry's discussion of Porter in relation to the Brighton school clearly reflects this:

> One could say, with more objectivity, that if the English have discovered the continuity and the montage, Porter, the first, understood that the art of cinema depended on this continuity and on this montage.\(^{189}\)

Though not entirely similar in their accounts, the film histories of Georges Sadoul, Lewis Jacobs and Jean Mitry were modelled on this revelatory pattern in their discussions of film editing, which Mitry's observation testifies to. This history of film, structured to a large degree around film editing, became a hegemonic history of film, widely influential in academic courses on film history in Europe and in North America as a text book version of film history.\(^{190}\)

Beyond the indebtedness to cinephile film culture, some scholars have, in retrospect, suggested that Sadoul's and Mitry's film histories can be considered methodologically related to the historical methods of contemporary French *Annales*-historians, and in particular Fernand Braudel's work. Italian film historian Gian Piero Brunetta has suggested this in relation to Sadoul on the ground that *Histoire Générale...* offered a perspective which "...was able to throw a bridge between cinema as

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\(^{188}\) Ibid.

\(^{189}\) Ibid., 237. Original quote: "On peut dire, avec plus d'objectivité, que si les Anglais ont découvert la continuité et le montage, Porter, le premier, a compris que l'art du cinéma dépendait de cette continuité et de ce montage." Emphasis in original.

\(^{190}\) Ibid., 232-236.
an industrial product as well as an artistic event and the history of the contemporary world”\textsuperscript{191}. Indeed, Sadoul's history had a global outlook to significant events in society, and a material focus on popular culture which was shaped on a Marxist dialectics.\textsuperscript{192} This material focus could be regarded as an approach compatible with that of some \textit{Annales}-historians who sought explanations – also sometimes through the lens of Marxist dialectics – in the configurations of material culture and popular cultural habits.\textsuperscript{193} British film scholar and historian Richard Maltby sees a similar form of history as pervading Jean Mitry's later \textit{Histoire du Cinéma} and its “total vision” of film history because it comprised aspects of mass psychology.\textsuperscript{194}

I shall return to a discussion of Mitry's model of history in relation to \textit{Annales} historiography in Chapter Four to elucidate their commonalities in greater detail. Yet, what I find important to stress here is that while these descriptions acknowledge the general histories' important efforts to explain cinema within its wider industrial and societal contexts, they cannot, I would argue, fully be characterised as \textit{Annales} historiography. For example, a crucial aspect to the foundational essay for \textit{Annales}-historiography by Fernand Braudel “L'Histoire et les sciences sociales: La Longue durée”, first published in 1959, was to reject a history based on singular significant events - what Braudel refers to as “l'histoire événementielle”\textsuperscript{195}. Mitry and Sadoul, in spite of their efforts, essentially wrote teleological event-driven film histories. The development of film editing in these histories – which the quote above from Mitry's history demonstrates - had a clear beginning point, development and end point, driven to a large degree by significant events, discoveries, inventors and filmmakers. Such a form of history would not correspond to a rejection of “histoire événementielle” and therefore to a large extent seems out of tune with \textit{Annales} historiography.

I would argue it seems more plausible to understand their historical model in the perspectives offered by David Bordwell, Christophe Gauthier and also film historian Bernard Eisenschitz. Bordwell regards these histories as closer to an idealist art history modeled on a birth-maturity-decline pattern seen in renaissance models of art history as the one represented by Italian painter and architect Giorgio Vasari or to the evolutionary path so succinctly depicted in Moussinac's opening to \textit{Naissance du Cinéma}.\textsuperscript{196} In spite of differences in their foundational assumptions and


\textsuperscript{193} Georg G. Iggers, op.cit., 82.

\textsuperscript{194} Richard Maltby, op.cit., 2006, 80.


\textsuperscript{196} David Bordwell, op. cit., 27. While David Bordwell does not point to this in his \textit{On the History of Film Style} which focuses predominantly on French film historiography, it is noteworthy that an early film history such as Terry Ramsaye's for example directly invoked Vasari as a model in its introduction.
contrasting political underpinnings, they shared the basic assumption that cinema developed naturally from a primitive state into a narrative form, relying on cross-cutting and continuity. Additionally, Gauthier has proposed with regard to Sadoul's film history that while it indeed was a profoundly Marxist history of film as a popular culture, Sadoul's use and collection of sources in his writing was closer to the positivist historiography of the école méthodique, in particular in its heavy reliance on oral testimonies by for example Louis Lumière.  

Bernard Eisenschitz has pointed out that Georges Sadoul in the 1930s invoked the tradition of the école méthodique as a model for his own approach with specific attention to Charles Seignobos' historical studies of France. On this basis, it can be argued that to understand how the early film historians conceived of film as a source for writing the history of cinema as an art form, one must relate them to the scientific paradigm which had informed the first wave of historical film archives. The work of the first general film historiographers, who had in large part contributed to recognising film as an art form as young cinephiles and establishing film archives, to recall Mitry's point as the “basis of a possible history”, was imbued with positivist assumptions.

It could be argued that in the general film histories, the films and material held in film archives were seen to a certain extent as historical documents that testified to the evolution of film as an aesthetic art form driven by developments in narrative film editing. It is this view of the film archive as the basis and source of an emancipatory film history which was fundamental to the early film histories, but became challenged in new empirical and theoretical approaches to archives-based research, when film history was widely established as an academic discipline. The next section discusses how this reconceptualisation of film archives as sources of film history developed at a nexus of film theory, historiography and in contemporary filmic appropriation art which informed and developed in conjunction with these developments.

1.3 (Re)Visions of Early Cinema: Academic Film Historiography and its Mediations

The attempt(s) to think early cinema are certainly the dominant activity in current historical thought on cinema. Above all, there is more than simply historical writing itself but also the examination of what it means to do history.

Throughout the 1970s a "historical turn" occurred in film studies, which fundamentally

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challenged the paradigm of film as art in film archives and in film history. In this period, film historians increasingly conducted their research in recently established academic settings, developing approaches informed by contemporary theory of history, cultural studies and literary theory. For the younger film historians working in these settings this turn entailed the critical study of the source material of the general film histories, with particular attention to their accounts of film editing’s development and exhibition practices in the period of early cinema. In part, this development was encouraged by film historians from the previous generation. Film historian Jay Leyda announced for example in 1974 how his seminars with graduate students at the New York University would challenge the notion of national schools in film history by going “...into unused archive materials and unfamiliar films (...) to exploit this new material in drafting an experimental international film history in a fresh form.”

Many film historians single out the particular event of the 34th symposium of FIAF in Brighton in 1978 as a demarcation between a new historical paradigm introduced by this turn and established film history. At this symposium, an audience of film archivists and historians gathered before screenings of approximately 550 films produced between 1900 to 1906 to revise the period's production of primarily fiction films in North America, France and the UK. This led, in the words of film historian Charles Musser, to “...a new integration of academic and archive-based history and fostered tendencies that contributed to the formulation of a new historiography”. While, as I will discuss below, a sharp distinction between an old and new paradigm of film historiography as the Brighton symposium has come to symbolise is not unproblematic, the proceedings of the symposium did reflect the degree to which the period's film historiography developed theoretically reflexive approaches based on new archival research. In essence, the generalist film histories' perspective was challenged with the emergence of new historical models and analytical practices.

To structure my discussion of this development in academic film historiography, I draw on the discernment by film scholar Bart Testa of three interrelated film historical "counter-myths". Testa suggests that the general film histories representing a "masterpiece tradition”, a label he lends from film historians Robert Allen and Douglas Gomery, were challenged by counter-historical discourses emanating from three areas: apparatus theory, New Film History, and independent filmmaking practices. In film theory, reflections proposed by critics and scholars Noël Burch, Jean-Louis

200 Jane M. Gaines, op.cit., 71.
201 Richard Maltby, op.cit., 2006, 76.
Baudry and Jean-Louis Comolli, voiced a material and ideological critique of film technology from marxist and psychonanalytic perspectives to counter linear histories which regarded scientific cinematography of the late nineteenth-century as constituting cinema's origins. Second, new empirical and conceptual approaches informed to a greater degree by recent theory of history and the film programming at a number of recently established archival film festivals and symposia emerged as New Film History, critically examining film editing's centrality in general film histories. Third, the strand of independent filmmaking emerging in the 1970s in North America and the UK, known as structural film, suggested formal investigations of early cinema which informed revisionist agendas and established a conceptual exchange between scholarly research and independent filmmaking.

I have chosen to take Testa's discussion as a structuring principle and elaborate on it to depict this historical turn, in particular because it emphasises the role of independent filmmaking and video editing in re-articulating archival film as a source of film history in scholarship and art. While the contributions made by artists tend to be acknowledged as significant in key texts from the period, I would argue that they could be discussed and revaluated in more detail in a present perspective to understand the current emergence of visual research dispositifs. With regard to today's digital turn in film historiography I find that they may yield productive insights into how the shifting technological basis and mediations of filmic sources impact their interpretation. The following discussion reflects how this tripartite division of counter-myths emerged at a nexus between film theory, scholarship and art. Moreover, I expand upon it by attending to a wider range of theories of history and appropriation works on film history than discussed by Testa, and by drawing parallels between appropriation art and concurrent scholarly pleas for a more visually grounded film history relying on new projection technology.

Apparatus Theory and Film Historiography

In early 1970s film criticism and apparatus theory, a poignant ideological counter-position to the general film histories’ view on film technology was articulated in film theorist Jean-Louis Comolli’s classic article series “Technique et Idéologie” (Cahiers du cinema, 1971-72) and critic Jean-Louis Baudry’s dispositif-articles. Jean-Louis Comolli’s articles discussed Jean Mitry’s, André Bazin’s and in particular Jean-Patrick Lebel’s writings on film history with critical attention to the role attributed to late-nineteenth century scientific cinematography as constituting cinema’s origins. With regard to especially Lebel’s Cinéma et Idéologie (Éditions Sociales, 1971), Comolli countered the position that film technology’s ties to scientific cinematography – cameras, lenses and screens – made it
essentially neutral, objective and non-ideological. Comolli fervently countered this view, claiming
instead that film technology was ideologically constructed and should be regarded as constellations
shaped by cultural and economic forces. From this position, Comolli argued that the origins of film
history could just as well be identified earlier than scientific cinematography, namely with the
establishment of *Quattrocento* rennaisance perspective, to understand how cultural conventions had
shaped screen dimensions, thereby stressing that film history could be written in innumerable
different ways. As Comolli writes:

...we must point out the symptomatic fact that all film historians (...) are embarrassed at having to choose an
anterior limit to their research: only utterly arbitrary decisions make them designate an event, a date or an
invention as the inaugural moment of their work.

Elaborating on this point, Comolli’s article series formulated a fundamental critique of what it
held to be an inherent teleology of film history, pointing out that for example the metaphor of a *birth*
of cinema so recurrent in film history, essentially could be regarded as questionable attempts to
claim cinema as an independent art form which had logically progressed from a primitive state of
being. This is encapsulated in the following lines from Comolli’s articles which have become
widely associated with their critique of conventional film history at the time:

[C]ausal linearity, a claim for a dual autonomy of the “specificity” of the cinema and of the model of
idealist histories of “art,” a teleological concern, the idea of “progress” or “increasing perfection” not only
of technique but of “forms”

In line with Comolli, Jean-Louis Baudry argued from a Marxist-Freudian perspective, that the
 cinematic screening situation imposed a bourgeois and capitalist world view upon the spectator. Far
from being ideologically neutral, the technology's arrangement in the screening situation was
deeply rooted in Western monocular Rennaissance perspective, claiming that this perspective

206 Ibid., 130.
208 Ibid., 137.
positioned the spectator within its underpinning ideology.211

In a broader perspective Apparatus theory's critique of history writing reflected contemporary tendencies in humanistic disciplines. As American historian Robert F. Berkhofer has pointed out, in literary studies and in history many scholars abandoned grand narratives of emancipation and grand theories' "search for formal systems" to fundamentally question the nature of historical truth, knowledge and representation, in favour of social constructivist and postmodern approaches212. Historians increasingly became aware of the role of language and culture in historical explanation informed by a work such as for example Hayden White's Meta-History, which countered claims to scientific objectivity by drawing attention to the literary and narrative conventions of history writing.213 In this respect, film history as a discipline in the 1970s moves closer to the discipline of history where, according to historians and archival scholars Blouin and Rosenberg, these theoretical turns were challenging "...any attempt to define a singularly comprehensive and archivally grounded past".214

It is also relevant to invoke the distinction made in French New Historicism and philosophy between *document* and *monument*, in for example the historiography of historian Jacques Le Goff and in Foucault's archaeology. Of these different conceptions the notion of the archival record as *document* supports an authoritative and “official” event-driven historiography, while its conception of it as *monument* in a foucauldian sense refers to a critical engagement with and interrogation of it, which elicits hidden meanings and seeks to understand the conditions of documents’ existence and interpretation.215 As Foucault writes with regard to this move away from the conception of the historical record as authoritative:

> ...history now organizes the document, divides it up, distributes it, orders it, arranges it in levels, establishes series, distinguishes between what is relevant and what is not, discovers elements, defines unities, describes relations. The document, then, is no longer for history an inert material through which it tries to reconstitute what men have done or said, the events of which only the trace remains; history is now trying to define within the documentary material itself unities, totalities, series, relation216

This view reflects in the apparatus theorists' problematisation of origin points in film history. By

211 Ibid., 16 and 36.
213 Francis X. Blouin and William G. Rosenberg, op.cit.: 76. See also Hayden White, op.cit.
214 Ibid.
215 Ibid.
expressing a concern with periodisation and by emphasising the role of ideology in shaping cinema, the apparatus theorists opened for an understanding of the medium which inscribed it into different cultural series to understand the underlying assumptions of its configurations and conventions, thus contradicting claims to objectivity and truth as propagated in the earliest film histories. As the next section discusses, this reflexive approach to film history which emerged in the early 1970s can be said to develop in tandem with increased archival access to and interest in previously neglected archival sources and new theoretical directions in the humanities in revisions of early cinema and to provide the core theoretical assumptions or reference frame for New Film History.

**Early Cinema Studies and New Film History**

Film studies' "historical turn" in the 1970s and 1980s was nourished in large part by new studies of the general film histories' sources as well as an expansion of their empirical basis in order to challenge them. To depict this change, it is illustrative to attend to the shifting scholarly conception of Edwin S. Porter's films and their role in the general film histories’ account of narrative film editing’s development.

The centrality of film editing's development in general film histories had been contested in specialised reviews since the mid-1970s – for instance in *Les Cahiers de la cinémathèque* - in particular with regards to Porter's *Life of an American Fireman* (1903). For several years the film had circulated in two versions: one distributed by the Museum of Modern Art in New York, and one by the Library of Congress in Washington D.C. The montage of the versions differed substantially, with one of them being difficult to fit into the accounts offered by Jacobs, Mitry and Sadoul. The MoMA version contained continuity editing in the film's climax scene, while the LoC version did not. The film's climax scene depicts the rescue of a woman and her child from a burning house. The MoMA version cross-cuts this scene between the exterior shot of the house where a group of firemen come to their rescue, with the room in the house in which they are trapped. The Library of Congress version on the other hand, contains no cross-cutting. It shows the rescue action two times in first an interior shot then an exterior shot. The careful scrutiny of the different versions by film historians Charles Musser and André Gaudreault - as confirmed by the former at the 1978 Brighton Symposium - showed that the version without cross-cutting was the one initially copyrighted and released for distribution in 1903, whereas the MoMA version presumably had been re-edited later to fit the tastes of audiences used to a greater degree of continuity editing. Up to that point, when

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confronted with the LoC print, film historians had failed to realise that a narrator had explained the film’s action to contemporary audiences to guide it through the storyline and add dramatic effect to the repetition of action. The lack of this insight is what Elsaesser in retrospect has characterised, through analogy to a Sherlock Holmes novel, as “the dog that didn’t bark” because it reflects how scholars were unaware of the period's cultural conventions, in particular the mediating agents between screen and audience.219 Perhaps most prominently, as Gunning and Gaudreault suggested with their concept of “cinema of attractions”, partly inspired by Donald Crafton's suggestion of the term in the early 1980s, scholars needed to understand the different relationship between actor and camera, screen and spectator in early cinema, to grasp its relation between the films' formal dimension and their cultural conventions.220 Films in the period purposefully sought to show and attract audiences to depictions of spectacular events not to tell stories through continuity editing.

As a consequence of this revision, scholars achieved a clearer understanding of the structure of the Library of Congress’s print of Life of an American Fireman and of the distinct, cultural conventions of cinema exhibition that shaped film editing before the development of cross-cutting. Observing that Life had not initially relied on cross-cutting, the new generation of film historians undermined the histories of Sadoul, Mitry and Jacobs and their focus of film as an art form in which Porter had played a central part. The latter's model now seemed flawed. Subsequently, film historians went on to question the core notions of film history up to then, along the lines of Apparatus theory: periodisations, inventions, national schools, the development of formal systems, the focus on individuals and key events organised into teleological accounts. Moreover, what the particular example of Life’s re-editing brought attention to was that film history, as had been the case in the masterpiece historiography, from Moussinac to Mitry, could not be written around specific years which could be laid out as logical steps in the medium's artistic progression. Film history had to consider the films’ historical performances as well as their reception and circulation beyond their initial release to grasp their formal aspects.

Departing from this observation, film historians began developing new research methods with critical attention to the status of archival sources and the role of performance, language, rhetorics and culture in writing history, while acknowledging the contingencies of historiography and its possible multiplicity of viewpoints. In what is widely referred to as New Film History these methods increasingly created a field of historical inquiry deeply engaged with contemporary theory.
of history throughout the 1980s. In this respect, the rewriting of early film history, fuelled by the discussions of the Brighton symposium became, as American film scholar Dana Polan has pointed out, a catalyst for film historians to examine ”...what it means to do history”.221 An example of this is the table by Edward Branigan which I cited in the introduction. Outlining the different historicisations of film color technology to elucidate their types of historical inquiry and underlying assumptions - from Terry Ramsaye to Jean-Louis Comolli – it sought to understand ”What forces and events are singled out by a given historian as 'significant' and how [they] are arranged into a narrative of time” to compare ”...different types of questions that a historian may ask and thereby to reveal what kind of history arises”.222 Suggesting a new Marxist technological history, Branigan's work reflected the wide resonance of Comolli's critiques and equally testified to the increased use of perspectives deriving from Cultural Studies. Coinciding with increased institutionalisation of film studies throughout the 1970s and 1980s, this new awareness of historical representation and narrative became common in film historical research seeing more scholars making their historical methodologies increasingly explicit while remaining critical of their own results.223

Revolving around a rediscovery and reconceptualisation of early cinema as an analytical object, New Film History's main characteristic, it can be said, is that it nourished a methodological stratification by integrating a range of integrative historical methods and approaches from other research fields, in particular social and economic history, which enabled film historians to analyse a much broader range of cinema's historical development as an art form and as an industry.224 A much-cited remark by Thomas Elsaesser from a book review of several of the period's key monographs on historical methodology, published in *Sight & Sound* in 1986, encapsulated this ambition:

To do film history today, one has to become an economic historian, a legal expert, a sociologist, an architectural historian, know about censorship and fiscal policy, read trade papers and fan magazines, even study Lloyds Lists of ships sunk during World War One to calculate how much of the film footage exported to Europe actually reached its destination.225

Addressing in particular Douglas Gomery and Robert C. Allen's introductory textbook *Film History: Theory and Practice*, widely used in universities and high schools, Elsaesser's remark

221 Dana Polan, op. cit.
222 Edward Branigan, op.cit., 16 and 30.
clearly reflects the interdisciplinary exchange which shaped film historiography's development in these years. I shall discuss the implications of Allen's and Gomery's model of historiography in more detail in Chapter Four, with particular attention to its relation to *Annales* historiography. What I would like to emphasise here is that Allen and Gomery's book is also interesting insofar as it reflects that while film historians were widely informed by Apparatus theory's critical stance, many scholars did not subscribe to its emphasis on ideology and rejection of empiricism in favour of theory.\textsuperscript{226} Instead, they conceived their methodologies by positioning themselves against them, while showing awareness of historiography's inherent contingencies. In this regard, it is characteristic that Allen and Gomery present their method as a "realist response" which strived to foster productive combinations between “conventionalist” critiques and empiricism, by raising a counter-critique of how the former might potentially lure historians into unproductive relativisms.\textsuperscript{227} On the basis of their counter-critique they articulated a theory of film history, drawing among others on the critical realism of philosopher Roy Bhaskar, which acknowledged historiography's contingencies by considering sources as mediated and partial - but still factual – and by de-emphasising event history. As they write in this regard:

Evidence provides the historian access to the facts of history; it enables the historian to describe historical events so that the existence of those events can be agreed upon by other historians. However, in the Realist view, the events or facts of history in no way speak for themselves, nor is the historian's job finished when a chronology of events has been compiled. The object of historical study for the Realist is not the historical event itself, but the generative (causal) mechanisms that brought that event about.\textsuperscript{228}

In this respect, it is important to highlight that the emergence of New Film History reflected an institutionalisation of film historical methodology insofar as it introduced a greater variety of contemporary theories of history without resulting in a unified methodological stance. Rather, it was considered to introduce a more conscientious scrutiny of a broader variety of archival sources than the generalist histories. Furthermore, it is also important to highlight that the advent of New Film History did not result in an abandonment of aesthetic, generalist histories. In undergraduate film studies curricula the most widely used introductory textbook today, Kristin Thompson and David Bordwell’s *Film History: an Introduction* (first published in 1994), clearly propagates and echoes for instance the discernment of aesthetic schools suggested in Georges Sadoul's and Jean Mitry's

\textsuperscript{226} Robert C. Allen and Douglas Gomery, op.cit., 127-128.

\textsuperscript{227} Ibid., 14.

\textsuperscript{228} Ibid., 16.
Film Archives and Film Historiography

generalist histories. Thus, it departs from the repertory established in 1920s cinephilia, arguably reflecting its universalist aspirations and theoretical underpinnings. Yet, Thompson and Bordwell's film history is also much more reflexive and methodologically acute than the early film histories. This can be seen in how it draws attention to the findings of the FIAF Brighton symposium in its discussion of early cinema. Moreover, its introduction's emphasis on history as discourse which explains central abstract concepts such as chronology, causality and influence, drawing in part on Allen's and Gomery's work, testifies to the period's increased theorisation of academic film historiography in line with contemporary debates on theory of history.

Furthermore, as media scholar Philippe Gauthier has recently argued, early cinema studies and New Film History have in retrospect become increasingly critiqued for inadvertently creating its own teleological account of film historiography's development. This account implies that the film histories preceding it are considered primitive as opposed to the methodologies emerging after the watershed revisionism of the 1978 FIAF Symposium. CEO of the Ingmar Bergman archive Jan Holmberg, has humorously phrased this critique, by arguing that the 1978 FIAF Symposium has acquired the status of a “Woodstock of film archiving” in which historians and archivists came together in ecstatic celebration to embrace each other's insights and conceive film historiography properly. To elaborate on these recent critiques I would also add that it is necessary to keep in mind that the generalist historians, for instance Georges Sadoul, showed greater concern for film historiography's philological aspects in their methodologies than perhaps tends to be acknowledged after the debates surrounding Porter's Life. For example, in his essay on historical methodology "Matériaux, méthodes et problèmes de l'histoire du cinéma”, Sadoul problematised the fact that quickly made dupe prints without faithful reproductions of colours or grain formed the basis of most historians understanding of silent cinema. Observing such problems, Sadoul urged scholars to go into the archive to scrutinise their source material in order to understand and carefully conceive of their analytical objects.

229 Bernard Eisenschitz, op.cit., 125.
231 Ibid., xxxvi-xlii.
233 Jan Holmberg, “Bergman the Archivist” (paper presented at The Film Archive as a Research Laboratory – First International Symposium, Rijksuniversiteit Groningen, February 15, 2013).
Chapter 1

Yet, regardless of the events one chooses to emphasise in the history of film historiography and the methods which the generalist film historians had previously developed, the period of the 1970s and 1980s did articulate a fundamentally new role for historians and film archives in historical research and fostered a contestation of how film historiography had been practiced up to that point, through increased collaboration between them. Furthermore, it broadened the scope of film historical research showing increased scholarly attention to film-related sources in order to produce historical inquiries into contextual aspects of film history beyond the film artefact.

To depict this change in greater detail, I will discuss in the following section how film heritage institutions played a crucial part in this development through the concurrent emergence of archival film festivals and film restoration theory.

Archival Film Festivals and Restoration Theory

With film studies' historical turn, film archives acquired a new role in film historical research. As André Gaudreault has pointed out, they became sites of ”applied study” seeing film archivists and historians working more closely together forming ”An Alliance of Archivists and Film Scholars”\[235\].

Testifying to this is the foundation of a number of archival film festivals in the 1980s and the early 1990s devoted to the revision of film history through screenings of rare and restored archival films. Through these initiatives, the film festivals reflected an increased theorisation of film restoration practice pertaining to contemporary film historiography's critical approaches to archival prints and to film archives as providers of source materials for academic film historiography.

In this period, archival film festivals such as *Le Giornate del Cinema Muto* (1982-) and *Il Cinema Ritrovato* (1986-) in Italy, *Cinémémoire* in France (1991-1997), *San Francisco Silent Film Festival* (1992-) appeared, of which in particular the Italian festivals became important fora for the exchange of knowledge between film archivists and historians from all around the world.\[236\] The silent film festival *Le Giornate del Cinema Muto* in Pordenone (1982) associated with Gemona's La Cineteca del Friuli and *Il Cinema Ritrovato* (1986) organised by La Cineteca di Bologna which comprises films from a wider range of periods, are in different ways, surrounded by an aura of ”rewriting film history” through the programming of unseen films and restored classics.\[237\] While sharing many similarities, it could be said that, roughly, the difference between the two is that *Le Giornate* initially focused on presenting complete programmes of a certain director, period or


\[236\] Francesco di Chiara and Valentina Re, op.cit., 133.

\[237\] Ian Christie, ”New Lamps for Old: What Can We Expect from Archival Film Festivals?”, in Alex Marlow-Mann (ed.), *Film Festival Yearbook 5: Archival Film Festivals*. (St Andrews: St Andrews Film Studies, 2013) 41.
production company, whereas Il Cinema Ritrovato had a stronger emphasis on film restoration.\textsuperscript{238}

According to film preservationist Paolo Cherchi Usai, who became associated with Le Giornate in 1984, the years 1988 to 1994 represented a particularly fruitful period in the festival’s history fulfilling the promises of a "long-sought synthesis between film preservation and access".\textsuperscript{239} In this period, a wide variety of aspects and periods of silent cinema in film historical research developed along the lines of the festival’s programming. For instance, as I shall discuss in greater depth in Chapter Four, the use of color in silent cinema and Italian diva films underwent a fundamental revision following screenings of films from the Nederlands Filmmuseum’s Jean Desmet Collection in the late 1980s.\textsuperscript{240} Furthermore, the festival’s 1989 program of 1910s pre-revolutionary Russian films engendered a rediscovery of an otherwise largely neglected period and in particular the work of director Yevgeni Bauer.\textsuperscript{241}

Il Cinema Ritrovato on the other hand, in addition to the rediscovery of rare archival films, also reflects an increased theorisation of film restoration practice.\textsuperscript{242} Bologna, where Il Cinema Ritrovato resides, has become known for its strong emphasis on film restoration within both the academic film studies curriculum at the University of Bologna and the pioneering restoration work of the laboratory L’Immagine Ritrovata which both collaborate closely with the festival and the Cineteca. More specifically the work of scholars, restorers and archivists Michele Canosa, Gianluca Farinelli and Nicola Mazzanti form what has been labelled a "Bolognese school" of film restoration of which the theoretical foundations were articulated in a number of essays published in the early 1990s.\textsuperscript{243} Fundamental to this school is a philological approach, which critically interrogates the status of archival prints to reconstruct their circulation history and understand the historical circumstances which have shaped their physiognomy to create new restored versions from them. Film scholar Simone Venturini dates the emergence of philological film restoration theory to the early 1980s, and as happening in concurrence with the rise of early cinema studies.\textsuperscript{244} According to Venturini, one of


\textsuperscript{240} Ivo Blom, Jean Desmet and the Early Dutch Film Trade. (Amsterdam: Amsterdam University Press, 2003) 19-20.

\textsuperscript{241} Ian Christie, op.cit., 2013, 45- 46.


\textsuperscript{244} Ibid., 19.
film philology’s most significant contributions to film restoration theory is its emphasis on archival film as a reproduced or duplicated object, in contrast to theories which seek to restore a ‘definitive’, original version, as for instance early restorations of films such as Fritz Lang’s *Metropolis* (Germany, 1927) attempted.\(^{245}\) Film philology instead implies a scrutiny of archival prints to achieve an understanding of the physical characteristics of existing archival elements as departure points for presenting an edited history of a film title.\(^{246}\) In this regard, edge marks, tear, wear or for instance generational loss of image quality are all characteristics which tell something meaningful about an element’s history, its period and circumstances of production. They are perceived as gateways into the object’s history and should therefore remain visible in one way or another to the archivist and historian. However, as Michele Canosa notes, this stance should not be taken to imply an empiricism which purports to bring out the object’s truth. Though the position does hold that it approximates the film object on its own terms to a greater extent, the philological undertaking equally serves to underline the present perspective which the object is situated in to emphasise the temporal distance which separates object and restorer.\(^{247}\) Providing a theoretical frame for *Il Cinema Ritrovato*, this line of thinking reflects the concern of understanding the artefact's appearance in relation to its distribution history and life, beyond its year of production. In this regard, it reflects the concerns of empirical debates surrounding Porter's *Life*, and sustains the reflexive interrogation of the nature of historical evidence between historians and archivists. Thus, the archival film festivals make a larger corpus of films known to film historians, while reflecting the underlying contingencies of their appearance.

However, it is debatable to what degree the festivals engender new forms of film history or subvert old ones. As film scholar Ian Christie has pointed out, canonised directors such as Griffith and Eisenstein remain focal points in for example Pordenone through extensive programming. As Christie argues, *Le Giornate*’s high-profiled Griffith Project which consisted in publishing a series of twelve monographs between 1999 and 2008 to accompany festival screenings of Griffith's surviving films on the one hand offered an opportunity to assess Griffith’s filmmaking in greater detail than ever before, thus perhaps downplaying his *oeuvre*’s importance by displaying its lesser moments. On the other hand it consolidated his production as one of the most widely studied and

\(^{245}\) Ibid., 28.

\(^{246}\) Ibid., 26.

canonised. However, in spite of this potentially contradictory dynamics, the archival festivals have become central platforms for discussing, developing and questioning new insights into film historical research.

The revisionist program's counter-myths did not only find its outlet in new historical methods, film festivals and restoration theory. In the late 1970s, a number of prominent scholars - such as Raymond Bellour, Vladimir Petric and Noël Burch - experimented with and increasingly pleaded for a more active visual analysis of films and quantitative approaches to archival prints to support their research. These scholars argued that film historical research could achieve a closer approximation to its object of study than written film history had allowed for, by interacting with films analytically using flatbed editing tables or stop-motion projectors, to produce shot outlines or filmic appropriations. Taking the cue from Bart Testa's work on appropriation film, the following sections discuss how this position developed in a conceptual exchange between independent filmmaking and scholarship, while paying attention to these practices’ view on archival films as sources of film history. Elaborating on this discussion in a present perspective, a concluding section will argue that this exchange continues to produce fruitful encounters between academia and independent filmmaking today. In Chapter Five, I shall return to this discussion to further argue that contemporary appropriation practices may acquire a new role in developing critical perspectives on contemporary visual analytics' conventions.

Audiovisual Film Histories
The plea for audio-visual film histories which emerged in the 1970s was a marginal one within academia. However, the period nevertheless saw an increased interest in audio-visual forms of analysis of archival film, manifesting itself in experimental scholarly approaches and independent filmmaking. As film scholar Bart Testa has suggested, the fact that film scholars began devoting attention to contemporary appropriation works marked the advent of a highly fruitful exchange of counter-historical ideas between independent filmmaking practice and academic film historiography. The practices and milieux of film historians and filmmakers were brought closer to each other, seeing contemporary avant-garde films becoming considered as "pedagogical interventions" whose appropriations of archival films fuelled revisionist film historiography. Gradually, such forms became reference points for film historians in developing their historical arguments and methods.

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248 Ian Christie, op.cit., 2013, 8.
249 Bart Testa, op.cit., 20.
250 Ibid.
With regard to the pleas which emerged in academia, French film theorist Raymond Bellour's article “The Unattainable Text” (first published in French as “Le texte introuvable”, 1975), is frequently pointed out for its discussion of the problems that the film scholar encounters when having to cite films in written analysis. According to Bellour, film was a text of which the meaning revealed itself for the scholar only when scrutinised on an editing table, which allowed for manipulation of playback speed and direction.\(^{251}\) The analytical experience enabled by the editing table, was crucial to the scholar’s work, Bellour argued, yet impossible to convey in writing: film was a text which could not be quoted.\(^{252}\) For instance, text could not reflect the temporal aspect and iterative process of the analytical experience and interpretation, not even through the reproduction of photograms within a text, as it would not reflect the scholar's scrutiny at the editing table. At that point in time, a format which came close to conveying such an experience of a film print were published shot by shot descriptions or scripts. In France for instance a journal such as *L'Avant-scène - Cinéma* – a journal which still exists today – would publish an outline of an entire film with still illustrations.\(^{253}\)

A year before Bellour, Soviet cinema scholar and founding Curator of the Harvard Film Archive Vladimir Petric raised similar concerns in his article “From a Written Film History to a Visual Film History”. It argued that research should be conducted on “analyzers” in film archives to develop a quantitative approach to film editing. In contrast to Bellour, who emphasised the temporal experience of the scholar's interpretive work at the editing table, Petric's ambition reflected a more scientistic conception of film history by arguing that historians should rely on extensive shot outlines as an empirical tool to correct imprecise stylistic analyses which had flourished up to that point.\(^{254}\) Departing from this observation, Petric's article argued that film archives should accommodate for the production of shot outlines to enable a visually anchored film historiography. As Petric concluded:

> ...the appropriate methodology of film history cannot be attained in our time without the full cooperation of the film archives, which possess the prints and have access to technical facilities, without which it is impossible to grasp the cinematic structure of a film.\(^{255}\)


\(^{252}\) Ibid., 36.

\(^{253}\) I would like to thank postdoctoral researcher at the University of Amsterdam Liliana Melgar Estrada for drawing my attention to these journals based on her research interviews with media scholar Frank Kessler conducted for her dissertation *From Social Tagging to Polyrepresentation: A Study of Expert Annotating Behaviour of Moving Images* (PhDiss, Universidad Carlos III de Madrid, 2015).


\(^{255}\) Ibid., 24.
Although Bellour's and Petric's pleas reflected opposite epistemologies, they shared the view that film analysis should be anchored in the editing table’s analytic mode of viewing. From this perspective, film analysis and history up till then had not only applied the wrong research models but also the wrong tools for analysis. While such pleas remained marginal, film scholars and archivists became alert to independent filmmaking's appropriations of archival film, which they perceived as a form of film historical research which stood at the nexus of film archiving, historiography and appropriation art. Consequently, as I shall discuss in further detail below, a little group of filmic appropriation works became reference points for film historians which played a crucial role in their development of new historical insights and provided their research with a visual anchorage.

Along the same lines, one may consider Jean-Luc Godard's vision of an audio-visual film history from a filmmaker's perspective, expressed in the theoretical considerations anticipating his later television work *Histoire(s) du cinéma* (1988-1998). This vision inscribed itself in a revisionist critique of the general film histories in close dialogue with film historians and archives and drew on *Annales* historiography's critique of event history, to claim a new role for the latter in film historical research.\(^{256}\) Godard expressed this in a roundtable discussion with Jean Mitry and co-founder of La Cinémathèque Suisse Freddy Buache at the FIAF conference in 1979 in Lausanne:

Little by little I became interested in cinema history. But as a filmmaker, not because I’d read Bardèche, Brasillach, Mitry, or Sadoul (in other words: Griffith was born in such and such a year, he invented such and such a thing, and four years later Eisenstein did this or that), but by ultimately asking myself how the forms I’d used had been created, and how such knowledge might help me.

And as he added:

And little by little, I had a project, three or four years ago, to begin to do what I would call a “visual history” (...) a visual history of cinema and television.\(^{257}\)

Such a history of film, Godard argued, should compare the key films of the general film histories

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256 Michael Witt, op.cit., 84.
257 Jean-Luc Godard, "Les cinémathèques et l’histoire du cinéma", in Jean-Luc Godard, eds. Nicole Brenez and Michael Witt, *Documents* (Paris: Éditions du Centre Pompidou, 2006) 287. Original quote: "...j’avais lu Bardèche ou Brasillach, Mitry ou Sadoul (c’est-à-dire: Griffith est né en telle année, il a inventé tel ou tel truc, quatre ans après Eisenstein a fait telle ou telle chose), mais en me demandant moi-même, finalement, comment des formes que j’utilisais s’étaient créées, et comment cette connaissance pouvait m’aider. Et petit à petit, j’ai eu un projet, il y a trois ou quatre ans, de commencer à faire ce que j’appellerais une ‘histoire visuelle’ (...) une histoire visuelle du cinéma et de la télévision.”. The first part of the above translation is taken from Michael Witt, op.cit., 10.
to challenge connections between for example the cinema of Griffith to that of Eisenstein as the basis for an account of film form's development.\footnote{258} To enable such comparisons, according to Godard, film archives should be involved in an active role as a kind of “laboratory” where film historians and filmmakers could make films on film history, making use of video editing equipment.\footnote{259} Godard had developed this idea in a lecture series given at the Université de Montréal throughout 1979, published in 1980 as Introduction à une véritable histoire du cinéma (Editions Albatros, 1980). Introduction..., states that this history should be considered not simply a chronological one, but rather a biological, archaeological history which would place cinema more broadly within a spectrum of the arts and society, in relation to for example the development of pictorial perspective in painting.\footnote{260} Films should be compared not only to films but also paintings in order to understand the development of filmic conventions. While Introduction claimed to have developed the method for such a history, it stated, in line with Petric, that the equipment required for realising it was too expensive and accessible only to television stations and cinémathèques.\footnote{261} Therefore, Godard argued that cinémathèques held a special obligation to grant filmmakers access to their equipment for research purposes.

However, while Godard proposed a non-linear film history which was critical of film technology’s ideological conventions in line with the impetus of 1970s Apparatus theory, its vision of film history can be regarded as closely tied to the cinéphile canons associated with a review such as Cahiers du cinema and its prevalence for narrative auteur cinema.\footnote{262} As film scholar Christa Blümlinger has suggested with regard to the later Histoire(s), its historiographic concerns reflected a different theoretical foundation than the Anglo-American strand of 1970s independent filmmaking, which would inform early cinema scholars through its primary focus on early cinema's different forms of address and narration.\footnote{263} Along these lines, film scholar André Habib has argued that experimental filmmakers played a crucial role for early cinema studies’ revisionism by nourishing fruitful interpretive encounters with scholars. As Habib argues:

...the dialogue between early cinema historians, restorers, archivists and experimental filmmakers, this movement back and forth between historical understanding of the past and its reactivation in artistic

\footnote{258} Ibid.  
\footnote{259} Ibid., 291.  
\footnote{261} Ibid., 23.  
\footnote{262} Ibid.  
works is essential for illuminating our knowledge and enriching our experience of film history and, in a more general way, our apprehension of what is in the film archives. (...) this historical mobility and flexibility invite new ways of thinking and writing film history departing from its historical mediations...264

This concerned in particular filmmakers commonly referred to as “structural” filmmakers, whose formal experimentation produced original perspectives on film form’s development and which resonated in film historiography, by propagating a conception of early cinema as a candid, independent form of filmmaking, devoid of the narrative conventions established in the 1910s.265

These filmmakers regarded the forms of early cinema as akin to their own formal experiments and engaged with them, to lend the words of Noël Burch “...as 'found objects' which can be said to have stimulated the sense of recognition...”.266 This was done through an experimental use of film projection and duplication technologies to manipulate the playback speed, direction and scale of archival films, as an exploration of non-narrative forms to convey the point that filmic narration was a cultural convention, and not an inherent feature of the medium. As suggested by Testa, in its use of technology to this end, structural filmmaking represented a congruency with emerging culturalist and materialist approaches in its rejection of an essentialist view on film art and established “...a mode of cinema critical of orthodox histories of cinema and allied with apparatus theory.”267

Ken Jacobs’ classic Tom, Tom the Piper’s Son (1969-1971) is a particularly illustrative work of this development, in its use of film technology and conception of film as an archival medium. It reflects apparatus theory’s anti-essentialist perspective and the revisionist histories' scrutiny of archival film as a means of acknowledging early cinema's different formal conventions. As David Bordwell has stated: “Jacobs' reworking of the film was as important as any archival research in suggesting that early cinema operated with a distinctive and oppositional aesthetic”.268


265 Noël Burch, La lucarne de l’infini. Naissance du langage cinématographique. (Paris: L’Harmattan, 2007 [1991]) 10. Film scholar P. Adams Sitney coined the denominator “Structural Film” to distinguish a common stylistic trend of formal experimentation in primarily North American and Austrian independent filmmaking in the 1950s to the 1970s. First appearing in an article in volume 47 of the American review Film Culture in the summer of 1969, the term has since become widely applied by film scholars to experimental filmmaking but is also increasingly contested for being reductionist.


267 Bart Testa, op. Cit.: 20.

268 David Bordwell, op.cit.: 103.
Chapter 1

In 1969, Ken Jacobs created the first version of this work out of cameraman Billy Bitzer's *Tom, Tom, the Piper's Son* (American Mutoscope and Biograph, 1905) from a 16mm print distributed by the Library of Congress.²⁶⁹ The film had been made available through the recently finalised restoration project of the so-called paper print collection. The paper print collection had been created as a means for production houses to copyright their moving picture production on paper rolls in the late 1890s but had been neglected after copyright registration of motion pictures on film had been approved in 1912.²⁷⁰ When Jacobs rented the film from LoC for use in the teaching of a filmmaking course at the SUNY Binghamton, he was astonished by the film's form. He perceived it as remarkably different – or "visually busy" as he has phrased it - from later narrative cinema’s conventional analytical editing, in particular that of Griffith, and found it difficult to orient himself in the film’s frame and discern its central action and characters.²⁷¹ As a means of exploring this form of composition, Jacobs began performing with the film on an analytical projector with a variable-speed function in reverse and forward projection mode and to focus on details in the image to discern the film’s action, filming it from behind a translucent screen. From the material filmed during these performances, Jacobs created his now classic version of *Tom, Tom the Piper's Son*, which stretches the ten minutes of Bitzer's film into a two-hour investigation of its form, to show, among other things, that early film represented an alternative to conventional narrative cinematic forms.²⁷² Furthermore, by appropriating what had initially been registered at the LoC as a copyrighted record, the work demonstrated an approach to archival film which differed from earlier conceptions in both scientific and general film histories of archival film as a finite documentation. *Tom, Tom...* had repercussions in contemporary writings on film historiography and has since been considered, as pointed out by Christa Blümlinger, a film which signals a paradigm shift to New Film Historicism.²⁷³ In particular Noël Burch’s article ”Primitivism and the Avant-gardes: A Dialectical Approach” (1986) stressed the film’s role in the recognition of early cinema’s different formal conventions, just as Burch’s seminal study *La lucarne de l'infini. Naissance du language cinématographique* (1991), suggested that *Tom, Tom...* represented a 'modern look’ on the period which foreshadowed 1970s revisionism in pondering over the difficulty of understanding early

²⁷³ Christa Blümlinger, op. Cit., 63.
cinema from a contemporary perspective. Beyond Tom, Tom... structural filmmaking fuelled the scholarly revision of early cinema through its approximation of experimental cinematic forms to early cinema conventions. Tom Gunning’s article “An Unseen Energy Swallows Space: The Space in Early Film and Its Relation to American Avant-Garde Film” (1983) clearly encapsulates this point:

Comparing early film to recent films of the American avant-garde frees the early works from the ghetto of primitive babbling to which the progress-oriented model of film history has assigned them. If we cease to see early films simply as failed or awkward approximations of a later style, we begin to see them as possessing a style and logic of their own.

In Gunning’s view, structural filmmaking exteriorised early cinema’s different formal logic through its scrutinies, thereby establishing a counter-position to the general film histories’ model which held a liberating potential for revisionist scholarship. This can be said to reflect a concentrated effort in the late 1970s to review early cinema from the vantage point of independent filmmaking. As André Habib reminds us, Gunning’s essay was presented in the context of a symposium organised by the Whitney Museum of American Art entitled “Researches and Investigation into Film: its Origins and the Avant-Garde” where also Noël Burch’s “Primitivism and the Avant-Gardes...” was first presented. The symposium provided a framework for the discussion between film archivists and historians of early cinema and included four programs of experimental films containing amongst others Ken Jacobs’ Tom, Tom..., Ernie Gehr’s Eureka! (USA, 1975) and films by avant-garde directors such as Stan Brakhage, George Landow and Kenneth Anger. These were screened in conjunction with programs of “Historical Films” from for example the catalogues of production houses such as Edison, Biograph and Pathé.

However, these discussions did not mark a merging of academia and independent filmmaking. The respective production contexts and intellectual environments of academic research and films remained too incompatible. For example, on a conceptual level, a very significant difference between early cinema historians and filmmakers was that the former opposed itself to the understanding of early cinema as a particularly pure and innocent filmic language. This is perhaps most vehemently illustrated in Noël Burch’s position that ambiguously resorted to the vantage point

276 André Habib, op. cit., 150-151.
277 Ibid., 150n12.
278 Bart Testa, op.cit., 18.
Chapter 1

of structural filmmakers first to illustrate the significance of studying early cinema as pertaining to a
different set of cultural conventions, to then distance himself clearly from structural filmmaking's
longing for early cinema as unsullied, by arguing that later narrative cinema could not be regarded
as intrinsically conformist.279

Fig. 5 In Noël Burch's Correction Please: or, How We Got into the Pictures (1979) the
same sequence is repeated five times inter-cut with examples from early films to explain
film form's development. First, the sequence appears in early cinema tableau style with
a bonimenteur and audience sounds on the soundtrack respectively explaining the action
and giving an impression of the screening's atmosphere (image) to then, in its fifth
iteration contain analytical editing and sound effects in a style from the early 1930s.

On the other hand, as pointed out by Testa, Burch's activities from the late 1970s onwards also
represents an exception to this division, as he directed films and television documentaries which
merged academic film historiography with structural filmmaking.280 In his film on film style from
1979, Correction Please: or, How We Got into the Pictures, Burch investigated French, British and
American cinema's development of form and modes of address from the years before 1906 until the
early 1930s.281 In what was perceived as a structuralist mode of filmmaking at the time, Correction
Please iterates the same dramatic scene five times, with each repetition responding to the style of a

280 Bart Testa, op.cit., 49.
281 Michèle Lagny, op.cit., 1992, 266.
particular period's editing and use of sound, alluding to the style of particular films and intercut with films from cinema’s earliest period. Following this structure, the first depiction of the scene employs a frontal tableau style with a voiceover mimicking the style of an early cinema narrator - which in cinema's earliest years explained screen action to audiences – while the last depiction shows the scene as it could have been edited and sonorised in the early period of sound film (see fig. 5). Because he is working at this intersection of academia and filmmaking, Burch can be considered one of the few “scholar-filmmakers”, whose practice illustrates the exchange between experimental filmmaking and scholarship in the revision of early cinema.

Conclusively, it can be argued, that while structural filmmaking was in general not integrated into scholarly practice, it was embraced by scholars as an audio-visual approach to film historiography which, beyond its revisions of early cinema, prompted scholars to think about their source materials' mediations and the adequacy of their analytical tools. Moreover, as the next section will discuss, structural filmmaking did establish an exchange which has continued to develop up to today in found footage filmmaking practices and recycled cinema which reflect current archival research into neglected areas of film archives and, to lend Habib's words, “invite new ways of thinking and writing film history”.

Contemporary Dialogues of Filmic Appropriation, Archiving and Historiography

Filmic appropriation works beyond structural filmmaking, commonly denominated as found footage or recycled cinema, continue to nourish new directions in film historiography. Today, a dynamic between film historiography, film archiving and artistic appropriation drives a re-evaluation of hitherto neglected material such as industrial, “orphan” and educational archival films in numerous works by independent filmmakers. Such archival material is becoming increasingly appreciated as an integral part of film heritage by film scholars and artists seeing film archives, museums and academics encouraging such material's valorisation. To this end, Thomas Elsaesser has argued the urgency of nurturing collaboration between a set of three A's – the archive, the academy and the avant-garde. As an early example of this can be mentioned for example the 40th


283 With regard to the making of Correction... Noël Burch has pointed out the following periods and films as corresponding to the styles of the film's five different segments: "...the mature primitive years (ca. 1905), Griffith's middle period at Biograph (ca. 1910), the more mature films which Reginald Barker made for Thomas Ince (ca. 1915), Fritz Lang's Mabuse dyptich [sic] (1922) and, finally, the era of 'canned theatre', insofar as it is that of so many films made between 1929 and today”. Noël Burch cited in Bart Testa, op. cit., 50.


Chapter 1

FIAF congress held in Vienna at the Österreichisches Filmmuseum in 1984, which comprised a series of film screenings compiled by the institution's co-founder and filmmaker Peter Kubelka, screening films by avant-garde filmmakers such as Ernie Gehr and Jonas Mekas alongside for example cigarette commercials and home movies.286

From a present-day perspective, as film scholar Eric Thouvenel has pointed out on the basis of a comparison between Ken Jacobs’ and Austrian filmmaker Peter Tscherkassky’s works, “found footage” films nourish reflection on film historiography through their predominant focus on lesser known or anonymous film to propagate a “film history with little ‘f’” along the lines of structural filmmaking’s counter-myth.287 In their focus, such works tend to downplay classic notions of auteurs and schools to comprehend the forms of neglected material through appropriation. While there is a large corpus of films demonstrating this dynamic, a recent work which illustrates the continued role of filmic appropriation in scholarly revisionism of archival film and its ties to the debates around structural filmmaking in early cinema studies clearly, is Austrian filmmaker Peter Tscherkassky's Coming Attractions (2010). Coming Attractions appropriates rushes from commercials from the conceptual vantage point and frame of reference of early cinema studies with particular attention to Tom Gunning’s essay “An Unseen Energy Swallows Space”.288

As film critic Catherine Giraud writes in her introduction to Coming Attractions, the film suggests that commercials can be seen as one of three “cinemas of attractions” alongside early cinema and avant-garde film.289 The film uses the concept of “cinema of attractions” to understand the looks of the actors in commercials by playing puns on reference films and concepts of early cinema scholars in its inter-titles. Playing on the observation which Tom Gunning made concerning the different relationship between actor and camera, screen and spectator in early cinema, Coming Attractions conceptualises the seductive conventions of the commercial as a pendant to early cinema’s direct address, and establishes this by playing on the title of Gunning’s essay, changing it into “Cubist Cinema No. 1. An Unseen Energy Swallows Face”. Furthermore, close-ups of products being advertised are ascribed the same spectacular qualities of for example the depiction of locations in early cinema travelogues in the inter-titles’ play with words. The close-up of a sparkling soda of which the soundtrack amplifies the crackling sounds of bubbles and ice cubes is presented as the “Rough Sea at Nowhere”, thus alluding to the title of the famous travelogue filmed by British

cameramen Robert W. Paul and Birt Acres in 1898 “Rough Sea at Dover”. Through the conceptual frame of early cinema studies, *Coming Attractions* thus transforms the incognito rushes of commercials and its anonymous settings into a revisionist excursion into film history and the shadowy corners of the film archive, testifying to the continued dialogue between film historians, archivists and independent filmmakers today.

Beyond this particular example, it is symptomatic that the film history festivals *Il Cinema Ritrovato* and *Le Giornate del Cinema Muto* have included filmic works of appropriation in their programming. For example, *Il Cinema Ritrovato* established a subsection entitled “Cinema2: Old Images, New Films” in 2001, with the specific purpose of programming works of an older generation of independent filmmakers such as Al Razutis, Paolo Gioli and Harun Farocki alongside more recent films by for example Peter Tscherkassky, Gustav Deutsch and Martin Arnold.290 More recently the inaugural exhibition of the EYE Filmmuseum in Amsterdam in April 2012, which has a long-standing tradition of encouraging artists to create appropriation works from their collections' holdings, was themed *Found Footage – Cinema Exposed*, including a retrospective dedicated to these strands of filmmaking.291

1.4 Conclusion

In this chapter, I have discussed two central aspects of the relation between film archiving and film historiography. First of all, how the status of film as an archival medium and the organisation of film archives' core activities reflect and are defined by contemporary theories of history. Second, how film historiography and archival research became increasingly defined within a new network of institutions and agents consisting of academic film studies programs, film history festivals and symposiums, specialised restoration laboratories, new projection and viewing technologies and artistic appropriation.

To summarise the first aspect of this discussion, it is clear from the vantage point of theory of history, that changing conceptions of archival film and access to it can be explained through shifts in different paradigms of historiography. Boleslas Matuszewski and the first wave of film archives represent a scientific film history which understood film as a finite historical documentation and which in the access it provided to it, sought to include citizens in an official narrative of national identity. Conversely, the foundational moment of the 1930s reflected a conceptualisation of film as a patrimonial object which sustained a vision of film as an international art form from an essentialist


aesthetic perspective, concerned with establishing canons of the most significant films. While this vision was different from the scientific archives in its conception of the medium's potential as an art form, I have argued in this chapter that its conception of film as archival medium did not differ fundamentally from late-nineteenth century positivism. Finally, theoretical and empirical developments in academic film historiography and independent filmmaking exposed the processes through which archival films had come into being and acquired evidentiary status through material and ideological processes. As suggested in the discussion of apparatus theory, this introduced a meta-perspective on film history which approached archival film as a monument, in a foucauldian sense, rather than as document. This turn to a large extent challenged the paradigm of film as an art form and instead focused on cultural aspects of film distribution and exhibition and a broader range of source material.

While film historian Jay Leyda in Films Beget Films, primarily devoted attention to film as a source of history in documentary and compilation films rather than as an art history, it offers, I think, a quote which succinctly encapsulates the shifting historical conceptions of archival film discussed in this chapter and summarised above. As Leyda writes with regard to Matuszewski’s emphasis on film’s veracity:

...in this last comment on cinematographic 'truth' can we say that the years have contradicted Matuszewski; even the retouching of a strip of film is no longer considered a feat, and other forms of distortion are regarded complacently as basic practice.\(^{292}\)

In other words, the conception of archival film as a finite manifestation of truth had little currency already by the 1960s, when the slightest appropriation of film became regarded as common, as could be said to be the case today.

However, to grasp the broader picture of contemporary film historiography, and to recall the critique of New Film History’s view on the development of film historiography, it would be reductionist to claim that one historical model or research practice, or historical “science-fiction” if we like, can be considered paradigmatic today. To a large extent, what one can regard as paradigmatic depends on the place of knowledge production and institutional contexts one considers. In the field of early cinema studies for instance, as I have discussed in this chapter and will return to in Chapter Four, there is and remains a division between an empiricist wing of film historians and archivists and a wing which is founded predominantly in cultural, literary and critical theories. Empiricist scholars, such as Stephen Bottomore and Ian Christie for instance, propagate a

\(^{292}\) Jay Leyda, op.cit., 1964, 10.
view of film history as a soft science. On the other hand, film historians such as Tom Gunning and André Gaudreault continue to develop critical historiographies drawing on critical, literary and cultural theories. Furthermore, as I discuss in greater detail in Chapter Two, it is important to point out that FIAF, while founded primarily upon a conception of film as art, recurrently – and increasingly it seems - recourses to a conception of film as historical document to promote its mission of preservation and by embracing film archives with a predominantly documentary scope. As FIAF's *A Handbook for Film Archives* (1980) reminds the reader in the book's introduction, written by then director of the Jugoslovenska Kinoteka Vladimir Pogagic, film's value as historical source remains an important reason for preserving films regardless of artistic qualities. As Pogagic writes: "If not all that has been recorded on film is art, still every film is a document. Even the most inferior shows and proves something about its time". In this regard, it is crucial to regard the historiographies discussed in this chapter as existing synchronically today. They occasionally replace each other or intertwine, supporting the priorities and agendas of contemporary film heritage institutions in different contexts and are being recast in the methodological frameworks and digital dispositifs which currently emerge in film and media studies.

To elaborate on this conclusion and to lead up to Chapter Two, I would like to point back to the dissertation's first research question to specify which aspects need further elucidation to understand the epistemologies of digital access formats and dispositifs. In light of the developments discussed in this chapter, it appears crucial to understand how the availability of sources and composition of digitised collections of film and related material condition specific models of history. To elucidate the implications of the digital turn, it is necessary to understand which sources digitisation has made available to scholars, how the technical procedures of digitisation and restoration of film heritage institutions can shape these sources and how scholars can intervene analytically into them. The following chapter investigates the agendas behind digitisation in film archives in order to understand the priorities and choices that film archives make in providing digital access to archival material. The chapter sets out to characterise the corpus of material which is digitally available in primarily a European context, focusing primarily on film, to understand how it reflects and recasts the models of history discussed in this chapter.

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293 Vladimir Pogagic, "Introduction" in Eileen Bowser and John Kuiper (eds.), *A Handbook for Film Archives.* (Brussels: Fédération Internationale des Archives du Film, 1980) 2.
2.0 Film Heritage Digitisation Between Europeanisation and Cinephile, Curatorial Agendas

In this chapter, I analyse how the conceptions of film as a source for film historiography, discussed in Chapter 1, have informed and reflected in debates on film heritage digitisation and access in Europe since the early 1990s. This analysis will take place against the backdrop of a historical overview of the field's professionalisation from the 1970s and onwards. In my discussion, I attend in particular to three different organisational frameworks/contexts against which film archives increasingly define their priorities; first of all the European network of film archives ACE and the archival film festival Il Cinema Ritrovato in Bologna, second the political body of the European Commission (EC), and finally the respective missions on the individual institutional level. Attending to these frameworks I discuss how especially the current agenda for increased Europeanisation within the EC has played a significant role in recasting historical discourse in film heritage institutions to subsequently analyse its consequences for digitisation. The chapter falls into two parts, focusing respectively on the discursive field of European film heritage institutions and on their DVD and Blu-ray releases as a case study.

Part one, “Film Heritage Digitisation in Europe: Agendas, Debates, Platforms”, begins by taking a historical look at film archiving in Europe through an account of the field's professionalisation between the late 1960s and the early 1990s; a period which saw the emergence of a wide range of regional institutions, scientific reference literature and pan-European collaborations subsidised by the European Commission. Against this historical backdrop, I contend that this development fostered an intersection between the agendas of the European Commission and the new organisational framework of the European Association of Cinematheques, which today frames digitised film heritage within an agenda of European identity building. Analysing the discourse of the reports written as part of the European Union's 'Digital Agenda for Europe'-initiative and its conception of a shared European identity, the last section of this part discusses how especially online platforms such as Europeana and the European Film Gateway emphasise film heritage as documents of a shared European history. Engaging also with polemics around this tendency I go on to investigate how individual institutions negotiate, confront and/or counter it in their digitisation work.

The chapter’s second part, “Taste-Making and the DVD Repertory of European Film Heritage Institutions”, analyses how representations of film history in archival DVD and Blu-ray catalogues differ from the agenda of European identity and, instead, reflect institutional missions. This analysis
sets out to elucidate the historical discourses which shape digital access on the individual institutional levels in European film heritage institutions. The choice to take the DVD repertory as a case is rooted in the circumstance that there currently exists only sparse official data on the scope and scale of film heritage digitisation.\textsuperscript{294} Given that the task of collecting such data would far surpass the scope and time available within my project, I decided to focus on and create a dataset on the DVD releases of the discussed institutions within the period from April to August 2014. By analysing patterns of for instance nationality and period within the dataset, I argue that it can be taken to reflect the current priorities and models of history which are privileged in the digitisation work of European film heritage institutions. Beyond the case study's descriptive statistical component, I also do close analysis of DVDs, released by respectively the Austrian Filmmuseum and the Danish Film Institute from the perspective of film restoration theory. In doing so I reflect on how film archives, through distinct digitisation procedures and DVD presentation strategies, suggest specific approximations to films from their collections in their digital access formats.

As a background for my analysis of the DVD repertory of European film heritage institutions, I first discuss how video distribution formats since the early 1980s have fostered a plethora of publishers releasing classic and rare titles which have been embraced by cinephiles and film historians as a repertory for studying film history. Subsequently, the part regards the creation of an annual event such as Il Cinema Ritrovato's 'DVD Awards' and the continued release of DVDs and Blu-rays by film heritage institutions as a reflection of this culture, which constitutes a particularly cinephile repertory devoted mainly to the classics and hidden gems. To analyse the repertory created with these formats, the part provides an overview of the releases of 30 institutions with attention to their representation of different national cinemas and periods.

In a concluding section, I contend that the observations made in the chapter's key examples and case study should lead us to focus increasingly on the specific underlying policies and procedures of individual collections, their shared characteristics and regard them as very limited reflections of analogue collections. I observe that even though digital access is increasingly defined in relation to a European identity project and increasingly professionalised codes, institutions maintain a strong agency of their own. Therefore I argue that principles of provenance and source criticism remain

\textsuperscript{294} Perhaps the most sustained effort to produce statistics about film heritage digitisation is the Enumerate project (2011-2014) funded by the European Commission (EC). The project indicates that approximately 22 percent of European audio-visual heritage - including both broadcast and film institutes in its survey – has been digitised. Following the advice of then responsible of the Film Heritage subgroup of the European Commission's Cinema Expert Group, Mari Sol Pérez Guevara, I chose not to use the statistics produced by the Enumerate project. As she pointed out to me, she considered the project's numbers misleading because they mix many different AV collections with film heritage collections. Mari Sol Pérez Guevara in e-mail to the author December 4, 2013. See: \url{http://www.enumerate.eu/en/statistics/}, last accessed January 24, 2017.
significant concepts in digital research, in order to understand how the digital material which researchers make use of condition and frame it. Furthermore, based on my results, I argue for a reorientation of the currently prevalent premise of abundance which inform contemporary discussions.

2.1 Film Heritage Digitisation in Europe: Agendas, Debates, Platforms

Cinémathèques today are film clinics. Technicians in white coats evaluate, diagnose and restore the material left on the roadside by cinema. A blistering objectivity directs their work. They operate on computers. They are neither treasure hunters nor partisans. They see their collections unwind on their machines, as the authorised signatories of power look after and survey the assets of a bank. This gigantic evolution, from the original cinémathèque to the modern Archive, has not passed without conscientious debates nor without rough mutations. Something has been gained. Something has been lost. But while it is still time, we would like to retrace the transition from the picturesque banks of subjectivity to the rational administration of memory.295

In 1997, Raymond Borde and Freddy Buache suggested in their La crise des cinémathèques... et du monde (L’age d’homme, 1997), that a transition had occurred in cinemathéques which implied a fundamental reorganisation of their administration and professional skills. An era of subjectivity in which film archives and cinemathéques were run predominantly by autodidact cinephiles and “treasure hunters” had been replaced by rational, modern institutional procedures reflecting the priorities of political stakeholders and scientific, computer-aided information management. Written at the juncture of the late 1990s, La Crise reflected the perspective of two ageing cinephiles belonging to an era of subjectivity, painting a pessimistic picture of this transition and polemicoising against it. At the same time, its account provides crucial coordinates for understanding the forces which have shaped film heritage institutions and digitisation, particularly in Europe. It highlights the professional, political and commercial forces brought into play in this transition which, I would argue, are key for elucidating today's European digitisation policies and surrounding debates.

Since the early 1970s, European film heritage institutions have increasingly developed

standardised work protocols in closer collaboration with each other and with political authorities. This has given rise to a professional culture sustained by scientific reference literature and formal training which to a greater degree depend on national and international cultural policies. At the same time, the very status of film archiving as a profession has on several occasions been fundamentally questioned within the field, also at an advanced stage in the history of film archiving as late as in the 1990s. In 1995 for instance, media preservationist Ray Edmondson questioned the field's professional status by highlighting that many central concepts and values needed further codification and shared standards in order for it to qualify as a profession. Yet, in spite of such debates, there are in these years, several typical organisational patterns and developments in the film preservation field which can be taken to reflect an increased professionalisation. As sociologist Andrew Abott has pointed out, established theories of professionalisation tend to point to a range of typical events which indicate increased professionalisation. For instance the development of a shared code of ethics upon the establishment of an association is a clear marker of professionalisation. FIAF began to develop its first code of ethics in 1993 as a guiding set of principles for member institutions and released it in its first version in 1998. Beyond this, there are also a set of other typical steps, such as the development of professional training, first within the context of an association, then at university-level, as well as the establishment of professional journals and a wider cultural legitimation of the professional field. Drawing on such theories, I would like to discuss and suggest below how film preservation professionalised in a rather straightforward manner since the early 1970s, marked by several typical events.

An epitomic example is the 'Langlois affair', which saw Henri Langlois removed from the position as Secretary General of la Cinémathèque française in early 1968. This event can be seen as highly illustrative of how a cinephile era was replaced by and conflicts with a later professional culture of film archiving. The ‘Langlois affair’ refers to the events which followed the French Ministry of Culture’s decision in 1968, then headed by art historian André Malraux, to replace Langlois with film critic Pierre Barbin. Due to mistrust in Langlois’ management and preservation of La Cinémathèque Française’s holdings in order to secure that the institution conformed to


298 Ibid., 10.


300 Andrew Abbott, op.cit., 15.
While this decision caused the mobilisation of massive protests by famous film directors and actors worldwide in favor of Langlois allowing him to return to his position, the affair's consequence was that la Cinémathèque française would no longer receive state subsidies. These subsidies instead went into the creation of le Service des archives du film of the Centre Nationale de la Cinématographie in 1969, that had newly constructed vaults designated to the Cinémathèque's française's holdings, but which the latter refused to take into use under Henri Langlois' direction.

This particular example can be said to sketch the contours of a transition which has occurred from the early 1970s to the 1990s. In this period, film heritage institutions within FIAF developed best practices and professional standards, through the publication of professional journals and manuals, inter-institutional collaboration, annual conferences, workshops and educational initiatives. The first edition of the professional publication the *FIAF Information Bulletin* saw the light in 1972 (since 1993 published as the *Journal of Film Preservation*), providing a forum for FIAF members and affiliates to develop and discuss shared standards and vocabularies as well as publishing original historical case studies. Since then, the professional literature on moving image archiving has continued to grow significantly from addressing mainly technical issues to cover a wide range of historical and theoretical subjects. In 1973, FIAF held its first film preservation summer school, hosted by the Staatliches Filmarchiv der DDR and held at different institutions with intervals of one, two or three years before gaining a continuing host institution in La Cineteca di Bologna in 2007.

In these transitional years, FIAF also experienced a significant expansion outside of the Occidental world seeing the Federation grow significantly in the period from 1961 to 1987 - as pointed out by FIAF's current director Eric le Roy – to count 77 member institutions in 55 countries by 1977. Part of this expansion can be said to reflect that FIAF became more successful in advocating for a wider recognition of film preservation as cultural heritage preservation in particular to an organisational framework such as UNESCO. UNESCO's 1975 General Assembly...
supported the need to preserve moving images and in 1980, the document *Recommendation for the safeguarding and preservation of moving images*, recognised moving images as cultural heritage, stating in one of its opening paragraphs that “moving images are an expression of the cultural identity of peoples, and because of their educational, cultural, artistic, scientific and historical value, form an integral part of a nation’s cultural heritage”.

The latter document has become a strong reference point for film archivists as a way of legitimising their professional activities. Also in 1980, the ties between the two organisational frameworks were further strengthened when UNESCO granted FIAF NGO status.

It goes beyond the scope of my research to discuss the implications of this global expansion with attention to the manifold, distinct societal realities within which FIAF member and affiliate institutions operate. What is important here is to underline that, due to this development the majority of FIAF institutions have created closer ties to national or regional political bodies to define their policies and missions of preservation, if not being founded upon the direct initiatives of such bodies. Consequently, with this transition, political authorities to a greater degree determine and condition preservation policies to arguably imbue film heritage institutions anew with official conceptions of (film) historiography. For this reason, it is crucial to analyse contemporary digitisation policies against the backdrop of this transition and its implications for the profession sketched above. This is what I propose in the next section with regard to discussions of digitisation between European film heritage institutions and political stakeholders in the European Commission. This will contribute to a more detailed understanding of the ways in which European policies mobilise film archives in a process of European identity construction to provide digitised film heritage historicity. To this end, I first discuss how this transition manifested itself in Europe through the emergence of regional cinémathèques, professional journals and pan-European collaborations subsidised by the European Commission, before analysing the historical discourse which permeate current European digitisation initiatives such as Europeana and the European Film 308

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310 As perhaps the most ambitious attempt to date to break with euro- and anglo-centrism in film archiving history in the post World War II era I refer to Caroline Frick, op.cit. See also Ramesh Kumar, *National Film Archives: Policies, Practices, and Histories. A Study of the National Film Archive of India, EYE Film Institute Netherlands, and the National Film and Sound Archive, Australia*. (PhDiss, New York University, 2016).

311 Raymond Borde, op.cit., 151. As Borde remarks in this regard: "U.N.E.S.C.O. ou pas, nous sommes entrés dans un monde où l’on crée des cinémathèques sur décision des Etats. Avant même d’avoir le premier mètre de pellicule, les ministères de la Culture construisent des voûtes, engagent du personnel et mobilisent des crédits. C’est une autre filière, strictement administrative, où les futures archives sont engendrées par les planning et les organigrammes".
Chapter 2

Gateway.

The Expansion and Professionalisation of Film Archiving in Europe

FIAF's expansion between the 1960s and late 1980s, manifests itself in Europe in the foundation of a range of smaller film heritage institutions. In the European countries of the “Big Four”, regional film archives emerged out of local ciné-clubs, film societies or archives of which several would later become FIAF members or associates. In France, cinémathèques were founded in Toulouse (La Cinémathèque de Toulouse, 1964), Marseille (La Cinémathèque de Marseille, 1975), Lyon (l’Institut Lumière, 1983), Nice (Cinémathèque de Nice, 1976), Perpignan (l’Institut Jean Vigo, 1983) and Brest (La Cinémathèque de Bretagne, 1986). In Germany a film museum was founded in Munich (Filmmuseum München, 1963) and later in 1993 in Düsseldorf (Filmmuseum Landeshauptstadt Düsseldorf) and in the UK in Manchester (North West Film Archive, 1977) London (the Cinema Museum, 1986) and Aberystwyth (Wales Film and Television Archive, 1989, since 2001 National Screen and Sound Archive of Wales). Also in Italy, where film archives had traditionally emerged as regional initiatives since the 1930s, did new cinémathèques appear with for example the foundation of La Cineteca di Bologna in 1963 and La Cineteca del Friuli in Gemona in 1977.312

To a certain extent, this expansion gave rise to a renegotiation of the balance between definitions of film as an art form and as a historical document. On the one hand, as products of local ciné-clubs, a large part of these institutions relied on internationalist, cinephile repertories in their collection building, ensuring the inclusion of the classics and masterpieces. On the other hand, as local initiatives - some subsidised by regional political bodies - they showed a stronger commitment to a conception of film as historical document than national institutions, by collecting for example locally produced documentaries, ethnographic film and amateur films, which only few national film heritage institutions would take into their collections. La Cinémathèque de Toulouse is illustrative as an institution which stands in-between the internationalist canon and the regional focus showing a strong commitment to both, by being at the same time an institution with a strong anchorage in its region and one of two cinémathèques in France with status of national institution (alongside La Cinémathèque française). The institution occupies a special place in the archival community for a part of its collection which it build up through fruitful connections to the Gosfilmofond in Moscow, from which the institution acquired for example the unique camera negative of Jean Renoir’s La

règle du jeu (1939), a wide range of Soviet silent classics as well as rarities such as the sole known existing print of Danish director Carl Theodor Dreyer’s Die Gezeichneten (Love One Another, Germany, 1922). At the same time the institution traditionally shows a strong commitment to the documentation of regional culture and local habits in Southern France by actively promoting the collection and preservation of regional amateur film production in small gauge formats and to make them widely accessible, most recently for example in a collaborative project with l’Institut Vigo in Perpignan, La Mémoire filmique du Sud launched in 2013.

Yet, apart from their greater emphasis on this type of material, these institutions also contributed substantially to a professionalisation of film archiving beyond their regions, by nurturing debates on film archiving and historiography through publishing activities. Around the time of the first appearance of the FIAF Information Bulletin in 1972, a small number of specialised journals dedicated to discussions at the intersection of film archiving and film historiography, emerged from regional film archives, attracting contributions and attention from historians and archivists worldwide. The journal Les Cahiers de la Cinémathèque was first published by la Cinémathèque de Perpignan (now l’Institut Jean Vigo) in 1971. Dedicated in particular to original historical case studies, it was in part this journal that fuelled the debate on the versions of Porter’s The Life of an American Fireman, by hosting, in its fifteenth issue from 1975, a discussion between film historians Roman Gubern and Barthelemy Amengual over the film’s different versions. This debate provided a direct incentive for film historian André Gaudreault to write his post-Brighton article “Detours in Film Narrative: The Development of Cross-Cutting” for Cinema Journal in 1979. In his article, Gaudreault discussed the film’s different versions by providing a meticulous, comparative shot outline analysis of both to subsequently follow and discuss the lines of reasoning of respectively Gubern and Amengual which had been put forward in Les Cahiers de la Cinémathèque.

The bilingual (Italian-English) journal Griffithiana, founded in 1978 by film collector Angelo R. Humouda of the Cineteca del Friuli, emphasised the historical study of silent and animation cinema. From the 1980s onward it would provide a forum for archivists and scholars for discussing the discoveries made at the festival in Pordenone, thinking along the lines of the Brighton symposium's display of archival material. La Cineteca di Bologna’s Cinegrafie - a trilingual journal in Italian, English and French - founded in 1990 was instrumental in theorising film restoration. By discussing procedures for the reconstruction of film versions through detailed case studies it formed what, as

313 Eric Le Roy, op.cit., 149.
315 André Gaudreault, op.cit., 1979, 1.
Chapter 2

mentioned in Chapter 1, has been dubbed a ‘Bolognese’ school of restoration theory, which promoted the philological study of different versions as the basis for restoration work of especially silent cinema classics. Each in their own way, these journals contributed to an invigoration of debates on the uses of film archives in film historical study, and to the development of professional ethics and standards which, while representative of only a small number of the new regional institutions, resonated widely within the field of film archiving. It was only slightly later, that a national institution, La Cinémathèque Française, would take the initiative to launch a journal with a similar profile, the English-French bilingual Cinémathèque published between 1992 and 2003.

The professionalisation of film archiving in Europe is reflected in the emergence of a publication culture with a very different focus than ‘first wave’ cinephile journals, sustained by institutions from outside the large metropolises. Where, as discussed in Chapter 1, early processes of canon formation, collection building and patrimonialisation of film were sustained in the 1920s by high-profile magazines such as Close-Up, Cinéa-Ciné Pour Tous or Vogue in conjunction with repertory programming in the large urban centres, European debates on the relation between film archiving and film historiography from the late 1960s and roughly up to the turn of the millenium relied in larger part on the discussions among film archivists and historians in Les Cahiers de la Cinémathèque, Griffithiana and Cinegrafie, published by smaller regional institutions, and Cinémathèque. While these journals were deeply informed by both the early canons and film theories in their discussion of what to preserve and restore, they nurtured a shift in the conceptualisation of film heritage by developing scientific best practices, ethics and restoration theory, regarding especially the programming of the festivals in Pordenone and Bologna as vital in revising and challenging the canons. Moving from the early film archiving movement's central concern of legitimising film as an art form worthy of collection and preservation, film archivists became increasingly concerned with screening lesser known parts of their collections in the best possible restored versions. To recall Borde and Buache's quote at the beginning of this chapter, they began scrutinising archival elements in “white coats” before taking their preservation and presentation decisions.

Reflecting the specialised reference literature's increasingly professional culture, the 1990s witnessed a strengthening of ties between national and regional film heritage institutions through European organisational frameworks and collaborative projects, backed by the European Commission. In 1991, 31 European film heritage institutions went together to form the Association of Cinémathèques of the European Community (ACCE), which that same year embarked on the
collaborative LUMIERE project subsidised by the European Commission’s MEDIA programme. The LUMIERE project formulated and worked towards three common goals of primarily the European Union's film heritage institutions.\footnote{José Manuel Costa, op.cit., 9-10.} First of all, it aimed at developing joint film restoration projects between archives, relying on the exchange and comparison of different archival elements to create as complete as possible restored versions of films. Second, the project strived to compile a European filmography – also known as the Joint European Filmography (JEF) - to facilitate such exchanges and to improve access for researchers. And finally, the project promoted the search for lost European films.\footnote{Ibid.}

According to Eric Le Roy, these efforts led to the restoration of approximately 1000 films, mainly from the silent era, and the identification of approximately 700 films.\footnote{Eric le Roy, op.cit., 130.}

This development reflects that the number of film heritage institutions in Europe had reached a critical mass, which could sustain its own professional organisation outside of FIAF. From this perspective, the previous decades' regional expansion in part fuelled international collaboration within a European regional sphere, which have continued in different projects after LUMIERE's conclusion. In 1996, the ACCE changed into the Association of European Film Archives and Cinematheques (ACE) expanding its membership base to comprise a wider range of institutions in especially Eastern European countries, which would become members of the European Union throughout the 2000s. Yet, in spite of this expansion beyond the European Union, ACE has continued to be substantially subsidised by the European Commission in a number of pan-European, collaborative projects, remaining embedded primarily in the political context of the European Union and its agendas.

Thus, since 1996, LUMIERE has been followed by different projects of a duration of two to four years, ranging in focus from the development of cataloguing standards to restoration techniques and archival access. For example, the project Film Archives Online (FAOL), completed between 1997 and 2000, developed online learning tools on film restoration for students, scholars and archivists to disseminate such skills more widely.\footnote{Gregory Lukow, "Beyond 'On-the-Job': The education of moving image archivists – a history in progress", in Film History, volume 12, number 2 (2000) 147n16} Film Restoration and Conservation Strategies (FIRST), running from 2002 to 2004, aimed at creating recommendations and guidelines for the digitisation, digital restoration and cataloguing of archival film.\footnote{Paul Read, “‘Films Archives on the Treshold of a Digital Era’: Technical Issues from the EU FIRST Project”, in Journal of Film Preservation, no.} And the current project Moving Image
Database for Access and Re-Use of European Film Collections (MIDAS), which has resulted in the portal Filmarchives online (not to be confounded with FAOL), shares the ambition of the Joint European Filmography to combine the databases of film heritage institutions across Europe to facilitate access to them. These projects have been and are presented and discussed at special events at the yearly editions of the film festivals in Pordenone and Bologna, in seminars that run parallel to the film screenings. In this way, the collaborative efforts of European film archives closely intertwine with the EC's cultural policies in the very forums that today perhaps most prominently nurture the rediscovery and rewriting of film history, for historians and archivists.

Arguably, this intertwining was integral to the collaborative projects from the very beginning in the early 1990s and can be said to have nurtured a definition of a particularly European film heritage. An account of the LUMIERE project's results from 1996, by José Manuel Costa, then Head of Film Archive at the Cinemateca Portuguesa, suggests this when stating that collaboration among European institutions, beyond the restoration of canonised works and rediscovery of hitherto marginalised material, may lead to a rewriting of European history:

…the list of restorations contains new restored versions of the great classics (such as NOSFERATU, FAUST, CALIGARI, CABIRIA, QUO VADIS...), collections of early films which used some non-standard formats (28mm and 68mm), and documentaries spanning the 1910s to the 1960s, all of which will help rewrite the history of European cinema, if not of Europe tout-court.

While Costa's remark reflects a concern both for a classic, cinephile canon as for more marginalised material, it can be said to indicate that, as pointed out by Borde and Buache, the reality of film archives begins to intermingle more with that of political decision makers in the transition to professional cultural heritage institutions, in particular with the European Commission's agenda to create a shared history and identity.

To conclude, it can be said that cinephile values of film history continue to provide a canon for collecting and preserving cinema as an art form. However, the network of film clubs and its associated journals have been replaced by regional cinematheques and scientific discussions in specialised journals and at festivals which emphasise film historical revisionism through access to hitherto neglected archival material. Since the early 1990s the ACCE/ACE, in tandem with the

322 José Manuel Costa, op.cit., 11.
cultural policies of the European Commission and the MEDIA programme, have also gained significant influence in the discussions within a larger European network. Through its involvement in the European collaborative efforts, the European Commission partly conditions the policies of film heritage institutions and the definitions, discussions and scopes of their projects. As the collaborative projects of the late 1990s and 2000s show, this also concerns recent and current digitisation projects prompting a closer look at how the European Commission conceives of film heritage digitisation today, as a conditioning factor for digital film historiography.

In the next section, I discuss how current policies of film preservation and historiography relate to an agenda of European identity building. I do this by analysing the political and historiographical underpinnings of the European Commission's reports on cultural heritage digitisation and of the general responses to digitisation by film archivists and curators, while attending to the online cultural heritage platforms Europeana and European Film Gateway as key examples.

Digital Access to European Cultural Heritage and Europeanisation

The closer ties between the European Commission and the European film heritage institutions have nurtured a notion of a collective, European film heritage. Today the collaboration between the European Commission and the European film heritage institutions is embedded in an increased political interest in creating digital infrastructures in Europe to stimulate economical growth and to build a strong European identity. The Commission’s “Digital Agenda for Europe”, launched in 2010 as part of the “Europe 2020” strategy, aims at improving internet access for European citizens, online availability to cultural heritage and to further a European digital economy.323 As part of this agenda, cultural heritage digitisation projects subsidised by the European Commission contribute to a process of Europeanisation, which considers cultural heritage institutions and film heritage institutions instrumental in sustaining European identity and history.

The Digital Agenda for Europe comprises a focus area on ‘Digital Culture’. Within this area, work and reflection groups seek to further digitisation in European cultural heritage institutions and provide access to them via the web portal Europeana.324 Europeana functions as an aggregator which brings together digitised, online heritage collections from archives, libraries and museums around Europe.325 Launched in 2008, it currently provides a single access point with a simple search function to collections from 141 European cultural heritage institutions, comprising national and

regional libraries, archives and museums of varying size. Through Europeana, users can browse more than 30 million image, text, video, sound and 3D items, and, depending on the rights situation of individual items, download and appropriate them according to their wishes. In extension of Europeana, a number of sub-portals have been launched devoted to specific historical periods and media types such as Europeana Regia for Middle Age and Renaissance manuscripts, Europeana Newspapers, the Europeana Collections 1914-1918 dedicated to material relating to World War I, Europeana Photography and the two film portals European Film Gateway and EFG1914.

The role of cultural heritage digitisation in European identity building is articulated in a number of recommendation reports penned in work and reflection groups as a part of the Digital Agenda. In recent years, especially the ‘Comité des sages’ report titled The New Renaissance (European Commission, 2011), has provided a central reflection for the Digital Agenda's objectives regarding cultural heritage digitisation. In line with the Digital Agenda's overall goals, the report sees digital access to cultural heritage as highly beneficial for educational purposes and digital business initiatives, foreseeing that non-digitised archives may become inaccessible due to technological obsolescence of its storage formats. A non-digitised archive, the report suggests, can therefore be considered a loss for European culture and history and for the creation of a digital knowledge economy. In addition to technological obsolescence, the report identifies a number of obstacles for digitisation, such as frequently complex copyright situations or lack of sustainable digital preservation models. Consequently it endorses the development of practices which may help overcome issues of obsolescence, copyright and preservation through increased funding for digitisation in member states and a strengthening of Europeana as the primary digital access point to European culture. Indeed, as the site of Europeana suggests to its users it is via this site that one should expect to have 'Europe's culture' available only a mouse-click away (see Fig. 6).

Taken as an indication of the Digital Agenda's objective for cultural heritage digitisation, the ideal goal for the European Commission is a complete digitisation of European cultural heritage to the benefit of European citizenship. As the report's title enthusiastically suggests, digital access to cultural heritage could foster a “new renaissance” in Europe, in which citizens can acquire

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326 For a list of the content providers to Europeana, see: [http://www.europeana.eu/portal/nl/browse/sources.html](http://www.europeana.eu/portal/nl/browse/sources.html). Last accessed, January 24, 2017.


329 Ibid., 17.
knowledge freely across a broad range of disciplines.

Fig. 6 'Europe's culture in your newsfeed' is the promise of Europeana to its users. Aggregating digitised material from 141 institutions it reflects the Digital Agenda for Europe's key objective to bring cultural heritage online to nurture Europeanisation.

In this regard the report strongly propagates the notion of a shared European identity and history, sustained by a unique cultural heritage and of which the future preservation will depend on digitisation and online accessibility. This notion is put forth in a celebratory tone in the report’s introductory statement, which, referring to political economist and one of the European Union’s founding figures Jean Monnet, contends that European cultural heritage is one of the world’s most important:

As Jean Monnet said, if "Europe were to be reconstructed, I would begin with culture rather than the economy". The cultural heritage of the old continent nourished the education, the formation, the spirit of the generations which preceded us and we feel the responsibility to transmit this rich (indeed, one of the richest in the world) heritage to future generations and to make sure it will be preserved, enriched and shared. With no exaggeration, we can state that what is at stake is a common good of humanity and not just of Europe.  

Building on the founding ideals of the European Union, it can be argued, that from the perspective of European policy makers, digitisation is crucial in constructing and sustaining a common, European identity, along the lines of the Union's initial ideals. Yet, the recommendations for European digitisation formulated by the report are not stimulated by entirely new ideas on the function of cultural heritage within the European Union. On the contrary they can be said to be anchored firmly in especially the past three decades of European cultural policy making.

As historian Hartmut Kaelble has argued, from the early 1980s onwards discussions among
Chapter 2

philosophers and historians gave rise to the idea of a shared European history and sphere which contributed to its very construction by historicising its cultural products in a European frame.\(^{331}\) Furthermore, the construction of a European identity in this period became increasingly driven by the creation of shared cultural symbols rather than the expansion of traditional industrial sectors, as it had happened in the immediate post-World War II years.\(^{332}\) It is for example in the mid-1980s that the European Union creates its own flag, chooses an official anthem and a Europe Day.\(^{333}\) Building on this point, social scientist Monica Sassatelli has pointed out, that the very statement by Jean Monnet used in the quote above, has obtained, since the early 1980s, the status as a crucial and returning reference point in European policy making, although the context in which Monnet should have pronounced it cannot be identified and appears mythical.\(^{334}\) According to Sassatelli, the quote has been instrumental in shifting focus in policies of Europeanisation from being driven primarily by economy, in a climate where European economic policies have proven less successful, to provide a unifying strategy of identity building rooted in culture.\(^{335}\)

The ‘Comité des sages’-report, and Europeana, can be regarded as the products of a common mechanism since the early 1980s, in which cultural heritage is called upon as the fundament for European unity and as a catalyst for Europeanisation.\(^{336}\) Acknowledging this perspective, one may also suggest that, as in late-nineteenth century conceptions of the historical archive (Chapter 1) the Digital Agenda makes the archives at large central in sustaining an official political body. While the report does not primarily endorse the preservation and dissemination of records which document state affairs or transactions between state leaders, it unambiguously frames digitised European cultural heritage collections as a driving factor for the sustainability of European history and identity. European projects of film heritage digitisation are part of this agenda, and film heritage institutions negotiate with policy makers within this particular discursive field. In the next section I look closer at how this agenda is articulated in the reports which concern European film heritage digitisation, and how it circumscribes platforms such as the European Film Gateway and EFG1914 and their repertory, addressing at the same time some of the controversies surrounding them, which


\(^{332}\) Ibid.

\(^{333}\) Ibid., 213-214.


\(^{335}\) Ibid., 47.

\(^{336}\) Ibid., 46.
their digital agenda of access has given rise to.

The European Film Gateway as Repertory of (Film) History
The Digital Agenda for Europe defines film heritage as a sub-focus within the area of ‘Digital Culture’. It has a special work group devoted to it, the Cinema Expert Group which hosts the Film Heritage subgroup, as well as its own web aggregator, the European Film Gateway, which is a sub-project of Europeana. In spite of its separate focus, film heritage digitisation intertwines closely with the Digital Agenda’s vision of cultural heritage access. This is visible in how the report *Challenges of the Digital Era For Film Heritage Institutions* (2011) - edited by the director of the Cinémathèque Royale de Belgique Nicola Mazzanti - which formulated possible future scenarios for film heritage access and preservation, seeks common ground with the ‘Comité des Sages’-report. First of all, the *Challenges...*-report shares the ambition to avoid a digital ‘dark age’ due to technological obsolescence in film heritage institutions, by suggesting that a rough estimate of approximately one million hours of European film heritage - excluding film-related collections – should be digitised. While underlining that analogue film remains the only durable preservation carrier, it emphasises that digitisation becomes imperative for film archives with commercial cinema distribution's transition to digital and that the preference of a broad range of user groups to work in digital environments should prompt film heritage digitisations to digitise. Second, the report highlights the importance of film heritage for European identity, arguing that citizens must be secured digital access to it. It makes this argument by framing the history of European film heritage institutions in a specifically European sphere, emphasising them more as historical archives than cinephile institutions. As the report states with regard to the European film heritage institutions and their history: “With a history dating back to the 1930s, the hundreds of European FHIs are the guardians of most of the European Film Heritage, a key to the history and culture of Europe from the late 19th century.” Along the same lines, the report regards the digitisation of film heritage as instrumental in educating citizens, making a case for media literacy by arguing that the ability to...


338 The report is based on research by the consulting company Peacefulfish and edited by Nicola Mazzanti, co-founder of Bologna’s Immagine Ritrovata laboratory and current director of Brussels’ Cinematek.


340 Ibid., 70 & 26.

341 Ibid., 125.
understand cinema as an audio-visual language of 20th and 21st century societies, is comparable to the ability to speak one of the world’s most spoken languages:

This is one of the most used languages in the contemporary world, far more important, in a way, than English, Spanish or Chinese for whole generations of Europeans. How can we expect them to understand our world if they ignore its most largely used language?\(^{342}\)

By making these points, the report forges a link between digital access to film heritage and to European identity and citizenship, which emphasises the role of cultural heritage in the process of Europeanisation. Harkening back to Costa’s suggestion to regard film heritage as European history, these examples suggest, that at the intersection of the visions of the European Commission's political bodies and European film heritage institutions, a definition of film as a historical source tends to be emphasised to a greater degree.

The main platform for digitised film heritage in the context of the Digital Agenda is the European Film Gateway, developed between 2008 and 2011 as a sub-project of Europeana, which gathered thirtytwo film heritage institutions in a collaborative project to make digitised collections available online.\(^{343}\) With a slightly different target audience than Europeana, the European Film Gateway is conceived predominantly for scientific researchers as well as interested audiences providing access to "hundreds of thousands of film historical documents as preserved in European film archives and cinémathèques".\(^{344}\) Currently, the EFG comprises 676,976 items, of which 36,979 are videos, 597,975 images and 42,330 text items, which can be browsed through a simple search interface, that allows users to filter the content through parameters such as 'Provider', 'Year', 'Language' and 'Media'.\(^{345}\)

The material covers very diverse types of items and periods; from photo documentation of optical devices from before the emergence of cinema such as La Cinemathèque Française’s digitised collection of magic lantern slides, to the Cineteca di Bologna’s collection of newsreels, animation and documentary films produced by the Italian company Corona Cinematografica from the 1960s to the 1990s. The website does not have curated sections which directs the visitor toward certain themes, directors or stars, but instead seems to encourage visitors to explore the content on their

\(^{342}\) Ibid., 110.


own. However, it is a general feature that the items which the contributing institutions provide for the European Film Gateway, belong to specific sub-collections grouped together for example by a theme, production company, type of film-related material or period. These sub-collections are listed in a section on the site - "Collections" - which contains short presentations for each of them and their material.346

As such, the composition of the content provided by the different institutions may appear eclectic and can be said to be glued together mainly through their qualification as European film heritage, which, while not free of copyrights, is material which the contributing institutions have been able to clear rights for to put online. In this sense, the European Film Gateway shares the ambition of Europeana to bring together as much digitised content as possible, to the extent that copyright legislation allows it, from all periods and genres. This creates a repertory which is characteristically devoid of a classic cinephile frame of reference as over-arching principle. Via the European Film Gateway, users will not be introduced to for example the canonical stylistic currents of the 1920s or New Wave cinema. While visitors may find production stills for a film such as Robert Wiene's *Das Cabinet des dr. Caligari* or photos of François Truffaut at the 1959 Cannes Film Festival, they are not steered towards this material through the pages' design, but may just as well stumble upon an early newsreel by clicking on the front page's 'Video of the Day' recommendation.

Yet, while the site levels this diverse material without an apparent hierarchy, it also reflects an emphasis on film heritage as a source for learning about European history by incorporating the results from the later follow-up project EFG1914 launched after the EFG project's initial three year period. Approximately 2800 films consisting mainly of newsreels and non-fiction, or around 8 percent of the video items which the site offers access to, relates thematically to World War I or was produced in the years of the war. The theme of World War I was chosen for the European Film Gateway's follow-up project EFG1914, which ran from 2012 to 2014, to mark the war's centenary, for which twenty-one European film archives provided content resulting in online access to 701 hours of films, 6100 film-related documents and a virtual exhibition on the war as seen through the film archives.347 Different from the European Film Gateway the EFG1914 project not only functioned as an aggregator for already digitised collections, but also subsidised the digitisation of films and related material as one of the tasks defined in its work plan.348 In this sense, a significant

feature of the European Film Gateway projects has become to underscore significant events in a shared European history, around the years that mark their commemoration by directly ensuring its digital access, reflecting the Digital Agenda's conception of film archives as sources for a shared European history (see fig. 7).

Fig. 7 EFG1914, different from the European Film Gateway, its follow-up involved actual digitisation work, arguably underscoring the Digital Agenda's conception of film archives as sources of a shared European history.

In addition to sustaining a shared European history through digital access and digitisation, the EFG projects also serve the purpose to develop shared standards between institutions and make their databases and digitised collections interoperable, as did the collaborative projects which followed LUMIERE. Within the initial European Film Gateway project a number of the contributing institutions were attributed a specific role to ensure that the project could be carried out in collaboration between them. For example, the Filmmarchiv Austria would conduct user requirements studies to determine which functionalities the site's user groups would need, while the Danish Film Institute defined the typographical characteristics needed to develop common, functional filmographic standards, and the ACE was responsible for dissemination and networking in order to promote the project. In this sense, the collaborative projects have continued to nurture a dynamic between European film heritage institutions which has increased since the early 1990s, in which the development of professional shared standards within a European sphere goes hand in hand with constructing European history and identity.

This development towards increased digital access has not occurred without controversy. As argued by Buache and Borde in the epigraph, it risks implying a handover of decision making to political stakeholders at the cost of cinephile core values, creating image banks that potentially render the expert curator superfluous. While a project such as EFG1914, which is highly curated, does not seem to fully support such a criticism, Borde and Buache's criticisms recurrently resonate in European debates on film heritage digitisation and need to be addressed to understand the implications of this process. The next section discusses these criticisms while reflecting on them against the actual scope of digitisation in film archives.

Controversies of Access and Digital Realities in European Film Archives

Throughout the 1990s and 2000s, prior to the EFG initiatives, the European Commision’s interest in making film heritage institutions more accessible was perceived in debates among film archivists as a development which undermined cinephile core values, while strengthening the priorities of political authorities. Borde and Buache, addressing the field of film preservation at large, suggested this with their blunt comparison between the institutional procedures of the modern film archive to those of the bank or the clinic. In relation to the LUMIERE project, former deputy director of the Nederlands Filmmuseum (now EYE Filmmuseum) Eric de Kuyper, put forward a similar critique, arguing that increased access for researchers in the name of “public service” and use of film archives as “image banks” reflected the creation of an alliance between political authorities and market forces. As de Kuyper wrote:

This new form of ‘research’ almost always has a commercial aspect, which is doubtless why the political authorities responsible for funding cultural institutions to a greater or lesser extent tend to regard such demand in a favourable light.

By the same token, in a more recent critique from 2005, director of the Austrian Filmmuseum Alexander Horwath polemicised against digital access by likening the digitised film archive to an ‘image bank’ where the curator no longer mediates between the museum visitor and the collection to create meaningful interpretation, but operates according to a commercial, neo-liberal logic which

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352 Ibid., 234.
dematerialises films to a form of free-flowing capital. According to Horwath, as a consequence of
digitisation, film heritage institutions could risk being deprived of performing a critical, curatorial
function within society, neglecting their cinephile origins in the poetic collection building of their
founding figures – Henri Langlois, Iris Barry and Jacques Ledoux – as well as their responsibility to
make users aware of especially analogue film's material and technological specificities.\footnote{Alexander Horwarth, “The Market vs. the Museum”, in \textit{Journal of Film Preservation}, no. 70 (2005) 7 & 8.}

While put forward in very different contexts, these criticisms sketch the contours of an
oppositional stance towards increased (digital) access, which questions the closer relation between
political authorities, market forces and film heritage institutions. Following this line of thought, one
could certainly characterise the European Commission's Digital Agenda, as it is reflected in the
introduction to the 'Comité des Sages' report, as promoting the interests of the European Union,
above those of the film heritage institutions. Its offset in Jean Monnet’s much-cited remark and its
statement that digital access to European cultural heritage concerns a “common good of humanity”,
suggests the European Commission's imperative to instrumentalise cultural heritage institutions
within this agenda. And indeed, the Digital Agenda’s strong emphasis on digitisation as a fundament
for creating new economical growth, seems to justify the likening of the digital archive to a bank
account, making cultural heritage institutions increasingly driven by market logic.

Such criticisms can certainly appear pertinent as an argument against governmentality when
considering the discursive field constituted by the European Commission’s reports and discussions
among European film heritage institutions. Yet, for two particular reasons, these criticisms urgently
call for a pragmatic response rooted in a closer analysis of the actual practices and scope of digital
access to film heritage. First of all, the critiques by Borde, Buache, de Kuyper and Horwath seem
premised in the assumption of a direct correspondence between political and institutional priorities.
By regarding film heritage institutions as part of a complex together with political authorities and
the market, they attribute little agency to the former in this process. They do not reflect that film
heritage institutions contributing to European projects may have manifold and contradictory
motivations for participating and digitising in the first place. Though political authorities provide a
frame, the selection and digitisation of material, while indeed relying partly on commercial and
political considerations, still predominantly lies with the film heritage institutions. For instance,
within EFG1914, the Austrian Filmmuseum digitised and offered online access to rarely seen
\textit{Kinonedelja} newsreels by heralded director Dziga Vertov preserved in its collection. As a director
whose work is integral to the museum’s history and vision of film art, this material was
simultaneously presented in a curated section of the Austrian Filmmuseum's website to reflect its tradition, and within the EFG1914 where it supported a historical focus on the period of the first World War. This can be seen as an example of how institutions negotiate and give prevalence to their own focus areas within EC-subsidised projects. Beyond this example and the debates on analog vs. digital curation, there is a need to analyse in greater depth how institutions, use the rhetorics of Europeanisation to their own ends to provide digital access to their collections in manners which challenge this frame.

Second, these criticisms consider digitisation as an all-pervasive force which creates abundant digital archives, in line with a political wish for complete access. In doing so, the critiques seem to exaggerate the scope of current digitisation, especially since the statistical data concerning the scope of film heritage digitisation unambiguously indicates that mass-digitisation has generally not taken place. The European Commission’s *Film Heritage in the EU*-report (European Commission, 2014) concludes this when stating “[t]hat there is a **lack of precise statistics about the progress of digitisation of film heritage**” and that “…the figures point to a very low level of digitisation, indicating that **little progress has been done**…” The report lists eight countries of which the different percentages - which are imprecise because some of them cover both film and related material - are the following: the Czech Republic less than 1%, Estonia 20%, Germany less than 0.5%, Latvia 15%, Lithuania 13%, the Netherlands 20%, Slovakia 1.25%, UK 3.8%. And, as the report adds, since only a very small part of EU countries currently allots budgets for digitisation, this situation is unlikely to change significantly in a near future. With regard to the oppositional stance towards digitisation, these numbers suggest that we should develop new premises for the debate surrounding film heritage digitisation. First of all, they should invite us to abandon the idea of abundance of digital film heritage and its view of the film archive as an “image bank” openly accessible to general users, in which current discussions seem premised. Instead, there is a need to consider digital collections as rather restricted and highly curated entities that only very partially or fractionally mirror analogue archives. It is telling that many prominent film scholars and archivists in a petition launched at the University of Udine's FilmForum in 2013 called for increased digitisation of film heritage collections for research to avoid a dark age in which the large majority

356 Ibid., 17-18.
357 Ibid., 37.
of archival material cannot be accessed.358

Moreover, these numbers also complicate making general assumptions about whether digitisation can be said to privilege specific types of film histories and/or research traditions, as they do not provide specific data on which sources and/or periods digitisation gives prevalence to, nor consider the broad variety of collection types held in film archives. To give an impression of the material heterogeneity of film heritage collections one needs only consult the FIAF’s 1997 Journal of Film Preservation special issue ’Manual for Access to Film Collections’ which, apart from film collections, lists: Visual resources such as photos, posters or for example visual formats such as lantern slides; Publications in the form of articles or brochures; Unpublished documents related to film production such as manuscripts, shooting scripts or private notes; Clippings that document advertising or press releases for example; Sound recordings; Artefacts, meaning collections of film technology such as cameras or projectors or for example optical devices predating cinema’s emergence.359 As discussed in Chapter One, different scholarly traditions emphasise different source materials. In this regard, by not distinguishing between different collection types, current statistics on film heritage digitisation only offer a vague idea of what archival material has been digitised and how it is made digitally available to film historians.

These two aspects - low digitisation numbers and the lack of a general overview of digitisation - have not been prominently represented in current debates. Consequently, we know little about the underlying institutional procedures that shape them, the composition of the repertories they produce as well as their uses by film historians and general users. Therefore, while acknowledging that criticisms of digitisation raise pertinent questions that cut through to some of the underlying - and in some aspects problematic - political mechanisms of cultural heritage digitisation in Europe, I would argue that they need to be complemented, and countered, by a more detailed analysis of how institutional procedures shape and create digital repertories. Otherwise they can only aspire to appear as straw man arguments. It goes beyond the scope of my dissertation to produce an extensive overview of digitised film and film-related collections in European film heritage institutions. As pointed out before, there are no complete data available and collecting them would be too large an effort. Furthermore, institutions outside of the EC, such as FIAF and the European Audiovisual Observatory (EAO) do not produce such statistics. As pointed out to me by respectively Christophe Dupin, FIAF’s Senior Administrator, and André Lange, then the EAO’s Head of Department for


Information on Markets and Financing, film archives have traditionally been very restrictive in providing such information, partly because of unclear copyright situations.\textsuperscript{360} However, I believe it is still possible to give an impression of how film heritage institutions mirror their collections, negotiate and transmit their respective institutional missions and deontologies by considering their various digital access formats, in particular their DVD releases.

In the following part I would like to elaborate on this discussion with regard to the creation of archival DVD and Blu-ray editions by European film heritage institutions. I argue that the video releases of film heritage institutions can be regarded as a form of circulating library for scholarly study, in order to yield a more detailed insight into digitisation's consequences for scholarly access to films. To this end, I seek to elicit which films, genres and periods archival DVD releases represent and how they in this way reflect the traditions of the institutions that release them. In doing so, I hope that while I may not provide a comprehensive survey of the scope of digitisation I will at least offer a glimpse of the values and histories which digital publication formats transmit.

\textbf{2.2 Taste-Making and the DVD Repertory of European Film Heritage Institutions}

\textit{The Repertories of Video Distribution Formats and Taste-Making}

Film archivists and historians have been paying great attention to DVD releases since the early 2000s, where an increasing number of film heritage institutions began releasing DVD editions of archival material from their own and other institutions' collections. In the past decade, around 35 film heritage institutions in Europe have launched DVD editions to disseminate archival films which archivists and historians critically judge the quality of. It testifies to this development, that the archival film festival Il Cinema Ritrovato in 2004 began organising a yearly DVD Awards ceremony for releases of archival films. This ceremony takes place just across the court yard, the Piazzetta Pasolini, of the locality which hosts the yearly presentations of ACE and FIAF. At this ceremony a committee composed of high-profile film preservationists, critics and historians such as for example film critic Jonathan Rosenbaum, Alexander Horwath and in previous years also Peter von Bagh, former director of the Finnish Film Archive and artistic director of Il Cinema Ritrovato, decides which DVD releases from both commercial and state-subsidised archival DVD publishers are to be honoured as for example the ‘Best DVD’, ‘Most Original Contribution to Film History’,

\begin{footnotesize}
\begin{itemize}
\item Interview with Christophe Dupin at the FIAF Secretariat, Bruxelles, November 25, 2014 and André Lange in e-mail to the author November 28, 2013.
\end{itemize}
\end{footnotesize}
‘Best Rediscovery’ or ‘Best Bonus’ (see fig. 8).\textsuperscript{361}

To make their decision, the committee shows utmost attention to a DVD release’s technical specificities, taking into consideration the quality in which a film is transferred, its restoration and to whether the selection of a title makes an original addition to film history by either making a classic available, or challenging the canon by unearthing a film which remains to be discovered. To receive the price for ‘Best DVD’ is considered a great honour by a DVD publisher, and as a stamp which approves the merits of its work. It can be said, that by appraising DVDs in this forum, the jury’s members act as “agents of consecration” who legitimise the status of a film as a classic and discerns which DVD release renders it’s qualities in the best way.\textsuperscript{362}

\textbf{Fig. 8} The DVD Jury Committee in action at Il Cinema Ritrovato 2014’s awards ceremony. From left to right: Alexander Horwarth, Paolo Mereghetti, Peter von Bagh, Jonathan Rosenbaum and Marc McElhatten.

The example of Il Cinema Ritrovato's DVD Awards Ceremony reflects a mechanism of taste-making which has emerged among cinephiles and film historians around specialised film editions in video formats such as VHS, Laserdisc, DVD and Blu-ray.\textsuperscript{363} Since the late-1970s/early 1980s, cinephiles have increasingly begun to develop and discuss their tastes of film and its history with


\textsuperscript{363}Ibid., 66.
these formats, attentive to among others, the technical aspects of a release, the version of a film included on a DVD – whether a director’s cut or a cut theatrical version – and the selection of titles.364 Cinephiles buy DVD editions of films with a demanding attitude towards the technical specificities of its transfer and reproduction of a film’s physiognomy – what media scholar Barbara Klinger has dubbed the "hardware aesthetics” of a release.365 Moreover, they display personal taste in the selection of video releases of classic and rare titles to form personal film collections, carefully organised into classificatory categories such as for example country of origin, director or genre.366 This culture is sustained by a myriad of video publishers and labels which form a niche market for classic and rare films and which began emerging in the early 1980s. Arguably the most widely esteemed video distributor of film classics is the American label Criterion Collection, initially founded as the company Voyager in 1985 in collaboration with the art-house cinema distributor Janus Films to release technically advanced laser discs of films from the latter’s catalogue, focusing on auteur, indie and experimental cinema.367 Moving from Laserdisc to DVD in 1997, The Criterion Collection’s catalogue is underpinned by a politique des auteurs-approach boasting releases of for example classic and new wave directors such as Sergei Eisenstein, Federico Fellini, Michelangelo Antonioni, Ingmar Bergman, Orson Welles, Jean Renoir, Max Ophüls and Akira Kurosawa.368 In the UK, the DVD-series Masters of Cinema published by video distributor Eureka Classics has a similar catalogue profile.

Beyond these labels a plethora of publishers have emerged which each cover specific niches; French video distributor Re:voir is dedicated to classic experimental and avant-garde cinema, British label Second Run focuses on Eastern and Central European new wave directors and the Italian labels NoShame and RaroVideo mix auteur releases with exploitation and trash cinema. These are but a few examples from a long list of specialised video distributors which one can get an overview of by visiting review websites and discussion forums such as dvdbeaver.com or the Criterion Collection’s web-forum criterionforum.org, where the discussion board ‘Boutique labels’

365 Barbara Klinger, op.cit., 80 & 83.
366 Ibid.

118
has a unique thread devoted to each of the large majority of existing labels.\textsuperscript{369} The DVD and Blu-ray market for classic films has also proven more stable than the market for contemporary films and in general does not experience as dramatic a decline as the latter.\textsuperscript{370} In addition, it is a market which is experiencing a burgeoning professionalisation with the creation of international platforms such as for example the annual 'Marché du film classique' held in Lyon since 2013.\textsuperscript{371} The 'Marché du film classique' gathers VoD platform representatives, DVD and Blu-ray editors from around the world, including private and FIAF member archives.

![Figure 9](image.png)

**Fig. 9** Cover illustration to film archivist and historian Claude Beylie’s *Vers une cinémathèque idéale* (Henri Veyrier, 1982).

Because of the development of a specialised, historically informed video market, film historians and preservationists have embraced video formats since an early stage as providing archival source material for their research and as creating a solid fundament for studying film history. As discussed in the previous chapter, throughout the 1970s Jean-Luc Godard advocated for video technology and


\textsuperscript{370} Frédéric Mercier, "Le film de patrimoine croit en son avenir", in *Cahiers du cinéma*, No. 706 (2014) 54.

\textsuperscript{371} Ibid.
video access before completing his *Histoire(s) du cinema* between 1988-1998 using primarily VHS copies of films. Likewise, VHS was at an early stage perceived as providing the opportunity to build strong collections of reference titles, gradually becoming accepted as formats for teaching in academic settings. This was for example the stance taken by film critic, historian and preservationist Claude Beylie, founder of the university cinémathèque of the Panthéon-Sorbonne University in Paris - also present at the FIAF round table discussion in Lausanne with Jean-Luc Godard in 1979 discussed in Chapter 1 - who regarded VHS as a convenient entry point into film history. In his *Vers une cinémathèque idéale* (Editions Henri Veyrier, 1982) Beylie proposes a personal, cinephile list of favourite film classics as an introduction to film history based on the availability of film titles on VHS to create, as the title suggests, an ‘ideal cinémathèque’.

To underpin this stance, the cover of Beylie’s book eloquently evokes the transition from film to video as a technology for studying film history. On a silver background one sees a photo of a 35mm film can in which a video cassette lies on a lining of red satin, to seemingly suggest that the format, just as an analogue film print, is capable of evoking intense cinematic passion in the cinephile collector opening up the gates to film history as in the glory days of the silver screen (see fig. 9).

In the late 1990s, film theorist Dominique Païni, then director of the Cinémathèque Française, proposed to speak of an “effet-magnétoscope” - a “VCR effect” – with regard to video collecting among cinephiles and film historians. Païni argued, that by collecting VHS tapes, cinephiles had become ‘cassettophiles’ who could establish ample reference frames through collection building outside of cinémathèques and repertory cinemas with the effect of becoming more demanding in what they wished to see in cinémathèque programming and increasingly eager to unearth hidden gems and neglected films. According to Païni, this development also yielded unprecedented scholarship, by broadening the reference frame for film historians and allowing for repeated viewings in university settings. Responses among film archivists, critics and historians to DVDs and Blu-rays can be seen in extension of these stances, having equally been perceived to sustain a classic repertory of films and to broaden it.

Also today, guides to film history or written accounts of personal cinephilia are developed...
around releases from the home video market. For instance, Jean Douchet, one of the cinephiles par excellence whose work bridges the generations of second generation and contemporary cinephilia at Il Cinema Ritrovato and La Cinémathèque française, based his introductory guide to film viewing La DVDéothèque de Jean Douchet (Cahiers du cinéma, 2006), on the availability of classic titles on DVD. In addition, compared to earlier video formats, DVDs and Blu-rays are widely considered to offer a more stable and satisfactory rendition of film material which creates a closer approximation to the experience of analogue film, for which reason they have been more willingly accepted into academic settings for teaching, as an alternative to film projection, and for historical research.378

Jonathan Rosenbaum, a member of Il Cinema Ritrovato’s DVD Awards committee, is perhaps one of the foremost voices to enthusiastically pinpoint these features and argue that DVDs are instrumental in sustaining and reshaping classic film repertories at large, contending that digitisation revivifies collective cinephilia.379 This is encapsulated in his praise of the Criterion Collection’s DVD edition of Sergei Eisenstein’s Ivan Groznyy. Skaz vtoroy: Boyarskiy zagovor (Ivan the Terrible, Part Two, 1958) and its reproduction of the film’s colors as well as historical contextualisation conceived by two noted film historians:

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Today, for instance, it’s possible to see the beautiful colors of the second part of Ivan the Terrible correctly, accompanied by superb historical documentation, anywhere one has a DVD player and the Criterion edition of the DVD, with commentaries by Yuri Tsivian and Joan Neuberger.380
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Elsewhere in the same article, highlighting again the central role of DVDs in developing film historical insights, Rosenbaum suggests that:

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The basic point is that there are still cinephiles much younger than myself who are full of excitement about films made even before the glory days of Louis Feuillade and Yevgeni Bauer (whose mise en scène in the 1913 Twilight of a Woman’s Soul and the 1915 After Death are elegantly described by Tsivian on a new American DVD called Mad Love); and this situation isn’t likely to change, even if the places and contexts where these films are seen and understood become radically transformed.381
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In emphasising the names of directors such as Louis Feuillade and Yevgeni Bauer, Rosenbaum suggests, that DVDs are instrumental in passing on cinephile traditions to younger generations and challenge them by making early cinema titles that precede them available. Implicitly, Rosenbaum’s praise can also be said to suggest that the accumulated tastes of different generations of cinephiles are represented in DVD editions. While a director such as Feuillade and his serials *Fantômas* (France, 1914) and *Les vampires* (France, 1915) have been closely associated with the tastes of ‘first wave’ surrealist cinephilia which emerged out of Paris’ ciné-clubs in the 1920s, a director such as Yevgeni Bauer is today known among cinephiles in large part because of the rediscovery of his films in Pordenone and Bologna in the late 1980s and 1990s.\(^{382}\) Furthermore, Rosenbaum’s praise of the Criterion edition of *Ivan the Terrible* almost echoes Moussinac’s pleas for film preservation and repertories in the 1920s discussed in the previous chapter, which bemoaned the bad print quality of Eisenstein films. Playfully, one may suggest that the archetypal cinephile, now as then, measures the quality of a repertory on the availability of Eisenstein films striving for the best possible viewing conditions in any situation, also beyond traditional distribution circles. Rosenbaum’s praise is however far from isolated, but highly representative of the crucial role which especially the DVD format has come to occupy in cinephile circles and among scholars as a catalyst for contemporary taste-making processes. As I discuss below, it is striking to note how consistently many film heritage institutions continue to release DVDs, while others have abandoned the format, also after its decline as a popular consumer format.

Yet, there are also highly critical voices, which do not share the enthusiasm. Director of the UCLA Film and Television Archive Jan-Cristopher Horak, has recurrently criticised the practice of teaching and researching film history primarily from DVD, arguing in 2003, that the DVD repertory limits the range of available titles for film historians in comparison to analogue film libraries.\(^{383}\) To support this argument, Horak’s 2006-article, “The Gap Between 1 and 0. Digital Video and the Omissions of Film History”, gave a concrete example from the US context by systematically comparing the National Film Registry of the Library of Congress, which is the list of American films selected by the National Film Preservation Board for conservation at the Library of Congress, with the availability of the Registry’s individual titles in digital, commercial video formats.\(^{384}\) In this study, Horak reached the conclusion that especially titles of silent, independent and experimental

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\(^{383}\) Jan-Christopher Horak, op.cit., 2003, 20.

cinema from the National Film Registry have not found their way to DVD releases, as they are not deemed profitable. With regard to this development, Horak contends that, rather than broadening the panorama of film historians by making a larger variety of titles available, digitisation has, on the contrary, narrowed it down.

Because of these contrasting responses and the prominent role which DVDs, increasingly in tandem with Blu-ray, still occupy at the film history festivals, in film heritage institutions’ dissemination and in scholarship, it appears urgent to develop a more detailed overview of the repertory which these digital video formats create. With regard to the releases of the Criterion Collection, film critic James Kendrick describes the selection of classic films for release on DVD as a ‘historical filtration process’, which through a dynamic of exclusion and inclusion confines our understanding of film history. As suggested especially by Horak, this filtration process also characterises the release of archival DVDs. For this reason – and to provide a more detailed counter-point to European debates surrounding film heritage digitisation - the next section analyses the repertory which film heritage institutions in Europe have established through their DVD releases as a conditioning factor for digital film historiography. The repertory of DVD and Blu-ray editions may give a particularly useful insight into understanding how digitisation establishes a repertory of reference titles, and provide a basis for elucidating how it reflects and challenges classic notions of film history.

The Shared DVD Repertory

In the period between April and August 2014, I created a dataset listing the DVDs released by 30 European film heritage institutions. With this dataset I wished to yield an impression of how the titles released on these DVDs have come to constitute a shared repertory. I regarded this dataset as a case study which could elucidate broader tendencies in current digitisation in lack of more extensive statistics. There were several particular aspects I wished to shed light on. First, I wanted to understand whether DVD releases favor specific periods. In this regard, I had been inspired by the online chronological “Film History”-listing of the publisher of the Germanophone film archives, Edition Filmmuseum, which suggests that its releases altogether constitute a film history. Second, I wished to discern the geographical origins represented by the released titles. I was particularly curious to see whether film heritage institutions, now having multiplied and working increasingly as

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state-subsidised institutions, tend to privilege national film heritage through their DVD releases or stick to the internationalist ideals of its founding figures and establish different categories. Finally, I hoped to yield insights into the frequency of archival DVD releases, to see when institutions adopted the format and if there has been a noticeable decline in releases – and in its importance - in recent years. As mentioned above, beyond being primarily a case study of archival DVD releases, my hope was also to see this repertory as reflecting broader tendencies in digitisation and access policies. At the end of this chapter I will discuss and conclude on that particular aspect of the data which I created in the case study.

To create the dataset, I first compiled a list of European FIAF-affiliated film heritage institutions. I did this by comparing the list of institutions which the EC's Film Heritage subgroup has created for their activities with FIAF’s membership database. The Film Heritage subgroup's list counts 102 institutions of which the majority of institutions are FIAF member or associate institutions but which also includes non-FIAF institutions, such as state archives, television archives and film institutes with a predominant emphasis on film production.³⁸⁷ To be able to maintain a comparison between contemporary and historical practices of FIAF institutions, I excluded the latter three types by checking for each institution if it was a member or associate.³⁸⁸ This resulted in a list of 53 FIAF institutions, of which 36 are member institutions and 17 associate institutions. I narrowed this list down further by checking if an institution had released DVDs. Subsequently, during the process of data collection, I excluded three institutions. Two institutions - the Národní filmový archiv and the Cinémathèque suisse – were excluded because I could not find enough elaborate data on their releases' content at that point in time.³⁸⁹ One institution on which I did collect data, the European Foundation Joris Ivens, was also not considered in my final case study because it is dedicated to one director's oeuvre.

While my list reflects my dissertation's focus, it is important to stress that a FIAF-affiliation as a sole criterion hardly provides a clear-cut definition of what makes a film heritage institution. This criterion for instance excluded several small, regional cinémathèques in Spain and France – located in Santander, Murcia, Marseille and Saint-Étienne. These institutions have been founded in a traditional way as off-springs of film clubs developing collections for programming and


³⁸⁹ However, this has since changed. The Národní filmový archiv has launched a new website with a more elaborate presentation of their DVD releases. For the information I had access to online when collecting my data, on the basis of which I decided not to include the institution in my overview, see: http://web.archive.org/web/20140915142746/http://www.nfa.cz/en/multimedial-publications.html. Accessed January 24, 2017. La Cinémathèque suisse's website did contain elaborate details on some releases while others were not described in great depth.
preservation, but not to an extent where it is feasible, realistic or desirable to implement FIAF’s requirements and code of ethics. It also excluded the historically significant case of the Cinémathèque Robert Lynen, or the Hamburg-based research centre Cinegraph, which has been instrumental in shaping German film historiography.\textsuperscript{390} On the other hand, one non-FIAF institution does appear in my overview as a consequence of a collaborative DVD project with FIAF a member institution. This concerns the Filmmuseum Potsdam, which has published in collaboration with the Bundesarchiv and the Deutsche Kinemathek in the Edition Filmmuseum imprint.

Through these steps, my list ended up comprising 30 institutions of which 29 are either FIAF members or associates and 23 ACE members (see Appendix 2). For each of these institutions I subsequently went through their websites or, when available, DVD catalogues to gather information on their DVD releases and to the greatest possible extent include information on each released title's year, country of production, director or production company. For some releases, I was not able to find information on which titles exactly they contained while having an indication of their decade of production. For instance the Filmmuseum Austria's Jahresedition DVD-series of newsreels had a clear indication of production year for each edition but not of the number of titles they contained. Furthermore, a few releases contained compilations for which it was not possible to verify whether it comprised one or more titles. In these cases I let a release count for one title, while they are likely to contain more. In the results which I discuss below I indicate the proportion of unverified titles or compilations. When collecting information on the titles I also gathered data on recently produced extra-material featured on the DVDs such as making-of documentaries. Yet, as I did not regard this as archival material I chose to exclude it to the greatest possible degree in my final overview.

The overview I compiled does not aspire to yield an exact, accurate insight into the representation of specific institutions’ collections on DVD and Blu-ray. While some institutions indicate the provenance of their released titles, it is generally not possible to establish provenance consistently and precisely nor to assume that a title released by an institution is also preserved in its collection.\textsuperscript{391} Moreover, a digitised film from a FIAF member institution may very well have been licensed and released by a private, specialised publisher, a circumstance which my overview does not account for. Finally, a number of film archives may have created extensive DVD catalogues of films from their collection for library distribution only, but not for sale, as is the case with for

\textsuperscript{390} Especially since the early 1980s, Cinegraph’s publications of encyclopedias and unearthing of rare, archival films from FIAF member archives through its annual cinefest and associated DVD series has made significant contributions to German film historiography. Yet, as a research centre without a film archive nor a stated preservation mission, it appeared logical to me not to count it in.

\textsuperscript{391} Furthermore, as discussed in the previous section, the increasingly specialised restoration procedures through which restorations are made out of elements from different archives also complicates the very concept of provenance.
example the Danish Film Institute. While library edition DVDs are particularly relevant for educational purposes, they tend to fall out of the broader cinephile circuits of taste-making, such as for example Il Cinema Ritrovato’s DVD Awards. Hence, I left them out.

Mindful of these limitations, I consider my dataset productive for understanding the listed institutions' releases as a shared repertory reminiscent of the distributing libraries for programming, which have always been integral to FIAF activities. It gives an impression of the tendencies in DVD publications and allows for an understanding of the institutional emphases on periods or production, be it local, national or international. To recap Beylie, the repertories created by different institutions constitute “ideal cinemathéques”, in that they reflect what film heritage institutions deem important to release on DVD. By taking on the effort and investment associated with making a film available on DVD, an institution signals that a certain release or title has importance or popularity and deserves to be seen by a wide audience.

Local Traditions and the Shared DVD Repertory of European Film Heritage Institutions

As I discussed in my dissertation's introduction, referring to de Certeau, the place in which a historical source is produced and studied tends to show bias towards its region's language or cultural context. Yet, as discussed in Chapter One, film archives have traditionally acted differently. Collection building in the 1930s' emerging cinephile film archives had a strong emphasis on an internationalist canon of masterpieces which did not confine themselves to primarily national cinema. The recent tendency in old and new film heritage institutions in Europe to create closer ties to national funding bodies and consequently nurture, or confront, ideas of national or European identity building is a relatively new development. Attending to this development, I was interested in understanding how institutions situate themselves in relation to classic reference frames and their regional context of film production through their releases. To this end, I used my dataset to analyse the relation between the listed institutions’ location and the nationality of the titles released.

In order to do so, I had to rely on a simple definition of national cinema, which, given long-standing debates in film studies on this topic, could not aspire to fully reflect its complexity and

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To my knowledge the only educational, non-commercial DVD to win a prize at Il Cinema Ritrovato’s Awards to date was the compilation of films from the seventh edition of the Orphans Film Symposium in New York, Orphans 7 – A Film Symposium, which won for “Most Original Contribution to Film History”. As the jury’s decision pointed out: “For bringing to the attention of DVD watchers a rich and fascinating area of film history: so-called ‘ephemeral’ films, including amateur films, activist filmmaking, industrial films, etc., with magnificent, in-depth commentary.” See: http://www.cinetecadibologna.it/cinemaritrovato2011_eng/ev/dvdawards2011_en, last accessed January 24, 2017.

A couple of decades ahead, the many accounts of film screenings without subtitles, at for instance Hollywood film noir at La Cinémathèque Française in the 1940s and 1950s, testifies to internationalism and a willingness to appreciate cinematic beauty regardless of language barriers being a crucial aspect of cinephile film culture.
necessarily had to be reductionist.

As film scholar Andrew Higson explains, national cinema is most frequently defined in three ways; first, in economic terms with regard to its country of production; second, in textual terms...
understood as its representation of national identity regardless of country of production; third, as a nation's film consumption and exhibition. I defined the nationality of a title uniquely based on its country of (co-)production. This had evident limitations for some of the releases I included in my dataset. For instance, in the case of the Filmoteca de Catalunya's release of works by early cinematographer and director Segundo de Chomón in 2011, the double-DVD set SEGUNDO DE CHOMÓN (1903-1912): EL CINE DE LA FANTASIA, it is safe to assume that one of the important motivating factors, was the director's Spanish origins and importance for Spanish cinema history. Yet, out of the 31 titles included in the set, only six of them are Spanish (co-)productions while the rest are French Pathé productions. Thus, while one could plausibly argue the films' relevance as Spanish cinema because of Chomón's origins, the numbers which I produced do not reflect this. They were calculated by taking the list of titles released by each institution and noting the number of its nationality's occurrences.

The bar chart above (see fig. 10), shows the results for each institution. From these results I went deeper into the data to see if different types of institutions followed different patterns and labelled their different strategies. From these numbers I discerned four categories for the institutions listed which I would like to elaborate here, which are respectively (1.) Internationalist, (2.) National, (3.) Regional and (4.) Combined regional and internationalist.

In the first category I have placed institutional DVD repertories which reflect a classic, cinephile canon but at the same time promote contemporary art and independent cinema to perform a critical, taste-making function and develop new aesthetic sensibilities. The DVD catalogue which seems to fall into this category in the most clear-cut way is the British Film Institute's, which is and remains the most prolific publisher among the listed institutions. By the time I stopped counting I had registered 2174 titles released by the BFI, of which 1622 were non-UK productions. Considering that three quarters of BFI's DVD catalogue is UK production it may seem surprising to qualify it as internationalist. Yet, in many respects, I see this repertory as remarkably consistent with the institution's traditional emphasis on national film production – including educational film – alongside an international cinephile canon, which – as discussed in Chapter One - did differ slightly from other institutions. The catalogue's three quarters of UK-produced titles boast a great variety of educational films on Britain's transport system – in particular the DVD compilations of train films released in the popular The British Transport Film Collection-series – as well as on a wide array of other subjects. Yet, the remaining quarter shows an exceptional variety and breadth of classic and

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contemporary art cinema which none of the other institutions can match in geographical range nor come close to in number. On the one hand, among the catalogue's first releases are canonised classics from the late silent era first wave cinephilia – Murnau's *Nosferatu* (Germany, 1922), *Un chien andalou* (Luis Buñuel and Salvador Dalí, France, 1929), *L'age d'or* (Luis Buñuel, France, 1930) and Dziga Vertov's *Man With a Movie Camera* (USSR, 1929). In addition, it contains a great variety of films from the most famous Japanese, French, Italian, Danish and German post-World War II and New Wave auteurs. In this sense, the catalogue clearly reinstates a classic reference frame of auteurs. On the other hand, the catalogue goes beyond the canonical reference frame by presenting a wide array of more recent and/or contemporary art house, independent and exploitation cinema. These titles are included in the catalogue's sub-section *BFI Flipside*, where for instance high-profiled contemporary directors present their selections of forgotten genre and exploitation gems such as the DVD release of Andy Miligan's youth drama *Nightbirds* (USA, 1970) presented by Nicholas Winding Refn. In this sense, BFI's DVD catalogue upholds a classic, canonical cinephile reference frame for contemporary audiences, in a way reminiscent of the circulating libraries of the 1920s and 1930s. At the same time, it fulfills a taste-making function by releasing contemporary titles, or having contemporary directors praising the gems of other, sometimes obscure, directors to bring attention to their works and give them an opportunity for reappraisal.

Another institution's catalogue which I place in this category is the Austrian Filmmuseum's. The Austrian Filmmuseum consistently uses its DVD releases in line with its founding principles to transmit a view of film art, which draws on classic and contemporary experimental cinema on the 16 releases I counted, which included 43 titles. For instance, it is telling that the Filmmuseum's first two releases also highlights two directors – Dziga Vertov and Eric von Stroheim – who have historically been integral to the institution's programming and vision of film as a (political) art form. This was marked by making two versions of rare films by these directors preserved in the collection widely available through DVD. These titles were Edith Schlemmer's and Peter Kubelka's 1972-restoration of Vertov's first sound film *Entuziazm* (Soviet Union, 1930) as the first release in the Edition Filmmuseum imprint in 2006 (Edition Filmmuseum 01) and the institution's Austrian distribution copy of Eric von Stroheim's *Blind Husbands* (USA, 1919) titled *Die Rache der Berge*

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395 These releases represent canonical directors such as Jean Renoir, Jean Cocteau, Robert Bresson, Jean-Luc Godard, Roberto Rossellini, Luchino Visconti, Carl Th. Dreyer, Michelangelo Antonioni, Jacques Demy, Jean Rouch, Pier Paolo Pasolini, Yasujiro Ozu, Werner Herzog and Jean-Pierre Melville.

(Edition Filmmuseum 03) equally released in 2006. In addition, the Filmmuseum has been committed to preserving and promoting the work of contemporary directors, often in combination with the preservation of their work or book publications. The institution's commitment to preserving and promoting the work of independent filmmaker James Benning can be seen as emblematic. His work was the subject of a monograph co-published by the Austrian Filmmuseum, *James Benning* (SYNEMA, 2007) edited by Barbara Pichler and Claudia Slanar, containing contributions from a broad variety of international scholars and artists. A part of the Austrian Filmmuseum's DVD releases are also dedicated to presenting Benning's work as it is gradually restored by the institution, counting nine titles when I went through the catalogue. Thus, the institution, in ways similar to the BFI uses the DVD format as a highly curated format to highlight the works of specific directors. Yet, different from the BFI its DVD repertory has a clearer provenance in its collection. For the most part, the institution’s releases draw material from its own collection or are new acquisitions undergoing preservation.

For a number of institutions which have a predominantly, if not entirely, national outlook I suggest the second category. Among these can be counted the Cinémathèque française, the Danish Film Institute, the Cinematek in Bruxelles, the Slovakian Film Institute and the Hungarian National Digital Archive and Film Institute. Again, on the individual level, these institutions show different patterns. While the first two emphasise silent fiction production, the latter two include a broader variety of genres and periods. The DFI's Archive & Cinémathèque and the Cinémathèque française publish almost uniquely national, silent production. As the title of the former's DVD series *Danish Silent Classics* (*Danske Stumfilmklassikere*) suggests the releases make accessible the institution's famous films from the silent period, in particular from the period up until the end of World War I, when Danish cinema, due to the dominance of the production company Nordisk, was among the most popular and widely distributed. The series comprises some of the most prominent titles and names in early Danish cinema – Urban Gad’s *Afgrunden* (*The Abyss*, Denmark, 1910) starring Asta Nielsen, Benjamin Christensen's *Det Hemmelighedsfulde X* (*The Mysterious X*, Denmark, 1914) and Carl Th. Dreyer's *Blade af Satans Bog* (*Leaves From Satan's Book*, Denmark, 1920). Along similar lines, the Cinémathèque française, as co-publisher/collaborator with the specialised, American DVD publisher Flicker Alley, has released primarily French late silent titles from the 1920s. As the Danish series it focuses on canonical names of the period such as Jacques Feyder, Marcel L'Herbier

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and Ivan Mozzhukhin.  

Arguably different from the BFI and the Austrian Filmmuseum, these institutions use the DVD format mainly to consolidate established national film historical reference frames. Yet, there are also exceptions in these catalogues, which challenge the conventional reference points. For instance, the DFI's release *Det Første Filmarkiv / The First Film Archive* of, among other titles, the early films produced for the Statens Arkiv for Historiske Film og Stemmer makes accessible a rarely seen part of its collection, which may suggest a different history of film production and archiving in Denmark. Likewise, the Cinémathèque française, in collaboration with Pathé and the Jérôme Seydoux Foundation has also used the DVD format to bring the work of director Albert Capellani into the spotlight through its release of a box set of his work in 2011. This release appeared at a time when Capellani's work was receiving renewed attention at Il Cinema Ritrovato after the two-part retrospective of his work in 2010 and 2011, *Albert Capellani: Un cinema di grandeur*, meticulously prepared after archival research by film historian and programmer Mariann Lewinsky.  

This release can be said to reflect the dynamic interplay between the archival film festivals, the culture of specialised DVD editioning and scholarship to dig out neglected directors. In this sense, while these institutions give prevalence to corpora of national cinema, they do so in a manner which also seeks to challenge established canons and/or produce new ones.

In a third category, I placed the releases of primarily smaller regional cinémathèques and film archives which were part of the later expansion of the cinémathèques' emergence in Europe and which joined the FIAF as members or affiliates throughout the 1980s and 1990s. This category counts institutions such as la Cinémathèque régionale de Corse, la Cinémathèque de Bretagne and la Cineteca del Friuli. Characteristic of the titles released by these institutions – whether fiction or non-fiction – is a strong connection to their respective institutions' region. The Cinémathèque régionale de Corse has only released one title, in 2010, *Casabianca* (Georges Péclet, France 1951). A war film based on historical events depicting the heroic escape of the French submarine *Casabianca* from the harbour of Toulon and the French army in 1942 to fight for Corsica's

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398 Yet, it should be noted that La Cinémathèque française has since broadened its DVD profile to include international auteur cinema. In 2016 it released a 10DVD box set of the work of Hungarian director Miklós Jancsó together with DVD editor Clavis Films and Ciné + Classic.


400 François Albera, "Albert Capellani: deux coffrets, treize + onze films", in *1895*, No. 64 (2011) 207.
liberation in 1943, the title has a clear relevance and significance for the region's history. The Cineteca del Friuli's DVD catalogue equally has a predominantly local focus. On the one hand there are several releases of non-fiction films – from the silent era and beyond - which documents the Friulian nature and surroundings as well as significant events such as the earthquake on May 26, 1976. Two DVD sets - Gemona prima del 6 maggio 1976 and 6 maggio 1976: il terremoto in Friuli – respectively compile historical documentary footage of the city of Gemona and its region prior to the earthquake as well as from the day of the event. Moreover, a large number of the fiction films in the Cineteca del Friuli's catalogue have a strong regional theme or component. For instance, the film Gli Ultimi (Vito Pandolfi, Italy, 1963), a drama set in the Frioul region at the eve of World War II – considered by some a precursor to the gritty realism of the Taviani brothers' and Ermanno Olmi's 1970s films - which depicts a young boy's struggle to take on the responsibility of becoming master of the house. In addition, a more recent film such as the drama Le prime di sere (Lauro Pittini, Italy, 1993) stands out by being a film spoken entirely in Frioulian dialect. Finally, also its release of the silent classic Novyi Vavilon (New Babylon, Grigori Kosintzev and Leonid Trauberg, USSR, 1929) has a strong regional component. The edition presents the film with the recording of the live score performed by the FVG Mitteleuropa Orchestra at the film's screening at Le Giornate del Cinema Muto in 2011. Thus, while focusing on film classics and film as art these institutions also seem to regard the DVD repertory as a strong opportunity to strengthen the knowledge of their regions' local history. In doing so they reflect to a great degree a conception of film as historical document, through their releases of fiction and non-fiction films.

Finally, in a fourth category I have placed institutions whose DVD catalogues reflect a combined regional and internationalist approach. This comprises for instance La Cinémathèque de Toulouse and La Cineteca di Bologna. As La Cinémathèque française, the Cinémathèque de Toulouse has not released a great variety of DVDs and has done so mostly in collaboration with specialised DVD publishers, in this case Carlotta Films. Yet, the released titles do suggest that the institution’s simultaneously regional and internationalist emphases extend into its DVD publishing activities. On the one hand, Jacques Davila’s comedy drama La campagne de Cicéron (France, 1989) set in the region around Perpignan not far from Toulouse, suggests an emphasis on local cinema production. On the other hand, as discussed above, the catalogue also includes Soviet silent classics such as Eisenstein’s Strike (Soviet Union, 1924) and Yuri Zhelyabuzhsky’s comedy The Cigarette Girl of Mosselprom (Soviet Union, 1925), reflecting the institution's emphasis on Soviet cinema.

La Cineteca di Bologna equally publishes regionally themed releases and an international repertory of classics and rarities. Of regionally themed releases the Cineteca di Bologna in particular publishes documentaries about its region’s political and cultural history by young independent filmmakers as well as more established, internationally renowned directors. As an example of the former, one can mention the documentary *La febbre del fare. Bologna 1945-1980* (Michele Mellara and Alessandro Rossi, Italy, 2010), on the city’s intertwining history of business, entrepreneurship and progressive leftist politics. From more established directors one finds Ermanno Olmi’s recent documentary on viticulture, *I rupi del vino* (Italy, 2009) and hitherto rarely seen documentaries by Pier Paolo Pasolini such as *Appunti Per Un'orestiade Africana* (Italy, 1975).

Looking at the international repertory of the catalogue, the Cineteca releases both highly prestigious editions of archival (re)discoveries, conceived in collaboration between an array of European archives as well as more canonical titles. Since 2009, the Cineteca has for instance released the series *Cento anni fa / Hundred Years Ago*, which reflects the titles in Il Cinema Ritrovato’s yearly programme section of the same name, curated by Mariann Lewinsky. *Hundred Years Ago* brings together contributions from film archives across the world to offer a diverse panorama of the state of film production a century ago and propose a stepwise reevaluation of, and alternative corpora for, film history. Moreover, as the Cinémathèque française, the Cineteca has also released titles of Albert Capellani following the retrospectives at Il Cinema Ritrovato.

With these releases, the Cineteca equally reflects a conception of the DVD as a format for challenging and revising established canons, drawing on the specialised edition culture. Beyond this, the Cineteca’s catalogue counts more established titles, for instance *Les enfants du paradis* (Marcel Carné, France, 1945) or Jean-Luc Godard’s *Histoire(s) du cinéma*, and titles which have been subject to increased scholarly attention in recent decades such as Italian diva films. Thus, the Cineteca’s DVD repertory both fulfills a strong regional function reflecting both the city’s traditionally progressive and liberal political legacy, while using the format, in particular through its *Hundred Years Ago*-series and release of Albert Capellani titles, for historical revisionism among film scholars.

With regard to these different institutional applications of the DVD format, one might conclude that there is, for many of them, a strong tendency to maintain and expand upon the individual collection and presentation philosophies, for some institutions more rigorously than others. For

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403 François Albera, op.cit., 207.
other institutions, especially those in the second category, the format is used uniquely to instate and disseminate notions of national film heritage. There might be varying reasons and motifs for this – reasons that might pertain both to the requirements of funding streams or to recent policy documents. Ultimately, I cannot aspire to elucidate the reasons for this beyond observing that for some film heritage institutions the DVD repertories do not reflect the internationalist reference frame of their cinephile foundations. However, it is safe to assume that these institutions, in addition to their DVD publishing activities, show greater diversity through their film programming on-site.

**Periodising the DVD Repertory**

If one zooms out from the perspective of the individual institutions and their philosophies, one might try to understand the dataset to discern patterns of periodisation, to see whether the DVD repertory privileges certain years over others. This might productively be done by ordering the dataset into decades, something which was possible to do as I had included the year for each title in the set. Arguably however, the decade as a periodisation can be seen as problematic. As Michèle Lagny comments, the ”decennial system” which is widely used by film historians to delimit corpora of films or aesthetics is in its very nature an arbitrary periodical delimitation, because it cannot promise to encapsulate or refer to a clearly delimited historical phenomenon.\(^\text{404}\) For example, film historians often tend to regard New Wave cinema as a 1960s phenomenon, but start their historical accounts of it in the late 1950s.\(^\text{405}\)

Taking all the 4586 titles and counting the decades they represented, this showed that especially the 1950s, 1960s and 1970s are the most represented decades in the shared DVD repertory of the European film heritage institutions, followed by the 1900s (see fig. 11). Also contemporary cinema has a strong presence, seeing the 2000s represented by 375 titles, arguably driven by the strong emphasis on contemporary cinema in the BFI’s and the Filmarchiv Austria’s catalogues. The latter in particular contributes to this with its DVD release series of both historical and contemporary films in collaboration with the Austrian newspaper Der Standard.\(^\text{406}\) This can be taken to indicate, as I discussed above, that the DVD fulfills a strong taste-making function also for contemporary titles. Yet, in spite of different institutional philosophies of film history, it is clear that the decade of which the number of titles peaks is the 1960s. As a mythical decade which is continuously highlighted as the pinacale of cinephile film culture in the twentieth century and the increasing institutionalisation


\(^{405}\) Ibid., 111.

\(^{406}\) For an overview of this release series see: [http://derstandard.at/r5085/Der-Oesterreichische-Film](http://derstandard.at/r5085/Der-Oesterreichische-Film), last accessed November 17, 2016.
of film studies, this reflects some of the fundamental theoretical underpinnings of the DVD repertory as strongly rooted in *politique des auteurs*, which highlights the classics and the exceptional directorial efforts.

![Fig. 11 Bar chart showing the representation of decades in the DVD releases of European film heritage institutions. See Appendix 4 and 5 for breakdown of numbers.](image)

This demonstrates that the DVD releases of film heritage institutions do show a bias towards mainly classic auteur cinema, in spite of the continuous persistent efforts of especially the Austrian Filmmuseum, BFI and the Cineteca di Bologna to dig out more obscure titles of contemporary cinema and from cinema’s earliest years, which do have a strong presence.

*The Rise and Fall of a Format?*

Changing perspective again, it is interesting to consider how the DVD has risen as a format for archival films and to see whether it is in decline. In my dataset I included information on the release year of the DVDs when possible. In total, I could attribute release year to 633 DVDs released by 23 institutions either individually or in collaboration. In this figure, a DVD release counts the number of times it has been re-edited, when it was possible to establish this, as was the case with the Edition Filmmuseum DVDs and a few BFI DVDs. The table I produced from this data shows that the DVD
format has slowly become integrated into film heritage institutions, with the BFI as an early adopter in 2000 (see fig. 12).

Producing around 60 releases from 2007 onwards, the numbers peaked in 2010 and 2011 with respectively 77 and 87 releases. Judging from these numbers there is no suggestion that there is a dramatic decrease in the number of releases in recent years. Rather, some institutions have abandoned the format – such as the EYE Filmmuseum and the Danish Film Institute - while others – such as the British Filmmuseum and the Germanophone institutions behind the Edition Filmmuseum imprint - seem to be maintaining or increasing the pace and frequency of their release schedule. In this sense the DVD is a remarkably persistent format, when considering that there is, as discussed above, a strong contemporary narrative about its disappearance. I would argue that, specifically for archival DVD releases, this can be explained from the circumstance that the attention given to the format at an event such as Il Cinema Ritrovato keeps it in high regard among film historians as a format for scholarly study and taste-making. As I shall discuss in Chapter Three, the format has been further developed for scholars in order to also enter the field of film philology, giving it an even stronger credibility among film historians as a research format.

To conclude, my dataset and the four categories I discerned in them, shows that the DVD
catalogues of the European film heritage institutions tend to closely reflect their respective institutional priorities and conceptions of archival film as a source of history. In general, there is a close correlation between the institutional foci on specific periods, *oeuvres*, or genres - as discussed in the previous section - and the scope of the titles put to DVD. Perhaps the only tendency which does not fall into this pattern is that a small handful of the older institutions use the DVD format uniquely as a display format for national film histories, reflecting that at least in this area of their activities, they stray away from the internationalism of the founding, cinephile movement.

Notwithstanding their focus on existing cinephile film repertories, a general feature which characterises all of the institutions’ catalogues is that the DVD format appears to be considered a highly suited format for archival discovery and research. All of the institutions analysed in this dataset publish rare or neglected titles as a way of encouraging rediscovery, research and revisionism. Perhaps the most emblematic case in this regard is the work of Albert Capellani of whom the releases of selections of films in the slipstream of the Bologna retrospectives have reinvigorated the scholarly study of his work significantly. In this sense, the DVD format can be considered a technology which has become deeply embedded in scholarly and archival research into film history, providing – or perhaps rather consecrating - source materials for new articles and monographs. As my survey of the frequency of DVD releases showed, I believe it is plausible to assume that some DVD labels, especially BFI and the Edition Filmmuseum imprint, will uphold the format’s central position within scholarship at least for some years to come, before the format becomes replaced by other formats, such as curated websites and/or VoD platforms.

Going beyond the statistics produced here, it is also important to consider DVD releases not simply as giving access to a title, but also as formats which make titles available in specific versions which suggest specific approximations to a material archival object, drawing on different traditions of restoration theory and conceptions of “hardware aesthetics”. By presenting a digitised version of a film with a specific sound and image quality, following carefully defined restoration procedures, archival DVD presentations condition historical understandings of the objects they make available. Such aspects are difficult to quantify and require deeper analysis of specific DVD presentations of digitally transferred films, in order to understand how they correlate. In the following section I would like to do this, by considering a couple of DVD presentations by respectively the Austrian Filmmuseum and the Danish Film Institute which reflect remarkably different stances on preservation.

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407 Barbara Klinger, op.cit., 66.
Archival Hardware Aesthetics and the Digital Image’s Historicity

As in the case of many commercial releases, archival DVDs include contextual information about a film's digital transfer and/or restoration, presented in the form of a short documentary or technical notes. For film heritage institutions the hardware aesthetics of DVDs plays an important part in defining how to render the image quality of archival film with digital technologies. However, the parameters of film heritage institutions, while closely related to those of amateur cinephiles who tend to favour primarily clean, crisp images, also differ slightly by reflecting to a greater degree how a digitised film is defined as a historical object through institutionally specific restoration practices. This can be seen in the circumstance that a small number of archival releases offer more advanced reflections on the restoration philosophies underpinning the digital transfer process and their institutional deontologies. In doing so they create what I would suggest labelling archival hardware aesthetics. The following discussion of the diverging practices of two institutions, the Austrian Filmmuseum and the Danish Film Institute, can serve to illustrate how very different archival hardware aesthetics produce remarkably different historical objects.

As sketched in my discussion of Horwath's position on digitisation, the Austrian Filmmuseum has approached digital access and restoration reluctantly emphasising the need to understand film's analogue manifestations. Co-founded by filmmaker Peter Kubelka in 1964 with Peter Konlechner, the Austrian Filmmuseum has traditionally placed great emphasis on preserving and showing films not merely as content but above all as material entities whose specific and unique physiognomy directs the historical understanding of the object's pastness. In this regard, Kubelka argues that content and carrier remain inseparable, as producers of a meaning which will be lost if transferred to digital media which, he stresses, have a shorter life expectancy than film carriers and do not share the same material characteristics. Moreover, the Austrian Filmmuseum has traditionally emphasised contemporary and historical traditions of avant-garde filmmaking while nurturing close ties to American post-world-war II independent filmmaking and screening culture. According to

408 Peter Kubelka, "The Responsibility to Preserve", in Eva Orbanz (ed.), Archiving The Audio-Visual Heritage: A Joint Technical Symposium. (Berlin (West): Stiftung Deutsche Kinemathek: 1988) 140. As Kubelka has stated: “The only way to answer future questions is to preserve the original as an original, with one's full strength, until it slips through our fingers as a white powder, and then to keep this in a box”. As Kubelka argues further on in the same text: “Compare Kristina Söderbaum with Jane Russell. These two actresses illustrate and represent different ideologies. But these ideologies were not in the person of Kristina Söderbaum, nor in the person of Jane Russell, but in Söderbaum on Agfa-Color and Russell on Technicolor. Here the pastel colours, the cleanliness of the German petty bourgeoisie – and there the roaring colours of Jane Russell.”

409 Ibid.
Chapter 2

Fossati this accounts to a large extent for the institution's "film as art" archiving philosophy which defines film as a unique art object and artefact tied to a singular authorial vision. The institution also aligns with especially Paolo Cherchi Usai's anticipations in the 1990s and 2000s that increased digitisation can be regarded as a force which decreases the reproducibility of analogue film and thus renders analogue artefacts more 'unique' and 'original' making the task of mediating their material aspects increasingly urgent. Beyond the reference frame of film restoration theory, one may also draw on classic restoration theory in the tradition of Victorian art critic John Ruskin, to characterise this stance as a preservationist proposition which locates the historicity of an object in its signs of ageing and therefore counters the use of modern restoration interventions to remove them. The Austrian Filmmuseum's approach implies that this stance creates a closer approximation to the historical meaning of the original archival material.

Along the lines of film preservationist Paolo Cherchi Usai's observation that each analogue, archival element becomes an even more unique object as the infrastructure for film stock production and development dissolves, the institution extends this approach into its DVD releases. In contextualising DVD liner notes and documentaries, the Austrian Filmmuseum’s releases under the Edition Filmmuseum imprint discuss how a digital version should reflect the physical characteristics of the archival element rather than hiding them. Curators Michael Loebenstein (now National Film and Sound Archive of Australia) and Alexander Horwath underline this in their introductory text “Analogue Landscapes – Digital Dreams” in the booklet to the double-DVD set of filmmaker James Benning’s American Dreams (lost and found) (USA, 1984) and Landscape Suicide (USA, 1986). As they stress, only a minimum of digital restoration techniques have been used for image cleaning in the digital transfer of the films to maintain material characteristics such as “signs of use, stray light, contrast, grain and color properties”. This, they argue, should ideally remind the spectator that the films were made as analogue works and generate interest in the museum context it derives from and its preservation mission. A similar point is made in the documentary Peter Kubelka: Restoring Entuziazm (Austria, 2005) on the DVD release for Dziga

410 Ibid., 125 and 54.

139
Vertov’s *Entuziazm: Simfonija Donbassa* (USSR, 1930). Seated in front of the editing table, winding through a print of *Entuziazm*, Peter Kubelka goes through his and Edith Schlemmer’s groundbreaking 1972-restoration of Vertov’s film which resynchronised the film’s sound and image, explaining how the digital version should reflect the film’s problematic archival life. For this reason, the transfer consistently includes signs of wear (see fig. 13). That this image aesthetic can diverge from cinephile expectations for crisp images can be seen in how a reviewer, Maikel Aarts of the website dvdbeaver.com, when reviewing the DVD contacted Peter Kubelka for an explanation of this choice. Aarts received the answer from Kubelka that the Austrian Filmmuseum had wished to “…preserve and present the film-as-an-artifact, a mutilated and battered testimonial to the fragility and durability of the celluloid medium.”

The Austrian Filmmuseum’s hardware aesthetics thus include signs of ageing to convey the pastness of the films presented. This is primarily visible in the image of the digital transfers but also reflect in a number of other smaller details of the institution’s DVD presentations. The films are for example not divided into chapters but can only be playbacked as one entire videofile. This seems sympathetic to the critique which for example Dominique Païni has put forward of the ‘chapter’ practice of commercial DVD editors as imposing a segmentation of the film which was never

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Chapter 2

perceived as providing structural coordinates for film interpretation. If the viewer wishes to segment a film released by the Austrian Filmmuseum, he or she will have to do it using editing software following a subjective interpretive scheme. Moreover, it is also possible to choose – as a specific option – to play the silent films released by the Austrian Filmmuseum without musical accompaniment. A feature which can be said to reflect and underline the legacy of the institution’s (often contested) curatorial policy to present silent films without music.

In several aspects the Danish Film Institute’s restoration and preservation philosophy shares the Austrian Filmmuseum's stance by committing to the preservation of the analogue film as an "original" artefact and irreplaceable entry point to film history. The DFI has one of the most advanced preservation programs for analogue film in Europe, having developed one of the first sustained, rigorous attempts to implement a long-term preservation strategy for its nitrate elements which foresees a life expectancy of approximately five-hundred years. While this program only covers the institution’s nitrate collection, it is the stated goal that all of DFI’s collections achieve such a life expectancy. Yet, contrary to the Austrian Filmmuseum, DFI’s approach to film projection, scanning and DVD presentation has embraced digital techniques in a manner which regard them as potentially allowing to improve the image quality of archival films under some circumstances. For example, at an early stage, the DFI to a limited extent adopted HD video screening at the DFI’s cinémathèque, instead of the projection of film prints. As Curator at DFI Thomas Christensen has argued, in comparison to often rapidly struck analogue prints, digital video can provide an opportunity to heighten the level of quality of what is projected and distributed from the institution’s collections if the institution takes an active role in shaping the process.

Furthermore, the DFI has also embraced the possibility of making digital transfers from negative elements to create releases of silent films in colours suited to a DVD hardware aesthetics. This

418 Giovanna Fossati, From Grain to Pixel. The Archival Life of Film in Transition. (Amsterdam: Amsterdam University Press, 2009) 158-164.
419 Jean-Louis Bigourdan, "Environmental Assessment and Condition Survey: A Strategic Preservation Plan for DFI’s Motion Picture Film Collections" in Dan Nissen, Lisbeth Richter Larsen, Thomas C. Christensen and Jesper Stub Johansen (eds.), Preserve then Show. (Copenhagen: The Danish Film Institute, 2002) 108.
421 Giovanna Fossati, op.cit., 2009, 162.
422 Thomas Christensen, op.cit., 2008, 2.
implies skipping the analogue intermediate process to instead work from HD scans made from negative elements and add colours and intertitles digitally. This procedure was applied in the restoration of August Blom’s *Atlantis* in 2006 for commercial release in the institute’s *Danish Silent Classics* series (see fig. 14). As Christensen has remarked, “[s]ince the purpose of this restoration was to produce as good a DVD master as possible, it was decided to aim for the best possible electronic image”. With regard to the possibilities of the electronic image, Christensen further highlighted that while the result was not entirely unproblematic nor satisfactory for cinema projection, especially the film’s black and white segments “[show] better quality and tonal range than a transfer from a tinted print”. This stance reflects a conception of hardware aesthetics which can be more closely aligned with its conception in specialised DVD editions, which uses state-of-the-art technology to suggest that film may look sharper or cleaner by using present-day digital transfer techniques to eliminate analogue intermediate steps.

![Frame grab from the DFI's DVD release of August Blom's *Atlantis* (Denmark, 1913). By scanning from restored negative elements the DFI obtains cleaner, crisper images. According to critics this betrays the historicity of the archival object.](image)

Using digital transferring as a way to skip analogue, intermediate steps to achieve a better image quality this stance has been heavily criticised by archivists, historians and curators who take a

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424 Ibid.
Chapter 2

preservationist, materialist stance for creating an a-historic approximation to the original object.\textsuperscript{425} For example, Paolo Cherchi Usai, Michael Loebenstein and David Francis have underlined that negative elements, being elements never intended for projection, do not show the same material characteristics of projection prints – for instance the grading which the latter are given in the analogue intermediate process - and therefore fail to render their historicity appropriately.\textsuperscript{426} In this sense, the approach proposed by the Danish Film Institute aligns more closely with high-end, commercial DVD distributors. At the same time, it remains more archivally informed than commercial DVD distributors, by outlining the steps of the process, providing historical background information on the archival element used for the transfer and by stressing that “[e]specially in cases when the object of study is not studied in original form, the path of representation should be considered when attempting to analyze a film at face value”.\textsuperscript{427}

To conclude, archival hardware aesthetics bring into play considerations of restoration ethics and theory much more actively than commercial distributors. Often practices are suspended between preservationist and restorationist stances; where the former favours only a minimum level of intervention with digital tools the latter engages more intensely with contemporary technology to render the historicity of archival moving images. In this sense, the ways in which DVD releases present archival material rely on remarkably different conceptions of historicity and technology. In Chapter Three I will return to the consequences which these approaches hold for scholarship in analysing digitised sources.

2.3 Conclusion

As discussed in this chapter, the film preservation field's increased codification, professionalisation and intertwinement with political bodies from the 1970s onwards, bears upon today's film heritage digitisation insofar as it privileges a definition of film as historical document. This is particularly evident in the Europeanisation discourse of projects such as Europeana and EFG1914, which assigns film archives the role of nurturing a shared European history, citizenship and economical growth. With regard to the polemics surrounding this development, as expressed by Buache, Borde, de Kuyper and Horwath, I argued that film archives, also when working on European projects, find ways of securing their own institutional interests. Especially the digitisation of Vertov newsreels within EFG1914 illustrates that film archives continue to act as ”treasure

\textsuperscript{425} Paolo Cherchi Usai, David Francis, Alexander Horwarth & Michael Loebenstein (eds.), op.cit., 208-209.

\textsuperscript{426} Ibid.

\textsuperscript{427} Thomas Christensen, op.cit., 2009, 65.
To recap Borde and Buache's words, and find ways of negotiating the relevance and meaning of (the same) archival material in remarkably different organisational contexts.

As I further argued, by pointing to the low percentages of digitisation indicated in the European Commission's 2014-report, these polemics overemphasise the degree to which mass-digitisation has actually occurred. Consequently, I contended that in order to yield a more detailed insight into the current scope of digitisation, it is necessary to abandon the strong notion of abundance which nourishes current debates and attend to the digitisation efforts and curatorial decisions of individual institutions to produce more elaborate data. I analysed the DVD catalogues of European film heritage institutions in relation to their different institutional models of history and deontologies of restoration. This analysis showed that institutions generally tend to stick to established models and reference frames, for the most part following their distinct programming philosophies or collections' scope – whether internationalist, national, regional or combined internationalist and regional. Only few institutions seem to focus uniquely on national film heritage in their DVD publishing (and arguably also digitisation policies) while showing greater diversity in their programming. Beyond these analytical observations, my dataset may provide the basis for further studies and deeper analysis. If coded and analysed using additional categories such as individual years, genres, technical specificities of DVD releases (for example playback mode and segmentation), one could possibly discern additional patterns in priorities and hierarchisations of archival material.

Whereas my case study of DVD and Blu-ray releases does reflect the different institutional digitisation priorities, it ultimately does not allow for making in-depth inferences on their work at the intra-institutional level, as DVD catalogues do not (necessarily) represent digitised collections. Archives may well have digitised entire subcollections of films and related materials without releasing them on a home video format or a website due to for instance copyright restrictions or lacking budget, while making them available on-site for consultation with restricted access. Furthermore, another significant limitation of my study is that it did not consider digitisation of film-related sources and thus remained film-centric. Notwithstanding, the database is useful to elucidate the priorities, values and models of history which underpin these institutions' digitisation work and to see how these releases reflect their individual, institutional patterns more broadly. However, in order to obtain more comprehensive statistics, I would argue that FIAF and the European Audiovisual Observatory should ideally invest more time and effort into collecting data about the digitisation activities and policies of European film heritage institutions.

By interpreting the DVD format's technical capacities according to specific institutional
restoration philosophies, some institutions, develop an archival hardware aesthetics in their releases premised in restoration practice and theory and the expertise accumulated through the field's professionalisation. In doing so, institutions provide digitised films historicity by arguing that the digital appearances resulting from specific transfer and restoration processes also help convey the pastness of the digitised films most adequately. A digital transfer's archival hardware aesthetics, as I have dubbed it, plays an immensely significant role in conditioning scholarly research. The transfer process is crucial in determining features such as colour, contrast, light and may reflect restorational interventions such as dirt removal or deflickering. While digitisation makes new forms of analysis possible, the digital image's characteristics produced through such procedures condition the range of analytical interventions which scholars may make with digital techniques of visual analytics, especially in style analysis. Equally, although I did not discuss digitisation of film-related text sources in this chapter, the transfer process is crucial also with regard to such material. Through my discussion of respectively the Austrian Filmmuseum's and the DFI's DVD releases I brought some of these aspects to light and will expand upon them in the next part's discussion of the digital tools and research dispositifs which have emerged in the past approximately fifteen years.
Part II – Data-driven Mediations of Film History: Techniques and Dispositifs
Chapter 3

3.0 Microscopic Visions of the Film-Text: Stylometry, Archival DVD Editions and Film Philology

In this chapter I discuss a variety of software applications for annotating and visualising stylistic features in video content, which have emerged roughly since the mid-2000s. These applications' techniques can be described as 'cinemetric' or 'stylometric’ because they are concerned with measuring and producing statistics on film-texts to visualise structures and developments in film aesthetics and narration. Broadly speaking, cinemetric techniques produce a text-centred visual methodology for content analysis which counts and categorises image features through methodologically explicit, descriptive procedures to quantify and summarise them with statistical expressions. As a form of content analysis, cinemetric techniques are used for making inferences about historical developments in film style by quantifying image features, such as editing, colour or light, as statistical key variables, to represent patterns statistically in either individual films or larger corpora. Discussing a variety of cinemetric techniques, this chapter's main objective is to outline their underlying methodological procedures and assumptions and to understand how the visualisations they produce (can) achieve a function as epistemic images for historians of film style and film-philology in different media formats. In line with my theoretical framework, I study their knowledge production without idealising nor contesting their research results, but to understand them as formalities and logical processes which manifest themselves in socio-technical, methodological procedures.

The chapter is divided into three parts, discussing respectively historical and epistemological aspects of cinemetric techniques, their overlaps with philological restoration theory and historical-critical DVD editions and, as a case study, their applications within the research project Digital Formalism centred around the Austrian Filmmuseum's collection of films by Soviet director Dziga Vertov. The chapter's first part - 'Cinemetric Techniques for Digital Video Analysis' - considers cinemetric software applications as techniques embedded within specific traditions, in relation to historical and epistemological developments of statistical style analysis in film studies in the 1970s (especially the theories of film history of scholars Vlada Petric and Barry Salt) and in relation to contemporary scientific visual culture. Out of a variety of recent, cinemetric software applications for stylistic analysis I first focus on Cinemetrics, the most emblematic and widely practiced of the

tools to have emerged. My discussion of Cinemetrics will revolve around its introduction of scientific visual analytics into film historiography as a way of reformulating and refining the empirical foundation for statistical style analysis. A crucial aspect of the analysis is the ways in which the tool's users negotiate and produce scientific, historical evidence with Cinemetrics through discussions of scholarly tradition, data collection and the statistical representation of data. Subsequently, in this part I consider related methods such as Cultural Analytics and ACTION as approaches which share representational practice with Cinemetrics, but which can be regarded as an overtly 'humanistic' strand of quantitative content analysis because of a less formalised production of data visualisations as evidentiary images.

The second and third part of the chapter focus on the DVD format as a technical environment in which cinemetric visualisation techniques can acquire a significant, structuring role for historical analysis of archival prints as film-texts. Part Two, 'Navigating Film History's Philological Complex on DVD', focuses on the conceptualisation of the DVD in scholarly circles as a historical-critical format for presenting annotated editions of archival film and related material. It extends on the discussion of cinemetric techniques by suggesting that the historical-critical DVD format shares concerns with the textual focus of cinemetric techniques, and combines it with philological film restoration theory and print criticism. In the third part, 'Visualising Film History’s Philological Complex: Digital Formalism and Odinnadcatyj (The Eleventh Year 1928)', I develop this point throughout a case study of the Austrian research project Digital Formalism (2007-2010) which produced a DVD version of Soviet film director Dziga Vertov's Odinnadcatyj (The Eleventh Year 1928). This release attributed a privileged role to a visualisation produced with ImageJ by using it to structure a stylistic-philo logical reading of Vertov's editing system and reuse of footage within his films and in films by other directors, notably in a film by German director Viktor Blum.

Conclusively, based on my findings, I argue that the combination of cinemetric techniques and principles of philological scholarly DVD editions, embody and develop methodologies imagined by Petric and Salt in the 1970s. This has created a 'philological' dispositif which combines traditional concerns of stylistic and philological film history, to produce visibilities of both directorial style and print criticism in one visual research format. My conclusion outlines the assumptions and methodological implications of this dispositif in combination with some remarks using the descriptive categories by Albera and Tortajada to characterise its human-machinery interactions.

430 Other tools are ImagePlot, Shot Logger, Lignes de temps, Moviebarcode, ACTION and the software developed by programmer and artist Frederic Brodbeck also named Cinemetrics.
3.1 Cinemetric Techniques for Digital Video Analysis

Statistical Style Analysis and Representation of Filmic Structure

Before my analysis of cinemetric techniques I would like to return to and expand upon Vlada Petric's pleas for a “visual/analytical” history of film (discussed in Chapter Two). In the mid-1970s, Petric called for closer collaboration between academic institutions and film archives in a plea for rethinking the historian's practice of analysing and representing film style.\footnote{Vladimir Petric, op. cit., 21.} This plea was premised in the contention that the film histories which shaped academic curricula in North America - namely Sadoul's, Low's, Jacobs' and Eisner's - had described film editing and style developments inaccurately, lacking a reliable, empirical basis produced through close readings of archival prints at editing tables in film archives.\footnote{Ibid.} According to Petric, to reliably account for film editing's “historical evolution”, archival prints should be scrutinised as the film historian's “primary documents” to produce extensive and precise analytical documentation of editing patterns in films from canonical genres and periods.\footnote{Ibid., 23.} Furthermore, scholars should develop “visual/analytical” formats for presenting their research results since, according to Petric, written film histories followed the conventions of disciplines which could not faithfully convey cinematic structures' specificities.\footnote{Ibid., 24.} In Petric's view, this could take the form of an example-based lecture format in university settings, which would chronologically walk through the cinephile canon of silent era schools and masterpieces, to allow for “direct analysis of cinematic values” and their evolution, with an emphasis on film editing.\footnote{As Petric specified this comprised: “only the most influential filmmakers (...), and only their most artistic achievement in order to permit a direct analysis of cinematic values”.} The format would consist of an introduction, film screenings and a shot-to-shot analysis of sequences using a stop-motion projector for analysis so as to anchor the film analysis visually and “grasp the cinematic structure”.\footnote{Vladimir Petric, “A Visual/Analytic History of the Silent Cinema (1895-1930)”, paper presented to the 30th Congress of the International Federation of Film Archives, May 25-27, 1974. The paper can be found online at: \url{http://files.eric.ed.gov/fulltext/ED098639.pdf}, last accessed January 24, 2017. The article "From a Written Film History to a Visual Film History" published in Cinema Journal in 1975 is a second version of this paper and uses a slightly different wording.} However, in spite of Petric's elaborate proposal for a visual/analytical lecture format, it remained largely unrealised.

In several aspects, Petric's call for new methodical procedures shared affinities with the statistical approach to stylistic film history developed by Barry Salt in the same period. Salt equally called...
into question contemporary scholarly methods for analysing styles of editing, addressing in particular Andrew Sarris’s *auteur* studies of American directors. He contended that films should be studied on flatbed editing tables or other viewing equipment to generate statistical data on films' cutting rates, what Salt dubbed Average Shot Lengths (ASL), but also on camera movements and shot scales. Salt believed that counting and representing a film's ASL in statistical profiles would privilege comparative, historical analysis of directorial styles and yield new insights into film editing's evolution and norms, paving way for greater objectivity in film studies. Salt's classic study *Film Style & Technology: History & Analysis* (Starword, 1983) developed this method with attention to classic mainstream cinema, polemicising against contemporary theories of historiography - critical (French) theory, psychoanalysis and semiotics in particular – regarding them as “irrational”, “relativistic” or “magical”. He envisioned that film history, by embracing statistical methods and adopting the natural sciences' general attitude to the study of films, would achieve a firmer scientific foundation for producing objective knowledge. Essentially, Salt proffered a film historiography rooted in Scientific Realism in the vein of Karl Popper and Thomas Kuhn, which held that the observation and measurement of real phenomena was possible and that results could be verified through comparison and critical testing. He maintained that film historians could adopt similar practices from the natural sciences without, however, going so far as suggesting that film studies would ever become a real, hard science.

Different from Petric's suggestions, Salt's style analysis placed less emphasis on citing film examples in knowledge dissemination, favouring instead statistical, reduced forms of representation for the study of film structures. In this regard, it engaged with existing and widely used statistical methods to measure film style. Salt has pointed out that his statistical style analysis in *Film Style and Technology* took its point of departure in the method of lognormal distribution to create histograms for visualising ASL patterns. Lognormal distribution analysis emerged as a method in the late nineteenth century, developed by British scientist Francis Galton as a response to contemporary probability statistics. A somewhat simplified explanation of its scope is that it

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438 Ibid.


440 Ibid., 2 & 3.

441 Ibid.

442 Ibid.

calculated the probability of a phenomenon’s occurrence from a given data set with the aim of predicting its future development. Its different variants were synthesised in J. Aitchinson and J.A.C. Brown’s classic *The Lognormal Distribution, with Special Reference to its Uses in Economics* (Cambridge University Press, 1957), which has become widely used in economics to predict price developments, in the health sector for the occurrence of illnesses, and in meteorology for weather forecasts.\footnote{Barry Salt, *Moving Into Pictures. More on Film History, Style, and Analysis.* (London: Starword, 2006) 392.} In statistical style analysis, beyond the creation of auteur and film profiles, it may be used to predict typical cutting rates in films from various periods. On a methodological level, this implies that the shots constituting a filmic structure are not considered in their sequential order of appearance. Instead, they are grouped into various class intervals or bins to establish normal distributions of shot lengths.\footnote{The terms 'bin' and 'interval' can be used interchangeably and in statistical style analysis refer to the different categories of shot lengths.} A film visualised in a histogram according to this method, produces a curve with a simple shape which, according to Salt, is ideal for obtaining a clear impression of a film’s structure and for easily comparing it to other films (see fig. 15).

![Fig. 15 A histogram showing the log-normal distribution of Lights of New York (Brian Foy, USA, 1928), taken from Barry Salt's article "The Metrics in Cinemetrics (2011).](image)

This makes it possible to discern recurrent patterns easily and identify films that do not fit into them by superimposing curves onto each other. In addition, it may help identify outliers – shots of unusual length – which can be of analytical interest.

Salt's statistical style analysis has become widely known and influential in film studies, speaking to humanities scholars wishing to systematise their data collection to a greater degree. As film scholar Warren Buckland has noted, the method addressed the fact that data collection in the humanities traditionally tends to be informal and not tailored towards symbolisation in statistical expressions.\footnote{Warren Buckland, “What Does the Statistical Style Analysis of Film Involve? A Review of *Moving Into Pictures. More on Film History, Style, and Analysis*” in *Literary and Linguistic Computing*, vol. 23, no. 2 (2008) 221.} At the same time, the method's rigour has also been subject to heated debate. In their
highly critical 1985-review of *Film Style and Technology*, David Bordwell and Kristin Thompson pointed to several shortcomings and inconsistencies in it. For instance, they highlighted that Salt calculated ASLs on the basis of 30 minute samples and not entire films, because he regarded samples of this length as representative of a film’s average. This, they argued, led Salt to provide inaccurate data himself if compared to ASLs of entire films. Furthermore, Bordwell and Thompson characterised Salt's undertaking as a positivist endeavour which exaggerated the general applicability of quantitative approaches and statistics' descriptive advantages over the written word, arguing that while Salt flagged a tradition of scientific realism he essentially suggested “that science's strongest certainties are those which can be reduced to numbers.” Yet, in spite of their elaborate critical observations which also extended to Salt’s periodisations and view of a causal relationship between film technology and style, Bordwell and Thompson concluded, that its core propositions of developing a firmer empirical and statistical basis was needed in light of how film history had hitherto been produced. As they wrote:

His demand for precision of description, including statistical representation, comes as a welcome alternative to the practices of a generation of historians who relied upon memory, reviews, and gossip for their evidence.

With regard to Petric's and Salt's methodological innovations - the latter inarguably the most established – one can conclude from Bordwell and Thompson’s remark that they responded to a need among a number of historians to develop rigorous, empirical approaches for understanding and verifying developments in stylistic film history. They both expressed a strong need to convey results with shot outlines, stop-motion projection and visual representations, proffering that this would enable film historians to capture essential features of the medium's characteristics which the written word cannot, to historicise stylistic developments. In the next section I discuss, from a present-day perspective, how this endeavour and its key concepts extend into and is developed within the software application Cinemetrics.

447 David Bordwell and Kristin Thompson, "Towards a Scientific Film History?", in *Quarterly Review of Film Studies*, vol. 10, no. 3 (1985) 230.
448 Ibid.
449 Ibid., 225.
450 Ibid., 234.
451 Ibid., 226. Bordwell calculated the ASLs of several entire films to compare them to Salt's results based on 30-minute samples, in order to substantiate this argument.
Cinemetrics as Technique of Tradition

The core methodological procedures laid out by Petric and Salt inform the software application Cinemetrics launched in 2005. Conceived by professor Yuri Tsivian at the University of Chicago with computer scientist Gunars Cijvans, Cinemetrics can simply be described, in Tsivian’s words, as “an open-access interactive website designed to collect, store and process digital data related to film editing.”452 The project shares Petric’s and Salt’s conceptual underpinning that film editing is a key – if not the key – distinguishing feature of cinema as an art form. Great directors from Abel Gance and Dziga Vertov to Peter Kubelka and Kurt Kren, Tsivian points out, have measured segments and counted frames in the cutting room to achieve the pinnacle of their art and craft.453 In this view, cinema is an inherently metric art form which invites and urges quantitative approaches in order to be fully understood.454 Therefore, Tsivian contends, scholars ought to study films at editing tables as scientists with attention to Average Shot Lengths, rather than in film viewing halls.455 Departing from these assumptions, Cinemetrics considers statistical style analysis a hermeneutical antecedent and negotiates and transmits its conceptual underpinnings and technical procedures to embed Cinemetrics within this specific scholarly tradition. The linkage between statistical style analysis and Cinemetrics is evident, as it is an application which has become popular among the very scholars propagating statistical style analysis in the first place, such as Barry Salt, Kristin Thompson and David Bordwell. But beyond this, it also refines and rearticulates statistical style analysis' historiography on a more fundamental level both conceptually and technically.

Conceptually, Cinemetrics offers a more theoretically refined vision of film historiography than Petric and Salt proposed, mindful of especially early cinema studies' criticisms of evolutionary models of film history. Tsivian has argued at length, how teleological film history's evolutionary account of film history, obfuscates an understanding of early cinema’s distinct modes of expression.456 In this aspect, Cinemetrics opposes Petric's and Salt's initial propositions by not implying that the statistical scrutiny of film editing in early as well as in late silent cinema, yields an evolutionary history of film.457 Furthermore, differing from Salt’s approach, Cinemetrics does not

453 Ibid., 765.
454 Ibid.
455 Ibid., 765 and 768. This point is also stated at Cinemetrics website in an introduction to the software. See www.cinemetrics.lv, last accessed January 24, 2017.
456 Ibid., 760.
suggest a causal relationship between technological inventions and changes in film style. The two may, as Tsivian has phrased it, “mutually interfere, sometimes for better, sometimes for worse, but (...) do not determine or cause each other”.

Consequently, Cinemetrics' approach can be described as piece-meal and case studies-driven. It does not suggest that film style went through general evolutionary steps, but treats limited and local corpora and periods of film history. Taking this stance, Cinemetrics reflects the past, recent decades of accumulated knowledge and critical debates in film historiography instead of making the type of universalist inferences characterising early cinephile and academic scholarship, which arguably resonated in Petric's and Salt's propositions.

The conceptual foundation of statistical style analysis is further refined in the discussions hosted by the website, seeing scholars identify alternative, hermeneutical antecedents to the software. In a short thread named “Cinemetrics predecessors” film historians Frank Kessler and Yuri Tsivian point to the significance of German film historian Herbert Birett’s early 1960s work on film statistics as well as the writings of German film historian Georg Otto Stindt in the 1920s for Barry Salt. The latter’s article “Bildschnitt” (1926) for the journal *Die Filmtechnik*, presented comparative shot length studies between US and German fiction films and is therefore highlighted as an early example of ‘cinemetric’ methodology. Likewise, Tsivian has, on several occasions, pointed to early film theorist Hugo Münsterberg’s measurements of cutting rates in the mid-1910s to understand film’s impact on human psychology.

In addition, elsewhere on the website a reconsideration of Petric's scholarship on Dziga Vertov's *Man With a Movie Camera* is offered to retrospectively place his work as a harbinger of Cinemetrics' methodology. In a profile section of Vertov's film, the website includes unpublished shot-by-shot breakdowns created by Vlada Petric of *Man With a Movie Camera* for his classic monograph *Constructivism in Film: The Man With a Movie Camera. A Cinematic Analysis* (Cambridge University Press, 1987). As film archivist and historian Adelheid Heftberger points out in an explanatory note, the material did not make it into Petric's final publication as his publishers could not see the general interest of it. However, as the material

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[458] Ibid., 759.


[462] Ibid.
Chapter 3

contained relevant ASL information it could be transcribed and processed with the software to generate a Cinemetrics visualisation (see fig. 16, the features of the Cinemetrics visualisation will be discussed in more depth in the next section). This visualisation, in Heftberger's words, can be considered an “x-ray” of Vertov's film which reveals its inner dynamics and structure, conditioned by the accumulated knowledge of decades of style analysis which now comes to fruition in computational, quantitative methods. As she remarks, the visualisation's production illustrates how scholars “pass the ball to each other, across generations and across borders”, seemingly also suggesting that Petric's “visual/analytic” film history has become real with Cinemetrics.⁴⁶³

By establishing these reference points, past and present, these discussions identify a larger, unifying body of knowledge branching out from 1970s statistical style analysis into both the past and the future. In doing so, it arguably presents statistical style analysis as a constant in film studies suggesting the slow development of a scholarly tradition which has come to fruition throughout generations lending credibility to its own techniques of visualisation. As a consequence, in spite of its novelty, Cinemetrics acquires the status of a tool with a long history, tradition and origin points among its practitioners.⁴⁶⁴

Fig. 16 Cinemetrics visualisation of cutting rates in Dziga Vertov's Man With a Movie Camera (Soviet Union, 1929) generated from film historian Vlada Petric's manual and previously unpublished shot break-down.

Beyond the conceptual and historical reference frame of Cinemetrics and film studies, one may also liken its method to computer-assisted stylometry and attribution studies in literary studies and linguistics.⁴⁶⁵ Since the early 1960s in particular, these fields have developed methods for counting

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⁴⁶³ Ibid.
features and discerning stylistic patterns in language, in individual literary works and in larger corpora, as well as tackling questions of authorial style and authorship attribution. Cinemetrics does relate itself to such metric traditions of literary analysis in its website's introduction, without however reflecting the deeper implications of them in its discernment of hermeneutical antecedents. Yet, it can be placed firmly within them by emphasising how some of the cinemetric pioneers’ work – in particular that of Herbert Birett – developed at a disciplinary intersection of film studies and computational linguistics in dialogue with literary scholars.

On a technical level, Cinemetrics engages in a dialogue with Salt’s and Petric’s methodologies by identifying problems in them and refining their procedures. For instance, a key problem identified by Tsivian in Salt’s ASL is that it only offers one single datum to characterise an entire film. This gives little insight into a film's internal dynamics, as it does not convey how cutting rates shift throughout it in different scenes. Consequently, Salt's style analysis did not allow to analyse relations between the depiction of events and changing cutting rates. Therefore, Cinemetrics is designed to enable the user to identify and study a wider range of parameters such as a film’s cutting swing, meaning how the cutting rate shifts throughout a film’s different segments and diverge from its overall ASL, and its cutting range - the difference between its shortest and longest shots. In this regard, Cinemetrics enables a more multifaceted data analysis than Salt, possibly allowing for developing more detailed understandings of film editing's dramatic conventions.

The software's first version launched in 2005, known as the 'classic' version, is semi-automatic and requires the user's full participation throughout a film's entire playback. During playback the user runs Cinemetrics in a separate window and clicks a 'Shot Change' button for every new shot (see fig. 17). Upon viewing, the film’s ASL is calculated based on the input and a graph visualisation can be generated. With Cinemetrics second version, Frame Accurate Cinemetrics Tool (FACT), which has currently only been released in a beta-version under testing, shot boundary detection has become more fine-grained and accurate by allowing users to pause and rewind so as to perform the shot segmentation with greater exactitude. Furthermore, while this is not yet integrated into FACT, users have expressed the overall ambition and projected as a future development – as also stated by Yuri Tsivian already in 2006 - to automate shot boundary detection in Cinemetrics in

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469 Ibid.
order to eliminate potential inaccuracies in ASL caused by human reaction time, or to simply make the process of data collection quicker.\textsuperscript{470} However, there are different stances towards automatisation among cinemetricians and on whether human or computational annotation is most accurate or desirable.\textsuperscript{471} Inspired by Cinemetrics' underlying theory, and to complement Tsivian's initiative, the related software Shot Logger - created by media scholar Jeremy Butler - has taken steps towards developing semi-automatic shot boundary detection.\textsuperscript{472} In this respect, the ability to show a range of internal dynamics, the FACT acronym's bold claim to accuracy and the ambition to integrate automated shot boundary detection to yield more exact data arguably echo and push further the realism of Salt's style analysis by assuming a closer relationship between film editing as a real-life phenomenon and its description.\textsuperscript{473}

\begin{figure}
\centering
\includegraphics[width=0.5\textwidth]{cinemetrics_interface.png}
\caption{The interface for the 'Classic' version of the Cinemetrics software. The user clicks the 'Shot change' button at every cut in order to generate a film's ASL upon viewing.}
\end{figure}

An additional, significant technical difference between 1970s statistical style analysis and Cinemetrics lies in the latter's relation to the flatbed editing table as an analytical device. Cinemetrics' data collection seeks to reflect the material organisation of statistical style analysis' analogue machinery: stop-motion projectors and flat-bed editing tables, yet works with a different


\textsuperscript{471} Ibid.


object of analysis, namely digital video. As Petric and Salt, Cinemetrics departs from the assumption that film's structure ought to be studied at the editing table, but its data is predominantly created from digital video editions of films obtained from both formal and informal platforms. At the same time, however, Cinemetrics consistently refers to and approaches its object of study as analogue film with a measurable length and therefore takes methodological steps to reflect its specificities. For some scholars, such as Barry Salt, this gives rise to concerns over technical issues of digital video in order to keep the standard sound cinema frame rate of 24 fps. As noted by Salt, the well-known diverging frame rates between PAL and NTSC encoded video formats poses a problem, with the former having a frame rate of 25 running 4 percent faster than the latter's 24, requiring compensation for this when calculating ASLs to maintain a sense of analogue film's projection speed. Furthermore, Cinemetrics cannot represent silent cinema's varying frame rates and metrics uniquely from digital video sources but only its temporal duration. For silent cinema additional calculations are needed, using historical information on a film's length.  

Using Cinemetrics' techniques, scholars and enthusiasts upload and compare their results to the website's database. Currently, it counts approximately fifteen thousand film titles, television programs and music videos uploaded by more than thousand users. There is no unifying principle of selection or predefined corpora – anything can be contributed by anyone. In a way this reflects the project's piece-meal approach. Rather than sustaining a universalist, evolutionary perspective developed on the basis of a canon, the database's great variety of users produce a heterogenous data mass without clear provenance or technical source details. With a few exceptions, such as the data profiles of Vertov films based on digital transfers from the Austrian Filmmuseum, the majority of data is obtained from DVDs or informal platforms, rather than from archives. Browsing through the database leaves the impression that users from academia tend to specify their sources diligently, while general users from outside academia do not. Consequently, as pointed out by Tsivian, some users' data have more credibility than others and have prompted discussions about the possibility of ranking each other's data to achieve greater statistical reliability.

To conclude, Cinemetrics takes its point of departure in statistical style analysis and its adherence to the natural sciences' methodological ethos as it was articulated in the mid-1970s by Salt and

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477 These visualizations will be discussed in more depth in section 3.4.

Petric, yet recasts its methodology and scope in fundamental aspects. First of all, Cinemetrics arguably changes the scale and scope of statistical style analysis' film historiography. Where ASL analysis as practiced by Salt in the 1970s and 1980s favoured comparison between films, representing each film by one single datum to discern evolutionary patterns, Cinemetrics privileges a microscopic perspective on films' internal dynamics, revealing text-internal, otherwise imperceptible patterns, as, in Tsivian's words, “hard facts”. Cinemetrics may potentially allow to switch from a text-internal, micro-perspective to produce and discern questions on film editing's development from a macroscopic perspective, but that is not part of the tool's conceptual point of departure.

A second, more paradoxical consequence, is that Cinemetrics in order to create a closer approximation to structures and dynamics of film editing distances the scholar from the analogue artefact and viewing equipment by using digitised source material. Furthermore, the automatisation which it strives to incorporate beyond the ‘classic’ Cinemetrics tool and the automated procedures in Cinemetrics-inspired software, may potentially recast the scholar's role in this process, in what may be described as reflecting a classic dynamic of scientific image production. As historians of science Lorraine Daston and Peter Galison have pointed out, a distinguishing feature of modern science’s use of graphical expressions is that it attributes greater veracity to images created through mechanised, machinic procedures because it takes automatisation to diminish the level of human, subjective interpretation. If seen from this perspective, the consideration of automated shot segmentation among a number of cinemetricians, as a possibly more reliable and observer-independent scientific procedure, reflects such a dynamic. The 'classic' Cinemetrics tool requires the training of basic bodily techniques – endurance, quick response time and a sharp, discerning eye – to observe cutting rates by the click of a mouse in human-computer interaction. On the other hand, automatic shot boundary detection black-boxes these processes and can appear to be – to lend the words of Daston and Galison - a “more attentive, more hardworking, more honest instrument” producing to a greater degree “images uncontaminated by interpretation”.

To conclude, Cinemetrics offers scholars new techniques for analysing films primarily on the microscopic, text-internal level, in its conceptual and technical rearticulation of style analysis. Yet, as I will discuss in the next section, the development of Cinemetrics also introduces a greater

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479 Yuri Tsivian, "Taking Cinemetrics Into the Digital Age (2005-now)".
480 Ibid.
482 Ibid., 120.
variety of representational practices from the sciences and engenders elaborate debates on how to seriate and visualise the amassed data. In this regard, akin to scientists at work in the laboratory, cinemetricians engage in “speech acts” to negotiate how they might best represent their object of analysis, expanding once again the practice of statistical style analysis.\(^{483}\) This is the topic of the next section.

*The Cinematics Graph as “Oppositional Device”: Negotiating Statistical Representation*

Cinemetrics’ website contains a section titled ”Measurement Theory”. In this section, a core group of scholars – from film studies, archaeology and cognitive psychology – discuss different forms of statistical representations to consider how to best visualise cinemetric data and correlate it to the real world objects studied – the actual films. These discussions shape Cinemetrics' visualisation practice so that it reflects the group’s concerns and internal adversary positions. It is necessary to attend to these discussions to understand the design of the Cinemetrics graph’s elements and its way of structuring readings of the data. To lend the words of science and technology scholars K. Amann and Karin Knorr-Cetina, the ”verbal exchanges” of these discussions determine the visualisation’s “analyzability”, indicating that there is no direct relationship between data and representation, but rather that different visualisations serve different analytical purposes and conventions among participants of a certain group.\(^{484}\)

At a first glance the custom-made Cinemetrics graph appears as a traditional, statistical graph format as it has existed for centuries, with its red graph plotted onto a grid of horizontal lines and the numbered shots appearing as white bars from above in sequential order.\(^{485}\) The x- and y-axes respectively represent the variables of time code and shot duration and each shot/bar can be annotated and commented by users (see fig. 18). Above the visualisation appear different types of data, such as the number of shots (NoS), cutting range (Range) and cutting swing (StDev). Two of the values appearing – ASL and Median Shot Length (MSL) - are of particular interest for understanding the negotiation of the graph’s appearance. They indicate what can be described in Amann and Knorr-Cetina’s words an ”oppositional device”, meaning the patterns of talk, discussion and interaction among scientists in which adversary propositions on the graphical properties of

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\(^{484}\) Ibid., 107.

\(^{485}\) Johanna Drucker, *Graphesis. Visual Forms of Knowledge Production*. (Cambridge, MA, and London, England: Harvard University Press, 2014) 88-90. As Drucker points out “Before the seventeenth century, the number of statistical graphs – that is, visual expressions of variables charted against each other as abstract quantities – was extremely small.”, but flourished in the following centuries with René Descartes work in analyticl geometry.
visual evidence are negotiated to reflect research procedures and results. The different values are included in a line above the graph, allowing for combinatoric calculation according to different methodological principles and scholarly standards.

The display of the two values designating respectively Average and Median shot length reflects different positions within Cinemetrics' measurement theory. MSL is a value which has been proposed by British media scholar Nick Redfern as an alternative to Salt's ASL. The difference between them is that ASL represents a mean value and MSL a median value. ASL is calculated by dividing the film's duration with its number of shots to find its average. MSL, on the other hand, is found by locating the middle, most frequent value of the cutting range to define it as a film's norm. In practice this means that MSL leaves out a film's longest and shortest shots, which can give rise to remarkably different values. Redfern has argued that MSL is more robust as it is less sensitive to extreme outliers in the cutting range and gives a more accurate impression of the typical shot length which one may expect to see in a film. As a consequence, in Redfern's view, this should lead style

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**Fig. 18** Yuri Tsivian’s Cinemetrics graph of Alfred Hitchcock’s *Rear Window* (USA, 1954) added to the database 23 May 2009. The different values are included in a line above the graph, allowing for combinatoric calculation according to different methodological principles and scholarly standards.

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486 K. Amann and K. Knorr Cetina, op.cit., 102.


490 Ibid. Redfern gives examples of two Josef von Sternberg films, *The Lights of New York* (USA, 1928) and *Scarlet Empress* (1934). For the former the ASL is 9.9 seconds and the MSL 5.1. For the latter the ASL is 9.9 and MSL 6.5.

491 Ibid.
Microscopic Visions of the Film-Text

analysts to fundamentally reconsider their choice of statistical representation. In opposition to using MSL, Salt contends that the practice of leaving out shots alters the data to an undesirable degree in cases where outliers may be relevant. Furthermore, Salt argues that ASL has now gained such a broad application that it seems dogmatic to wish to abandon it. As he dryly remarks: “Such an idea seems reminiscent of the Catholic church continuing its ban on the discussion of the idea of the earth going round the sun, even after the concept was in wide use”. Such verbal exchanges illustrate how Cinemetrics is also an opposition device.

This discussion has resulted in a mid-way solution in the Cinemetrics visualisation's graphic organisation. The graph which is the most central part of the visualisation - the red polynomial curve also more commonly referred to as the 'trendline' – combines the shots as single data points showing the film's cutting swing in relation to the ASL. The user can adjust its 'best fit', meaning the flexibility with which the curve combines the individual data points/shots, and subsequently cite the curve in written texts. The following is the curve for Dziga Vertov's Man With a Movie Camera with the most flexible - 12th degree – curve: . In this sense, Salt's theoretical core – the ASL – remains the backbone of Cinemetrics, yet, as figure 18 shows, the MSL appears in every visualisation above it and can be related to the ASL.

In addition to the negotiations of the Cinemetrics graph a group of participants – Salt, Redfern and Mike Baxter – go a step further in discussing the data's analysability. They explore different ways of visualising the raw shot-by-shot breakdowns, which every film profile gives access to, to approximate various aspects of data and representation to a greater degree. Salt for instance finds that the Cinemetrics graph can appear over-smoothed in its combination of data points, and consequently still finds the histogram visualisation the most appropriate representation. Challenging that view, Mike Baxter has explored a greater variety of methods and types of diagrams. For example, using the open source software R, Baxter visualises Cinemetrics data

492 Ibid.
494 Ibid.
496 Ibid. Technically speaking the trendline is a 12th grade curve which designates the degree to which it may bend. While there are more flexible curves, these are, for reasons not specified by Salt, not practical to use for Cinemetrics' purposes.
498 Barry Salt, "The Metrics in Cinemetrics". As Salt has humorously remarked with regard to his production of equations upon which his histograms are based – perhaps as a comment to hyperboles of computational methods - “I still use a standard pencil and graph-paper method that dates back to the years B.C. (Before Computers) when I started this enterprise”.

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focusing on their Kernel Density Estimate (KDE) instead of their lognormal distribution to improve comparison between film curves.\textsuperscript{499} Kernel Density Estimate creates curves that are less skewed than log-normal distribution, which according to Baxter are more easily and productively overlaid onto each other for analytical purposes of small groups of films (see fig. 19)\textsuperscript{500}.

Nick Redfern, having equally tried out a range of visualisation options, adds q-plots and Order structure matrixes.\textsuperscript{501} In Redfern's view, the latter's structuration of Cinemetrics data allows for an easier identification of clusterings of shots in sequences within films and shifts between segments, while it is less suited for comparison between films (see fig. 20).\textsuperscript{502}

![Comparative visualisation of Kernel Density Estimates in The Skin Game (Alfred Hitchcock, USA, 1931) and Easy Virtue (Alfred Hitchcock, UK, 1928). Illustration taken from Mike Baxter's monograph Notes on Cinemetric Data Analysis (2014).](image)

These alternatives to the Cinemetrics graph introduce a wider variety of computer-generated, graphical expressions of style analysis. While, being static representations, they are less dynamic

\textsuperscript{499} For background information on R see: \url{http://cran.r-project.org/}, Last accessed January 24, 2017.


\textsuperscript{501} Redfern, Nick, ”An introduction to using graphical displays for analysing the editing of motion pictures”. See: \url{http://www.cinemetrics.lv/dev/redfern_q2_opt.pdf}, last accessed January 24, 2017.

\textsuperscript{502} Ibid., 22 & 24.
than the Cinemetrics graph, these alternative visualisations reflect how a growing community of cinemetricians begins to highlight the fact that key features of editing data can be interpreted differently depending on the chosen visualisation type. To use Bruno Latour’s term, the Cinemetrics graph is the primary “inscription device” and evidentiary image used for summarising and distributing data among the site's community. Yet, beyond it, participants continuously call into question its representational accuracy sparking new discussions of the very essential features of film style data to achieve greater objectivity.

To conclude, Cinemetrics' use of computational methods for visualising stylistic data has made the graphical rendering more dynamic than the histograms traditionally used in Salt's approach, producing an increasingly oppositional device. Furthermore it also enables scholars to switch between a wider range of visualisation types to represent and approximate narrative and stylistic features in new ways. Consequently, the Cinemetrics graph can be regarded to some extent as what literary scholar Johanna Drucker describes as a “knowledge generator”, a diagram which supports “combinatoric calculation” of a wider set of values without suggesting one finite, static representation. Seen from that perspective, statistical style analysis has become more multifaceted through the introduction of new procedures of visualisation which result from the discussions of

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504 Johanna Drucker, op.cit., 105.
networked scholarship of the digital age.

Yet, the scholars engaging in these discussions hold on to the idea of developing a more realist and empirically sound scientific approach to the analysis and historiography of film style. Cinemetricians still regard the possibility of seriating items precisely according to key features in moving images and summarise their relations in statistical images, to lay the ground for a greater scientficity in statistical style analysis. As such, Cinemetrics reminds us that digitisation does not cause a “radically transformative turn” which strips moving images of their indexicality and make them subject to “practically infinite manipulability”\textsuperscript{505}. As with other types of computer-generated scientific imagery, Cinemetrics' images are considered to have a strong referentiality and a clearly defined functionality which serves to anchor truth claims – in this case of stylistic film history.\textsuperscript{506}

Elaborating on this discussion, I turn to examples in the next section which equally adopt scientific representational practices, along the lines of Cinemetrics, but which to a greater extent emphasise the underlying contingencies of the images' production and which I therefore suggest to characterise as 'Humanistic Cinemetrics'.

Cultural Analytics and ACTION – Towards Humanistic Cinemetrics?

Cinemetric methodology has gained currency beyond Tsivian's initiative, in a variety of conceptually related, quantitative software applications for style analysis. Some of these applications closely resemble Cinemetrics in their analytical focus while others venture into different dimensions of style analysis. For example ShotLogger, which I mentioned above, and Edit2000 measure ASL as a key parameter while producing differently styled graphs\textsuperscript{507}. Three other applications, one developed by software artist Frederick Brodbeck also called Cinemetrics, another called ImagePlot and a third called ACTION focus on movement, light or colour patterns. These methods equally produce scientific visualisations but differ in their understanding of them as epistemic images. Whereas the Cinemetrics graph sustains a scientific conception of visual analytics, these other applications use data visualisations to discover hitherto unrecognised patterns to develop new research questions without necessarily having a preconceived theoretical framework. Therefore, they can be characterised as exploratory and less bound to disciplinary tradition and established methodological operations.

Cultural Analytics is an approach and visualisation toolkit for pattern recognition in large image

\textsuperscript{505} Philip Rosen, op.cit., 318.

\textsuperscript{506} Ibid., 308.

sets created within media theorist Lev Manovich’s Software Studies Initiative.508 Suggesting a middle way between overt scientism and humanistic approaches, it states interest in scientific visualisation practice by raising the question "What will happen when humanists start using interactive visualisations as a standard tool in their work, the way many scientists do already?"509

Among Cultural Analytics' core applications is ImagePlot, an extension of the open-source scientific visualisation software ImageJ – first known as NIH Image - developed by the National Institute of Mental Health in the US.510 Conceived by programmer Wayne S Rasband in 1987, NIH Image – today known as ImageJ - advanced the combination of modern computation techniques with microscopy and gained widespread success in a broad range of disciplines in the natural sciences (see fig. 21).511

The software's success is partly due to the development of NIH Image into the Java-based ImageJ in the late 1990s, when Java programming became considered an “operating system-agnostic” language, compatible between Macintosh and PC.512 Maintaining most of NIH Image’s features, notably its simple toolbar interface, ImageJ continued the software’s core functionalities.513 Furthermore, the software has always been open-source, enabling users to tweak the application to add functionalities, resulting in around 500 plug-ins by May 2012.514 Launched in 2012, Manovich's ImagePlot added four.515 ImagePlot is a macro of ImageJ, meaning that ImageJ remains the basic platform for performing image analysis, while ImagePlot adds a range of additional features to it, such as allowing for visualising image sets as non-reduced scatterplots. Conceived for uses in film and media studies, visual culture and art history, Manovich has conceived ImagePlot's visual analytics within his Cultural Analytics approach. Initially, Cultural Analytics was conceived to respond to the abundant amateur image production and circulation in the digital age, epitomised by image sharing platforms such as Flickr and Instagram.516 Considering these platforms as big data

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510 "About NIH Image", see: http://rsb.info.nih.gov/nih-image/about.html, last accessed January 24, 2017. ImageJ followed the NIH Image software on the basis of which it was created.
512 Ibid., 672. NIH Image had been based on the then standard programming language Pascal. The ‘J’ in ImageJ stands for Java.
513 Ibid.
514 Ibid., 673.
516 "Cultural Analytics", op.cit.
image sets, Manovich argued that they begged to be analysed with data mining techniques which could match their scale and discover patterns in them. Manovich saw ImageJ as providing adequate processing capacities and “super-visualization technologies” for analysing patterns in for instance colour or contrast in such image sets.

Fig. 21  A microscope. The logo of open-source software ImageJ, clearly underscores ImagePlot’s scientific provenance.

While initially emphasising contemporary, amateur image production, Cultural Analytics’ scope quickly expanded to digitised heritage collections. For example, at an early stage Lev Manovich and Jeremy Douglass analysed a sample consisting of thirty-five canonical paintings on an x- and y-axis to see whether they would support genealogies based on colour similarities discerned by art historians. Moving images also soon gained Cultural Analytics' attention, using cinemetric theory and data as clear reference points to explore editing as a key parameter in stylistic film history with statistical representations. Along the lines of Cinemetrics, Cultural Analytics highlighted the formally complex and dense works of directors such as Dziga Vertov and Peter Kubelka to underline why statistical, metric approaches offer particularly appropriate methods for understanding filmic structures. In one experiment, Cinemetrics' database was also used to generate a graph showing cutting rates' historical development in USA, France and the Soviet

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517 Ibid.
518 Ibid.
Microscopic Visions of the Film-Text

Union/Russia. Moreover, as in Cinemetrics, the documentary theory of Dziga Vertov is used to conceptualise the potential of digital tools, aligning their ability to reveal editing patterns with Vertov's conception of cinema as a machine which unveils hidden structures of life to the human eye. Yet, rather than suggesting a scientific approach, Manovich has prominently invoked the documentary theory of Dziga Vertov to conceptualise new media broadly as dynamic and as privileging multiple viewpoints, by analogy to Vertov's staging of editing.

As a cinemetric method, the ImageJ/ImagePlot software developed within Cultural Analytics distinguishes itself by processing films as image sets to create visualisations, instead of extracting metadata to produce reduced, statistical representations. ImageJ breaks down video files into sequences of separate images and serialises them according to specific image features in various visualisation types. For example, the Montage visualisation type orders frames onto a grid according to their sequential order, in rows from left to right, enabling a quick, comprehensive overview of movements between shots. Arguably, this visualisation type can be characterised as more figurative than Cinemetrics' graphical expressions and closer to a visual tradition of early scientific cinematography’s use of sequential photography, such as Etienne-Jules Marey and Eadweard Muybridge (in particular the latter's famous The Horse in Motion, 1878). This format has been used for films by Dziga Vertov to create grids consisting of frames from each shot as a way of grasping his film’s structures (see fig. 22).

Another visualisation type is the summary visualisation, which creates an abstract profile image summarising median values of a film’s colour features by layering each frame on to each other. This produces a visual profile of a film's summed up colour composition and variations within the film frame. While Manovich's team has not made extensive use of this format, it has recently – as I discussed in the introduction - been explored by film scholar Kevin L. Ferguson in relation to various film genres, for instance the western (see fig. 23). Processing image sequences consisting of every tenth frame from fifty classic western films, Ferguson created summary profiles to compare films and evaluate them in relation to his own experience of the films.


More closely related to Cinemetrics, the recent project Audio-Visual Cinematic Toolkit for Interaction, Organization and Navigation (ACTION), developed by Michael Casey, Mark Williams and Tom Stoll at Dartmouth College, equally produces statistical representations of patterns in film style. ACTION uses the open-source software Matplotlib and the programming language Python to visualise “latent patterns” of color, sound and movement to create auteur and film profiles. Though not focused on film editing, it takes Cinemetrics' theory as a conceptual point of departure and develops it by putting greater emphasis on automatisation and machine learning to produce precise, clean data. Using algorithms to extract mean values of colour and sound, it charts the results onto order structure matrices of the type also suggested by Nick Redfern for cutting rates. In addition, ACTION produces tabular diagrams where simple numerical data of mean values represent auteur profiles to enable comparison. In the experimental diagram below, directors are represented by their initials, AH for Alfred Hitchcock and JLG for Jean-Luc Godard for instance, and are classified according to their mean values of colour use (see fig. 24).

See https://sites.dartmouth.edu/mediaecology/content-partners/campus-partners/action/, last accessed January 24, 2017.


While conceptually related to Cinemetrics, these applications’ uses of visual analytics distance themselves from Cinemetrics’ scientist underpinnings. As Ferguson writes in a rather informal tone, concerning his colour profiles of Western films:

> These shapes and colors are evocative in a way that tea leaves and tarot are: they don’t actually tell you much about what you’re looking at, but they allow you an emotional response confirmed or denied once you come to discover what the image “really” is.\(^{529}\)

In a like-minded fashion, Manovich responds to skeptics who perceive data visualisation as a back-hand operation which pushes humanities closer to science, by evoking statistician John Tukey’s tradition of Exploratory Data Analysis (EDA).\(^{530}\) Named after Tukey’s key work *Exploratory Data Analysis* (Pearson, 1977), this approach does not depart from a clearly defined hypothesis but instead uses visualisations for exploratory purposes as a stepping-stone to new research questions. According to Manovich, this produces open answers rather than finite, hard scientific explanations.\(^{531}\)

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\(^{529}\) Kevin L. Ferguson, op. cit., 2015.


\(^{531}\) Ibid.
Furthermore, Cultural Analytics nods to literary scholar Franco Moretti's quantitative approach to literary history known as “distant reading”. Inspired by *Annales* historiography's quantitative methods, Moretti's approach uses statistics on large datasets of publishing dates to discern trends in literary genres' life cycles to relate them to societal trends and historical events as possible, contextual explanations. Accordingly, Moretti relates changes in politics or outbreaks of war to declining publication numbers of novels. In contemporary digital humanities methodology, distant reading suggests a middle-way between scientific, methodological rigour and hermeneutics, in-between scientific aspirations and the “free play” of subjectivity and interpretation. Cultural Analytics explores this tension by appropriating scientific representation for humanistic purposes, allowing for associative and contextualising interpretations of data visualisations, which highlight their abstract nature. Manovich for instance underscores the limits of ImagePlot's scientific representations when he associates its graphic properties with visual conventions of Soviet photographer Alexander Rodchenko's avant-garde photography, stressing how they may also render

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534 Ibid., 9.

535 Ibid., 1-2.
Microscopic Visions of the Film-Text

reality more unfamiliar rather than revealing its inner dynamics.\textsuperscript{536} In this aspect, Cultural Analytics differs significantly from Cinemetrics by inviting associative contemplation of data visualisation in addition to a strictly scientific.

ACTION similarly seems to locate itself midway between scientific and aesthetic contemplation of data visualisations to emphasise its contingencies.\textsuperscript{537} This can be seen in the appropriation work \textit{One Million Seconds} (USA, 2014), which Casey produced using sound classifications of film samples analysed within ACTION.\textsuperscript{538} Where Manovich associatively muses on ImagePlot's visualisation in relation to Rodchenko, Casey uses Glenn Gould's famous second recording of Bach's \textit{Goldberg Variations} (1981) as a template from which film excerpts are retrieved based on their audio similarities with Gould's recording.\textsuperscript{539} Thus, Casey creates a frenetic video piece where glimpses of barely recognisable film excerpts replace each other in rapid succession based on their audio similarity to Gould's \textit{Goldberg Variations}, in which both the films' and Gould's recording are audible.

While tentative, experimental gestures, both Manovich's and Casey's appropriations can be said to point to the uncertainty in their analytic and representational practices, inviting us to think critically about the meanings we assign data visualisations. In this regard ImagePlot - or ImageJ as conceived within Cultural Analytics - and ACTION differ from Cinemetrics because they do not strive towards best practices following positivist aspirations nor idealise data visualisation for stylistic analysis. Whereas Cinemetrics' graph is perceived as a strong evidentiary image among its practitioners, ACTION and ImagePlot embrace the analytical potential of computational stylometry while stressing how data visualisations can also be perceived as abstract and defamiliarise our objects of study.\textsuperscript{540} In doing so, they arguably appreciate scientific, graphical expressions within a historically long-standing intersection of science and art to open for less formalised exploratory methodologies.\textsuperscript{541} Consequently, Cultural Analytics and ACTION come across as more self-

\textsuperscript{536} Lev Manovich, op.cit., 2012, 276.

\textsuperscript{537} Michael Casey, "Investigating Film Authorship with the ACTION Toolbox": (paper presented at the 55\textsuperscript{th} Annual conference of the Society for Cinema and Media Studies, March 22, 2014)

\textsuperscript{538} Michael Casey's video appropriation and description of the work can be accessed via the following link: https://vimeo.com/105909439. Last accessed January 24, 2017.

\textsuperscript{539} Michael Casey, op.cit.


reflexive towards data's visual shapes and may be seen as congruent with a humanistic approach which, as Johanna Drucker defines it, “calls to attention its madeness – and by extension, the constructedness of knowledge, its interpretative dimensions”\textsuperscript{542}

Bearing in mind this observation, I conclude by suggesting that Cultural Analytics and ACTION can also productively be considered consistent with de Certeau's notion of computational history as a “science fiction” referred to in my introduction, by foregrounding both the scientific and poetic dimensions of its making.\textsuperscript{543} Concretely, I take them to suggest, lending a characterisation of de Certeau's historiography from Jeremy Ahearne, “a method [which] is alternately scientific and anti-scientific. It oscillates between interpretation and something like anti-interpretation”.\textsuperscript{544} Thinking along these lines when visualising data, I believe, may invite especially film historians with reservations about style analysis' scientific realism to move in a new, critical direction - one which restores one of the fundamental tasks of the historian on their terms - namely to emphasise the ambiguity of the relationship between past and present and its construction.\textsuperscript{545} By going in this direction, we may underline the enigmatic enterprise of (film) history making by drawing attention to the shifting material basis and underlying procedures of its evidence, while embracing computational methods to study filmic structures and directorial styles in fruitful new ways.

\textit{Conclusion: From the Editing Table to the Microscope}

Cinemetric techniques recast the tradition of stylometric film historiography, through scientific computational procedures. Using different programming languages and software applications to produce scientific visualisations, Cinemetrics, Cultural Analytics’ use and development of ImageJ and ACTION give evidentiary status to notions such as auteur and film style through visual analytics. Yet, while they share a conceptual point of departure, their forms of visualisations suggest different perspectives on film history. On the representational level, Cinemetrics and ACTION explore reduced, abstract models of data visualisation using graphs, scatterplots and numbers to make statistically supported inferences about stylistic film history. Whereas Cinemetrics proposes a piece-meal approach, focusing on single works or oeuvres, ACTION’s director indexes strive for a strong, comparative film history based on data created through machine-learning processes. However, in practice – and in spite of its emphasis on automated procedures - ACTION appears

\textsuperscript{542} Johanna Drucker, op.cit., 178.
\textsuperscript{543} Michel de Certeau, op.cit., 215.
\textsuperscript{545} Michel de Certeau, op.cit., 215.
more reflexive towards its own methods and results than Cinemetrics. ImageJ/ImagePlot on the other hand relies less on reduced visualisations, but maps image sequences created from video files onto grids, or superimposes them, to discern shot movement or compositional patterns in colour and light, as I have argued, within a scientific visual culture of sequential photography.\footnote{Virgilio Tosi, op.cit., 61 & 123.}

In spite of their differences, these approaches can be said to share a techno-scientific, microscopic vision of film history. Their tools use data visualisations and machinic perception to yield visibilities of textual traits and magnify hidden, filmic structures, below the level of human vision. They master scale by rendering entire films small, manageable entities, allowing to zoom in on its smallest entities referring to the cutting table’s regime of vision; the shot, the frame, and the cut. In this development from an analogue practice performed at the flatbed editing table to computer visualisations, statistical style analysis has been subject to a social dynamics of science, as discussed by Bruno Latour, in which a claim's objectivity or subjectivity is determined beyond its originators.\footnote{Bruno Latour, op.cit., 1988, 258.} On the one hand, ASL becomes a stronger, more objective, concept of stylistic film history because it has gained a stronger network of practitioners with Cinemetrics and is grounded in the natural sciences' visualisation practices. On the other, it becomes increasingly relativised because alternative practices of scientific visualisation, proposed by Nick Redfern, Mike Baxter, ACTION, Kevin Ferguson and Cultural Analytics, bring statistical style analysis into dialogue with more recent scientific practices and artistic data visualisation. Especially the latter three can be taken to sketch the contours of an emerging trend of humanistic cinemetrics which adds a reflexive layer to cinemetric analysis.

Cinemetric approaches are still scarcely applied to digitised archival film. However, as I will discuss in my case study, they are beginning to offer archivists and historians new avenues for structuring stylistic and philological readings of archival films and tie film-related sources together in DVD editions. As I will go on to argue, these uses announce a 'philological' dispositif, which merges cinemetric methods' conceptual and technical foundation with philological restoration theory to visualise and relate patterns of film editing to both author intention and circumstances of archival preservation. However, before entering that discussion I will first discuss how the DVD became conceived as a historical-critical edition format which can provide a technical environment for cinemetric analysis.

\footnote{Virgilio Tosi, op.cit., 61 & 123.} \footnote{Bruno Latour, op.cit., 1988, 258.}
3.2 Navigating Film History's Philological Complex on DVD

With the exception of the ImageJ montage visualisations of Vertov films, neither of the cinemetric representations discussed above were produced from digitised film with a clearly indicated archival provenance. Instead, they drew their source material from the specialised video repertory which I discussed in Chapter 2 in which archival provenance and restorational interventions are often not explained in great detail. In this regard, the Vertov visualisations are an exception, because they were created in close collaboration between a film heritage institution, the Austrian Filmmuseum, and academic institutions, the Vienna University of Technology and Manovich’s Software Studies initiative, then located at the University of California San Diego. Their creation involved highly formalised methodological procedures of manual and automated semantic content analysis and negotiations of different forms of data visualisation.

In several aspects, those visualisations can be regarded as a congregation of principles from cinemetric methodology and philological film restoration theory. I will argue that their visual properties, to a greater degree than reduced visualisations, strike a chord with the conscientious work of (comparative) print analysis in film archives, which Petric pleaded for in the mid-1970s as a basis for structural, stylistic analysis. Yet, before I embark on my analysis, I want to return to and expand upon my discussion of the DVD format in Chapter 2 to discuss the format’s conceptualisation in academic circles as a format for historical-critical editions of archival film throughout the 2000s. Analysing the DVD as a format for historical-critical editions helps to understand the ways in which data visualisations function as epistemic images for film historians by elucidating the assumptions from which they are attributed evidentiary status.

Philological DVD Editions and Cinemetric Concerns

As discussed in Chapter Two, the 1980s and 1990s saw film archives nurturing inter-institutional collaboration characterised by professionalisation and theorisation of the field's practice. In European film archives, print exchanges for restoration purposes and the creation of inventories are practices testifying to this. Early cinema studies' debates on The Life of an American Fireman's different versions, gave rise to a preservationist conception of archival film which emphasised the object's material characteristics as signifiers of history. This conception found a significant propagator in the Bolognese school of philological film restoration theory and can be said to align with what Giovanna Fossati has described as a 'Film as Original' framework in digital restoration
Microscopic Visions of the Film-Text

Film archivists who follow philological principles perceive the signs of an archival element's unique, material characteristics as markers of authenticity and historicity and therefore maintain them in the human mediation of film from analogue elements to digital presentation.549 As discussed in Chapter Two, such an approach is visible especially in the Austrian Filmmuseum’s DVD releases, but can also be said to guide several scholars’ ideas on how film scanning should be tailored to the film historian’s interests. In a recent remark on new scanning techniques, film historian and former director of the Cinémathèque de la Ville de Luxembourg Sabine Lenk reflected this, when she highlighted digital scans' potential usefulness for studying the unique material characteristics of archival prints for early cinema historians550:

As a film historian I am happy that a new scanner will give us the possibility to learn more about the "hidden side" of filmmaking which is not visible on the screen. To study edge marks and slices is of high importance for a better understanding of early cinematography.551

While making this comment to suggest future directions for digital scholarship Lenk’s remark can also be said to partly encapsulate the reasoning behind a scholarly conception of the DVD as a philological format, which has developed in recent years. From the early 2000s onwards, scholars have increasingly merged philological principles of print criticism with the DVD format’s information architecture to study the physiognomy of archival prints in relation to contextual, conditioning factors.

Throughout the 2000s, scholarly discussions at a handful of academic forums contributed significantly to conceptualising the DVD as a philological format.552 In 2002, the University of Trier in Germany organised a conference titled ‘Celluloid Goes Digital – Historical-Critical Editions of Films on DVD and the Internet’. This conference gathered US and European scholars, archivists

549 Ibid.,
552 In the 1990s, prior to the cases discussed in this section, there was a rich experimentation with hyperfilm in CD-Rom formats in film studies, in the US in particular. Several groundbreaking projects were developed such as Lauren Rabinovitz’ The Rebecca Project (1995), the multimedia textbook The Virtual Screening Room developed at MIT by Henry Jenkins, Ben Singer, Ellen Draper and Janet Murray between 1992-1999, as well as Yuri Tsivian's CD-Rom on pre-Soviet silent cinema Immaterial Bodies: Cultural Anatomy of Early Russian Films (2000) released in the University of Southern California's Labyrinth project's Cine-Discs series edited by Marsha Kinder. In my research I did seek out and engage with these releases but chose not to include them in my discussion to keep a clear focus on editions conceived within a philological framework. For an early discussion of CD-Roms’ potential in film studies see Ben Singer, “Hypermedia as a Scholarly Tool”, in Cinema Journal, vol. 34, no. 3 (1995).
and specialised video publishers to theorise the DVD as a format for critical film editions which could merge philological traditions of text analysis with digital methods.\footnote{553 Among the participants were for instance the Criterion Collection’s Robert Fischer and Barry M. Schneider of the Labyrinth Project of the Annenberg Center for Communication at the University of Southern California which pioneered the CD-Rom format for film historical scholarship with their release of Yuri Tsivian’s study of pre-revolutionary Russian silent cinema Immaterial Bodies (1999).} To articulate the challenges which scholars needed to consider, one of the conference hosts, literary scholar Kurt Gärtner, evoked one of the most classic philological methods, the ‘Lachmannian method’ as an anchor point and ‘definitive model’, to provide inspiration for scholarship in the electronic age.\footnote{554 Kurt Gärtner, “Philological Requirements for Digital Historical-Critical Text Editions and Their Application to Critical Editions of Films”, in Martin Loiperdinger (ed.), Celluloid Goes Digital. Historical-Critical Editions of Films on DVD and the Internet. (Trier: Wissenschaftlicher Verlag Trier, 2003) 51-52.} This method, commonly attributed to German philologist Karl Lachmann, emerged from the 1810s onwards as a scientific and rigorous note system, developing an advanced apparatus for annotating alterations in words and sentences between text variants to evaluate their significance and differences in intention in hierarchically organised footnotes.\footnote{555 Sebastian Timpanaro, The Genesis of Lachmann’s Method. (Chicago and London: The University of Chicago Press, 2005 [1981]) 43 & 178n44.} By the mid-1800s it had come to fruition through Lachmann’s editions of the New Testament, establishing definitive, historical-critical edition standards for especially Greek and Latin religious texts.\footnote{556 Ibid., 84.} As Gärtner suggested, in line with enhanced electronic text editions in literary studies, scholars should transmit such text-critical principles to DVDs to develop an apparatus for presenting annotations on-screen in a manner which relates textual features to a wide variety of contextual sources.\footnote{557 Ibid.} This would require, that DVDs contain carefully conceived ‘...tables of contents, indexes and direct links from each scene to accompanying materials...’.\footnote{558 Ibid.} Through case studies, participants at the Trier symposium suggested different models underlining how the DVD could be an ideal “study center” for combining and navigating filmic and film-related sources from different archives in one and the same format.\footnote{559 Kurt Gärtner, op.cit., 53.} With a philological methodology, film scholars would able to present authoritative editions of archival films that would respect authorial vision and the integrity of film-texts against the backdrop of their historical context.

Taking the cue from the Trier event, the annual FilmForum and MAGIS Spring School organised by the University of Udine on the topic of “Critical Editions of Films and New Digital Techniques” in the late-2000s, extended these theoretical pursuits.\footnote{560 Ibid.} As film scholars Giulio Bursi and Simone Venturini pointed out, the initiative aimed to “bring together archivists, curators, programmer
Microscopic Visions of the Film-Text

technicians, editors, cinema philologists, restorers, filmographers, cinema historians, not to mention conventional textual bibliographers and philologists”.561 These events nurtured an interdisciplinary setting for the development of a critical, scholarly DVD apparatus utilising shot segmentation, annotation and hyperlinking for comparative study of film versions – especially multiple language versions and different cuts.562 While sharing the Trier conference’s conceptual point of departure, the Udine initiative differed by drawing on the Bolognese school’s restoration theory to a greater degree. In this respect, it flagged a slightly different lineage of philological theory than that of Lachmann, namely that of “ecdotics” in an Italo-French line of thinking.563 Ecdotics differs from the Lachmannian tradition by attending not primarily to internal, stylistic traits of texts, but also on material, technical specificities of sources and aspects of graphic design, such as typography and page set-up. As film historian Casper Tybjerg has argued, this means that ecdotics places greater emphasis on textual features in relation to contextual factors, whereas the German tradition of textual criticism to a greater degree highlights author intention in relation to style.564

Arguably the most rigorous attempt at theorising a philological DVD format in the Udine initiative's context was articulated in the article “Critical Editions of Films on Digital Formats” (2006), penned by film scholars and archivists Natascha Drubek and Nikolai Izvolov. The article critiqued current DVD commentary formats such as audio commentaries and explanatory text boxes appearing in-frame for being too information-laden and confusing.565 It instead suggested the development of a text-critical annotation apparatus using Hypertext Markup Language (HTML).566 To achieve this, they argued that film scholars need to distinguish between a textus and an apparatus in DVD editions.567 The textus is understood as all the existing variants of a film title

559 Robert Fischer, op.cit., 51-52. Fischer’s characterization of the DVD as ‘a study center’, he points out, is taken from a review of the Criterion DVD release of Stanley Kubrick's Spartacus (USA, 1960) by then Cahiers du cinéma critic Clélia Cohen.
562 Ibid.
564 Casper Tybjerg, “The Case for Film Ecdotics”, (paper presented at NECS conference, Lods, Poland. Manuscript provided by the author via e-mail July 4, 2016).
566 Ibid.
567 Ibid., 204.
with one variant being presented as the most known, "canonical" version.\footnote{Ibid., 206.} The \textit{apparatus} consists of footnotes in the canonical text, appearing as clickable numbers on-screen which provide access to contextual information such as details on archival provenance or digitised film-related materials for instance paper clippings, scripts or stills.\footnote{Ibid., 207-208.} Along the lines suggested by Gärtner, a film can thus be explored as a hypertext, or as suggested by the authors a “networked index” or form of “hyperkino”, which enables navigation between textual segments.\footnote{Ibid., 209.} To develop this in practice, the programmatic article resulted in the annotated Hyperkino/KinoAcademia DVD series of Russian and Soviet classics launched in 2008, first under the auspices of German DVD publisher Absolutmedien and later the Russian Cinema Council (RUSCICO).\footnote{See: \url{http://hyperkino.net/hyperkino/What-is-HYPERKINO}, Last accessed January 24, 2017.} In the past years, the series has gained a reputation as a highly esteemed scholarly publication format, receiving the stamp of II Cinema Ritrovato’s DVD awards where it was honoured with prices and nominations for its special features created by noted film historians such as Bernard Eisenschitz and Yuri Tsivian.\footnote{"Bologna: 'Special Feature' Price for 3 Hyperkino DVDs”, 12 July 2010. See: \url{http://hyperkino.net/convergence-social-network-in-new-media/shared-desktops/HYPERKINO/Bologna-Special-Feature-Prize-for-3-HYPERKINO-DVDS}, Last accessed January 24, 2017.}

In the film edition that inaugurated the Hyperkino DVD series, Lev Kuleshov’s directorial debut \textit{Proekt inzhenera Prayta} (Engineer Prite’s Project, USSR, 1918), these principles were applied. It

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig25.png}
\caption{Example of a note as it appears in a Hyperkino edition, in the first KinoAcademia edition: Lev Kuleshov’s debut feature \textit{Engineer Prite’s Project} (1918).}
\end{figure}
Microscopic Visions of the Film-Text

presents an apparatus and a textus on two discs. Disc one - the apparatus – provides an annotated version with footnotes appearing in the frame’s upper right corner (see Fig. 25). Disc two offers the textus subtitled in seven languages.\textsuperscript{573} The footnotes created by Nikolai Izvolov and Natascha Drubek for this edition contain two thematic layers discussing respectively Kuleshov’s directorial style in relation to Soviet montage filmmaking and the film’s archival life. Kuleshov’s film tells the story of young engineer Prite’s ambitious plans to develop an electricity generator which can produce energy from peat and his combat against his industrial rivals who wish to put an end to his ambitions. It is a fast-paced film full of action and intrigues of industrial espionage.

Often regarded as a film which played a crucial role in the Soviet montage film's use of editing and mise-en-scène inspired by popular American and Scandinavian cinema, several of the release's annotations highlight these aspects.\textsuperscript{574} The annotations point to details supported by film-related material to show how \textit{Engineer Prite} introduced rapid editing and dramatic stylistic elements known from these cinemas. As the explanations and material in footnote 20 observe, \textit{Engineer Prite} had an outspoken ambition of appearing foreign, above all American and with clear intertextual references to Scandinavian films.\textsuperscript{575} The costumes contribute to this; though they are not distinctly American, they did create the impression of a foreign milieu and sufficed to convey an American setting to contemporary audiences. Furthermore, several names in the film have a foreign sound to them of which some are intertextual references. As note 13 points out regarding the name of a company in the film's story: "Nordish Naphta, the name of the trust resembles Nordisk, the name of one of film companies, whose films Kuleshov highly valued."\textsuperscript{576} Likewise, the footnotes explain how foreign montage principles are visible in the film, for instance through uses of close-ups used for analytical purposes.

Going beyond stylistic observations, the footnotes equally engage in a comparison of the film's different archival versions. The film had a troubled archival life and until the DVD release circulated abroad in a version without intertitles, established by Kuleshov’s editor Vera Khanzhonkova in 1965, presumably in part from memory, leaving the impression among several scholars that the film was unfinished.\textsuperscript{577} The last footnote - “The film's archive life and

\textsuperscript{573} The languages are russian, english, french, german, spanish, italian and portuguese.

\textsuperscript{574} The film makes references to especially Griffith-inspired cross-cutting, analytical editing, Mack Sennett, Orville Wright and Nordisk films.

\textsuperscript{575} See hyperkino edition note "20. Americanisms".

\textsuperscript{576} See hyperkino edition note "13. Names"

reconstruction” - addresses this by discussing the 1965-version in relation to the newly reconstructed version by Nikolai Izvolov based on the film’s libretto which re-emerged in 1979.\textsuperscript{578} This discussion indicates doubts concerning the accuracy of the film's montage, which, apart from the new intertitles, is largely maintained in Izvolov’s version.

![Fig. 26 Frames from the scanned elements of Lev Kuleshov's Engineer Prite’s Project (USSR, 1918) included in the Hyperkino DVD edition. The frames illustrate editing marks between positive and negative elements that can either support the montage established by Khanzhonkova or suggest that Kuleshov’s montage was unfinished.\textsuperscript{579}]

The point in question is that there are marks in the film's existing elements which create doubts as to how precisely the film should be edited. An example of such an ambiguity in the editing choices is illustrated by the inclusion in a footnote of a scan of six frames showing the transition between two sequences – one positive and one negative - with editing marks on the element used

\textsuperscript{578} See hyperkino edition note ”27. The film's archive life and reconstruction”

\textsuperscript{579} See hyperkino edition note ”27. The film's archive life and reconstruction”, section C and E.
Microscopic Visions of the Film-Text

(see fig. 26). The footnote explains that these marks have been taken as a reliable indication of the film’s intended montage because they support the film’s cross-cutting style. Yet, it is also remarked, that those marks may indicate that the desired montage was not finally established. In this way the release's use of a digital scan to show the element's material characteristics brings the viewer close to the editing table's scopic regime; exposing, to recap the words of Sabine Lenk, the 'hidden' side of early cinema and the intricate uncertainties of versions.

The footnotes' two layers that address, respectively, stylistic and archival aspects align with the different conceptualisations of philological DVD editing discussed above. On the one hand, they scrutinise different text versions in relation to authorial vision and style, and on the other investigate the film's material characteristics in relation to contextual circumstances of preservation. In this way, the historical-critical DVD edition creates an approximation to the film artifact which previously only the flatbed editing table as an analytical device could offer. Developing the DVD format to this end, Hyperkino brings a philological film history into the user's reach, informed by early cinema studies' focus on film form and scrutiny of the archival life of its source materials.

To conclude, the philological DVD's mode of vision shares concerns with cinemetric tools but is not quantitative nor mechanised in a similar way. It uses shot breakdowns to highlight particularly significant shots and makes content- and object-specific comments, drawing on a great variety of archival sources. However, though the historical-critical DVD edition does not follow cinemetric methodological procedures, I would argue that it conditions and paves the way for a philological use of cinemetric visualisations. As I will argue in the next section, such a use can be discerned in the DVD release of films by Soviet director Dziga Vertov, produced within the Austrian project Digital Formalism. As I will suggest, this release can be seen as an assemblage of cinemetric and philological theory and techniques which constitutes, beyond the specific example of Vertov, a 'Philological' dispositif of digital film history. Such a dispositif combines the analytical approach of stylometry with the contextualising environment of enhanced, critical editions.

3.3 Visualising Film History's Philological Complex: Digital Formalism and Odinnadcatyj

The double-DVD edition of Dziga Vertov's films Sestaja cast’ mira (A Sixth Part of the World, USSR, 1926) and Odinnadcatyj (The Eleventh Year, USSR, 1928), released in the Edition Filmmuseum series, marked the end of the Austrian collaborative research project Digital Formalism. This digital research project on Vertov’s work and theory ran from 2007-2010 involving media scholars at the University of Vienna, archivists from the Austrian Filmmuseum and computer
scientists from the Vienna University of Technology.\footnote{See: \url{http://www.wwtf.at/projects/research_projects/details/index.php?PKEY=825_DE_O}, last accessed January 24, 2017.} Though not an official partner, Manovich’s Cultural Analytics joined forces with the project in 2009 to create montage visualisations of Vertov films, using data collected by the Digital Formalism research team.\footnote{“Visualizing Vertov’ - new article by Lev Manovich with 33 visualizations for download”, see: \url{http://lab.softwarestudies.com/2013/01/visualizing-vertov-new-article-by-lev.html}, last accessed January 24, 2017.} While the DVD release contained two Vertov films, it is the presentation of The Eleventh Year which interests me because of its use of cinemetric techniques and which I will discuss in this section in relation to historical-critical DVD editions.

The release of The Eleventh Year did not rely on an apparatus of footnotes similar to Hyperkino's. However, it shared its historical-critical concerns via a different methodological set-up, which combined manual annotations with cinemetric and semantic visualisation techniques. Elaborating on the previous two parts, I discuss how this methodological combination was motivated in relation to existing Vertov scholarship to produce a stylistic and philological historical understanding of his editing system. In particular, I attend to the project's production of different visualisations and its choice of the montage visualisation as a structuring template for analysis. Discussing the visualisations' underlying methodological procedures I argue that, beyond Vertov scholarship, the project opens up a new avenue of digital, visual analytics for philological analysis.\footnote{In addition to numerous articles published in international edited volumes and journals, a special issue – vol. 55, no. 3 - of the Austrian theatre, film and media journal Maske und Kothurn stands out as providing a theoretical and technical overview of the Digital Formalism conceptual underpinnings and on related computer-aided projects on Vertov.} Conclusively, I contend that this combination of methodological procedures can be regarded as a ‘philological’ research dispositif with broader relevance and possible applications for film historians.

As a backdrop for this analysis I would like to first sketch and relate some developments in the critical and scholarly reception and preservation of Vertov's work to the Digital Formalism project – from its distribution in early, cinephile circles to its preservation at the Austrian Filmmuseum.

*Imagining Vertov Historiography and the Vienna Vertov Collection*

While Dziga Vertov’s *Man with a Movie Camera* is arguably one of the most canonised and lauded works in film history today, the historiography and archiving of his films predominantly gained momentum posthumously, in the 1950s.\footnote{Take for instance the 2012 edition of the hugely popular Sight & Sound “Top 50 Greatest Films of All Time” list on which *Man With a Movie Camera* ranked number eight, jumping from the 27th place in 2002, surpassing Eisenstein's *Battleship Potemkin*.} In comparison to for instance Eisenstein, Vertov was not a unanimously acclaimed director nor a film club darling in the late 1920s. The period saw him...
Microscopic Visions of the Film-Text

marginalised within the Soviet Union due to Stalinist cultural politics, of which he was a dissident, and his works met hugely varying, often lukewarm, critical reception in Western European countries.\textsuperscript{584} In the context of contemporary discussions of documentary film in the UK, spearheaded by John Grierson, Vertov's films were perceived as being too formalist and without ability to faithfully depict reality.\textsuperscript{585} In Germany, Vertov enjoyed mixed receptions, from critics sharing Grierson’s view to those hailing \textit{Man With a Movie Camera} as a masterpiece.\textsuperscript{586} Discussions in French ciné-club circles equally reflected these responses. In for instance Léon Moussinac's monograph \textit{Le Cinéma Soviétique} (Gallimard, 1928) written before \textit{Man With a Movie Camera}, a short section on Vertov discusses his collective work form and the basics of his kino-glaz theory, that the camera enables a revelatory machine vision penetrating layers of reality inaccessible to the human eye.\textsuperscript{587} While highlighting the exceptional qualities of Vertov’s films, Moussinac regarded his method as limited to a scientist belief in machinic vision and overconcerned with filmic formalism at the expense of an emotional depth and political clout visible in for instance Eisenstein’s and Pudovkin’s films.\textsuperscript{588}

Vertov’s work was rediscovered from the mid-1950s onwards in the post-Stalinist era, when it gradually became more legitimate to engage with his work and theory. In the Soviet Union, this is marked by the publication of Nikolai Abramov's 1962 Vertov-monograph and the 1966-volume of selected Vertov writings edited by Sergei Drobashenko, which inspired film scholars in the West, such as Georges Sadoul, to conduct new archival research on Vertov.\textsuperscript{589} This renewed interest spawned translated editions of Vertov’s writings and new academic studies in especially North America, Germany and France in the following decades.

As film scholar Seth Feldman convincingly suggests, the Vertov historiography, which has emerged since the 1960s, tends to bifurcate into two different types of Vertov histories.\textsuperscript{590} While

\textsuperscript{585} Ibid., 99.
\textsuperscript{586} Ibid.
\textsuperscript{588} Ibid., 177-178. The way Moussinac formulates his critique of Vertov’s formalism makes one tempted today to relate his the characterization of him as a ’cinematic’director par excellence and a cinemetrics predecessor: “Le métrage de chaque suite d’image est fixé de façon absolue dans son rapport avec le métrage de l’ensemble du film”. On a related note, it could be highly interesting to explore Moussinac's central concept of rhythm with cinemetric tools.
Feldman does not use those exact terms, one could describe them as respectively contextualising and presentist. Contextualising histories take the cue from the post-Stalinist perspective suggested by Abramov and Drobashenko, to place Vertov firmly within his historical context of production and approach him as a misunderstood director, whose work and personal ambitions may be better appreciated from a post-communist perspective. They tend to downplay the political implications of Vertov’s work because they do not see his political vision as successfully communicated nor essential, focusing instead on his works’ formalism and the relationship he establishes with reality through his use of mobile cameras and editing. According to Feldman, this historicisation is developed in more recent, scholarly works by Vlada Petric, Yuri Tsivian and Graham Roberts. Digital Formalism showed a particular interest in this type of Vertov history in that it wanted to develop a better sense of Vertov’s formal system of editing. As film scholar and archivist Adelheid Heftberger has pointed out to me, to study Vertov is very different from studying for instance Eisenstein, who was a very prolific theorist next to his work as a director. While Vertov was also a prolific theorist, his theoretical writings remain scattered in comparison to Eisenstein, and central words in their English translations are often ambiguous just as they sometimes lack Vertov’s original illustrations. Therefore, to understand Vertov’s formal system properly simultaneously requires a great deal of rigour and imagination, reading again his original articles in Russian to seek to understand his vision. In this regard, the project in particular reconsidered the famous text “WE: Variant of a Manifesto”, co-published with his kinoks collaborators (first published in Russian in 1922 as “My Variant Manifesta”). In this manifesto, Vertov and his kinoks advocated a filmmaking practice that considered filmic segments as phrases representing various motifs through different types of movement, intervals and tempi. As I discuss in the following section, Digital Formalism sought to develop descriptive categories and annotate all these types of phrases.

In a second branch of Vertov historiography, scholars tend to map their own media theories onto his films so as to imagine and historicise them as harbingers of contemporary concerns and/or

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591 Ibid., 43.
592 Ibid.
593 Interview with Adelheid Heftberger conducted 28 September, 2015 via Skype.
594 Ibid.
595 The group of documentary filmmakers referred to as the ‘kinoks’, or ‘kino-okê’ in Russian, counted among others film editor and wife of Vertov Elizaveta Svilova and Vertov’s brother cinematographer and director Mikhail Kaufman.
innovative media practices.\textsuperscript{597} As argued by Feldman, this results from a distinct openness and inherent complexity in Vertov’s work, which invite genealogies between contemporary technological imaginaries and Vertov’s. Georges Sadoul’s widely influential monograph \textit{Dziga Vertov} (Editions Champ Libre, 1971) is emblematic in this regard. It provided the conceptual vocabulary for contemporary documentary filmmakers through its translation and discussion of Vertov’s writings on documentary practice. The labelling of 1960s French and Canadian documentary filmmaking employing lightweight equipment to capture and describe real life events as “cinéma vérité” – epitomised by works of Jean Rouch, Michel Brault and Pierre Perrault – took up a direct translation by Sadoul of Vertov’s newsreel series \textit{Kino-Pravda}.\textsuperscript{598} More recently, in a similar vein, Lev Manovich's widely known new media theory, articulated in \textit{The Language of New Media} (MIT Pres, 2006), suggested that Vertov could be considered a precursor to the non-narrative, navigational regime of databases.\textsuperscript{599} In Manovich’s media genealogy, Vertov’s cinema, which continuously appropriated the same footage to different ends, was a database \textit{avant la lettre} which exposed the paradigm underlying sequentially ordered narratives by arranging moving images into categories which could be constantly reassembled in new combinations.\textsuperscript{600}

Thinking along the lines of Manovich, Digital Formalism paralleled Vertov's system of image appropriation with the non-linear information architecture of databases.\textsuperscript{601} Furthermore, it invoked Vertov's belief in cinema's revelatory, machinic perception to motivate using data visualisations to analyse his films formal structures.\textsuperscript{602} Participants in Digital Formalism have suggested that the use of digital methods for knowledge organisation and visualisation is crucial to understand Vertov’s filmmaking, because he anticipated them. As Kropf and others articulated: “…Vertov’s highly elaborate techniques of filmmaking anticipate digital media, the digital tools form a method that is contained implicitly in the material itself”.\textsuperscript{603}

Turning to the archival history of Vertov’s work, which formed the basis for Digital Formalism,
one can say, from a present-day perspective, that the Vertov collection at the Austrian Filmmuseum is one of the most significant ones. However, as film historian Thomas Tode points out, Vertov did not historically have strong ties to Vienna, where few of his works were projected in the 1920s just as the Filmmuseum’s initiatives in the 1960s and 1970s remained in the shadow of other countries more extensive engagement with Vertov’s work. The appraisal of Vertov’s work in Austria coincides with the Austrian Filmmuseum’s collection building in the 1960s and persistent efforts to integrate the director’s works into it. When Peter Kubelka and Peter Konlechner set out to create a film collection for the Austrian Filmmuseum in the early 1960s, Vertov films and other Soviet titles were a high priority and a wish-list – compiled with help from Jay Leyda – was sent to the Gosfilmofond in 1963, resulting in a unique donation of prints. This donation's uniqueness launched the institution’s history with Vertov, allowing it to organise a first retrospective around the filmmaker's work in 1967. It was also an important reason for its acceptance into FIAF. These circumstances led the Austrian Filmmuseum to achieve a significant voice as an institution preserving Vertov’s legacy. In the 1970s, several initiatives such as the now renowned 1972-restoration of Dziga Vertov's Entuziasm by Edith Schlemmer and Peter Kubelka, which resynchronized the film to its soundtrack and the Filmmuseum's 1974 Vertov-exhibition, consolidated this position. Yet, in spite of the institution's persistent efforts to promote Vertov's legacy, large parts, if not the majority of the collection, were kept secret throughout the 1980s and the 1990s because of political tensions. As film scholar Barbara Wurm has pointed, some of the material was labelled for several years as “Offiziel nicht vorhanden” ('Officially non-existent'). The changed political climate of the late-1990s, according to Tode, again saw the Austrian Filmmuseum becoming a central institution for scholarly re-appraisal of Vertov's work, beyond

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604 Thomas Tode, “Vertov und Wien / Vertov and Vienna” in Thomas Tode & Barbara Wurm (eds.), Dziga Vertov: Die Vertov-Sammlung im Österreichischen Filmmuseum / Dziga Vertov: The Vertov Collection at the Austrian Film Museum. (Vienna: SYNEMA – Gesellschaft für Film und Medien, 2006) 33, 35-36 and 40. According to Tode, an appreciation of Vertov’s work only emerges very late in Austria, Entuziasm (USSR, 1930) being the first film screened as a Dziga Vertov film in the country in 1932, and Man With a Movie Camera, apparently never being screened in Vienna during the director's lifetime.


606 Thomas Tode, op.cit., 40.

607 Ibid.

608 Ibid., 42. As Tode points out, the translations of Vertov's diaries in the East German editions were for instance more rigorous and precise.

609 Ibid., 45.

Microscopic Visions of the Film-Text

Austrian borders. For the Austrian Filmmuseum a stated goal with the Digital Formalism project was to develop a film-philological research and scholarly annotation of the Vertov collection and it contributed an array of digitised films and documents from its collection.\(^{611}\) In addition to the emerging methodologies of cinemetric visual analytics and philological DVD editions discussed in the previous sections, these historiographic strands and institutional aspects of Vertov’s archiving conditioned the Digital Formalism project. In the following section I analyse how these research traditions and techniques came together in Digital Formalism to produce and study Vertov within a digital, philological regime of vision.

Merging Cinemetric Analysis and Film-Philology with Vertov

As the cinemetric techniques discussed above, Digital Formalism defined key variables as a basis for its image analysis. However, in comparison, Digital Formalism relied on a more varied, multifaceted descriptive scheme. The analysis and visualisation of digitised Vertov films relied on data collected using an annotation template containing six descriptive categories for semantic and material aspects of the films: Types of Shots; Duplicates; Material; Sound; Camera Movement; and Editing. Each of these categories contained subcategories enabling deeper levels of description. For instance the field ‘Intertextual Duplicates’ under ‘Duplicates’ was used to indicate multiple appearances of the same footage in different Vertov films. Or, ‘Film Damages’, under the ‘Material’ section, was used to describe physical signs of damage to the footage.\(^{612}\) Following this template, first the analogue prints were described, then the digitised films were meticulously annotated shot-by-shot, primarily by Adelheid Heftberger, using the open-source video annotation tool Anvil.\(^{613}\)

As film director and scholar Stefan Hahn explains, this annotation template was regarded as a “ground truth”, reflecting how Vertov’s films were conceptualised as objects of study among the composite group of participants. In many respects, this ‘ground truth’ combined key insights from existing Vertov scholarship with cinemetric and philological methods. The core categories of ‘Editing’ and ‘Camera Movement’, used broadly in statistical style analysis and specifically for Vertov by Petric, reflected this. Specific types of camera movements, shapes and angles, circular camera movements for instance, recur frequently throughout Vertov's films, and were annotated along the

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lines of Petric's 1988-monograph.\footnote{Ibid.} Using these categories in combination with existing Vertov scholarship, recurrent visual patterns were annotated to allow for semantic recognition.\footnote{Matthias Zeppelzauer, Dalibor Mitrović and Christian Breiteneder, op.cit., 1.} An illustrative example was Vertov's collation of object shapes through editing, for example pots and buckets, as a way of linking situations through visual cues, rather than using continuity editing.\footnote{Ibid., 5.} In addition, the ‘Editing’ field’s subcategory of ‘Existing Segmentations’ enabled the inclusion of prior, scholarly segmentations of Vertov films, among which Petric's was considered, alongside general annotations on cutting rates.\footnote{Stefan Hahn, op.cit., 132.} Further, in line with cinemetric methods of auteur classification, Digital Formalism wished to understand the 'inner logic' of Vertov's style, its 'vocabulary' and rhythmic compositions.\footnote{Adelheid Heftberger, Michael Loebenstein and Georg Wasner, op.cit., 138.} To this end, it pleaded for using the flatbed editing table's mode of vision for viewing film prints in combination with cinemetric techniques to facilitate quantification of the complex, metric features of Vertov's editing style.\footnote{Adelheid Heftberger, “Ask Not What Your Web Can Do For You – Ask What You Can Do For Your Web! Some Speculations about Film Studies in the Age of the Digital Humanities” in Frames, No. 1, Vol. 1 (2012) 6.}

As mentioned above, an important aspect of the project was to understand the organisation of what Vertov refers to as 'phrases'. In “We: Variant of a Manifesto” it is described how film-phrases should dynamically interplay so as to both depict and fantasise the rhythm of life, using the specific capacities of cinema to edit and manipulate speed as an almost scientific means to convey the chaos and relativity of reality.\footnote{Ibid.} Seeking to interpret and elucidate this terminology, the researchers indexed sequences according to features of content and style to suggest a new understanding of what Vertov could have meant with his idea of 'phrases'.\footnote{Interview with Adelheid Heftberger conducted 28 September, 2015, via Skype.} In their annotation, the researchers in Digital Formalism discerned four characteristic types of phrases with distinct textual functions – Episodes, Echoes, Relais and Accelerating-Dynamizing - in his late silent and early sound films.\footnote{Adelheid Heftberger, Michael Loebenstein and Georg Wasner, op.cit., 179.} Episode phrases constitute individual narrative sequences, Echoes present different variations of

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\begin{itemize}
  \item Episode phrases constitute individual narrative sequences,
  \item Echoes present different variations of
\end{itemize}
one or more motifs depicted in an episode, a *Relais* functions as a bridge between episodes (often depictions of electricity production), and finally *Accelerating-Dynamizing* phrases show rapidly edited industrial motifs of labour and transportation.\(^{623}\) In this way, Digital Formalism combined standard cinemetric techniques for measuring cutting rates, with tailor-made descriptors for Vertov’s film theory and practice.

The template also reflected philological concerns. The field 'Material', for instance, contained descriptors for common physical characteristics and types of damage in archival film such as shrinking, dirt, blurred images or missing segments.\(^ {624}\) For several reasons, such artifacts were not removed with digital restoration algorithms although they complicated the development of automatic, semantic recognition of the films' image features. A significant reason was that digital restorational interventions would create new image artifacts or remove image features which were relevant to the project's image analysis.\(^ {625}\) Thus, digital restoration would further complicate the annotation work. Furthermore, the visibility of material signs of ageing fits within the Austrian Filmmuseum's preservationist deontology of restoration which considers them unique, historical signifiers integral to the prints. Therefore, an important reason for describing material damage was to understand how they complicated semantic recognition techniques by distorting the appearances of objects and motifs.\(^ {626}\) Consequently, the project's computer scientists were “fully integrated into the archive” to develop a shared understanding of and descriptors for the film material.\(^ {627}\) This produced a distinction between three types of damages: *global*, which affect an entire frame's appearance; *local*, affecting only a small part of it; and *temporal*, meaning missing segments.\(^ {628}\)

Such philological concerns were integrated into the project's descriptive regime merging with them cinemetric and Vertov-specific descriptors. Consequently, the project forged a hybridisation of the viewing table's mode of vision, computational methods, and film-philology.

In comparison to Cinemetrics, where digital video remains the primary referent, Digital

\(^{623}\) Ibid., 142-145.

\(^{624}\) Stefan Hahn, op.cit., 131.

\(^{625}\) Matthias Zeppelzauer, Dalibor Mitrović and Christian Breiteneder, op.cit., 16.

\(^{626}\) Ibid., 11.

\(^{627}\) Adelheid Heftberger, op.cit., 2012, 2.

\(^{628}\) Ibid., 13. In several aspects, the choice of these descriptors seem to echo the terminologies suggested in discussions on philological film restoration theory. For example, they bring to mind Paolo Cherchi Usai's distinction between different *lacunae* in archival film such as for instance 'synchronic' *lacunae* - dirt or scratches appearing throughout an uninterrupted segment – or 'diachronic' *lacunae* - meaning lacking segments. See, Paolo Cherchi Usai, “Il film che avrebbe potuto essere, o l'analisi delle lacune come una scienza esatta” in Simone Venturini (ed.) *Il restauro cinematografico. Principi, teorie, metodi.* (Pasian di Prato: Campanotto editore, 2006) 130.
Formalism arguably succeeded in integrating the editing table more rigorously into its methodology. As Heftberger, Michael Loebenstein and Georg Wasner put it, this template combined the viewing table's 'close reading' with machine readings to zoom in on patterns of for instance cutting rates, movements or changes in light to connect observations to film-related material.

The data resulting from this work allowed and invited for exploration of both text-internal and material patterns by hybridising analogue and digital analytical procedures with visual analytics. With regard to the latter, just as Cinemetrics, ACTION and Cultural Analytics, Digital Formalism's project participants negotiated different data visualisation formats. The Cinemetrics graph was used to shed light on the internal editing dynamics of *Man with a Movie Camera* in a manner which combined viewing-table based and automated style analysis closely. Hosted by the Cinemetrics website, this exploration took the form of an online discussion between the project participants and Yuri Tsivian focusing on cutting swings in *Man With a Movie Camera's* different acts. As a basis for the discussion prints from respectively Vienna, Riga and Amsterdam were scrutinised. This led to the observation of a peculiarity in the Riga print's structure, which invited the use of Cinemetrics to shed light on the film's overall composition anew. Whereas the Vienna and Amsterdam prints had an animated number 1 rising before the first act's beginning, the Riga print also contained numbers at the beginning of reels two, three and four. This suggested that *Man With a Movie Camera* was made up of acts, each containing a beginning, an end and closure, rather than, as hitherto analysed, being organised as one long sequence. Using Cinemetrics to visualise and contemplate the acts individually, it appeared that the first part of *Man With a Movie Camera*, depicting mainly early morning events before the city wakes up, had an overall lower cutting rate compared to the frenetic urban life depicted in the last reel. Using Cinemetrics, the researchers could visualise how the cutting rates in *Man With a Movie Camera*, appear to change according to the pace of events, arranged in different acts, rather than supporting a narrative structure throughout a feature length film, much in line with Vertovian theory. Using the scientific terminology of Cinemetrics, Tsivian

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630 Ibid., 138 an 147. As the authors write (p. 138): “So findet unsere Arbeit mit den Filmen – ’close readings’ am analogen Sichtungstisch, in der Kinoprojektion und mit digitaler Sichtungs- bzw. Annotationsssoftware am PC – eine Parallele in der Auseinandersetzung mit den in der Wiener Vertov-Sammlung konservierten nicht-filmischen Materialien: Vertovs Schriften, vor allem aber die Autographen werden transkribiert und übersetzt, und zu Erkenntnissen in Beziehung gesetzt, die aus den ’close readings’ der Filme gewonnen werden”.

631 Adelheid Heftberger, Yuri Tsivian and Matteo Lepore, op.cit., 60.

632 Ibid., 62.

633 Ibid.
suggested this could be seen as evidence of an “ED-rule” – ED stands for “Event Driven” – at work in Vertov's films.  

Beyond the Cinemetrics graph's focus on cutting rates, also the visualisation software Matlab was used. Film scholar Vera Kropf used the resulting visualisation, created by Adelheid Heftberger, to explore the organisation of phrases in Vertov's films, to create a deeper understanding of their rhythmical interplay (see fig. 27). In these visualisations one can see the durations of individual segments in frames on an x-axis, and compare them to variations on similar or different motifs on a y-axis. This added an analytical layer to the “ED-rule” visualised with Cinemetrics, making it possible to observe and zoom in on the cutting rates of individual phrases and their relation to motifs and events as if reading the film as a score of graphical notation.

The uses of Matlab and Cinemetrics for data visualisation in Digital Formalism yielded new insights and scholarly discussions on the formal composition of Vertov's films. Yet, neither of them produced the primary inscription device associated with the project. The montage visualisations created with ImageJ, of which that of The Eleventh Year is included above, became preferred as the primary form of visualisation and has since been associated with the project when discussed by scholars online and at conferences to reflect upon digital methods's potential for media studies. It also played a crucial role in the DVD release of The Eleventh Year that concluded the research.

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634 Ibid., 78.


636 Ibid., 107.

project. As I will argue in next section, the format's use in the DVD release can be characterised as a philological research dispositif which to a greater degree achieved a combination of cinemetric techniques with the editing table's regime of vision, reflecting Petric's plea for a visual/analytical film history. By going full circle back to Petric's plea discussed in the chapter's beginning, I thus conclude that it managed to appeal more broadly to film archivists and academic scholars because it successfully merged the conscientious, comparative analysis of prints, as experienced by the cutting table, with stylistic analysis.

The Montage Visualisation and the Philological Research Dispositif

During the Digital Formalism project, the research team joined forces with Lev Manovich's Cultural Analytics to visualise Vertov data with ImageJ/ImagePlot. Several montage visualisations of Vertov films resulted from this collaboration and were used for studying the formal aspects of their style and archival life, in particular of The Eleventh Year. As discussed above, the montage visualisation is less abstract than reduced statistical representations used within conceptually related cinemetric methods. It resembles early, sequential scientific cinematography such as the iconic, tabular organisations of photographs produced by Muybridge. Furthermore, one may argue that its structuration of film shots lies within the lineage of Petric's visual/analytical history. The DVD release of The Eleventh Year seems to suggest this. As if echoing Petric's plea from the mid-1970s, the visualisation's caption in the DVD area 'Digital Formalism: Visualisierungen/Digital Formalism: Visualizations', which displayed the general results of the project, presented it as a “Visual representation of a film structure”.

In addition to this general introduction, the visualisation of The Eleventh Year saw two different uses in the DVD release for analysing respectively the style and philology of Vertov’s editing system. First, it served as a template for illustrating Vertov’s formal system of phrases, as understood by Digital Formalism. Second it was used to investigate the reuse of a segment from Vertov's film in the compilation film Im Schatten der Maschine (Germany, 1928) by director Viktor Blum, and in a related investigation of a possible identification of footage missing from The Eleventh Year. The visualisation represented each of the film’s shots by its second frame, organised in such a way that their sequential appearance could be followed from left to right from above,

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638 Michael Loebenstein, Adelheid Hefberger and Georg Wasner (DVD-Supervision), Sestaja cast’ mira / Odinnadcatyi (Vienna: Edition Filmmuseum, 2009) See: file:///Volumes/VERTOV NYMAN_DVD2/ROM/HTM/VIS.HTM. The section also provides a link to the Flickr page of Cultural Analytics where additional Vertov visualizations can be glanced.
Microscopic Visions of the Film-Text

giving an overview of the entire film. Different colour-coded versions of the visualisation were used for different analytical purposes.

The first use appears in the ROM-section of the DVD set which provides access to Digital Formalism's research results. In the section “Odinnadcatyj: Vertov’s ‘Phrasen’/Odinnadcatyj: Vertov’s ‘Phrases’”, the visualisation is used as a template in combination with video examples to explain the functions of three annotated types of phrases - Episodes, Echoes and Relais. When entering the 'Episode' sub-section, the visualisation appears in a colour-coded version using the complementary colours green and magenta to indicate and separate episodes that make up individual, narrative units (see fig. 28). Clicking on an episode activates its playback in a window on its right side. Each of the episodes can be viewed one by one. In the following subsection, 'Echo', an example of a motif's repetition can be viewed. Here, a detail of two frames from the visualisation is showed, each representing a shot which can be clicked to activate the echo's playback in its two different variations.

**Fig. 28** Using the montage visualisation created with ImageJ as a template, the segments that make up different episodes in Vertov’s *The Eleventh Year* are indicated using two colours to indicate shifts between episodes. Clicking at a frame in an episode enables the user to view it in a box on the right.

In the 'Relais' subsection, the entire montage visualisation appears again, but with only a green colour added to indicate shots which have been annotated as *relais*-phrases. As in the ‘Episode’-subsection, each of these shots can be clicked and viewed. Thus, throughout the sections, different

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colour-codings guide the user to relevant sections of *The Eleventh Year*, highlighting their functions within Vertov's formal system, as discerned through Digital Formalism's 'ground truth'. Arguably, this visual arrangement gives form to one of the project’s main objectives, which was to analyse Vertov’s system of image organisation as a database, using the descriptive and representational possibilities of digital tools, in this case ImageJ.

The montage visualisation’s second appearance in the extra material occurs in the documentary short *Vertov in Blum. An Investigation* (dirs. Adelheid Heftberger, Michael Loebenstein & Georg Wasner, Austria, 2009). This section attends to and analyses the specific, philological problem referred to as the “Blum Affair”. The “Blum Affair” was a series of accusations of plagiarism against Vertov, which were brought forth upon the first screening of *The Eleventh Year* in Germany in 1929, where it was said to copy the compilation film *Im Schatten der Maschine* (*In the Shadow of the Machine*, Germany, 1928). *In the Shadow of the Machine*, compiled by communist director Viktor Blum, critically interrogates the relationship between man and machine in modern, industrial societies. The film premiered in November 1928. A large part of its footage was taken from unreleased Ukrainian films, among which happened to be *The Eleventh Year* and Aleksandr Dovzhenko’s *Zvenigora* (USSR, 1928), both produced by the Ukrainian VUFKU and finished in 1928. Blum used excerpts predominantly from the last part of Vertov’s film, maintaining to a large degree the sequences’ original montage, while framing them in a remarkably different way. Whereas Vertov enthusiastically hailed technological progress, Blum’s editing gave the material a pessimistic, technophobic undercurrent.

According to Thomas Tode, Blum's film was positively received, described as more precise and visually enthralling than Walter Ruttmann’s famous city symphony *Berlin – Die Sinfonie Der Grosstadt* (Germany, 1927) in its depiction of modern life. Due to the acclaim of Blum’s compilation film, footage from Vertov’s film became known to German film club audiences,

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641 Ibid. Presumably compiled in collaboration with director Leo Lania.
642 Ibid. At this time Dziga Vertov made his films for the Ukrainian VUFKU having been, according to several accounts of his filmmaking career, marginalized in the Russian film industry in the late 1920s as a consequence of recent Stalinist film politics.
643 “Memorandum Concerning the Blum/Vertov Affair”, in Yuri Tsivian (ed.), *Lines of Resistance. Dziga Vertov and the Twenties*. (Pordenone: Le Giornate del Cinema Muto, 2004) 380. Viktor Blum described his own film’s depiction of machines with the following words to underline its difference from Vertov’s work: “Machines invented by humanity for the purpose of serving humanity more and more are becoming the rulers of humankind. Yes, in the final analysis humanity becomes nothing more than a helper, a slave of the machine itself.”
644 Tomas Tode, Adelheid Heftberger and Aleksandr Derjabin, op.cit. 1.
Microscopic Visions of the Film-Text

which reason, when touring with his film in 1929, audiences accused him of plagiarism. Vertov responded by considering Blum’s use of his sequences a clear-cut case of fraudulent plagiarism, polemising against the promotion of Blum's film without mentioning his name. Blum, however, maintained that his reuse had not sought to hide the authorship of Vertov, and stressed that it had been done in the collective spirit of reusing footage for socio-political, propagandist purposes, a practice which Vertov had himself endorsed.

Fig. 29 Using the montage visualisation, shots from Vertov’s The Eleventh Year appearing in Blum’s In the Shadow of the Machine were indicated with a green border around the shots in question.

In the documentary Vertov in Blum, the interrelations between the two films are illustrated with the help of the montage visualisation. The voice-over first explains how the Austrian Filmmuseum’s print of The Eleventh Year was compared to a print of Blum’s film from the Bundesarchiv-Filmarchiv on a viewing table before annotating each of the digitised version's 654 shots manually, in combination with automated, semantic recognition of image shapes and motifs among other things. These methodological steps identified 30 shots from the last reel of Vertov’s in Blum’s,

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645 Ibid., 2.
648 Vertov in Blum. An Investigation (dirs. Adelheid Heftberger, Michael Loebenstein & Georg Wasner, Austria, 2010), 03:03.
and were subsequently indicated by a green border around the shots in question in the visualisation (see fig. 29).

This use of the visualisation, one can argue, elucidated a philological problem from an ecdotic, context-centred tradition. While the emphasis was on establishing the authenticity of Vertov’s claims concerning the reuse of footage from his films in Blum’s compilation film, the visualisation also allowed for making general inferences about practices of reusing and reediting footage in documentary and newsreel filmmaking in the late silent era. Consequently, the visualisation went beyond an auteur-perspective, to also comprise contextual circumstances of, to recall Lenk’s words, the hidden side of cinematography and editing history.

The Vertov in Blum-documentary contains another example of a related use. This concerns the investigation of an irregularity which was observed during the comparative analysis between The Eleventh Year and In the Shadow of the Machine. During this process, the researchers surprisingly observed that Blum’s In the Shadow of the Machine contained more shots in the last reel than The Eleventh Year. Where the last reel of Vertov’s The Eleventh Year stops, In the Shadow of the Machine continues in a montage style resembling Vertov’s. This spawned curiosity because the Gosfilmofond and Austrian Filmmuseum prints of The Eleventh Year were believed to be missing footage amounting to either nine or seventeen minutes.\textsuperscript{649}

To investigate whether this additional footage could indeed be Vertov footage, the last sequence appearing in In the Shadow of the Machine was compared to all of the annotated footage. Interestingly, this created matches with round shapes in shots from the print of Man With a Movie Camera held at the Nederlands Filmmuseum (now EYE Filmmuseum). In Man With a Movie Camera a car is glimpsed in shots in reverse and forward mode - shots which also partly appear in In the Shadow of the Machine’s final sequence. This gave a clear indication that the footage could have been used in The Eleventh Year as it is well known that Vertov continuously reused footage from his moving image repository in different films (see fig. 30).\textsuperscript{650} Therefore, though not providing conclusive evidence, this analysis showed that the additional shots in In the Shadow of the Machine could indeed have been derived from The Eleventh Year.\textsuperscript{651}

In this example, the montage visualisation was used for both stylistic and philological analytical purposes. Adding to the visualisation of phrases, it possibly furthered the understanding of Vertov’s

\textsuperscript{649} Ibid., 00:00:36

\textsuperscript{650} Ibid., 00:08:16. Vertov’s reuse of footage is epitomised in the famous sequence where his wife and editor Elizaveta Svilova sits by the cutting table in Man With a Movie Camera.

\textsuperscript{651} Ibid., 00:08:57 - 00:09:02. As it is pointed out on the commentary track concerning the editing of this additional footage: “…in many regards, this montage has the filmmaker’s name written all over it…”
Microscopic Visions of the Film-Text

reuse of footage by seeing it as a philological complex of circulating footage, appropriated to different ends. In addition, used in combination with automated, semantic analysis, it suggested a possible reconstruction of the The Eleventh Year's missing parts, by combining and merging the cutting table's close reading, with the machine reading's microscopic vision of the film-text. Beyond Vertov, Digital Formalism's combination of techniques – the visual/analytical montage visualisations, meticulous, philological print comparisons and cinemetric visualisations - arguably creates a philogical dispositif with much wider relevance for practitioners of digital film historiography, by combining an analytical focus on philological and stylistic aspects.

![Fig. 30 Using semantic recognition techniques to identify shapes, in particular round shapes, in Vertov's films, the researchers could identify matching footage between Blum's In the Shadow of the Machine and Vertov's Man With a Movie Camera.](image)

The analytical functions of montage visualisations within the Austrian Filmmuseum's DVD publication of The Eleventh Year hybridised the strands of Vertov historiography and philological editing principles discussed above. They reflected auteur and text-centered framings of Vertov's work in the lineage of Petric's and Tsivian's scholarship by elucidating its inner, structural dynamics against the backdrop of its historical context. Although arranged differently, the Eleventh Year DVD edition resembled the Hyperkino format, in its use of historical-critical principles to interrogate differences between text versions of footage in Vertov's films. Especially the release's focus on the 'Blum affair' reflected an ecdotic, context-oriented approach to text analysis, to emphasise the film's distribution history and archival life rather than solely its directorial style.

Arguably, the DVD's 'Phrases'-subsections established a microscopic perspective on the film-text by structuring a navigation from the The Eleventh Year's largest unit, the entire filmic structure and its 'Episodes', to its smallest, the 'Relais'. By combining these traditions and their accumulated
knowledge in a present-day historicising format, Digital Formalism's visual analytics lent a strong(er) evidentiary status to the structural, cinematic analysis of archival film. To echo the words of Petric, its 'visual-analytical' nature allowed to grasp the cinematic structure of style and express intrinsic, philological features of its archival history. In comparison to written accounts and the abstract, representational forms of cinemetric approaches, the montage visualisation created an approximation to the object of study which simultaneously conveyed (parts of) its metrics while maintaining its indexical features.

However, while this visualisation is perceived as creating a closer approximation to archival film, I would argue that an important reason for this should paradoxically be found in its black-boxing of the film archive as a site of knowledge production, which distances the scholar at the user-end from the object of analysis. The colour coded montage visualisation enables the scholar to browse through the structure of archival prints, that come from different remote locations. It offers an authoritative visibility of philological interrelations between archival prints. It displays knowledge whose accumulation would have traditionally required traveling afar between film archives to meticulously create shot outlines with pen and paper for philological comparison in research and publications, as scholars have increasingly done since the 1970s.

The black-boxing of such processes, I argue, reflects the staging phase in Digital Formalism's “historiographical operation” in which results are arranged and logically ordered into a dispositif to distribute the symbolic insights yielded at the research sites.652 In this sense Digital Formalism has at the same time developed new ways of foregrounding and visualising archival research, while, as a representation of research, it reflects a specific tradition and historical discourse.653 This process could also be explained by comparing once again the montage visualisation to Muybridge's sequential photography. As commented by art historian Jonathan Crary, by recording, breaking down and plotting the movement of a physical object onto a tabular, photographic format which can be easily circulated and exchanged, Muybridge’s motion studies claim an “...instaneity of vision from which space is deleted”.654 The montage visualisations, created from video annotations, claim visual instantaneity of the film archive's and, as discussed in the example above, the Vertov films’ philological complex relying on specific historiographical assumptions, in a way which does not reflect all the less formalised steps of the underlying research procedures which led to them. This

653 Ibid. As de Certeau writes int this regard, "There is no historical narrative where the relation to a social body and an institution of knowledge is not made explicit. Nonetheless there has to be a form of ‘representation’. A space of figuration must be composed.”
Microscopic Visions of the Film-Text

potentially recasts the role of film archives as sites of knowledge acquisition, by delivering stilled, visible evidence of philological relations which can be circulated and contemplated outside of it, in the “study center” of historical-critical DVD editions. Embedded in a specific research tradition of philological and formalist analysis, this allows to comprehend aspects of the 'hidden side' of film prints' editing history in a new publication format, a dispositif, which could hitherto only be contemplated with analogue viewing equipment.

3.4 Conclusion: A Philological Dispositif

In this chapter, I have analysed the methodological procedures and representational practices of a variety of stylometric and philological digital scholarly projects. In section 3.1, I concluded, with regard to the tradition of statistical style analysis which emerged in the 1970s, that the introduction of scientific data visualisations occurring with digitisation nurtures a shift towards more dynamic and varied data representations. The Cinemetrics graph’s combinatorial properties illustrated how techniques and visual analytics developed within a larger network of scholars gave rise to ‘oppositional devices’, which simultaneously caused a strengthening and challenging of the key parameter of ASL. Using the perspective of literary theorist Johanna Drucker I subsequently argued that the development of statistical style analysis in related applications such as Cultural Analytics and ACTION, can be seen as a form of humanistic cinemetrics. This form of cinemetrics attributes less firm evidentiary status to data visualisations in favour of exploratory, methodological procedures without the same level of formalisation as Cinemetrics. As I pointed out, computational methods give rise to new scientific rationalities just as much as to science-fiction.

In my subsequent discussion of historical-critical DVD editions of archival film, centred around the key example of Hyperkino’s annotations, I suggested that this format provides a technical and conceptual environment in which cinemetric visualisations can acquire an evidentiary function and structuring role in the analysis of a film’s style and archival life. I developed this point in my case study of the montage visualisation’s use in Digital Formalism’s DVD publication of Vertov’s The Eleventh Year, where the historical-critical DVD edition was employed as a visual format for discerning both stylistic and film-philological features of editing. As a scientific image, the montage visualisation was used both to unravel and imagine textual, stylistic structures within Vertov’s films while visualising at the same time the philological complex of footage relations and reuse in his own and Blum’s films. In the DVD’s otherwise non-linear regime of navigation, the visualisation gave density to the publication as a methodologically rigorous and scientific, philogical historical
study of Vertov. To lend the words of Michel de Certeau, one can argue that this representation’s “semanticizisation” and presentation of film data facilitates a form of historical writing, or rather a visual dispositif for a digital, philological film history.\textsuperscript{655} It constitutes a machinery of seeing, which produces visibilities of stylistic and philological features of digitised archival film as a fundament for comparative stylistic and print analysis. It results from a series of historiographical assumptions and methodological procedures, which imply specific human-machinery interrelations.

Based on my chapter’s discussion of the philological dispositif, I would like to outline the following set of methodological steps, assumptions and features which underpin its making, visual arrangement and the interaction with it. First of all, the most fundamental choice which characterises this dispositif is to focus on films as, echoing Petric’s words, quantifiable “primary documents” and historical sources from which to produce annotations, metadata and statistical representations. The sources are approached with philological rigour within a preservationist restoration philosophy (Rosen) or film as original framework (Fossati) with attention to the contextual aspects of a film’s distribution/exhibition history and archival life.

<table>
<thead>
<tr>
<th>The Philological Dispositif</th>
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<tbody>
<tr>
<td>1. Source material/Metadata</td>
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<tr>
<td>2. Restoration philosophy</td>
</tr>
<tr>
<td>3. Provenance</td>
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<tr>
<td>4. Analytical level</td>
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<tr>
<td>5. Taxonomy of features</td>
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<td>6. Techniques</td>
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<td>7. Visualisation</td>
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<td>8. Format</td>
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<td>9. Regime of navigation</td>
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Fig. 31 Features of the philological dispositif

In Hyperkino and Digital Formalism there was a preference for an archival hardware aesthetics which foregrounds the archival elements’ material features as containers of historicity, regardless of whether this complicated the application of digital tools. Along these lines, they processed archival sources shaped by a preservationist hardware aesthetics. In addition, the dispositif is equally invested in visualising inner textual features and dynamics of film style to suggest a combined textual and contextual focus. To yield such a combined focus, the analysis of the sources is prepared

\textsuperscript{655} Michel de Certeau, op.cit., 1988 [1975]) 93.
by conceiving a taxonomy of relevant characteristics which constitute a ground truth, to annotate stylistic and material features. Annotating the films either manually, automatically or semi-automatically, the data obtained is processed to produce, depending on the tools used, both reduced and non-reduced diagrams. The former type of diagrams, such as the Cinemetrics graph, are used primarily for analytical reasoning throughout the research process to make inferences about editing and segmentation. The latter type, such as the montage visualisation, equally fulfils a significant analytical function with attention to these parameters, but acquires a more prominent role in the discernment of philological relations between prints and in the dissemination of research results. In a DVD format it guides the user’s attention throughout a stylistic and/or philological reading allowing for non-linear, but closed, navigation and analysis within a formalist tradition of film analysis. In the table above I have outlined the features of the philological dispositif in the order I have described them here (see fig. 31).

In addition to this outline, I would like to consider some of Albera and Tortajada’s five descriptive categories to understand the dispositif’s human-computer interaction at the user-level. In particular, I find it relevant to consider the first three types of interrelations which focus primarily on the encounter between human and machinery. To remind the reader these are: 1. The relation between the spectators and the machinery; 2. The relation between, on the one hand, the spectators and, on the other, the machinery and the representation; and 3., The relation between the spectators and the representation.

One can conclude by first considering the interrelation between scholar and machinery that this dispositif is practiced predominantly by a lone user. The production of a cinemetric representation and its appearance within a historical-critical DVD edition, is tailored to smaller (computer) screens in either private or institutional settings for a single scholar. Yet, at the same time, its ties to institutions and tradition remain conceptually strong and reflect a social acceptance of its analytical practice, in this case stylistic and philological research traditions. In the second interrelation, it is characteristic that most users can contemplate the dispositif’s visualisations without being able to intervene in the machinery to alter the representation. All of the visualisation techniques discussed in this chapter – Cinemetrics, ACTION and ImageJ/ImagePlot – shared the trait that they rely on predefined techniques for data collection, to varying degrees, in which users generally cannot – or do not - directly intervene. Cinemetrics, for instance, offers a tailor-made technique of data collection and visualisation, developed by Yuri Tsivian and Gunars Cijvans, while ACTION uses

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 François Albera and Maria Tortajada, op.cit., 2010) 37.
off-the-shelf open-source software, Matplotlib, to develop automated pattern recognition. ImagePlot arguably diverges in this regard as it offers plug-ins to a scientific open-source software – ImageJ – which can be tweaked to the user’s own ends. However, generally the users discussed in this chapter do not develop their own plug-ins or codes for data collection, but adopt technical, automatic practices from the natural sciences without changing their basic techniques fundamentally.

However, in the third type of interrelation, which involves deciphering and contemplating visual signs, scholars engage, as I reflected on in this chapter, in lively discussions about how to best give shape to and visualise historical data on film style and philology. For instance, through active uses of Cinemetrics' forum option, scholars clearly show an advanced set of skills and informed opinions. Take, for instance, the debate on ASL versus MSL, and the negotiation of these parameters’ integration into the Cinemetrics graph in order to establish visual evidence. Yet, it is characteristic, that in the dispositif which I discerned in this chapter, the core visualisation remains figurative as opposed to reduced and abstract. This creates, as I argue, the closest approximation possible to its object of study, film, in the lineage of Petric's proposed historical method, specifically with regard to understanding cinematic rhythm and composition of segments.

To sum up, though Digital Formalism remains an isolated and still singular, one-off project, its representational practice forges a complex congregation of methods from quantitative, stylometric content analysis, state-of-the art scientific visualisation software, philological restoration theory and digital text edition practice. In spite of its complexity, it seems pertinent to suggest that because its dispositif relies on open-source software - Anvil and ImageJ - and analyses relatively small corpora of digitised films, it offers a form of visual analytics which is easy to pick up and which holds the potential of becoming a more widely used inscription device for philological film history, if not on DVD then on curated, scholarly websites. For this dispositif I see several research topics where its application could be relevant. For instance for comparative studies of multiple language versions made in the transitional period from silent to sound cinema or remakes of films by the same or different directors in different countries. Furthermore, it could also be useful for studying complex sound-image relations in the silent era which raise problems of reconstruction for historians today. In February 2013, I attended a conference lecture by German musicologist Jörg Jewanski - a specialist in synaesthesia and the relationship between colours and tones - in which he presented his research on possible ways of matching Walter Ruttmann’s colourful abstract animation *Opus III* (1924) to Hanns Eisler’s score for the film from 1927. As a task which has puzzled film historians and archivists because of the film's unclear segmentation in relation to Eisler’s score, Jewanski
Microscopic Visions of the Film-Text

presented various, yet inconclusive, hypotheses on possible combinations based on different colour-coded shot outlines and tables which reflected the film’s colour patterns.\footnote{For an elaborate discussion of this case see Jörg Jewanski, “Walter Ruttmann's abstrakter Kurzfilm OPUS III (1924) mit der Musik von Hanns Eisler (1927). Möglichkeiten und Grenzen einer Rekonstruktion”, in Kieler Beiträge zur Filmmusikforschung, No. 12 (2016)} I would be intrigued to see how also such research might benefit from the tools used in Digital Formalism. I imagine how a montage visualisation of the film might, in a critical edition, allow for navigating the colour-coded segments in Ruttmann’s film in combination with different segments from Eisler’s score to study the shot outlines and tables associated with them to contemplate the qualities of the different combinations. If the philological dispositif becomes more widely practiced, such research might become more feasible in the future.
4.0 Writing Film History From Below and Seeing it from Above: Data Mining, GIS Mapping and Socio-Economic Cinema History

In this chapter I switch focus from stylometry’s microscopic perspective to historical GIS and digital cartography’s macroscopic vantage point as they have developed in the past approximately ten years in the research field of New Cinema History. This field fundamentally questions the film-centric focus of style history and New Film History to instead study patterns of cinema exhibition, distribution and reception from a macro-historical perspective. To this end, rather than finding its hermeneutical antecedents primarily in film and media studies, it draws on interdisciplinary approaches in socio-economic history and Annales historiography in particular. Drawing on such approaches, New Cinema History has in recent years increasingly been developing cartographic representational practices for historical visual analytics. In this process, it has integrated GIS methods and techniques conceived in the earth sciences and (human) geography into the film historian's toolkit. As in Chapter 3, I analyse these methods and techniques' operations step-wise to elucidate their emergence’s scientific context and the epistemological discussions surrounding their trajectory from the natural sciences to film studies.

The chapter falls into three parts. Part One, “From Film to Cinema History”, characterises the distinguishing features which set New Cinema History apart from New Film History by discussing its conceptual and methodological engagement with Annales' model(s) of history and quantitative methods. Part one first attends to how Annales concepts such as “total history” and “mentality” underpin the pre-constitution of New Cinema History's analytical object - cinema instead of film - and its contextual focus on distribution, cinema-going, exhibition patterns and networks. Extending on this discussion, I here also reflect upon the central role of computational methods and databases in the quantitative analysis of patterns in film-related historical sources. I sketch the development and epistemological discussions surrounding historical computation - from the 1960s’ punched-card based methods in Cliometrics to data mining in the Digital Humanities – in order to elucidate how new cinema historians transcribe, organise and process historical data as the basis for network analysis and cartographic representations.

The chapter's second part, “Negotiating the Map as Evidence in New Cinema History” analyses the technical and graphical features of New Cinema History's cartographic representations. Attending to New Cinema History's foundations in Annales historiography, I discuss this historical research field’s deployments of historical GIS, and its negotiations of techniques and methods
originating in the earth sciences and (human) geography. Specifically, I focus on how these techniques and methods travel into and acquire an evidentiary function in New Cinema History as ways for studying the spatial relations of events and agents using data extracted from film-related sources in local and regional historical archives. I have organised this section so as to reflect a *pas de deux* between epistemological discussions of GIS in the sciences and (human) geography and in New Cinema History; first, I discuss a key concept or concern in the former disciplines to, then, examine its application and/or appropriation within the latter. The section in particular attends to debates surrounding the representation of historical temporality and data ambiguity in GIS visualisations, while subsequently considering how new cinema historians position themselves in these debates. This analysis is substantiated by discussions of a number of key examples of recent projects and a case study. As key examples which are particularly illustrative of how said features of GIS visualisations are negotiated in New Cinema History, I have chosen to focus on Robert C. Allen's *Going to the Show* and the Universities of Glasgow and Edinburgh's *Early Cinema in Scotland*, because they are among the most advanced projects in the field. The chapter's central case study is the GIS-based project *Data-driven Film History: a demonstrator of EYE's Jean Desmet Collection* based at the University of Amsterdam, which set out to map the distribution of the films held in EYE Filmmuseum's Desmet collection, in which I was involved as project manager and researcher. In this case study, I discuss in hindsight, from an insider's perspective how the project followed New Cinema History research practices to tackle issues of spatio-temporal representation of distribution and exhibition patterns, while reflecting on the project interface's representation of data ambiguity. A particularly important reason to focus on this case was that I could consider the tool's making from a builder's perspective, in the sense suggested by Stephen Ramsay, as a hermeneutical process that fosters different insights into and perspectives on established procedures' possibilities and limitations.658

In the third part, “From Film History to Cinema History and Back Again? Analysing Chromatic Patterns in Desmet’s Programs” I discuss a tentative visualisation experiment with ImageJ techniques for colour analysis, applied to films in the *Data-driven Film History* project. With this experiment the project wished to suggest possible approaches for analysing interrelations between textual features and film exhibition. This project component sought to challenge the predominantly contextual focus of New Cinema History and reflect to a greater degree the textual focus of New Film History in a GIS-based research format. This reflected a need among the participants to

question whether we do not lose valuable, historical insights into the film medium's development by leaving behind textual analysis altogether for a predominant focus on film-related sources.

Conclusively, as in Chapter 3, I outline the methodological steps of new cinema history's cartographic dispositif and describe the interactions between the scholar, the machinery and the representations they create to qualify its epistemology. Moreover, the chapter finishes with a critical suggestion on how new cinema historians may further develop their engagement with Annales historiography as a way of indicating new possible research avenues. As I will suggest in this final section, GIS-based New Cinema History may develop a longue durée perspective to an even greater degree by going beyond primarily cinema's silent years to also map its centuries-long emergence and roots in established conventions of projection and exhibition from before cinema.

4.1 From New Film History to New Cinema History

At the core of New Cinema History’s theoretical alliance with Annales historiography lies a problematisation of the predominant focus on film as analytical object in style history and New Film History. New cinema historians regard these research traditions as attributing far too great importance to films as historical sources which allow for developing insights into popular conceptions of the medium and societal developments. They consider textual analysis problematic insofar as it neglects how cinema was woven into the fabric of cinema-goers' everyday life outside of the cinema screening or production context. This focus, they contend, fails to recognise broader, constitutive patterns of use and consumption, in particular with regard to cinema culture's intertwinement with infrastructures of transportation and trade, which they consider essential for understanding cinema's historical development and societal implications. As Richard Maltby argues, it is problematic when historians of film style single out and regard key titles as representative of significant stylistic developments, changes in spectatorial habits, film cognition or as emblematising the zeitgeist of entire periods.659 As he writes:

When this zeitgeist analysis of individual films aggregates into the study of filmic phenomena (histories of genres, authors or national cinemas, or films on particular topics and so on), the result is a series of compartmentalised thematic accounts largely detached from the circumstances of their consumption, and yet heavily dependent for their significance on the assumption that these textual encodings would have some kind of social or cultural effect.660

660 Ibid., 7.
Maltby’s critique rests on the observation that stylistic history, as he phrases it, has a “genetic inheritance from literary analysis” in which the contemplation of textual structures in limited film corpora can hardly be considered representative of contemporary, cultural attitudes of neither production nor spectatorship. This remark reflects new cinema historians’ unifying goal to move away from style history's textual focus on era- or genre-defining films to socio-economic history's contextual analysis of consumption, distribution and exhibition, relying primarily on film-related sources as a primary empirical fundament.

As discussed in Chapter One, this shift in empirical basis, and the historiography it gave rise to, was broadly labelled New Film History in the 1980s. Yet, New Cinema History, which finds its model in this period's reference literature – in particular Allen and Gomery’s *Film History: Theory and Practice* - should be regarded as encompassing a more recent methodological development which distinguishes itself from and extends its critiques of textual analysis to comprise New Film History itself. In particular, it sets itself apart from New Film History's culturalist and apparatus-theoretical approaches to especially early cinema's performative, intermedial conventions, as propagated by Gunning, Musser and Gaudreault. It finds that this analytical focus essentially remains text-centric because its primary concern lies in discerning structural relations between film-texts, screening spaces and performance focusing on the mediating agents between screen and audience – as in the emblematic case of *Life of an American Fireman*. In this regard, new cinema historians argue that New Film History, in spite of its model's attention to film-related sources and screening contexts, did not go far enough in engaging with socio-economic history's methods. Maltby's argumentation reflects this when it problematises a note of caution made by one of its key figures, Charles Musser, which expresses the concern that giving up films as primary objects of study altogether will give way to a “broader and more amorphous cultural and social history” belonging to other scholarly fields of historical inquiry. As I discuss in more depth in the following sections, Musser’s concern that the film-text altogether disappears as an object of study does not resonate widely with new cinema historians. On the contrary, they consider increased interdisciplinarity as enabling them to conceive cinema as an object of study more adequately by introducing methods from other disciplines. Their approach’s denominator - New Cinema History as opposed to New Film History – reflects this by highlighting their main emphasis on contextual, film-related sources as a foundation for a socio-economic cinema history of consumption,

661 Ibid.
662 Ibid., 9.

210
distribution and exhibition.

Moreover, and importantly, new cinema historians value interdisciplinarity because it offers them alternative formats for historical inquiry, in particular statistical and cartographic representations, which allow for discerning patterns which written prose cannot make visible. In this respect, New Cinema History closely aligns with the view on narrative forms of history which Allen and Gomery's historiography reflected. As they argued in *Film History*, narrative forms are not always the most suited for film history writing because they potentially obfuscate or simplify complex relations between historical agents. As they contended:

> Organizing historical arguments as narratives (a chronological arrangement of events in a cause-effect relationship) is an accepted and frequently illuminating historical strategy. Because so much of film history is written exclusively as narrative, however, it should be pointed out that the qualities that make for a good story are not necessarily those that make for good history.\(^{663}\)

As I will discuss in the following sections, beyond the field of film and media history, this stance can be regarded as deeply indebted to *Annales* historiography's interdisciplinary tradition of using statistical and cartographic representations as alternatives to linear, written histories. Thus, by rereading Allen and Gomery to raise critiques of New Film History, new cinema historians retrospectively elicit fundamental epistemological differences in the approaches included under this header in the 1980s. This nurtures a bifurcation of historiographical approaches today into respectively New Film History and New Cinema History, which holds implications for the uses of analytical approaches and representational practices.

In the next sections, I will elucidate how New Cinema History intertwines with *Annales* historiography's scholarly tradition, by first focusing on how it lends concepts from it and subsequently how it adopts its analytical techniques and representational practices.

**New Cinema History and Annales Historiography**

To analyse cinema's intertwined history as an industry and everyday leisure activity, new cinema historians draw extensively on the key concepts and techniques of *Annales* historiography and their developments. This holds implications for how it positions itself as a scientific approach to media history and sets itself apart from both stylistic history and New Film History. To elucidate this methodological aspect of New Cinema History, I find it important to attend to two key tenets in

\(^{663}\) Robert C. Allen and Douglas Gomery, op.cit., 44.
Chapter 4

Annales history in particular. First, its interdisciplinarity, which is fundamental for its development of a total history model focused on “mentalities”. Second, its development of a “multi-scopic” approach, in particular in later years, which combines micro and macrohistorical perspectives to simultaneously focus on larger structures and everyday, anecdotal histories.

The historical review *Annales d'histoire économique et sociale* was founded in 1929 by Lucien Febvre and Marc Bloch, both scholars at the University of Strasbourg. Since its foundation, the review has developed interdisciplinary, socio-economic models of history, commonly referred to as *Annales* historiography, drawing on methods from especially the social sciences, anthropology and economy. From the outset, *Annales* historians have argued that historiography's norms and conventions should not be determined by a small group of authorised scholars, but instead open itself onto other disciplines to develop integrative, total histories. In a note to his key work *The Historian’s Craft* (first published as *Apologie pour l’histoire ou Métier d’historien*, Armand Colin 1949) which addressed historians at large, Marc Bloch encapsulated this ambition by contending that some of the most illustrious scientists in other disciplines had not been trained within their field. As he wrote:

…each science, taken separately, find its most successful craftsman among the refugees from neighboring areas. Pasteur, who renovated biology, was not a biologist – and during his lifetime he was often made to feel it; just as Durkheim, and Vidal de la Blache, the first a philosopher turned sociologist, the second a geographer, were neither among them ranked among licensed historians...

Departing from this assertion, *Annales* historians held that interdisciplinary histories would nourish the development of a more comprehensive and integrative macro-history which would make visible how societal structures cut across different institutions and experiential realms and change subtly, rather than abruptly, over long time spans. This was seen as enabling historians to discover more profound structures outside of narrative event history’s narrowly defined causal chains, focus on individuals and limited corpora of source material. In this respect, historian Peter Burke has characterised *Annales* historiography as a “problem-oriented analytical history” which focuses on particular themes or aspects of society in opposition to “a traditional narrative of events”. This interdisciplinary model is also known as “total history”. As *Annales* historian André

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666 Peter Burke, op.cit., 10.

667 Ibid., 2.
Burguière has explained:

Total history can be understood, first and foremost, as the aspiration to conceptualize the multidimensionality of change by moving beyond the fragmentation of historical knowledge into a series of specialized domains (political, military, religious, economic, and so on) (...) being open as well to the other social sciences, to their concepts and problematics. This was the appeal made by the founders of the *Annales* for the decompartmentalization of research, for interdisciplinarity.668

Total history arguably finds its most prominent articulation in Fernand Braudel’s work. In particular his essay on history's *longue durée*, which regarded Claude Lévi-Strauss’ linguistics-inspired structural anthropology as a productive new avenue for what he considered a stagnating History discipline.669 Furthermore, Braudel's key work *The Mediterranean and the Mediterranean World in the Age of Philip II* (first published in French as *La Méditerranée et le monde méditerranéen à l’époque de Philippe II*, Armand Colin 1949) equally reflected this ambition, by stressing how it relied on studies “written by specialists in neighbouring disciplines – anthropologists, geographers, botanists, geologists, technologists” to process its complex and multifaceted source material.670

A key ambition of total history is to discern the psychosocial sentiment or mentality (*mentalité*) of societies in particular periods. Essentially, the concept of mentality seeks to understand how a collective consciousness manifests itself in generalised and, in particular, quantifiable modes of thinking, gestures and routines.671 The concept is however, as historian Jacques Le Goff underlines, deliberately ambiguous and should be seen as an invitation for historians to seek out methods from other fields in the human sciences.672 Yet, it can be said to distinguish itself from a history of ideas by analysing, through an interdisciplinary lens, how “mental life” is embedded in social and material processes.673 As I discussed in chapter one, in order to study such processes, *Annales* historiography attends to a multifarious array of sources, and only sparsely to cultural products as

672 Jacques Le Goff, op.cit. 167.
signifiers of a period’s mentality. As Le Goff has contended, “the forms of and themes which are articulated in literature and art are not necessarily those of the collective consciousness”. Yet, *Annales* historians consider cultural expressions valuable expressions of mentality when studied with attention to their embeddedness in daily routines.

New Cinema History closely aligns with total history's interdisciplinarity, the concept of mentalities and its analytical focus. As Maltby emphasises, New Cinema History's “project [is] inherently interdisciplinary” and its “methods, particularly those involving computation, mapping and other forms of data visualisation, are collaborative”, seeing scholars from a wide array of disciplines contributing to the research field. This alignment holds implications for how new cinema historians attend to classic film historiography and reframe it within the conceptual frame of *Annales* historiography. In particular Jean Mitry's work is being refashioned by new cinema historians as a hermeneutical antecedent to New Cinema History which embodies a counterposition to textual analysis. As discussed in Chapter One, even though Jean Mitry's historiography largely reflected the early cinephile canon, its combined understanding of film as both an art form and industrial product shared affinities with Braudel's total history. In order to properly analyse the film medium's history within society, Mitry envisioned a historical model which - through an interdisciplinary lens – analysed how techniques, industrial developments, film form and content were “tied together by implications of an economical, psycho-social and cultural order”. For Mitry this implied challenging the masterpiece model by analysing larger corpora of films which were not necessarily held in critical esteem. As he phrased it: “It is a question of highlighting the part played by certain works with regard to the social or moral concerns they reflect…”, adding, “masterworks or not”.

While still suggesting primarily textual rather than contextual analysis as the basis for a psycho-social history, Mitry's emphasis is important to New Cinema Historians, who distinguish it from symptomatic readings of small corpora of films. For Maltby, an undesirable example of the latter can be discerned in another classic work and its use of films as sources of history, namely Siegfried

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674 Jacques Le Goff, op.cit., 174.

675 Richard Maltby, op.cit., 2011, 8 and 34.


677 Ibid., 113. Original full quote (emphasis in original): “Il s’agit de mettre en valeur l’apport particulier de certaines oeuvres en regard des inquiétudes morales ou sociales qu’elles reflètent: de définir comment et dans quelle mesure elles se sont influencées, en quoi elles ont contribué à la formation ou à l’évolution du langage cinématique; de préciser enfin les causes de cette évolution: problèmes techniques ou économiques, recherches esthétiques, conditionnement du public influence des autres art ou des idéologies en cour. Et ceci à travers des films qui, chefs d’oeuvre ou non, ont contribué plus ou moins à cette évolution”.

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Kracauer’s *From Caligari to Hitler. A Psychological History of the German Film* (Princeton University Press, 1947). A canonical study in film theory and history, Kracauer's work read the rise of the nazi regime into the narrative patterns and psychological character motivations in a group of German films from Weimar Germany. By doing so, it has often been criticised for producing a top-down, symptomatic reading of the period's films to establish evidence for the claim that they showed how the German people’s soul was receptive to Nazi ideology.\(^\text{678}\) New cinema historians criticise such an approach by arguing that film's capacity to express the collective consciousness of an era is highly limited and that for this reason, the analysis of a few films creates a distorted picture.\(^\text{679}\) Along these lines, new cinema historians take the cue from Mitry to not only downplay textual analysis of masterpieces but abandon a key focus on style altogether in favour of contextual studies of exhibition and consumption based on film-related sources. They take Mitry's stance to reflect *Annales* historiography's concept of mentality insofar as it regards films as valuable historical sources for socio-economic histories primarily when analysed as cultural products embedded in ritualised everyday practices.

However, New Cinema History scholars do not orthodoxy follow *Annales* historiography's total history model as developed by the review's first two generations of scholars. Since especially the 1970s, total history's discernment of totalising structures has been critiqued for showing naively universalising aspirations and claims to comprehensiveness.\(^\text{680}\) Consequently, as Burguière boldly states, it has "[been] laid to rest as a monstrous and ridiculous chimera".\(^\text{681}\) This is particularly visible in how *Annales* historiography has in recent years complemented total history with small-scale, local histories of individuals or regions which counter universalism. It does so by integrating methods from especially microhistory, or *microstoria*, which emerged in the 1970s onwards. Epitomised in historian Carlo Ginzburg's study *The Cheese and the Worms: The Cosmos of a Sixteenth Century Miller* (first published as *Il formaggio e i vermi. Il cosmo di un mignaio nel ’500*, Einaudi 1976), microhistory's distinguishing feature is its smaller scale, or “cultural level”, of source material which is often delineated by a small region, town or individual.\(^\text{682}\) Whereas total history gives prevalence to and quantifies bureaucratic documents as source material – censuses,
accounts, bills – microhistory emphasises anecdotal, everyday testimonies found in personal archives, diary notes or memoirs which resist quantitative interpretation to establish a counter-perspective. Thus, in microhistory, the historian processes a small, manageable data amount, through exegetic and exhaustive close readings.

Combining total history and microhistory may initially seem counter-intuitive when considering their different analytical scopes, but they have become increasingly intertwined in recent years. For instance, as philosopher Paul Ricoeur has stressed, their combination allows to productively alternate between their different scales. As if switching between the optics of a microscope and a telescope, he argues, their scales produce different visibilities of qualitatively different causal chains. According to Ricoeur, the fundamental difference lies in the varying degrees of agency which they ascribe to people as individuals within total systems. As he writes:

In a general way, the history of mentalities, insofar as it had simply extended the macrohistorical models of economic history to social history and to phenomena of the ‘third type’, tended to deal with the concept of social pressure as an irresistible force operating in an unperceived fashion in relation to the reception of messages by social agents. The treatment of the relations between high and popular culture was particularly affected by this presupposition that goes with a reading that runs from the top to the bottom of the social scale.

This critique holds that *Annales* historiography’s totalising perspective neglects forces of resistance that can occur on a micro-level. The microhistorical emphasis on personal sources serves to nuance and test inferences made on the macro-level. Along these lines, in recent decades *Annales* historians have, in what historian Paul-André Rosental has dubbed a “multi-scopic approach”, tended to combine these scales to let top-down and bottom-up perspectives critically inform each other through productive variations.

Conceptually, New Cinema History reflects this development and incorporates the multi-scopic model *Annales* historiography has resulted in. Echoing Ricoeur’s proposition, Maltby has for instance remarked concerning *Annales*’ study of mentalities that “[a]fter their heresy achieved

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683 Ibid., 212.
684 Ibid., 210.
685 Ibid., 211 & 212.
686 Ibid., 271.
orthodoxy, its quantitative, serial approach, once valorised as a 'history without names’, was criticised by others as a 'history without people’", adding that, in order to reflect everyday accounts of people, “the larger comparative analysis that new cinema history can provide will rest on the foundation of microhistorical inquiry". 688 Thus, New Cinema History studies developmental patterns in cinema's larger historical structures of distribution, consumption and exhibition against everyday experiences articulated in personal, spectatorial accounts. Film historian Jeffrey Klenotic has succinctly encapsulated this aspiration when expressing one of his research objectives as: “I wanted to know what the experience of walking down different streets on the way to the movie house might have felt like for different movie goers”. 689 In this regard, seemingly idiosyncratic accounts or documentations of movie-going – for instance oral testimonies - hold great value for new cinema historians for studying cinema's commercial structures from a bottom-up perspective in combination with the discernment of larger structures.

Beyond its conceptual legacy to Annales historiography, New Cinema History also deploys Annales' technical practice of quantitative, computational analysis and data visualisation. 690 In especially the 1960s and 1970s Annales historiography played a crucial role in developing scientific, quantitative, computerised methods for structuralist historical analysis. A much-cited, controversial prediction made by prominent historian Emmanuel Le Roy Ladurie from these years that “tomorrow's historian will have to be able to programme a computer in order to survive” epitomises this attitude. 691 Although Ladurie later distanced himself from this remark, it testifies to the computer's centrality in Annales historiography. 692 In the next section I discuss this methodological aspect of Annales historiography in greater depth with particular attention to its repercussions in New Cinema History.

From Annales' Serial History to Computer-Based New Cinema History

To understand how new cinema historians formalise computational practices into methodological
procedures, it is helpful, once again, to consider *Annales* historiography’s developments. As Ladurie’s discussion testifies to, throughout the 1960s and 1970s, the computer increasingly provided a basis for its quantitative methods, drawing on recent developments in historical research, especially in universities in the US. According to an estimate made by historian Edward Shorter in the early 1970s, 1,559 computers were operating in 529 American universities, of which 95 percent were IBM computers in 1968-69. In this sense, although computers were relatively exclusive, they profoundly impacted discussions about historical methodology. As a consequence, the 1960s and 1970s saw a first wave of computerised history, which relied primarily on punched-card methods for quantitative analysis. These methods had roots in mechanical procedures of binary coding, which had existed since at least the seventeenth century, in variegated practices of popular entertainment and industrial production. They were also conditioned by historical developments in computation and public administration. For instance, the implementation of the punched-card system of Herman Hollerith, in the 1890 US Census’ classification and statistics on the gender, race and age of the US population was a significant conditioning factor for computerised historiography. Beyond the US, various punched-card systems were gradually implemented on a broad scale in Vichy France and National Socialist Germany throughout the 1930s and 1940s for demographic statistics and the heinous ends of these political systems. Public institutions in the following decades made increased use of punch cards. This paved the way for analysis and processing of data on a hitherto unprecedented scale, following contemporary, statistical methods. For socio-economic historians, this created new sources and possibilities for transcribing old data and ways of systematising and quantitatively study them with computerised methods.

The emergence of computerised methods in historiography is emblematised in the research field Cliometrics, a denominator which combines the name of History’s muse in Greek mythology, Clio,

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696 Herman Hollerith was the founder of the Tabulating Machine Co. in 1896, the later International Business Machines (IBM).
with metrics.\textsuperscript{698} The work of economic historians Robert William Fogel and Stanley Engerman stand as paramount in this regard.\textsuperscript{699} Their key work \textit{Time on the Cross: The Economics of American Slavery} (Brown and Company, 1974) resulted from years of experimentation with computerised data processing to analyse the living standards of slaves in the American South. The book’s quantitative methodology stands as a landmark. However, its conclusion that slaves' living conditions were safer and characterised by greater upwards social mobility than hitherto depicted, remains highly controversial and contested because of its data bias.\textsuperscript{700}

Computerised methods were embraced specifically for their ability to process large-scale datasets. As historian Edward Shorter pointed out in the early 1970s, these methods' significant affordance was their ability to handle datasets larger than what had been humanly possible to process before.\textsuperscript{701} Shorter stated that computerised methods allowed him to analyse a “gigantic quantity of information”.\textsuperscript{702} By using standard IBM punch cards this would be done through the creation of a taxonomy of variables, for instance a person's political affiliation, represented by different numbers, grouped into different fields.\textsuperscript{703} The taxonomy would be explained in an accompanying codebook allowing other scholars to read the punch card's fields and process them with similar, primarily IBM equipment.\textsuperscript{704} According to Shorter, if scholars prepared their taxonomies with proper methodological care and shared standards, their results could be seen as “a fairly faithful mirror of the historical reality”.\textsuperscript{705}

Such methods opened new avenues for various historical traditions. In political history, they allowed to structure transcribed biographical data in such a way that historians could go beyond the meticulous study of single significant individuals to create biographies of entire elites, and discern

\textsuperscript{698} The term's coinage which is widely attributed to economic historian Stanley Reiter and date to 1960, see the 'About'-page of the Cliometric Society: \url{http://cliometrics.org/about.htm}. Last accessed January 24, 2017.\textsuperscript{699} Lawrence J. McCrank, \textit{Historical Information Science. An Emerging Unidiscipline}. (Medford, NJ: Information Today, Inc., 2001) 62.\textsuperscript{700} As several reviewers pointed out at the time of the book's publication, a fundamental problem in this regard was its reliance on primarily plantation estate records and the absence of sources representing slave testimonies to give them a voice in the book's historical account. See: Roy Simon Bryce-Laporte, “\textit{Time on the Cross: The Economics of American Negro Slavery}. by Robert W. Fogel, Stanley L. Engerman; \textit{Time on the Cross: Evidence and Methods}. by Robert W. Fogel, Stanley L. Engerman”, in \textit{Contemporary Sociology}, Vol. 4, No. 4 (1975).\textsuperscript{701} Edward Shorter, op.cit., 6-7. As Shorter wrote in this regard: “At what point should the historian turn to the computer? As a rule of thumb, historians who have fewer than two hundred cases, and who have, for each case only a few pieces of information, will prefer to work by hand. Once, however, the number of items of data for each case increases to ten or so the historian will wish to think seriously about a computer.”\textsuperscript{702} Ibid., 22.\textsuperscript{703} Ibid., 28, 30 and 36.\textsuperscript{704} Ibid., 29-30.\textsuperscript{705} Ibid., 37.
Chapter 4

shared features in backgrounds and social profiles. And they supported comparative analysis of demographic data in sociological history's studies of mass movements, through a wide array of variables. For movements such as strikes, it was possible to compare different historical cases using variables such as date, location and magnitude and to perform more advanced tasks by linking and classifying protest statements, to quantify and compare their sentiments and discourses.

Deeply inspired by these developments in the 1970s, Annales historians became leading in using computerised methods, arguably because their interdisciplinary approach was particularly adept for embracing approaches from sociology and economics. Ladurie's key work The Territory of the Historian (first published in French as Le territoire de l'historien, 1973) epitomises this. Its first part, “Learning to Live with Computers: The Quantitative Revolution in History”, contended that computational methods had become “taken for granted” at that point in time and pervaded Annales historiography. Like Shorter, Ladurie emphasised that the computer offered a powerful way to deal with the “bulk” of larger corpora and therefore promised a step forward especially for historical demography. He championed computational methods, contending that historians had hitherto been “prisoners of their unsophisticated methods” and would need to become “historiometrician[s]” and archivists “historical technologist[s]”, to finally recapitulate that “history which is not quantifiable cannot claim to be scientific”.

Yet, different from Shorter and the cliometricians, Ladurie and the Annales historians propagated a “serial history” (“histoire sérielle”); a type of history that had profound affinities with Braudel’s notion of longue durée. Within the otherwise interdisciplinary mindset of Annales, historian Pierre Chaunu suggested this term to demarcate Annales' disciplinary scope more clearly from economic history. He contended that economic history was biased towards national sources.

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706 Ibid., 16.
707 Ibid., 19.
708 Ibid., 21.
709 Edward Shorter makes the point that computerized socio-economic historical research in France were among the most advanced (Edward Shorter, op.cit., 25) and Emmanuel Le Roy Ladurie underlines that Annales historiography had a penchant for quantitative history since its beginning with the foundational works of historians such as François Simiand and Ernest Labrousse in the early 1930s (Emmanuel Le Roy Ladurie, op.cit., 7).
710 Emmanuel Leroy Ladurie, op.cit., viii. As Ladurie writes: "...some of the studies referred to in this collection required the use, as long ago as 1966, of the computer as an instrument of historical discovery, something that is today taken for granted."
711 Ibid., 3 and 4.
712 Ibid., 7, 61 and 15.
714 Pierre Chaunu, "Histoire quantitative ou histoire sérielle", in Cahiers Vlfredo Pareto, T. 2, No. 3 (1964) 166.
produced after modernity's rise of statistics and thus imposed a temporal, linear scope which excluded earlier, historical sources. In this respect, serial history aspired to establish a longer term perspective, spanning several centuries and quantifying a wider array of source materials pertaining to – along the lines of Braudel's approach – larger or local regions rather than nation-states. Along these lines Ladurie for instance analysed the developments of Parisian rents from the Middle Ages to the Eighteenth century, processing sources from a multitude of long-lived institutions such as universities, hospitals and factories. Thus, serial history regarded its computational methods as emancipating a scientific approach, but by anchoring it in Braudel's longue durée perspective also showed acute awareness of historical interpretation's ambiguity by opposing linear accounts.

In spite of its foundation in Braudel’s historiography, the computer's centrality in cliometrics and Annales historiography has been heavily criticised for its scientism and, recalling Ricoeur's discussion of macro- versus microperspectives, as failing to recognise agencies and contingencies at the micro-level. Clearly, Shorter’s guide addressed such criticisms when remarking, with regard to the making of codebooks, that:

Some readers will see in this requirement a basic philosophical stumbling block to quantitative history, arguing that no two events are really comparable, because each will have different origins and consequences. Other readers, however, will share with the social sciences the assumption that common elements of behaviour unite all human actions, and press on to see how the computer may serve in the elucidation of this commonality.

This observation responds to the view among critics that the historical document's uniqueness is lost in computer-based methodology. As Michel de Certeau contended, while computerised methods were widely regarded as offering a new objective fact production because of its precision and standardised, statistical procedures, it still relied on top-down conceptual definitions to determine significant historical events and themes. The computer, he argued, therefore risked

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715 Ibid.
716 Ibid., 167-169, 174 and 175.
717 Emmanuel Le Roy Ladurie, op.cit., 61.
718 Georg Iggers, op.cit., 66. As Iggers writes with regard to Annales historiography’s use of quantitative methods: “In the late 1950s, François Furet and Adeline Daumard had asserted categorically that ‘from a scientific point of view, the only social history is quantitative history’.”
719 Edward Shorter, op.cit., 5.
becoming a new, authoritative arbiter taking on the function which princes had once had in deciding historiography's evidentiary status and objectivity. As he put it:

> From this point of view, the tribute that contemporary erudition pays to the computer will be equivalent of the ‘Dedication to the Prince’ in books of the seventeenth century: a recognition of obligation with respect to the power that overdetermines the rationality of an epoch.\textsuperscript{722}

De Certeau found it necessary to repoliticise historiography by developing reflexive stances which critically interrogate the conditioning factors of the researcher's methods.\textsuperscript{723} While this critique was vehemently rejected by *Annales* historians in the 1970s, de Certeau's call for reflexivity gradually became an integral part in *Annales*\textsuperscript{'s} later methodological ramifications throughout especially the 1990s.\textsuperscript{724} Thus, *Annales* historiography has tended to nurture increased methodological pluralism, rather than rigorous empiricism. While *Annales* historiography has had and maintains a strong component of scientism rooted in quantitative methods, it has equally fostered an epistemological ambiguity by taking a reflexive stance with regard to its methods. As Iggers has remarked, *Annales* historians: “[on] the one hand (...) share the confidence of other social science-oriented historians in the possibility of scientific approaches to history; on the other hand, they are aware of the limits of such approaches”.\textsuperscript{725}

New Cinema History shares this attitude in the evolvement of its analytical practices, by adopting quantitative history's empirical approach to databases and its simultaneously affirmative and ambiguous attitude towards history as a scientific undertaking.\textsuperscript{726} This is particularly visible in how film historians qualify its epistemology. For example, Ian Christie argues that the problem-oriented focus and methodological rigour of Allen and Gomery's socio-economic history inaugurated a welcome new empiricism.\textsuperscript{727} Conversely, film scholar Michèle Lagny, whose work has stood at the forefront of combining film history and *Annales*\textsuperscript{'s} methods, contends that Allen and Gomery's work created a disciplinary stratification which, inadvertently of their stated goal, nourished a pluralist methodological perspective which highlights the ambiguity of historical

\textsuperscript{722} Ibid., 208.

\textsuperscript{723} Ibid., 213.


\textsuperscript{725} Georg Iggers, op.cit., 51.

\textsuperscript{726} Richard Maltby, op.cit., 2011, 29.

\textsuperscript{727} Ian Christie, op.cit., 2006, 70.
Writing Film History From Below and Seeing it from Above

interpretation. New Cinema History also reflects *Annales*’ serial approach to socio-economic, cultural history when stressing a need to build databases of and quantitatively analyse film-related material such as bills, membership registers, trade papers and magazines from a great variety of different institutional archives. It is along these lines that new cinema historians engage with quantitative methods and their developments to analyse film-related sources.

To elucidate how this evolution reflects in New Cinema History, I will now discuss in greater detail how media historians have picked up computational techniques from *Annales* historiography and the social sciences to produce evidence from the quantitative analysis of databases. As I will sketch in the following examples, new cinema historians who engage with these methods also follow and integrate their technical developments which have occurred in different waves. For instance, the emergence of personal computing throughout the 1980s and 1990s marked a transition from a first wave of punch-card based methods to database organisation which has been labelled as a second wave of historical computing. In more recent years, the emergence of new instruments for big data analysis has introduced what is considered a third wave of historical computing. The two New Cinema History projects which I discuss below, respectively *Cinema Context* and *Lantern*, illustrate the legacy of *Annales* and the waves of quantitative historiography particularly well.

In 2006, film historian Karel Dibbets launched *Cinema Context*, a public, online database for the analysis of film distribution and exhibition networks in the Netherlands. The creation of *Cinema Context*’s empirical fundament dates back to the late 1970s. In this period, Dibbets’ primary research focus was the development of film distribution networks in the Netherlands in the silent period.

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728 Michèle Lagny, op.cit., 1994, 41.

729 Deb Verhoeven, “New cinema history and the computational turn”, (paper presented at the World Congress of Communication and the Arts in Guimarães, Portugal, 2012). Paper available online at [http://dro.deakin.edu.au/eserv/DU:30044939/verhoeven-newcinema-2012.pdf](http://dro.deakin.edu.au/eserv/DU:30044939/verhoeven-newcinema-2012.pdf), last accessed January 24, 2017. As Deb Verhoeven writes concerning this expansion of sources: “By expanding the range and type of information that is relevant to our study (government reports, ordinances, building or police records, regulatory legislation, tax files, oral histories, marketing materials, industry archives, maps, box-office data, phone books, ticket stubs, newspaper advertisements just to name a small few) we correspondingly expand the amount of information available to us and lift the significance of our ability to locate, collect, aggregate, curate, manipulate and analyse different data formats from different sources and for which available tools are proving increasingly inadequate.” On a related note one might argue that Verhoeven echoes Ladurie’s argument that public institutional archives - as a consequence of computerisation - gained a new, more fundamental relevance for historians.


731 Ibid., 334.
cinema board members were part of different corporations simultaneously.\footnote{Ibid.} As the basis for his network analysis, Dibbets created a dataset using the name and address lists from the Nederlandse Bioscoopbond (NBB) – the Dutch Federation of Cinemas - from in particular the late 1920s.\footnote{Karel Dibbets, Bioscoopketens in Nederland. Economische concentratie en geografische spreiding van een bedrijfstak, 1927-1977. (MA Thesis, University of Amsterdam, 2012 [1980]) 8-9.} More recently, the dataset has been enriched with data from the files of the Dutch Board of Film Censors from between 1928 and 1960, and for the early teens, news ads from both national and local Dutch newspapers.\footnote{Karel Dibbets via e-mail July 2, 2014 to Professor Julia Noordegraaf with the author added in cc. See also "Colophon", on the Cinema Context website: http://cinemacontext.nl/cgi/b/bib-bib-id?c=cccfilm;sid=468076ce8a1e2225557b528e839ee85ed.tpl=colophon.tpl;lang=da, last accessed January 24, 2017. Among others the Algemeen Handelsblad (today NRC Handelsblad) and Nieuws van den Dag.}

Developing his methodology since the late 1970s, Dibbets’ research is located at the cusp of punch-card based serial history and a later wave of personal computer-based, socio-economic history. Dibbets has recounted, how, when making the dataset in the late 1970s, he initially created and processed punch cards from his source material.\footnote{Karel Dibbets, op.cit, 2012 [1980], II. As Dibbets has stated: “Tegenwoordig is zo’n netwerkanalyse makkelijker uit te voeren dan in 1979, toen de thuiscomputer nog niet bestond. De universiteit bezat één zogenaamde supercomputer. De data en de programmatuur moest je op ponskaarten inleveren bij de balie van het Rekencentrum, waar ze ’s nachts verwerkt werden. De volgende dag mocht je de resultaten komen ophalen, afgedrukt op een dik pak papier, want beeldschermen waren er nog niet.” Translation: “Today such a network analysis is easier to perform than in 1979 when the home computer did not yet exist. The university owned a so-called supercomputer. You had to hand in the data and software on punch cards by the counter of the computing center where they would be processed during the night. The following day you could come to pick up the results, printed on a thick bundle of papers as there were no screens yet.”} This was done using the University of Amsterdam and the Vrije Universiteit Amsterdam's computer facilities at the joint computer center, Stichting Academisch Rekencentrum Amsterdam (SARA).\footnote{Piet Kuijper, Baanbrekend calculeren: 30 jaar Reken- en Netwerksdiensten SARA. (Amsterdam: SARA Reken- en Netwerksdiensten, 2001) 75. In 1971, these universities jointly opened their first computer center, Stichting Academisch Rekencentrum Amsterdam (SARA), to support academic researchers in, among other things, quantitative, historical analysis. Thus, as in the US, UK and France, the Netherlands equally began integrating computational methods of administration into its research practices in this period.} In recent years, Cinema Context has used Microsoft Access to organise datasets about films, cinemas, people and companies allowing users to contribute data from a wider array of sources.\footnote{“About”, see: http://cinemacontext.nl/cgi/b/bib-bib-id?c=cccfilm;cid=550f42d8b950a542381a68245f1ae256.tpl=about.tpl;lang=da, Last accessed January 24, 2017.} This latter development may be characterised as methods emerging during the 1980s and 1990s pertaining to, using historians Evan Mawdsley and Thomas Munck’s characterisation, a “second age of ‘historical computing’”.\footnote{Evan Mawdsley and Thomas Munck, op.cit., 3.} These approaches rely on widely available personal microcomputers and less on programming skills. They also tend to be produced by research teams of historians and assistants who transcribe keywords
from paper sources and microfilm to create databases. While they reflect the organisational modes of punched-card-based methods they also contrast them by being more flexible and allowing for producing a greater variety of visualisation types.

Dibbets' research can be said to reflect the epistemological underpinnings of serial history particularly in two fundamental aspects. First of all in the way in which it combines data from different collections to establish a research-based, macro-perspective on cultural history. One of Cinema Context's stated ambitions is to encourage film historians to actively develop computer-based tools of analysis to avoid ending up with institutional display formats that do not serve their own methodological ends. Dibbets considers it a fundamental task for the historian to mediate between otherwise unconnected collections by combining sources from them in scholarly research formats. In doing so, as in serial history, it conforms variegated sources and data types from different collections to a unifying coding system that facilitates network analysis on the historian's own terms. Second, using a scientific terminology, Dibbets stresses how “digital instruments” may be seen as changing the humanities as “the microscope and the telescope changed the sciences.”

Extending this scientific metaphor to characterise Cinema Context's potential, Dibbets stresses that “[t]hrough collecting enough information, users see that the genes start to connect and grow together to form sequences, patterns and networks, unravelling the DNA of film culture.” In this regard, Dibbets' research can be said to reflect Annales historiography's serial and multi-scopic viewpoint, by calling for a use of digital methods which simultaneously allows for visualising both the broad historical patterns and tiny structures of film distribution.

As a second project which equally reflects a serial approach but also embodies more recent developments in data mining, the search tool Lantern is a particularly illustrative example. Developed by media scholar Eric Hoyt and his team for the analysis of primarily North American technical and fan journals digitised for the online Media History Digital Library, Lantern stands as an illustrative example of what has also been dubbed a third wave of computer-based historical methodology. Roughly, third wave methods such as data mining and knowledge discovery in
databases (KDD), emerged during the mid-1990s and early 2000s.\textsuperscript{746} As in the first wave of punch card based methods, some of their key affordances is perceived to be their ability to process larger data amounts and as allowing for greater automatisation of the analysis of historical sources to establish macroscopic longue durée perspectives.\textsuperscript{747} Where historians manually extracted, coded and transferred keywords, names or places from documents to punch cards, digitisation allows for automated text analysis using either exploratory approaches, or machine learning and topic modelling. For many document formats that are closed for editing, PDF as the most widespread, it is possible to use optimal character recognition (OCR) to extract text and intervene analytically in entire documents rather than only a manual selection of key words. Therefore, OCR is associated with a greater notion of comprehensiveness, in which bulks of digitised sources, or “the great unread”, of digitised archives may be explored and analysed.\textsuperscript{748} Evidently, results achieved with OCR, depend on the ability to recognise a given typography on scan quality and also involves coding in the process of defining and/or selecting key words. Yet, OCR does produce larger textual corpora for computational analysis than hitherto possible and allows for visualising and linking results in a more inductive manner because it can work with unstructured data to a greater degree.\textsuperscript{749}

In comparison to punched-card methods’ reliance on codebooks of manually defined top-down categories, topic modelling can therefore nurture exploratory word analysis by automatically coding and counting a select number of topics in large datasets.\textsuperscript{750}

Hoyt’s Lantern project deployed these methods by digitising and OCR’ing 900,000 pages from public domain trade journals and making them accessible in the online Media Digital History Library.\textsuperscript{751} The Lantern search tool which was later added allows for data mining and visualisation in combination with simpler, standard search queries to supplement traditional archival research.\textsuperscript{752}

The Lantern tool furthers research on silent era periodicals in two fundamental aspects. In line with a distant reading approach, it first explores the great unread beyond “the canon of tradepapers

\textsuperscript{746} Usama Fayyad, Gregory Piatetsky-Shapiro, and Padhraic Smyth, "From Data Mining to Knowledge Discovery in Databases", in \textit{AI Magazine}, Vol. 17, No. 3 (1996) 37.


\textsuperscript{748} Eric Hoyt, op.cit., 158. The notion of "the great unread" of non-canonised texts was suggested by literary scholar Margaret Cohen and has become widely known through Franco Moretti's distant reading approach.

\textsuperscript{749} Ibid.


\textsuperscript{751} Eric Hoyt, op.cit., 146. As Hoyt explains the OCR is 'dirty' meaning that they were not checked by a human researchers afterwards.

\textsuperscript{752} Ibid., 148. See also Eric Hoyt, Kit Hughes, Derek Long and Anthony Tran, "Scaled Entity Search: A Method for Media Historiography and
and fan magazines”. As Hoyt points out, previous scholarship and access projects on analogue formats, microfilm especially, have established a reference frame, in which periodicals such as Variety and Photoplay have become canonical source material for research on film reception and spectatorship, at the neglect of a wide range of magazines which had been published in large numbers. For example, as Hoyt points out, the magazine Film Fun, which was published in relatively large numbers, was never cited in any article available in the academic journal database JSTOR. Second, Lantern recasts the study of silent era publications by allowing for analysis with data mining, and word cloud visualisations created through topic modelling. In the latter, a select number of topics have been listed and prioritised in order to visualise how frequently they appear and in which periods they trend so as to understand when, where and how they became prominent within the film industry or among fans. In this way, Lantern's data mining tools make it possible to analyse linguistic patterns within the journals in the Media History Digital Library and identify the groups related to them, discerning in this way in particular the networks of popular cultures rather than elites.

To conclude, contemporary new cinema history closely aligns with serial history as it has developed from punch cards to data mining. Currently, projects mainly rely on “second age” database organisation, while data mining methods are gaining prominence as increasing amounts of film-related sources become digitised. As I discuss in the next section, these later methods' also imply a significant shift in representational practice. Where punch card technologies created tabular representations through basic programming, “second age” methods prompted the historian to structure and negotiate graphic representations of data through a greater variety of statistical formats. Recently, in particular cartographical, GIS-based formats have become prominent in New Cinema History research, reflecting an ambition to further develop total history's macro-perspective. In the following section I shall turn to this development, discussing in particular three key aspects of it, respectively the uses of different map types and their origins in different


753 Ibid., 159 and 152.
754 Ibid., 152.
755 Ibid., 150.
756 Ibid., 148. For Hoyt, data mining is defined as simple search queries.
757 Ibid., 164.
758 Evan Mawdsley and Thomas Munck, op.cit., 9-10. From a present-day perspective, it is interesting to note that Mawdsley and Munck write: "At the moment mapping software is relatively demanding in a technical sense, but its potential future value for historians is great".
4.2. Negotiating the Map as Evidence in New Cinema History

In recent years, new cinema historians have increasingly organised themselves to share and develop methods of analysis and visualisation collectively. As cinemetricians gather around Cinemetrics, new cinema historians equally organise themselves in an online, international network with a shared reference frame: The History of Moviegoing, Exhibition and Reception (HoMER). Founded by scholars in mainly the UK, Australia, Netherlands, Belgium and the US, it has been active since 2004.\textsuperscript{759} Compared to Cinemetrics, HoMER is arguably a more formal, scholarly network, as it does not include amateur contributions. Its website, launched in 2013, invites scholars to register projects or datasets that fall into either moviegoing, exhibition and/or reception studies.\textsuperscript{760} Registered projects, which for the most part appear to contain databases consisting of manually transcribed data, are subsequently plotted onto an OpenStreetMap interface to visualise their location and facilitate inter-institutional collaboration and knowledge and data sharing.\textsuperscript{761} HoMER members also exchange expertise at workshops, at media studies, history and digital humanities conferences, for instance the Network for European Cinema and Media Studies' (NECS) annual conferences. The set-up of the site, the mapping of scholarly projects, testifies to an increasingly prominent tendency to deploy GIS as a form of visual analytics in New Cinema History in recent years.

One of the reasons why historians take interest in maps as representational practice is because their information density and non-linear display format allow for exploring spatial relations between historical events and located phenomena in greater detail than prose.\textsuperscript{762} More locations can be shown than with the written word and their relations need not necessarily be ordered in a linear flow which hierarchise their relations. In \textit{Annales} historiography, cartography has traditionally occupied

\textsuperscript{759} See: \url{http://homernetwork.org/}. Last accessed January 24, 2017. The scholars present at the founding conference were Daniel Biltereyst (Ghent University), Kate Bowles (Wollongong University), Karel Dibbets, (University of Amsterdam), Kathy Fuller-Seeley (Georgia State University), Douglas Gomery (University of Maryland), Amy Howard (University of Richmond), Nancy Huggett (Wollongong University), Jeffrey Klenotic (University of New Hampshire), Arthur Knight (College of William & Mary), Richard Maltby (Flinders University), Phillipe Meers (University of Antwerp), Robert K. Nelson (College of William & Mary), Clara Pafort-Overduin (Utrecht University), John Sedgwick (London Metropolitan University), Robert Silberman (University of Minnesota).

\textsuperscript{760} See: \url{http://homernetwork.org/submit-project/}, last accessed January 24, 2017. The website contains both a ‘Submit project’ and a ‘Register dataset’ section.


\textsuperscript{762} David J. Staley, op.cit., 55.
a prominent place, due to its emphasis on geography. Speaking of "geo-history" in *The Mediterranean*, Braudel for instance sought to understand interrelations between environmental factors, human activity and the unfolding of historical events through extensive use of choropleth maps showing flows of transhumance or trade in combination with statistical tables. Furthermore, within the department headed by Ladurie - the Ecole Pratique des Hautes Etudes’ 'Sixth Section' - *Annales* historians produced maps at the renowned cartographic laboratory directed by semiotician Jacques Bertin. Bertin’s groundbreaking work in information visualisation, synthesised in *Semiology of Graphics: Diagrams, Networks, Maps* (first published in French as *Sémiologie graphique. Les diagrammes – Les réseaux – Les cartes* in 1967), paved the way for widely used - according to Drucker almost "exhaustive" - principles of graphic design for conceiving maps, which remain visible today in contemporary interface design.

Recent years’ proliferation of GIS visualisation and abundance of geodata sees a recasting and renewed interest in the relationship between (human) geography and history in the vein of *Annales* in widely varying areas of socio-economic, historical inquiry. In book history, GIS has been used to show the location of publishers, libraries and printers to study historical developments in distribution and trade. For new cinema historians, GIS is used to visualise the spatial series of film distribution, exhibition and production networks. This methodological development has seen new cinema historians engage with the contemporary discussions and epistemological concerns in socio-economic history and human geography, especially with regard to the deployment of tools originating in the sciences. To elucidate these discussions, I attend, in the following, to how the concerns and methodological practices of historians and geographers intersect with those of new cinema historians, by focusing on three key areas in GIS visualisation, namely map types and their disciplinary origins, the representation of historical time and strategies of reflexivity. To anchor my discussion, each of these key areas will be discussed in relation to examples from recent New Cinema History projects.

**GIS in New Cinema History: Epistemologies, Map Types and Representations of Historical Time**

GIS has, especially since the 1990s, been increasingly tailored to hermeneutical methods of

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763 Peter Burke, op.cit., 36.
764 Johanna Drucker, op.cit., 44.
historical inquiry, which in contrast to serial history's numerical rigour and coding does not claim a scientist, comprehensive vision of map-based history. Yet, at its technical core, GIS shares many similarities with serial history's information organisation. To use historian Ian N. Gregory's simple definition, a GIS visualisation is essentially a “spatially referenced database”. Combining two sets of data, attribute and spatial data, specific attributes are given a geographical reference which allow for plotting them on a map with a select range of visual features. For instance, visualising census data on a map allows for studying specific population groups' life conditions and their geographical proximity to specific phenomena. Attribute data consist of for instance lists of names in combination with personal information, ordered in common database formats such as Microsoft Excel, Access or Dbase. Using this organisational form, as Gregory explains “...means that two or more tables can be joined together based on a common field known as a key”. Keys, as in serial history's codebooks, allow for matches and comparisons to be made between population groups or persons through statistical operations. Spatial data which are kept as a separate set gives attribute data geographical references in the form of locations or coordinates on a map.

Contemporary GIS visualisation offers various ways of giving visual shape to spatial data, which are rooted in and branch out from cartography's long history, variegated traditions and graphical conventions, but characterised by its own distinguishing techniques. For instance, while it was, before GIS, customary to study single maps or comparing maps next to each other, GIS works extensively with map overlays. Through map overlays, different graphical or photographical depictions of landscape features or geographically located phenomena are layered onto another to highlight their occurrence and changing networks in time and space.

There are two primary GIS map types, namely vector system maps and raster data models. Vector maps represent spatial data by demarcating geographical areas on a map through the

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677 Ian N. Gregory, op.cit., 2-4.
678 Ibid., 8.
679 Ibid., 9.
680 Ibid.
681 Ibid.
682 Ibid.
combination of lines and polygons, or locations indicated by points.\textsuperscript{775} Conversely, raster maps represent geographical areas with pixels to create a more continuous representation of geographical areas.\textsuperscript{776} They differ from vector maps, by depicting variation in features, such as for instance altitude, in greater detail.\textsuperscript{777} Though often combined, the types tend to serve different ends, seeing vector maps being used to analyse especially human activities with complex attribute data, such as census data, whereas raster maps are more widely applied in the earth sciences.\textsuperscript{778}

There is a plethora of both proprietary and open-source GIS software available which scholars use to make sense of their data. In contemporary GIS, the proprietary software ArcGIS developed by Environmental Systems Research Institute (ESRI) launched in 1999, is one of the most frequently used for geo-analysis of census data in human geography and historical research as well as an industry standard in urban planning and environmental science.\textsuperscript{779} A development of the software ArcInfo, which was released in different versions throughout the 1980s, it was created by Environmental Systems Research Institute (ESRI) of landscape architects Jack and Laura Dangermond in 1969.\textsuperscript{780} ArcGIS stands out because it is map-based instead of being document-centered. This means that rather than visualising a database of georeferenced documents in for instance Google Maps, it offers a wide variety of map types and enables users to import and create their own visualisations from historical maps and aerial photos and plot data onto them.

While GIS is becoming increasingly embraced by historians, it holds specific implications for the use of maps as historical sources, recasting the relationship between the scholar and the map. In historical research which relies on maps as historical sources, scholars traditionally tended to regard maps as primary source material because it is an original document.\textsuperscript{781} In GIS methodology, historical sources tend not to be granted this status because it recasts the relation between the map and the historian through an additional layer of mediation, which makes it a less reliable source of information. In particular, in order to be used in GIS research, the map has to undergo a complex,
contingent and time-consuming processes of data capture, involving, for instance, scanning or manual data transfer.\textsuperscript{782} Moreover, the surface, borders and demarcation of a geographical area on a historical map may differ significantly from contemporary ones or its dimensions may have become distorted due to shrinkage of the original source's material basis throughout its archival life.\textsuperscript{783} Such features can be adjusted to fit contemporary standards, a process referred to as "rubber sheeting", but evidently – as with digital restorations of film transfers – such a procedure raises several epistemological issues as to its consequences for the digitised map's historicity.\textsuperscript{784} Alternately, historians can extract and plot geo-references from traditional paper sources instead of maps by OCRing digitised historical documents.\textsuperscript{785} In this case, the geo-references are created from documents such as bills, censuses, letters, or articles without a map as its referent. For these reasons, GIS methodology considers historical maps secondary sources after maps using digital-born geodata obtained with GPS or satelite.

Following the practices of historical GIS, new cinema historians make use of a wide variety of proprietary and open-source software to study both digitised maps and contemporary interfaces.\textsuperscript{786} Cinema Context has for example added Google Maps as a recent feature to the project, to enable users to visualise exhibition patterns in the Netherlands by mapping cinemas, distribution companies or programs onto its basic map interface using the project’s Access database. As a commonly used option which relies entirely on Google Map’s visual organisations, this constitutes a predominantly presentist interaction with the transcribed data's spatial relations, because the proximities and networks which it allows the user to discern are constantly adjusted following Google’s updates. Other new cinema history projects have made more elaborate attempts at developing map-based interfaces using digitised historical maps, which combine and appropriate the visual organisation of historical maps through the navigational regime of contemporary GIS software. The project Early Cinema in Scotland 1896-1927, developed in partnership between the Universities of Edinburgh and Glasgow, instantiates a more advanced GIS representation in its use

\textsuperscript{782} Ibid., 19 and 21.
\textsuperscript{783} Ibid.
\textsuperscript{784} David Rumsey and Meredith Williams, "Historical Maps in GIS", in Anne Kelly Knowles (ed.), Past Time, Past Place. (Redlands: ESRI Press, 2002) 5.
\textsuperscript{785} Ian N. Gregory, op.cit., 22.
\textsuperscript{786} There exists a plethora of GIS software and the discussion of them in this section cannot aspire to be comprehensive nor pay equal respect to each type of them. In this regard I have delimited my discussion to the most widely used types of GIS software among new cinema historians focusing especially on their fundamental features and functionalities. It is however worth pointing out that while ArcGIS remains the standard, historians increasingly adopt software such as for instance QGIS because it is open-source.
of a digitised historical map as its base-map. The project worked with and explored the relations in data of approximately 500 films and 600 Scottish cinema venues of the period, based primarily on descriptions retrieved from trade papers. These were plotted onto a period map of Great Britain, from between 1897-1907, retrieved from the Bartholomew archive of historical maps, digitised by the National Library of Scotland.

![Figs. 32 and 33](image)

**Figs. 32 and 33** Screen grabs from the project interface of *Early Cinema in Scotland 1896-1927* which combines a digitised map from the National Library of Scotland's Bartholomew collection with OpenStreetMap through an overlay operation. At the meso-level the user remains in the historical map’s regime of vision while the contemporary layer of transportation and trade becomes visible at the street’s micro-level.

Digitised in a high-resolution format, the historical map has been fitted and overlaid to a GIS map of Great Britain produced within the open-source collaborative project OpenStreetMap. Zooming in on the digitised map allows the user to switch between respectively the interface of the historical map and that of the contemporary OpenStreetMap (see figs. 32 and 33). The resulting tool allows for visualising and comparing film distribution patterns on different levels by switching from the national overview to the local micro-level of the street and the single screening. Furthermore, it

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788 See: [http://earlycinema.gla.ac.uk/films-list/](http://earlycinema.gla.ac.uk/films-list/) and [http://earlycinema.gla.ac.uk/venues-list/](http://earlycinema.gla.ac.uk/venues-list/), last accessed January 24, 2017. The information on data bases, as the website explains was gathered from "...the Scottish Cinemas Database, Cinema Treasures, Canmore, trade press directories, historical maps, and many other sources".

789 "The Bartholomew Archive. Background", see: [http://digital.nls.uk/bartholomew/background/index.html](http://digital.nls.uk/bartholomew/background/index.html), last accessed January 24, 2017. This archive is made up of maps, engravings and sketches of the company John Bartholomew & Co. (later John Bartholomew & Son), founded in 1826 by cartographer and geographer John Bartholomew and continued, partly as a family company, until its closure in 1995. The company was one of the most advanced and prestigious companies of cartography and played a significant part in the formation of the Royal Scottish Geographic Society and the National Institute of Geography in Edinburgh. From this collection, the project has made use of a Bartholomew Halfinch Map - meaning that half an inch corresponds to one mile - dating from the period 1897-1907.

enables the exploration of film titles on both a textual and a contextual level through two clickable options in the upper left corner: "Film Locations” and "Cinema Venues”. By clicking "Film Locations”, the user can visualise films based on their depictions of specific locations. In this way the user may seek out films pertaining to a particular region, discern patterns in the choice of shooting locations and genre. Conversely, clicking "Cinema Venues” allows to visualise more traditional contextual features such as location of theatres and/or screening venues on the map. In this way, the map is used as a structuring template and source for analysing spatial patterns in Scotland’s film exhibition and production history simultaneously.

In Robert C. Allen’s project *Going to the Show* one can equally discern an interesting use of historical maps both for data capture and overlays. The project researches the socio-economic history of movie-going in North Carolina's smaller cities in the early to late silent years, with an emphasis on the relation between race and cinema experience. In this period, a third of North Carolina's population was African American and also had one of the most significant populations of American Indians in the East of US. The project set out to show that cinema’s emergence was to a much greater degree than hitherto considered, a phenomenon which marked the urban life in small emerging cities, rather than primarily in large urban centres. Second, that race was a significant conditioning factor for movie-going in their urban environments. To this end the project captured data from and integrated 750 Sanborn maps - maps created by the Sanborn company from the late nineteenth century onwards mainly for fire insurance purposes across the US. Integrating this data into its interface, allows to click movie theatres and see, when the information exists, what the racial policy of individual theatres were in combination with their location. It also provides access to newspaper clippings and relates this, in a state map view of North Carolina, to the percentage and number of minorities in specific regions.

In the project's map view of North Carolina, the digitised historical georeferences are projected onto a Google Earth interface. In this aspect *Going to the Show* arguably aligns predominantly with contemporary GIS visualisation, rather than giving prevalence to a historical map's visual organisation as in *Early Cinema in Scotland*. Using Google Earth's view of North Carolina as its

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794 Robert C. Allen, op.cit., 2010, 269.
795 Ibid., 270.
Writing Film History From Below and Seeing it from Above

base-map to which a vector layer has been added with a legend appearing on its left-hand side it remains – at least on the macro-level - primarily within a contemporary GIS-based conception of digital cartography and the visual conventions of human and cultural geography. As described by Gregory, this can be seen as a reflection of how the presentist view and visual regime of contemporary GPS takes precedence over the historical map as a primary source (see fig. 34). Yet, Going to the Show also works with map overlays in a similar fashion as Early Cinema in Scotland. In the GIS visualisations of the individual cities, one may choose between and zoom in on Sanborn maps from a variety of years to see how they overlay with the contemporary cityscape. Consequently, one may argue that the interface's organisation and integration of temporally distinct views creates a 'multi-scopic' play between a macro- and a micro-level where the total account of the patterns displayed at state level can be tested against the historical sources geographical information at the micro-level.

Fig. 34 Going to the Show's GIS visualisation of movie theatres in North Carolina using data extracted from Sanborn maps to create a vector map layered onto a Google Earth map view.

Representative of the visual conventions of new cinema historians' map uses in GIS, these projects align closely with especially human and cultural geography's standards, using primarily vector maps, while avoiding techniques more widely applied in the earth sciences, such as three-dimensional landscapes or satellite images for depicting meteorological phenomena.
Chapter 4

While scholars laud GIS’ ability to represent the spatiality of historical events with maps, its temporal component is on the contrary often considered highly limited. At the core of this problem lies the circumstance that topology is not, so to say, spatio-temporal but usually represents a geographical surface statically. However, the depiction of time is particularly crucial for historians. Consequently, as noted by Gregory and Ell, historians have been among the earliest to develop methods for depicting temporality in GIS, which has resulted in hugely varying approaches to representing time. Possibly the simplest way is to display temporal data as attribute data in an overlay operation, where the information appears in a box when clicking on a spatial feature. Thus, to take an example of applications in book history, if clicking for instance a company or a book publisher located on a map, one can access a list of its annual revenues or production numbers in a separate box.

Fig. 35 At the city level *Going to the Show* allows the user to explore different overlays of Sanborn maps in different cities in North Carolina through a *key dates* approach.

Another widely used approach, is the *key dates* approach in which a set of central dates, years or events in which specific data attributes changed in crucial ways are defined or were registered, for

797 Ian N. Gregory, op.cit., 36.
798 Ian N. Gregory and Paul S. Ell, op.cit., 129.
799 Ibid., 30.
instance census counts or maps.\textsuperscript{800} Each of the specific moments defined is subsequently represented by a separate map layer, and can be seen separately or combined.\textsuperscript{801} While this approach displays time by linking each map layer to a separate key date, it presents historians with a potentially problematic solution because of changing borders between dates which may complicate smooth overlays. Moreover, one may also argue that it reinstates a history centered around key years, dates and events, and in this way undermines a key theoretical tenet of a longue durée approach.\textsuperscript{802}

New Cinema History projects primarily work with key dates approaches in their use of GIS to display the temporal dimension of film distribution, exhibition and consumption. In Early Cinema in Scotland specifically through the choice of the Bartholomew map overlay which situates the interface in the years of 1897-1907. Going to the Show takes the same approach but goes a step further by allowing to choose between a greater variety of overlays. First, in the state map interface where it is possible to change the map according to “population data year” collected around the years 1890, 1900, 1910, 1920 and 1930. Doing so enables the user to see how the population density and its minority percentage changed throughout the silent period. Second, the user can go on to explore the mapped cities individually in relation to a varying number of Sanborn maps which may be chosen as a separate overlay (see fig. 35). This allows to see relations between for instance the population density of each of the regions and the emergence of local cinemas, centered around specific key years.

The GIS research conducted by Deb Verhoeven, Kate Bowles and Colin Arrowsmith places even greater emphasis on developing complex combined spatio-temporal historical representations of cinema-going.\textsuperscript{803} In their study of the cinema-going and consumption patterns of Melbourne’s Greek diaspora communities they encountered the need to represent how multiple temporalities characterise different groups' movements within them.\textsuperscript{804} To do this, they used a simple vector map taking a key dates approach centered around the years of census data counts between the late 1940s

\textsuperscript{800} Ibid.
\textsuperscript{801} Ibid.
\textsuperscript{802} Yet, there exists software which specializes in depicting time in GIS such as for instance GeoTime currently used for forensic purposes, law enforcement and surveillance, which has also been added as a plugin to ArcGIS. See: http://geotime.com/products/geotime/arcgis/, last accessed January 24, 2017.
\textsuperscript{804} Ibid., 76.
and early 1980s.\textsuperscript{805} This makes it possible to animate the map to see how the proximity of Greek communities to Greek-language cinemas changed over time.\textsuperscript{806} An interesting conclusion drawn from this animation was that Greek-languaged cinemas tended to move into neighbourhoods before a community arrived, and close before a community dissolved.\textsuperscript{807} This illustrated the significance of temporality in historical GIS as one could otherwise have been likely to understand the temporal dynamics of such developments in the reverse order, namely that diaspora cinemas open after a diaspora community arrives.\textsuperscript{808}

Beyond the discussion of temporal representation, historians have also been deeply invested in developing reflexive, hermeneutical approaches to the underlying data interpretation in GIS methodology. In this regard, scholars are acutely aware of the extent to which maps remain, to lend Drucker’s words, “enunciative apparatus[es]” whose techniques are shaped by and potentially reflect scientist values.\textsuperscript{809} For instance, when increasingly applied in human geography throughout the 1990s, scholars criticised GIS for reducing cartography to a merely positivist, descriptive endeavour, incapable of reflecting geographical data's fuzziness and contingencies.\textsuperscript{810} In this aspect, geographers developed greater, methodological reflexivity and awareness of the role that researchers’ own biases play in pre-constituting objects of study. Along similar lines, socio-economic historians have in recent years critiqued scientific GIS’ emphasis on accuracy and precision to suggest ways of foregrounding contingency and subjective interpretation.\textsuperscript{811} GIS historian David J. Bodenhamer has articulated this in the following way:

\begin{quote}
The central issue was, at heart, epistemological: GIS privileges a certain way of knowing the world, one that values authority, definition, and certainty over complexity, ambiguity, multiplicity, and contingency, the very things that engaged humanists.\textsuperscript{812}
\end{quote}

This emphasis among humanists has spawned numerous propositions that engage with critical and cultural theory in GIS to challenge their own representations, ranging from the situationists' 

\begin{footnotesize}
\textsuperscript{805} Ibid., 77.
\textsuperscript{806} Ibid.
\textsuperscript{807} Ibid.
\textsuperscript{808} Ibid., 77.
\textsuperscript{809} Johanna Drucker, op.cit., 146.
\textsuperscript{812} Ibid., 7.
\end{footnotesize}
notions of psychogeography - as suggested by Bodenhamer - to ethnographic, qualitative data analysis such as Grounded Theory.\textsuperscript{813} Especially Grounded Theory has become a widespread theoretical fundament for methodologically sound, humanistic approaches in both scholarly projects and proprietary software.

Grounded Theory was first developed by sociologists Barney Glaser and Anselm Strauss in their key work *Discovery of Grounded Theory: Strategies for Qualitative Research* (Aldine, 1967) as an alternative to positivist data collection and analysis. Seeing the latter as overconcerned with achieving “accurate facts” and testing “theory generated by logical deduction from a priori assumptions” it suggested an exploratory and primarily inductive approach to data analysis.\textsuperscript{814} Working without preconceived theoretical frameworks, Grounded Theory seeks to develop theory from its sources through an iterative process of exploratory analysis, data collection and coding.\textsuperscript{815} Grounded Theory researchers first collect data and explore them through thematic labelling as a stepping stone towards additional data collection and analysis.\textsuperscript{816} When processing for instance interviews, social science researchers first code parts of their material to see how overlapping themes or behavioural patterns are articulated by interview subjects.\textsuperscript{817} Subsequently, researchers continue this process by gathering and analysing more data to see if similar patterns emerge and can form the basis for a theory.\textsuperscript{818} In principle, the process is open-ended and its practitioners accept that data may be exhausted at different points for different researchers. Yet, within Grounded Theory, there are different views on how exactly the results yielded reflect the data. As sociologists Robert Thornberg and Kathy Charmaz have pointed out, several Grounded Theory practitioners see Glaser’s and Strauss’ initial version of Grounded Theory as inadvertently realist, because it implicitly suggests that its method creates a more direct approximation to the data’s inherent patterns by applying less formalised approaches than deductive frameworks.\textsuperscript{819} Consequently, to highlight uncertainty and complexity to a yet greater degree, many Grounded Theory scholars have

\textsuperscript{813} Ibid., 11. Inspired by the 1950s Situationist International movement, Bodenhamer for instance suggests the concept of “deep maps” to highlight contradictory interpretations, contingency and subjective emotive responses to the experience of space. Concretely, he suggests this can be achieved through increased user participation in open-ended GIS visualizations, where memories can be added or used to create and include different, psychological layers of a map.


\textsuperscript{816} Ibid., 156.

\textsuperscript{817} Ibid., 157.

\textsuperscript{818} Ibid., 159.

\textsuperscript{819} Ibid., 154.
developed the approach further by drawing inspiration from postmodern theories or by encouraging researchers to interpret data differently.

Grounded Theory has been highly influential in conceiving GIS visualisations which challenge representational finitude. For instance, geographers LaDonna Knigge and Meghan Cope’s GIS-based “grounded visualization”, draws equally on Grounded Theory and Exploratory Data Analysis – the latter for which they propose the denominator Exploratory Spatial Data Analysis (ESDA) - to suggest a format in which users can access the data used for creating maps to reveal data bias and suggest alternative interpretations. Their format strives to let users “ponder emerging consistencies or disjunctures, make new or revised connections, and entertain rival explanations” in relation to additional sources and theoretical perspectives. In addition, the widely used proprietary software Atlas.ti developed by information specialist Thomas Muhr has drawn on Grounded Theory since the 1990s. Used for indexing and visualising patterns and networks in a wide range of document types defined as one “hermeneutical unit” - from text to multimedia files - it draws conceptually on Grounded Theory’s process of coding through its “VISE-principle”. Combining the interrelated concepts of Visualization, Integration, Serendipity and Exploration, the latter two concepts illustrate Atlas.ti’s congruency with Grounded Theory’s exploratory data research, by encouraging scholars to oppose systematised, “bureaucratic” research procedures and browse their data in an iterative, theory-building process which allows for serendipitous discoveries to be made. For its GIS visualisation, which remains a recent development of Atlas.ti, the software integrates Google Maps into its functionalities as a cartographic template from which to map the spatial connections made through its coded source material.

The use of Google Maps and Earth as interfaces is, however, a contested solution among GIS scholars who take a reflexive approach, and is used with caution in light of critiques of them. As media scholar Siva Vaidhyanathan has argued, their pervasiveness reflect “Googlization”, a process through which Google's services are used to view and experience the world, without remaining

821 Ibid., 2028.
824 Ibid., 10.
critical of the power relations embedded in their representations and which potentially exclude users without sufficient levels of literacy or ability to operate or appropriate them.\footnote{Siva Vaidhyanathan, The Googlization of Everything (And Why We Should Worry). (Berkeley and Los Angeles: University of California Press, 2011) xi.} Moreover, as GIS scholars Todd Presner, David Shepard and Koh Kawano have emphasised, the use of Google Maps as a ”basemap” remains in itself ideologically laden as it is shaped by for instance military and surveillance technologies and occasionally distorts proportions.\footnote{Todd Presner, David Shepard and Yoh Kawano, HyperCities. Thick Mapping in the Digital Humanities. (Cambridge, Massachusetts and London, England: Harvard University Press, 2014) 122.} Calling for, in line with Knigge and Cope, ” multiplicity of storytelling (...) counter-mapping that foregrounds contestation and alternative histories” they remind researchers to stay critical of the assumptions embedded within these services.\footnote{Ibid., 111 and 124.} Along these lines, media scholar Nanna Verhoeff has suggested that if scholars take these measures and engage with exploratory methods, digital cartography can be seen as stimulating a navigational rather than a mimetic practice.\footnote{Nanna Verhoeff, Mobile Screens. The Visual Regime of Navigation. (Amsterdam: Amsterdam University Press, 2012) 135.} Verhoeff contends that where cartographers in the analogue era were concerned mainly with their representations’ accuracy, digital cartography can privilege navigation, multiple perspectives and place the meaning-making process with the user.\footnote{Ibid.}

While this may perhaps not be taken as reflecting a generalised view among historical GIS scholars on the affordances of digital cartography, I would argue that Verhoeff’s characterisation certainly encapsulates the epistemological underpinnings of GIS uses among new cinema historians. Each in their own way – either through research papers or interface design – new cinema history projects tend to align with reflexive approaches to GIS, and in particular their engagement with Grounded Theory. For example, Klenotic's use of mapping tools in the Mapping Movies-project aims at reflecting the contingencies which affect research outcomes and the constructedness of knowledge inspired by and recapitulating the principles of Knigge and Cope's Grounded Visualization.\footnote{Jeffrey Klenotic, op.cit.,74. See: http://www.mappingmovies.com/visualizations/, last accessed January 24, 2017. Mapping Movies made use of the Environmental Response Management Application see: https://coast.noaa.gov/digitalcoast/tools/erma.html, last accessed January 24, 2017.} As Klenotic explains:

\ldots if our approach emphasizes the open, iterative and reflexive nature of mappings as part of a landscape of inquiry that is always adjusted and readjusted, then we may seek to redefine asynchronous layers of information as an opportunity to explore critically cinema's spatiality and history from a series of partial,
Chapter 4

dialogical, partially contradictory viewpoints that are always under construction.\textsuperscript{832}

In a like-minded fashion, Allen remains critical of GIS’ capacities to establish historical relations. He refers to de Certeau’s notion of ”historiographical operation” to emphasise history-writing as a contingent practice, of which the conditioning institutional and technical circumstances of production must be understood.\textsuperscript{833} Elsewhere, Allen has also drawn on Nigel Thrift’s non-representational theory to highlight the contingencies of historical representation with GIS.\textsuperscript{834} Thus, by highlighting how scholarly analysis of spectatorship implies “...coming to terms with the intractably unrepresentable nature of historical experience”, Going to the Show can be said to indicate a step away from the “realist response” which his socio-economic film history, co-written with Gomery, articulated in the mid-1980s.\textsuperscript{835} In addition, also Cinema Context, while relying on Google Maps, arguably shows a reflexive attitude by allowing researchers to search and extract film title data of for instance a production company, city or year(s), to explore and visualise it in alternative ways.\textsuperscript{836}

While not focusing on historical patterns but on contemporary, global distribution and exhibition, Deb Verhoeven’s recent Kinomatics mapping project takes a similar position by drawing on literary theory in addition to Exploratory Data Analysis. Using a greater variety of visualisation software, such as ArcGIS and Tilemill, the project's researchers visualise data from their Global Movie Screenings database consisting of approximately 29000 cinemas in 48 countries, collected by external data providers.\textsuperscript{837} Consequently, the Kinomatics project gestures towards a total, macroscopic perspective while inviting iterative and exploratory uses of them. Verhoeven has emphasised how digitised film-related sources need to be browsed with search tools that allow for serendipity.\textsuperscript{838} She refers to Stephen Ramsay, who has argued, that the precision of the results of Google’s search engine tends to confirm our already established views of relations and genealogies

\textsuperscript{832} Ibid., 73.
\textsuperscript{833} Robert C. Allen, op.cit., 2011, 54.
\textsuperscript{835} Robert C. Allen, op.cit., 2011, 51.
\textsuperscript{836} See: \url{http://www.cinemacontext.nl/}, last accessed January 24 2017.
\textsuperscript{837} See \url{http://kinematics.com/category/visualisations/}, and \url{http://kinematics.com/tools/}, last accessed January 24, 2017. Besides the use of ArcGIS and Tilemill for GIS visualization Kinomatics also applies the open-source software Oriana to create circular visualizations and Tableau which offers a wider range of classic statistical representations relying in part also on R. These external parties are Rentrak and Box Office Mojo, see \url{http://www.rentrak.com/} and \url{http://www.boxofficemojo.com/}, last accessed January 24, 2017.
of culture, rather than challenging and recasting them.\textsuperscript{839} This way of searching seldom allows for discovering surprising, fruitful ressemblances between words across texts, or what Ramsay provocatively dubs "screwing around".\textsuperscript{840} In highlighting this point, Verhoeven calls for less streamlined exploration and visualisation of spatial cinema data in line with the positions taken within the New Cinema History projects discussed above. While the interfaces developed by new cinema historians may not fully support such endeavours it is a central ambition to several of the field's scholars to facilitate exploratory and iterative search.

To conclude, based on the new cinema history projects I have discussed in this section, this research tradition’s conception and use of visualisations primarily follow the procedures of qualitative data analysis, using software such as Atlas.ti and ArcGIS. The projects which represent time dynamically primarily use a key dates approach, determined by their source material, while using both digitised, historical maps and contemporary GIS. Reflecting the critiques of serial history, the projects tend to enable multi-scopic perspectives, in which the user can challenge, test or complement the map’s macroperspective against the micro-perspective and bottom-up scale of more limited distribution circuits and cartographic sources pertaining to smaller urban areas. In this sense, new cinema historians stress the affordance of seeing cinema history from above with maps for the sake of understanding especially the spatiality of distribution patterns, while testing and writing it from below. In doing so, they arguably constitute an advanced congregation of methods and techniques from the earth and social sciences, Annales historiography as well as film historiography's own version of total history, as initiated by Jean Mitry. Yet, taking a reflexive approach informed by developments of GIS in especially human geography, history and the social sciences, it does so in a way which constantly seeks to acknowledge its own limitations and lets users challenge them. In this particular aspect, New Cinema History in the digital age distinguishes itself from New Film History’s realist stance as articulated by Allen and Gomery, by nourishing a shift in its methods, which allows for greater serendipity. Moreover, it can also be said to nurture, as argued by Lagny along the lines of Annales historiography, a greater methodological pluralism.

Having discussed the epistemological implications of contemporary GIS-based New Cinema History and the scholarly negotiations of its representations' evidentiary status, my next section will reflect upon the case study of the project \textit{Data-driven Film History: a Demonstrator of EYE's Jean Desmet Collection}, completed in 2015, in collaboration between Amsterdam's EYE Filmmuseum,  


\textsuperscript{840} Ibid.
Chapter 4

the University of Amsterdam and Utrecht University. The case study has particular relevance for two reasons. First of all, it lends itself particularly well to a discussion of how a GIS representation can be used for gaining new insights into film distribution and exhibition, following the conventions of New Cinema History methods. Discussing the project from an insider's perspective, I will elucidate its making and its methodological choices while considering it in relation to the three key aspects considered in this section, namely the choice of map type, the representation of historical time and reflexivity towards data interpretation. Second, the project provided an opportunity for me to reflect on New Cinema History methods as a builder who wished to open new research avenues which challenged their conventions by trying to bridge textual and contextual analytical approaches. This will be the focus of part 4.3 in which I discuss the limitations and promises of this experimental project component.

The Desmet Collection’s Business Archive as Source for New Cinema History

The Jean Desmet collection, preserved at the EYE Filmmuseum in Amsterdam, contains the archives left behind by Dutch film distributor and cinema owner Jean Desmet (1875-1956). As a distributor, Desmet was most active in the early period of silent cinema and its transitional years. The collection consists of approximately 950 films produced between 1907 and 1916, a business archive of more than 100,000 documents, some 1050 posters and around 1500 photos. Roughly, the Desmet collection's archival life begins after 1916 when Desmet’s activity as a film distributor largely came to a halt. Beyond 1916, Desmet devoted his business activities primarily to real estate investment while remaining active as a cinema owner into the 1920s, in particular of the succesful Cinema Royal in Amsterdam and, throughout the following decades, also of the Cinema Parisien. In this period, the collection did not occupy a prominent place in Desmet's activities, although he occasionally continued to rent out films and also sold some off. Upon a fire in the Cinema Parisien in 1938, in which

841 At the University of Amsterdam the project was related in particular to the research program CREATE: Creative Amsterdam - an E-Humanities Perspective which focuses on the historical emergence of creative industries in Amsterdam. See: http://www.create.humanities.uva.nl/, last accessed January 24, 2017.
844 Ibid.
descriptions and small posters for primarily long feature films were destroyed, Desmet did however secure his collection better storage facilities and began inventoried it. This created the fundament for what is now known as the EYE Filmmuseum’s Desmet Collection. In this and the following sections I focus primarily on Desmet's business archive as a source for New Cinema History and GIS mapping.

Within the EYE Filmmuseum, the Desmet collection’s history dates back to 1957, when the then still small institution with limited funds was known as the Stichting Nederlands Filmmuseum and was part of Amsterdam’s Stedelijk Museum. In this year, which followed Desmet’s death in 1956, the Filmmuseum received his collection of films, posters and photos. The business archive was gradually acquired between 1962 and 1970. While the conservation of the Desmet collection was regarded a high priority already when it was acquired under director Jan de Vaal, it took long before it was properly inventoried and presented. Several initiatives during the following decades led to the gradual disclosure of the collection’s different materials. The posters were for instance largely neglected until the Filmmuseum put a renewed effort into its poster collection in the late 1980s. Throughout the 1990s and 2000s the Desmet collection engendered a fresh perspective on historiography of especially Dutch film distribution and exhibition as well as of the production companies prominently present in the collection. A significant reason for this is that the collection contains a rich business archive of around 100,000 documents, comprising Desmet's meticulous notes on his transactions with cinema traders and exhibitors. These sources have allowed researchers to see exactly where Desmet acquired his prints from, and to whom he rented them out.

Film historian Ivo Blom has studied the collection's source material from a micro-historical perspective to depict Dutch film culture’s emergence and sketch the macropatterns of distribution sustaining it, by tracing Desmet’s trajectory as a personal collector and businessman within his specific socio-historical context. This focus was in part motivated by the peculiarity of Dutch film culture, which, in comparison to other large countries such as France or the US, has traditionally not had a large, domestic film production. Also, cinema traders were not associated with specific

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845 Ibid.
846 Ibid., 308.
847 Ibid., 308-309.
848 Ibid., 309.
849 Ibid., 311.
850 Ibid., 21 & 23.
Chapter 4

production companies but remained independent.\textsuperscript{851} Prior to the first world war, the Netherlands was in many aspects an open country when it came to film distribution, in several ways similar to Germany and Great Britain in the sense that distributors would not be contracted to take on a certain amount of films and could buy more freely, also second-hand, as did Desmet.\textsuperscript{852} In this regard Jean Desmet is a particularly interesting figure whose trajectory and business transactions provide a rich trace of Dutch and European film culture's development.\textsuperscript{853} Because of its unique historical value, the Desmet Collection was inscribed on UNESCO’s Memory of the World register in 2011.\textsuperscript{854}

Today, the Desmet collection has been almost entirely digitised as part of the Images for the Future project that ran between 2007 and 2014. This opens the possibility of developing fresh historical insights into early cinema, by studying the collection as data using digital techniques and representational practices to intervene analytically. The aim of the project \textit{Data-driven Film History: A Demonstrator of EYE's Jean Desmet Collection}, was to consider how contemporary forms of data visualisation might be instrumental in reassessing our perspective on issues such as film distribution, exhibition and the uses of colour in cinema's early years.\textsuperscript{855} As a small-scale project, lasting eight months part-time, it involved academic researchers at the Universities of Amsterdam and Utrecht, staff from EYE Filmmuseum, and two technical partners, one for developing the interface and one for performing the data mining.\textsuperscript{856}

From an academic perspective, the project’s main objective was to develop a map interface for studying the distribution and exhibition history of the collection’s films. In particular, the project wished to explore the usefulness of GIS mapping in establishing relations between the distribution and screening of the films. For EYE, the film archive involved, the objective was to gain a better

\begin{itemize}
\item \textsuperscript{851} Ibid., 28.
\item \textsuperscript{852} Ibid., 27 and 31.
\item \textsuperscript{853} Ibid., 33.
\item \textsuperscript{855} The project was funded by the Netherlands Organization for Scientific Research (NWO) and ran from August 2014 to April 2015. For more information, see the project website: http://mappingdesmet.humanities.uva.nl, last accessed January 24, 2017.
\item \textsuperscript{856} Beside the author, the project team consisted of Professor of Film Heritage and Digital Film Culture (UvA) and Chief Curator at EYE Filmmuseum Giovanna Fossati, Professor of Digital Heritage (UvA) Julia Noordegraaf, Assistant Professor Film Studies (UvA) Eef Masson, Assistant Professor Television and Digital Culture (UU) Jasmin van Gorp, software developers Justin van Wees and Bart de Goede (Dispectu), online video application development Niels Sondervan, Jeroen Sondervan and Dean Janssen (Hiro), Annelies van Nispen, Saskia Waterman, Rommy Albers and Elif Rongen-Kaynakçı (all at EYE). The project also benefited from a user study conducted by Liliana Melgar (then PhD candidate at Universidad Carlos III de Madrid and intern at EYE).
\end{itemize}
understanding of the quality of its metadata on the Desmet collection, and to experiment with new ways of providing access to it.

**Mapping Desmet**

The main goal of the *Data-driven Film History*-project was to facilitate the scholarly study of the spatio-temporal patterns of distribution and screening of the films’ owned by Jean Desmet through a GIS map visualisation. By providing macro-visualisations of their distribution and screening, *vis-à-vis* micro-descriptions of the individual films, the project aimed at reuniting all available transcribed data on the collection in a single map interface that could facilitate the navigation of the abundant information, and inspire new research directions. The interface was designed to help researchers visually represent contextual information and map it onto the titles of films in the collection. In the process of reaching this goal, the project presented several intriguing methodological issues, which I reflect upon here in hindsight with regard to the aspects and strategies of map representation, temporality and reflexivity which I discussed in the previous section.

With regard to the map representation and interface design, one feature of the Desmet collection in particular became key at a very early stage: the circumstance that it is documented in three different databases, which vary amongst each other in terms of the types and amounts of information they hold. The process of developing a mapping interface, and in particular, the step of combining metadata originating from different sources invited the project participants to consider the data’s limitations and how it conditioned the historical insights which could be produced in this format. In this sense, the heterogeneity of the datasets deriving from those three databases formed a starting point for the interface development and eventually became its backbone.

The first dataset is derived from Collection EYE, EYE’s institutional catalogue, and contains titles from Desmet’s catalogue that the institution holds material for, for instance a film print, still, poster or advertisement.\(^{857}\) This is the most complete dataset with regard to the Desmet Collection, as it comprises around 950 titles out of the 1500 to 2000 films Desmet acquired and distributed during his active years. Unfortunately, Collection EYE contains limited, not to say almost no information on their distribution or screening. In the form it was received within the project, it consisted uniquely of attribute data and no spatial data. With regard to EYE’s dataset, it was therefore the project's hope to spatially reference as many titles as possible, by linking it to the two remaining datasets.

\(^{857}\) It should be noted that Collection EYE contains relatively more detailed information on Dutch films distributed by Desmet – even when no physical items are present in the collection.
Chapter 4

The second dataset was created by Rixt Jonkman, Registrar at EYE, who, while still a student, had made a detailed transcription of distribution and rental information from Desmet’s business archive. Jonkman manually entered data on the rental, exhibition and distribution of the 771 films mentioned in the account books that were purchased from two German distribution companies between 1910 and 1912: Westdeutsche Film-Börse (WFB) and Deutsche Film Geselschaft (DFG). These films were typically shown in ‘programmes’, containing a number of short films followed by a longer one - a circumstance I shall return to, when discussing the colour visualisations created in the project in the next section. While it is the most reliable source with regard to both attribute and spatial data, the latter in the form of distribution information, the dataset only covers, for the reason mentioned above, films acquired in the period from 1910 to 1912, of which several are today no longer preserved.

The third and last available dataset is derived from Karel Dibbets’ Cinema Context database, which, in addition to Desmet’s business archive, relies on newspaper clippings and reports from the Centrale Commissie voor de Filmkeuring (Central Commission for Movie Ratings, installed in 1928) to establish where and when films from the collection were shown in the period it covers. Cinema Context however only includes information for one screening a week – typically the premiere screening – for each film title. It should be noted that in 2004, data from the Jonkman database were integrated into it and that Cinema Context has been updated since this integration. For example, unidentified film titles have been identified or Dutch distribution titles have been replaced by original titles, for which reason not all titles in the Jonkman dataset match those in Cinema Context today.

In order to render visualisations from three different datasets, we sought to find a strategy for coping with the many differences in terms of how they each described the films in the collection. Especially the titles and screening dates diverged considerably between the datasets, and therefore, the items this information concerned could not be easily matched. For instance, the three datasets used titles in different languages, the original title vs. the Dutch distribution title, or, in the case of an unidentified film, even a catalogue title. By analogy, the datasets also used different dates, as some considered the year of production, while others adopted the year of release or that of the first screening – if they had dates at all. Although metadata specialists and curators at EYE invested great effort into disambiguating titles by matching a good deal of them manually - providing a good opportunity for cleaning up EYE’s records – there continued to be discrepancies in information and

duplication in titles. During this process, it was possible to match 1,094 items, so that we ended up with 2,361 unique film titles. As the total amount of Jean Desmet films is estimated at 1,500 to 2,000, this means that there are probably still many duplicates, meaning items that reference the same film but have different titles attached, within our final set.

As a map representation for visualising this data we opted for, along the lines of CinemaContext, a Google maps interface as a basemap without any map overlays. Early in the process, we did consider making a map overlay from a historical map, yet the budget and timeframe of a project of this scale did not allow for performing such a complex digitisation task nor licensing a digitised historical map. Therefore, the interface does not constitute as complex a temporal relation with the collection and its sources as for instance the projects Early Cinema in Scotland and Going to the Show where historical maps were used to create a historical periodisation. In this respect, our project’s representation did show evident limitations in terms of the temporal frame it suggested, which remained within largely a presentist perspective. However, as I will discuss below, I would argue that the interface’s functionalities allowed researchers to establish historical dynamic temporal relations in other complex ways.

These decisions resulted in the following organisation of the interface's design and navigation. Upon entering the demonstrator, the user is shown the map of the Netherlands. This map constitutes the macrolevel of the interface where patterns can be discerned on the national level, specifically with regards to comparing the different numbers of distributions or screenings in the different Dutch cities. In the upper left corner appears a key naming the three datasets (see figures 36 and 37).

Checking the box next to one of them produces the total numbers of titles associated with one or more datasets, mapped onto the cities in the Netherlands where they were distributed or shown. At city level these numbers are merged when choosing multiple datasets, appearing in a blue circle.
Furthermore, it is possible to delimit the numbers, using the metadata categories of EYE primarily, according to genre, colour and for instance production company. This feature, in theory, allows for individual distribution case studies to be made. For instance, if a researcher wishes to study the programming of Pathé films in the silent years in the Netherlands, or of a particular genre. An additional central feature is the interface’s timeslider, which is included in the upper left box, and which allows for delimiting the production period of the films mapped. With this functionality it is possible to take a key dates approach centered around production years to study corpora from Desmet’s collection. This feature is interesting in terms of how it allows to establish spatio-temporal sequences in the interface. For instance, delimiting the mapped films to a specific year of production may make it possible to study for how long a period those films circulated and were screened. In this aspect, one may in theory use the functionality to make inferences about the distribution life cycle of the films and their spatial sequence. For instance one can imagine questions about whether films would be distributed first in some cities and if there was a hierarchy between cities in the distribution of specific titles or make observations about if or when films go out of circulation.

At the same time, the numbers also reveal patterns that suggest they should be approached with caution. For instance, the city with the highest number of distributions and screenings, 1050, is the smaller town of Dordrecht in the South of the Netherlands, which by far surpasses Amsterdam with 764, and Rotterdam with 201. As we know that the two latter were the two most important cinema cities, these numbers point to the fact that the dataset contains much more information on Dordrecht than the other two and that the numbers are therefore too skewed to reflect accurate proportions between them. There are two likely reasons for this. First, that the number of distributions in the dataset created by Rixt Jonkman is much higher than in the Cinema Context dataset. Second, a lack of disambiguation between titles. This observation can be considered a valuable experience of building, in the sense intended by Ramsay, because the process of creating the interface exposed bias in the data, which we might not otherwise have noticed.

Though the specific issue of the proportions between the numbers was not anticipated at the start of the project, we did from the outset want to avoid giving the merged numbers appearing on city level interpretative authority by pointing to the datasets’ uncertainties.859

859 This ambition emerged as a central point at the staff meeting at the University of Amsterdam’s Mediastudies Department on September 16, 2014, in which, in addition to the author also Julia Noordegraaf, Rommy Albers, Giovanna Fossati, Eef Masson and Jasmijn van Gorp participated.
Fig. 38 Screenshot of list of films screened and distributed in the city of Amsterdam. The colour coded dots preceding the titles identify the databases which the information is derived from.

Fig. 39 Screenshot of metadata fields and categories listed for the film *Agrippina* (1911); the colour coded dots identify the databases which the information derives from.
Chapter 4

In order to do so, it was decided early on to follow Drucker’s advice to find ways of visualising data contingencies in the interface design. For the project’s interface, we thought this could be done in practice by foregrounding the data’s provenance so as to highlight the limitations of the project’s sources. Doing so should allow users of the demonstrator not only to assess the data’s status, but also to determine what they can or cannot gain insight in when using it.

While developing the tool, the principle of provenance was implemented on several levels. In the key, the datasets are colour coded, and the same coding is used in the list of films that is shown when the user clicks the figure for a particular city (see fig. 38). Since there were no details on the distribution or screening for all of the films which it is known Desmet owned, a list of those titles was also made accessible through the interface.

To access this list, the user can click on the EYE logo in the North Sea area of the map. Moreover, at the title level, coloured dots are used to show which dataset specific information on genre, production, screening, etc. derives from (see fig. 39). This colour coding follows the data all the way through the navigation. In this sense, the colour coding may be taken to invite the users to take a multi-scopic approach. While it is possible to make inferences on the macro-level, the numbers are constantly brought into question when entering the layers of the cities and titles below it with specific attention to the films individual distribution and exhibition histories. Finally, as an additional way of securing transparency to support this design, the datasets were also made available through the website of the associated research project CREATE: Creative Amsterdam – An E-humanities perspective.

To conclude, the project’s reliance on the three datasets, which document the distribution and exhibition of the Desmet Collection, turned out to be a decisive factor in the development of the project’s interface. By colour coding each dataset and making the provenance of the data visible in the demonstrator, the project sought to ensure that researchers stay aware of the fact that they use information produced under different conditions and with different purposes in mind, and to encourage them to consider how this affects the relations they establish between the distribution and screening of the Desmet films, or any other film historical observations they might make. In this sense, rather than taking a more traditional New Cinema History approach focusing on networks between people and industrial and creative sectors to study their complex societal dimensions the project placed greater emphasis on the role, and problems, of the archive as an a priori for historical interpretation. The interface design’s emphasis on the archival sources

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860 Johanna Drucker, op.cit., 125-126.

861 For access to the project’s datasets, see http://www.create.humanities.uva.nl/results/desmetdatasets/, last accessed January 24, 2017.
provenance could be described as reflexive in that it brought attention to the contingent processes of their making and interpretation.

At the same time, one may also, in hindsight, raise the question whether the project actually did succeed in developing a convincing strategy. On the one hand, the demonstrator followed Drucker’s suggestions for the development of ambiguous data visualisations, as the users are constantly confronted with the limits of the representation, through the tool’s transparency. Furthermore, by making the underlying data available through the website of the CREATE project, the project certainly does allow for and encourage alternative or “rivalling” interpretations of the data, to recap the words of Knigge and Cope. On the other hand, one might also argue that the interface’s colour coding is quite conventional and follows classic, scientific principles of source criticism, as have existed since the nineteenth century. In particular, by grouping the datasets into their specific collection provenances instead of merging them, the project’s use of the data respected such fundamental provenance principles as “respect des fonds” and “respect de l’ordre”, as they were referred to in the manuals from the École nationale des chartes. As media scholar Andreas Fickers has explained, “respect des fonds” prescribes that “archival materials, when transferred to archival custody, remain as distinct collections catalogued and filed according to their creator or office of origin”, and “respect de l’ordre that “records in these distinct collections are maintained in their original order”. Without reflecting on these principles in the process of making the demonstrator it seems, in hindsight, that we intuitively applied them rigorously, by letting the collections remain clearly separated through the colour coding. Though the checkboxes do allow to serialise the datasets according to new categories they are constantly interpreted in relation to their archival origins and order. I would argue that to develop the demonstrator towards a greater degree of reflexivity, beyond the transparency of colour coding the datasets and making them freely available, it could have been productive to consider incorporating Exploratory Spatial Data Analysis strategies. For instance, this could be done by incorporating personal note-taking techniques into the interface as a way of inviting different interpretations. In this way, researchers could be allowed to combine items from the datasets in their own “hermeneutical units” and map them in new, meaningful ways to produce alternative historical inquiries or case studies.

In addition to developing a mapping interface, we also tentatively experimented with visual analytics for colour. Seeking to integrate visualisations of colour patterns in Desmet films in the interface, we tried to develop new insights into the collection's significance for early cinema

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863 Ibid.
history. Furthermore, in doing so, we wished to renegotiate the divide between New Film History and New Cinema History by seeking productive combinations of textual and contextual historical analysis. In the next section I discuss this experiment and the potential avenues it opens for new types of data-driven research.

4.3 Back to New Film History? Analysing Chromatic Patterns in Desmet’s Programs

An important reason for our experiment with combining the project's map interface with visualisations of textual patterns was a wish to challenge the divide between textual and contextual digital methods in film historiography. With, on the one hand, Cinemetrics' resurgence of a classic, scientistic paradigm of stylometrics alongside distant reading and Exploratory Data Analysis and, on the other, the shift from New Film History to New Cinema History, a gap seems to have been created between research traditions. Even though there have been attempts at combining approaches from the perspective of Cinemetrics, as in Digital Formalism's ecdotic study of the Blum affair, this yet remains to be explored to a greater degree. Moreover, within New Cinema History, imbued with *Annales* historiography's concepts of mentality and total history, there is little room for understanding cultural products as historical sources.

Such a methodological divide, is not desirable when dealing with such a rich corpus as the one offered by the Desmet Collection. For instance, we found that the films in the Desmet Collection and their features are valuable sources for understanding spectatorial expectations and habits, and that it would be difficult to analyse them as such within an orthodox New Cinema History paradigm. Previous scholarship has understood the Desmet films as reflecting popular, cultural conceptions of and expectations from the film medium's conventions, which the masterpiece histories had neglected. The project's experiment could be said to align itself with and propagate New Film History's emphasis on films’ performative dimension. It wished to take a step back from the recent paradigmatic shift from film to cinema history, and re-introduce a more medium-specific focus in digital research, thinking from the Desmet Collection, as the basis for understanding spectatorial habits and performance. In doing this, we explored preconditions for a combined digital research format for the analysis of early cinema's formal and spatial characteristics. We specifically focused on silent cinema's colour palettes in the context of its historical exhibition, drawing on GIS-based scholarship, cinemetric techniques and Cultural Analytics.
The Desmet Collection as site for Silent Cinema Colour Historiography

Concurrently to our research project in 2015, EYE Filmmuseum organised the conference *The Colour Fantastic: Chromatic Worlds of Silent Cinema* hosting a broad range of papers on the history and (digital) restoration of primarily silent cinema's colours. The event, which gathered a wide array of international scholars and film preservationists, among other things reflected on the institution's long-standing engagement with the historiography of silent cinema's colours as well as early cinema more generally, attending to the crucial role of the Desmet Collection in it. As preparations for the *The Colour Fantastic* took place, we found inspiration in this institutional history to articulate questions which would allow for combining the project's mapping interface with visual analytics of film colours. In the following, I discuss how, by attending first to the archival life of the collection at the EYE Filmmuseum.

In 1970, the Filmmuseum presented an inventory of the Desmet Collection counting 897 titles. Resulting primarily from archivist Peter Westervoorde's cataloguing and Jay Leyda's help as FIAF’s identification specialist, it laid the foundation for the collection's conservation and rediscovery. The collection's conservation gained momentum in the 1980s and 1990s when funding from within the institution and the Dutch Ministry of Culture became gradually more generous. Moreover, in the late 1980s an increasing number of renowned, international film historians visited the collection, after restorations had begun circulating in the archival film festivals. As film historian Ivo Blom recounts:

Festival screenings and retrospectives made an immediate impact, and the Desmet films played an important role in the rewriting of film history to dissertations and publications on early German and Italian cinema, forgotten or undervalued film companies such as Vitagraph and Eclair, early non-fiction films, genres such as the early Westerns and early colour films.

The film collection's significance for historiography is due in large measure to the fact that its conservation unearthed many films previously considered lost. It enabled film scholars to expand

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866 Ibid., 319 and 323. As Ivo Blom specifies, in the late 1980s the following number of titles were conserved: 67 in 1986, 69 in 1987, 40 in 1988 and 93 in 1989.
867 Ibid. Blom for instance mentions Susan Dalton then of the American Film Institute, historian of American early cinema Ben Brewster, Italian film historian Vittorio Martinelli and Henri Bousquet who throughout the 1990s published the to date most comprehensive catalogue of Pathé productions in the silent era.
filmographies of national cinemas, knowledge of genres, technology, directors and production companies. In this regard, Blom considers the screening of the colour restoration of *Fior di male* (Carmine Gallone, Cines, Italy, 1915) at Le giornate del cinema muto in 1986 a key event. As he writes about the screening: "The established 'canon' of classic films and directors was sent into free fall by the screening of a film which up to that moment, had simply been ignored by film history".\(^6^9\) *Fior di male* emerged at a point when scholarly attitudes towards Italian silent cinema were changing drastically.\(^7^0\) Until then, scholars had hesitated to study especially the late Italian silent period because of its fascist societal context of production.\(^7^1\) Furthermore, Italian film heritage preservation had been characterised by dispersed sources, lacking inventories and reference works for identification and research.\(^7^2\) In the slipstream of the Associazione Italiana per le Ricerche di Storia del Cinema Italiano's foundation (1964) and the emergence of Italian regional film archives research on pre-WWII Italian cinema proliferated.\(^7^3\) Monographs by film historians Vittorio Martinelli, Aldo Bernardini and Gian Piero Brunetta as well as the silent cinema review *Immagine. Note di Storia del Cinema* appeared. These authors had also contributed to *Les cahiers de la cinémathèque*’s 1979-double issue (nos. 26 -27) devoted to revising Italian silent cinema historiography and had, in line with microhistory and emerging approaches in New Film History, critiqued Sadoul's generalist historiography to instead study regional production and exhibition contexts in Italy.\(^7^4\) The case of Italian silent cinema exemplifies how the restored Desmet films, and in particular *Fior di male*, emerged against a backdrop of institutionalised scholarship which increasingly studied early films and their performance as valid expressions of popular (regional) cultures beyond the masterpiece model of history.

Beyond this rediscovery, the collection stimulated profound insights into early cinema's formal and material characteristics, such as genre conventions and colour uses. Though methodological

\(^6^9\) Ibid.


\(^7^1\) Aldo Bernardini, op.cit., 39-40. Italian silent cinema had been plightfully covered in the general histories of the immediate post-World War II years. While Maria Adriana Prolo’s general history had been vital in spite of its brevity, most histories were superficial with regard to Italian silent cinema. Italian historians preferred to set the starting point around 1945 with the politically engaged neo-realist cinema's emergence.

\(^7^2\) Ibid.

\(^7^3\) Ibid., 41. Among these publications were Davide Turconi’s and Camillo Bassotto’s *Il cinema nelle riviste italiane dalle origini ad oggi* (Edizioni Mostra Cinem, 1972) which provided an overview of cinema journals from the silent years and Francesco Savio’s *Ma l’amore no. Realismo, Formalismo, Propagando E Telefoni Bianchi Nel Cinema Italiano di Regime (1933-1945)* (Sonzogni Editore, 1975) produced a filmography of 1930s Italian cinema which served review the pre- World War II years' productions. See also the Association’s own brief story online: [http://airsnew.it/index?tid=18](http://airsnew.it/index?tid=18), last accessed January 24, 2017.

\(^7^4\) Ibid., 44.
literature had emphasised it, the fact that the majority of silent films applied a colour process –
tinting, toning, stencilling or combinations – had been understudied. For instance, Sadoul's
foundational essay on historical methodology had urged film historians to study nitrate projection
prints to understand silent cinema's conventions of colour uses.\footnote{Georges Sadoul, op.cit, 1974 [1964], 58.} Notwithstanding, predominant
archival practice remained to copy coloured source elements onto black and white film stock – a
practice also resulting from a lack of laboratory expertise and funding for restoration.\footnote{Ibid., 315.}
When the Filmmuseum invested more energy into restoring the Desmet collection in the 1980s, it decided to
attempt reproducing the original elements' colours, sustained by an increased awareness in
restoration theory and laboratory practices. As Peter Delpeut, then the Filmmuseum's Deputy
Director, has recalled:

> New funds, innovative laboratory techniques and a greater sensibility towards the importance of original
> monochrome colour schemes of silent films had paved the way for a veritable revolution in restoration
> ethics and – by the same token – aesthetics.\footnote{Peter Delpeut, \textit{Diva Dolorosa. Reis naar het einde van een eeuw.} (Amsterdam: Meulenhoff, 1999) 16. Original quote: “Nieuwe fondsen, innovatieve laboratoriumtechnieken en één grotere gevoeligheid voor het belang van de originele monochrome kleurstellingen van stomme films hadden een ware revolutie in restauratie-ethiek en daarmee – esthetiek teweeggebracht”}.\footnote{Ivo Blom, “The Impact of the Desmet Collection. Pordenone and Beyond”, in \textit{Journal of Film Preservation}, No. 87 (2012)39. However, as EYE Filmmuseum's silent film collection specialist Elif Rongen-Kaynakçi has pointed out it is important to keep in mind that within the context of Pordenone's programming in 1987, only ten titles out of approximately 350 were in colour. The transition towards showing silent films in colour did, in other words, not happen overnight. See blog post, "Elif Rongen-Kaynakçi on 'The Colour Fantastic' at EYE, March 28-31, 2015". See: \url{http://orphanfilmsymposium.blogspot.nl/2015/02/elif-rongen-kaynakci-on-colour.html}, last accessed January 24, 2017. }

The Pordenone screening of \textit{Fior di Male} in a colour print followed in 1987 by colour
restorations of Vitagraph films resulted from this development.\footnote{Peter Delpeut, op.cit., 18. As Peter Delpeut has recounted, beyond the Nederlands Filmmuseum, a film archive such as la Cineteca del Comune di Bologna (today la Cineteca di Bologna), which the Nederlands Filmmuseum then collaborated closely with in organising Il Cinema Ritrovato, began investing greater efforts in colour restoration in the late 1980s by unearthing original, coloured prints of especially diva films such as Amleto Palermi's \textit{Carnevaleca} (Cines, 1918) and Carmine Gallone's \textit{Malombra} (Cines, 1917). See also: Monica Dall’Asta, Guglielmo Pescatore and Leonardo Quaresima (eds.), \textit{Il Colore nel Cinema Muto} (Bologna: CLUEB, 1995); Giovanna Fossati, “When Cinema was Coloured,” in Luciano Berriatúa et al. (eds.), \textit{Tutti i colori del mondo. Il colore nei mass media tra 1900 e 1930/All the Colours of the World. Colours in Early Mass Media, 1900-1930} (Reggio Emilia: Diabasis, 1998); Joshua Yumibe, \textit{Moving Color: Early Film, Mass Culture, Modernism} (New Brunswick NJ/London: Rutgers University Press, 2012).} Gradually thereafter, the need to
restore silent films' colours became a generalised deontology in film archives, and was increasingly

Since then, the Filmmuseum has continuously raised new questions on silent cinema’s colours by
organising international symposia and exploring new restoration techniques. In 1995, it organised
and hosted the workshop *Disorderly Order – Colours in Silent Film*, where identified and
unidentified archival films were screened to an international audience of film historians and
curators to revise the historiography of silent film's colours. Several interesting questions and
remarks were put forth in this context which, twenty years later, provided inspiration for our *Data-
driven Film History*-project. For instance, following a screening of both early and late silent era
films, media scholar William Uricchio asked Giovanna Fossati whether the colour uses in different
periods seemed to follow different patterns. As Uricchio phrased this:

> I'm curious about the range of colour effects we've seen – a range of technical systems and visual effects
that cover a relatively long period during which, within many national cinemas, there's a standardisation
of certain dramatic forms, certain camera techniques, yet so many variations in colouring. Giovanna
Fossati, have you found patterns in this, patterns differentiating genres, patterns differentiating particular
procedures – Pathé versus Vitagraph, say – patterns across time, say 1912 versus 1922?\textsuperscript{880}

Drawing on her fresh archival research, Fossati responded that certain techniques, particularly
stencilling, appeared to follow distinct patterns within different production companies' applications,
such as Gaumont and Pathé.\textsuperscript{881} Delpeut on the other hand expressed his doubt with regard to
discerning patterns, stressing that each print contained a unique colour experience.\textsuperscript{882} As he
remarked ”...I could find no recipe, no hidden theory, no codes that applied to all the films I saw.
This was very disturbing because we're always looking for logic, for codes...” \textsuperscript{883} Nicola Mazzanti,
then affiliated with the Cineteca del Comune di Bologna and Il Cinema Ritrovato, elaborated on this
observation to highlight how the contingencies not only of production but also films' screening
history affected their colour schemes and composition. As he remarked concerning the
Filmmuseum's print of Griffith's *The Lonedale Operator* (USA, 1911) ”...the blue is stronger than at
the left and right margins simply because the light of the projector has faded the colour in the centre
of the nitrate print”.\textsuperscript{884} Yet, as Mazzanti's later research into Italian silent cinema has shown, colours
often did serve and support narrative aims, and audiences expected colourful programmes from
exhibitors.\textsuperscript{885}

\textsuperscript{880} Daan Hertogs and Nico De Klerk (eds.), *Disorderly Order*: Colours in Silent Film (Amsterdam: Nederlands Filmmuseum, 1996) 23.
\textsuperscript{881} Ibid.
\textsuperscript{882} Ibid.
\textsuperscript{883} Ibid.
\textsuperscript{884} Ibid., 24.
\textsuperscript{885} Nicola Mazzanti, “Colours, Audiences and (Dis)Continuity in the ‘Cinema of the Second Period’,” *Film History* 21, no. 1 (2009) 69

258
The developments sketched above – the increased scholarly attention to popular genres and silent cinema's colours – provided the basis for two research questions on the Desmet film collection. First, as film historians had become enthralled by Fior di male and the diva films' colours as expressions of narrative conventions and spectatorship expectations, we were interested in looking for relations between the films' colour patterns and their programming. Second, along the lines of the more general curiosity expressed by Uricchio and the insights of the responses to it, we wished to analyse if different periods, production companies and genres followed or established conventions, while remaining acutely aware of the traces left by their contingent production and screening circumstances and the project’s limited scope. Thus, the project experimented with visual analytics for colour to attempt combining the mapping interface with textual analysis of film as a historical source and cultural project to gesture towards new, combined research formats.

Visualising the Chromatic Patterns of Desmet’s Distribution

In the project’s context, we chose to focus specifically on analysing the colour palettes that historical audiences of the Desmet films would have been exposed to. In order to analyse these colour palettes, we chose a small corpus of the digitised Desmet films. We chose three full programmes – currently the sole full programs known to exist within the collection - with films from Desmet’s distribution catalogue. These three programmes had been screened respectively in two cinemas in Rotterdam in 1914, De Gezelligheid and Concordia, and one in the Bellamy in the smaller town of Vlissingen in 1915. As the table below shows (see fig. 40), each programme consists of a fairly conventional blend of genres for the time: a non-fiction film, a drama, a comedy and so on, and all consist of titles produced between 1912 and 1914. In several ways this choice limited the questions we could raise. For instance, we could not aspire to trace a fundamental development in colour uses from early to late silent cinema, along the lines of Uricchio’s question, just as we did not analyse the films specifically with regard to production company. The overviews thus produced were necessarily specific to a very selective number of historical places and times, and would not allow us to produce generalising statements with regard to film colours' development in these years. At the same time, we hoped they would allow us to consider the feasibility of making broader inferences on the basis of a more extensive sample – with regard to the geographic distribution or the development over time of colour use in silent film, or in films from specific

886 For help with reconstructing these programs, we are indebted to Rommy Albers, Maike Lasseur and intern Leanne van Schijndel at EYE. One of the reconstructed programmes can also be accessed online via https://www.eyefilm.nl/en/collection/the-desmet-dossier/cinema-owner/a-night-at-the-cinema-in-1915, last accessed January 24, 2017.
companies.

<table>
<thead>
<tr>
<th>Programme number, venue and date</th>
<th>Programme 1</th>
<th>Programme 2</th>
<th>Programme 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Gezelligheid, Goudseweg 124</td>
<td>De Gezelligheid, Goudseweg 124</td>
<td>Concordia Bioscope, Schiedamscheweg 19</td>
<td>Bellamy-Bioscoop, Bellamypark 18 Vlissingen</td>
</tr>
<tr>
<td>Rotterdam 20-26 February 1914</td>
<td>Rotterdam 25-31 December 1914</td>
<td>Rotterdam 20-26 February 1914</td>
<td>1-7 January 1915</td>
</tr>
</tbody>
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Films

Programme 1

Main programme:
1. Amerikaansche vlootmanoeuvres (Target Practice of Atlantic Fleet, US Navy, Edison Manufacturing Company, USA 1912)
2. Verbroken geluk (Gebrochene Schwingen, Adolf Gärtner, Messter, Germany 1913)
3. Onwetend verloofd (Solitaires, Van Dyke Brooke, Vitagraph Company of America, USA 1913)

Extras:
4. Kwelende herinneringen aan het verleden (L’Obsession du souvenir, Gaumont, France 1913)
5. Leon gaat naar buiten (Léonce à la campagne, Léonce Perret, Gaumont, France 1913)
6. De dochter van de Gouverneur (Guvernørens datter, August Blom, Nordisk Films Kompagni, Denmark 1912)

Programme 2

1. Loetschberg (Le Chemin de fer du Loetschberg, Eclipse, France 1913)
2. Geduld overwint alles (When Persistence and Obstinance Meet, Vitagraph Company of America, USA 1912)
3. De avonturen van Fifi (Eclipse, France 1912)
4. Een autopech (Panne d’auto, Baldassarre Negroni, Celio Film, Italy 1912)
5. Overwinnen of sterven (Vittoria o morte, Italia Film, Italy 1913)
6. De huurwrouw van Con tran (Gontran et la voisine inconnue, Eclair, France 1913)

Programme 3

1. Sous le ciel Basque (Onder de Baskische Hemel, Eclipse, France 1913)
2. Het eerste duel van Willy (Il Primo duello di Polidor, Ferdinand Guillaume, Pasquali, Italy 1913)
3. Mijnheer Pyp champignon-kweker (Mr. Pyp als Champignon-zuechter, Charles Decroix, Monopolfilm, Germany 1913)
4. De slachtoffers van een woekeraard (Il focolare domestico, Nino Oxilia, Savoia Film, Italy 1914)
5. André op de planken (Andy Goes on the Stage, Charles H. France, Edison Manufacturing Company, USA 1913)
6. De orgeldraaier (The Organ Grinder, Kalem, USA 1912)
7. Polycarpe is aan het schijfschieten (Polycarpe veut faire un carton, Ernest Servaes, Eclipse, France 1914)

Duration of digitized programmes

Programme 1: 01h51m37s
Programme 2: 01h30m07s
Programme 3: 01h46m28s

Fig. 40 Specifics of the film programmes that served as the cases for our colour visualisations

Deploying the digital techniques for visual analytics we were familiar with and could get a hand on easily the project sought to explore these questions on different levels. At the most basic level, we sought to experiment with ways of producing visualisations of the sorts of colour schemes audiences were exposed to when visiting a cinema where Jean Desmet’s films were distributed and shown. By making visualisations of the hues featured in these programmes, we hoped to get an overall impression of the presence, range and/or distribution in time of the colours that contemporary audiences would have been exposed to – an impression impossible to obtain with the
naked eye at the editing table. We hoped that the visualisations could be integrated with our mapping tool to also allow users to relate the macroscopic perspective of a map and its visualisation of distribution networks to the microscopic colour features of a film or film programme, through one and the same interface.

Among the visualisations of colour features which have been deployed by film scholars in recent years, Manovich’s use of ImageJ and creation of the ImagePlot plug-ins appealed to us. We found that its ability to work with large image sets could support a form of distant reading for films, with which to relate changes in colour patterns to production circumstances or concurrent historical events. Likewise, psychologist James Cutting’s tentative analysis of colour palettes in contemporary Hollywood films with Matlab intrigued us, because it allows for visualising film colours’ temporal changes.\footnote{Having created a custom-made algorithm for colour analysis Cutting has used Matlab to visualise films’ colour palettes on a y-axis, and its temporal development and duration on an x-axis. For an example of this applied to Christopher Nolan’s \textit{Inception} (USA, 2010) see Greg Miller, “Data From a Century of Cinema Reveals How Movies Have Evolved,” \textit{Wired}, 9 August 2014, http://www.wired.com/2014/09/cinema-is-evolving/ (accessed 29 May 2015). See also James E. Cutting, “Current Research: Perception, Attention, and the Structure of Hollywood Film,” accessed January 28, 2016, http://people.psych.cornell.edu/~jec7/curresearch.htm (which among others deals with his ongoing colour research).}

In producing these visualisations, we were also acutely aware of the inherent contingencies of the material we worked with, reflected in the discussions of the 1995-workshop cited above. Throughout our discussions we reminded ourselves that colours were historically ‘disorderly ordered’, and that, even if we now to a greater degree tend to acknowledge their role in silent cinema’s processes of signification within specific genres, such as for instance diva films, we still know very little about the highly contingent factors that shaped their patterns.\footnote{Nicola Mazzanti, op.cit., 2009, 78.} In retrospect, then, we cannot consider colours during the silent era as fixed categories. Moreover, despite its extensiveness, the Desmet collection hardly stands as a comprehensive representation of the entirety of the production and circulation of films in the period. And, last but not least, anyone who has been involved in film archival practices will know how the duplication of film for restoration or access purposes, both analog and digital, can affect the rendering of the colours originally applied to black and white film.\footnote{For a discussion of the restoration of added colour systems see Giovanna Fossati, “New Approaches to the Restoration and Presentation of Colour in Silent Films,” in Cécile Duzord and Marie-Hélène Breuil (eds.), \textit{TECHNE. Conserver l’art contemporain à l’ère de l’obsolescence technologique} (Paris: Centre de recherche et de restauration des musées de France, 2013), 102-106; Daniela Currò, Claudy Op den Kamp, and Ulrich Ruedel, “Towards a More Accurate Preservation of Color: Heritage, Research and the Film Restoration Laboratory,” in Simon Brown, Sarah Street, and Liz Watkins (eds.), \textit{Color and the Moving Image} (New York: Routledge, 2013), 219-229.} When it comes to colour research, then, we considered archival and laboratory work as, using Delpeut’s expression, activities of “editing film history”.\footnote{Daan Hertogs and Nico De Klerk (eds.), op.cit., 24.} For those reasons, we
Chapter 4

could not, at this stage, consider colour in these films in any other way than a very exploratory one – nor aspire to go beyond the Desmet collection as an object of analysis. By taking this stance, we could say in hindsight that we implicitly approached the collection with the attitude of a micro-historian who aspires to gesture toward or suggest macro-patterns by studying the collection of one specific individual within a medium-specific, New Film History approach.

In the project's visualisation work, which I was responsible for carrying out, we primarily used ImageJ/ImagePlot. This choice was made after we had also looked into applying Frederic Brodbeck’s Cinemetrics software for colour visualisation - not to be confounded with Tsivian’s Cinemetrics – which however turned out not to be feasible to apply within our project.\(^{891}\) On a practical level, this choice was motivated by the tool's accessibility and thorough documentation, which made it easy for us to use without programming knowledge. In addition, as I have discussed, ImageJ/ImagePlot is also one of the few visualisation tools to have been picked up by media scholars to study archival film, classic and contemporary cinema, albeit still on a small scale. We argued that having other scholarly projects as points of comparison would allow us to situate our efforts within an ongoing scholarly debate on the potential of the software’s techniques for developing new perspectives on stylistic and socio-economic film history.

Using the ImageJ software, each of the Desmet programmes’ video files was broken down into image sequences consisting of all the films’ single frames.\(^{892}\) In each case, this produced image sequences of more than 100,000 images. Programmes 1, 2 and 3 respectively consisted of 167,440, 135,182 and 159,705 images. From these sequences, we created different types of visualisations – first for the full programmes, and then for the individual films – so as to find out which kinds of patterns each would reveal. We hoped this would allow us to reflect on the qualitative differences between them, and the respective analytical potential of the visualisations. Using the montage visualisation format for programme 1, I rearranged the frames into successive horizontal rows, to be read from left to right and top to bottom (see figs. 41 and 42). This image, which depending on processing power can be produced in different resolutions, is zoomable and allows for viewing the entire film structure as well as to zoom in on specific shots and frames. We found this type of visualisation evocative in that it gives an at-a-glance impression of the colour composition of a

\(^{891}\) For more information on Frederick Brodbeck’s Cinemetrics see: [http://cinemetrics.fredericbrodbeck.de/](http://cinemetrics.fredericbrodbeck.de/), last accessed January 24, 2017. To explore a possible application of Brodbeck’s software within our project I spent the afternoon of February 19, 2015 at Utrecht University’s Digital Humanities Lab where I, assisted by computer scientist Julian Gonggrijp, ran Brodbeck’s open source code on one of the project's video files. However, this did not produce conclusive results and the additional programming needed to apply it was not feasible within the project’s timeframe.

\(^{892}\) For a step-by-step walkthrough see the Software Studies Initiative’s documentation for the ImagePlot software: [https://docs.google.com/document/d/1PjSzKwOwSFlFrbmVI-evb5ITbrwTrtxNgC3W1eY5C4/edit](https://docs.google.com/document/d/1PjSzKwOwSFlFrbmVI-evb5ITbrwTrtxNgC3W1eY5C4/edit), last accessed September 24, 2017.
programme, making it possible to see its shifting colour schemes.  

![Figs. 41 and 42 ImageJ Montage visualisations of Desmet programme 1 (left), and a zoom image of the same (right).](image)

In many respects, however, the visualisation also felt counter-intuitive. Because it places different segments on top of each other, it obscures their sequential relations. This is particularly evident when the user zooms in on the visualisation, thus losing sight of the left and right edges of the composite picture. It could perhaps have been more productive to reduce the visualisation further by proceeding as in the Digital Formalism project, where the second frame of each shot was annotated and selected manually to produce a less dense representation of the program’s structure. A full montage visualisation thus turned out to be unfit for an analysis of the colours in a lengthy film programme. The creation of such colour profiles, is useful in particular for the analysis of colour uses as textual conventions within individual films, in a combined distant and close reading. Therefore we felt they did not support our goal to establish colour palettes within the Desmet collection on a larger scale.

It appeared that summary visualisations, while more abstract than montage visualisations and without an indication of the frames’ sequential relation, could be considered more productive when it comes to developing a distant reading-approach to silent cinema’s colours. In the summary visualisations, every image of a sequence is layered onto the next, thus creating a canvas of colours with different qualities throughout the image. The predominance of one hue, saturation or brightness in one area of the frame reflects a persistent occurrence of that hue, saturation or brightness in that particular area of the frame throughout a programme. The image thus allows for understanding the frequency of chromatic events in the frame, along the entire length of a
programme. In addition, comparison of film programmes is possible, either by scrutinising visualisations to compare programs or with the help of the additional ImagePlot functionality. For instance, it is possible, by creating a scatter plot with all summary images combined, which ImagePlot allows for, or one can arrange them onto a classic Cartesian grid, once again according to the same variables: in terms of hue and saturation, brightness and saturation, or hue and brightness.

In light of the many uncertainties concerning the colour appearance of the digitised films we worked with, we focused in our explorations on broad patterns in film hue. For the full Desmet programmes, we could observe that the summary visualisations create predominantly light-gray/greenish-coloured pictures with some red sections; in programme 3 in particular, a number of blue sections also appear (see figs. 43 and 44). However, such summary visualisations of entire programs do not explain why certain colours appear more frequently than others. In order to investigate that, we would have to return to a closer inspection of the individual films, to be able to consider for instance the films’ individual colour schemes and their distribution history and archival life. Keeping in mind Mazzanti’s remark on colour fading, this seems necessary when considering how a colour’s saturation might change throughout a frame because of for instance its projection history.

Second, then, I created visualisations of each of the films separately. The intention here was to determine whether we would be able to discern also patterns according to genre. This gave interesting results, which did however not allow us to make inferences about general colour patterns. Take for example programme 1’s first item, the non-fiction film Target Practice of Atlantic Fleet US Navy (Edison Manufacturing Company, US 1912), the programme’s shortest film, with a
duration of about 7 minutes. Immediately noticeable in this visualisation (see fig. 45) is the strong imprint of the contours of the intertitles, and the overall brownish tone due to the film’s tinting. Tentatively, one might infer that this points to a prominence of text, associated in turn with the film’s didactic nature. As a less conspicuous film in the programme, its colour scheme appears monochrome.

The visualisation of Léonce Perret’s Gaumont-produced drama *L’Obsession du souvenir* (France 1913), featuring the popular actress Suzanne Grandais, in contrast, is the most advanced and spectacular one, at least from the perspective of colour use. The tinted, toned, combined tinted and toned, and stencilled sequences of this film merge into a very colourful picture (see fig. 46). A visual check of both films does indeed reveal a relatively higher ratio of text and a much more consistent use of colour in the first – thus confirming qualitatively the pattern we observed after a series of quantitative operations. If this pattern occurs on a larger scale is something which would require further research to determine, by working with a larger number of films as in for instance Kevin Ferguson’s research. Furthermore, considering that previous scholarship has indicated that the Filmmuseum’s print of *L’Obsession du Souvenir* is incomplete, there still remain fundamental philological aspects to reflect on.893

Based on our visualisations of films from the Desmet collection, we could conclude that they did not sustain an analytical potential or methodology unambiguously at this point. On a basic level they did illustrate one of the fundamental objectives meaningfully, namely to give users an at-a-

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893 Richard Abel, *The Ciné Goes to Town: French Cinema, 1896-1914*. (Berkeley, Los Angeles, London: University of California Press: 1994) 527n88. A search in EYE’s catalogue shows that the film’s initial length at the release was 393 metres while the copies created from the elements preserved at EYE measure 261 metres.
glance impression of the sorts of colour schemes audiences were exposed to when visiting cinemas showing Desmet-distributed films. In our visualisations of three programmes from the mid-1910s, we combined information on dates, locations and programmed titles (collated in the mapping tool) with visual information, in a way that highlights the pervasiveness of colour in films screened at the time. Looking at these pictures in combination with the map interface, any scholar can conclude, that watching black-and-white images was the exception rather than the norm in the period. In this respect the visualisations do serve an important function. While research efforts of the past two decades have made it abundantly clear, at least to experts, that silent cinema was overwhelmingly coloured, it continues to be difficult to make this more widely palpable. The colour visualisations directly confront viewers with the richness, and range, of colour in films at the time, and appeal to their imagination much more powerfully than mere metadata information does such as the terms ‘colour’ or ‘applied colour’, or even ‘tinting’ or ‘toning’ which appear in the mapping interface.

However, beyond this function, the visualisations’ uses within the project could not yet be said to constitute a method which harmonically brings together textual and contextual analysis. To develop an actual method would require further research and experimentation with alternative colour analysis tools in an effort to attain more ambitious goals, and specifically, help address more complex relationships between location, time and the stylistic features of early films taking the cue from the questions raised at the 1995-conference which remain relevant today, and see them in a new light. For instance, by creating summary visualisations of full programmes as well as individual films, analysis of the Desmet collection on two levels may be possible in the future. On the one hand, a comparison of summary images of programmes or films might help film historians to establish how the spectrum of film colours developed in the course of silent cinema’s transitional years. It might enable them to detect changes in periods when attitudes towards colours shifted, and, with the help of additional, contextual sources, understand their relation to concurrent historical events.

The limitation of programme visualisation here is that they combine the widely diverse colour palettes and techniques of several films, resulting in single abstract images that do not necessarily do justice to the specificity of the patterns within individual films. On the other hand, a comparison of visualisations of individual films might also provide new insights into the use of colour in various film genres or production companies, or in specific genres over time.

Both types of envisioned research can be likened to the distant reading propagated, among others, by Moretti. However, in our project we ended up proposing and wishing to develop further a
form of distant reading that, in line with Drucker’s suggestions, emphasises to a greater degree the contingency of our data. For this reason, our project motivates historians to take an exploratory approach to the visualisations and return to the sources – not unlike Digital Formalism’s combination of distant and close readings - to reveal concurrent shifts in production circumstances or audience attitudes armed with new questions inspired by the patterns observed. While our interface allowed for navigating between the map view and the colour visualisations to potentially explore patterns, one area to experiment further with remains how we might productively integrate the two to a greater degree, to facilitate combined analysis of larger corpora of films covering larger time spans. To conclude, while the project’s effort to combine contextual and textual analysis yet remains to be further realised we did achieve interesting conclusions along the way. For instance, with the mapping tool we discerned bias in our data which pointed to its limitations for understanding film distribution and exhibition in the Netherlands. Furthermore, it opened an avenue for studying colour patterns in genres using ImageJ.

4.4 Conclusion: A Cartographic Dispositif

To conclusively recap some of the points discussed in the chapter's first parts on new cinema history’s relationship with Annales historiography, the cartographic dispositif of digital film historiography can be considered less new than the philological discussed in the previous chapter. As I have argued, drawing and extending on Maltby's discussion, its cartographic approaches remain firmly embedded within primarily Annales' tradition of socio-economic history, developing in a pas de deux with its quantitative, serial techniques of data analysis and cartographic representational practices. It has evolved by engaging with debates on GIS’ epistemology emerging in the early 1990s to position itself as a reflexive, scholarly practice today. However, the field does not speak unanimously. A scholar such as Ian Christie has argued that the new wave of local cinema history research instantiates a new scientific empiricism. On the other hand, judging from Klenotic’s, Verhoeven’s and Allen’s stances, there appears to be a clear and increasing tendency to conceptualise GIS visualisations in New Cinema History within constructionist and reflexive theoretical frameworks. Consequently, one may argue that New Cinema History's engagement with Annales’ geo-history infuses it with an ambiguous attitude towards scientific research practice which uses cartographic representation in an empiricist fashion while highlighting it as a contingent, reflexive practice. Furthermore, judging from the examples discussed in this chapter it also changes,
Chapter 4

with the exception of Early Cinema in Scotland, the focus primarily to film-related sources held in a broader range of institutions beyond only the established film heritage institutions. With the case study of the Data-driven Film History-project I drew on my involvement with the GIS-based project on EYE's Desmet collection from the perspective of a builder, in Ramsay’s terms, to analyse the development of a format in line with New Cinema History's analytical and representational practices. At the same time, the project tried to hint at strategies for breaking down contemporary divisions between textual and contextual research in order to reintroduce New Film History's analytical focus on film's performative dimensions and, perhaps in the long run, also its notions of print criticism. In this respect it possibly showed a path for New Cinema History researchers to engage with digitised film archival collections to a greater degree, beyond a primary focus on film-related sources. This resulted in a visualisation which in many respects reflected New Cinema History’s contemporary practices and methods of visualising films' spatial series and its ambition to display data ambiguity and transparency. However, to a greater degree than other New Cinema History projects, our visualisation highlighted the heterogeneous provenances of its sources and their archival life, thereby indicating the kinds of analysis the datasets could yield individually. Further research will show whether this may provide new methods to build upon within the field, just as the relations between screening venue and film text need further exploration in a combined format.

As in Chapter Three I would like to conclude by providing an overview of the assumptions, methodological steps and features which qualify New Cinema History’s cartographic dispositif. In this overview I have left out the Data-driven Film History-project’s component of textual analysis, which I consider to be covered in Chapter Three and, with regard to its integration into New Cinema History, as being in an experimental phase.

First of all, the underlying historiographical assumption of the cartographic dispositif is that cinema should be studied as a leisure activity of consumption which reflects a mentality, in the sense defined by Annales historiography, which is manifest in geographically specific exhibition venues and routines embedded in larger socio-economic networks. Following this conception, scholars study primarily film-related, contextual sources, found in either film heritage institutions or regional archives, or, as Dibbets advocates, sources from several collections and collection types. The dispositif’s data collection and analysis tend to be practiced within groups, rather than by lone users, in collaborative efforts where technical and interpretative tasks are more clearly divided and hierarchised. Data collection and database organisation activities such as transcription, digitisation
and coding follow taxonomies prepared by historians, possibly, as in the case of Cinema Context’s development, with help from research assistants.

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<thead>
<tr>
<th>The Cartographic Dispositif</th>
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<tr>
<td><strong>1. Definition of film artifact</strong></td>
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<tr>
<td><strong>2. Source material/Metadata</strong></td>
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<tr>
<td><strong>3. Provenance</strong></td>
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<td><strong>4. Technique</strong></td>
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<td><strong>5. Taxonomy of features</strong></td>
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<td><strong>6. Textual level</strong></td>
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<td><strong>7. Visualisation</strong></td>
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<td><strong>8. Format</strong></td>
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<td><strong>9. Regime of navigation</strong></td>
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Building on the developments from Cliometrics’ coding of punch cards to distant reading’s topic modelling, the sources are analysed with statistical calculations on data structured with numbers or quantitative techniques of text mining to discern patterns in word frequency, locations and names. The patterns in consumption, distribution and exhibition which emerge from such analyses are subsequently plotted onto maps and considered as reflecting spectatorial attitudes, industrial patterns and societal tendencies. The maps’ visual arrangement allow for contemplating primarily film distribution and exhibition’s spatio-temporal series in relation to demographic data. It produces a multi-scopic visibility of networks with a greater density than written texts, with which scholars, in a non-linear fashion, can contemplate macroscopic patterns of distribution and exhibition infrastructures, in combination with the microscopic patterns of individual venues’ programming and anecdotal accounts. The dispositif’s temporal anchorage is variable, ranging from the overtly presentist GIS views to more complex depictions of temporality through historical map overlays or key dates approaches. The table above provides an overview of this dispositif’s features as I have described them here (see fig. 47).

Again, as in the previous chapter, I also wish to consider the first three levels of Albera’s and Tortajada’s descriptive categories of human-machinery interrelations. To again remind the reader, these are: 1. The relation between the spectators and the machinery; 2. The relation between, on the
one hand, the spectators and, on the other, the machinery and the representation; and 3. The relation between the spectators and the representation.

With regard to the first type of interrelation, it is interesting to point out that the analysis and contemplation of a GIS-based map representation of data is performed primarily with a desktop computer in either private or institutional settings. This reflects the practices and procedures of historical computing, in particular those of second wave historical computing, which flourished in the slipstream of personal computing’s emergence. Concerning the second type of interrelation, these procedures have in recent years reflected an increased ambition to embrace open-ended, exploratory research procedures and alternative interactions with machinery and representation, placing greater emphasis on methodological pluralism and polysemy. The cartographic dispositif encourages users to intervene and produce alternative representations of the underlying data, by adding more data or by using different analytical practices of alternative machineries. As a consequence, on the third level, the cartographic dispositif does not suggest to its users a fixed approximation between object of analysis and representation, as methods with more rigorous scientific aspirations would proffer, but highlights ambiguity. Also when relying on Google Maps or license-free historical maps, scholars seek to achieve a great degree of openness through interface design, such as colour coding for instance, or by making data openly available to invite different interpretations.

In addition to qualifying the cartographic dispositif, I would also like to add a concluding observation and suggestion for further development of its historiography. While New Cinema History’s cartographic dispositif is highly advanced and arguably more institutionalised than the philological, one may raise the point that its current practice could fruitfully reflect the conceptual underpinnings of Annales historiography to a greater degree. In particular, one could make the case, that its representation of temporality does not fully reflect the longue durée of Annales’ serial history which one could suggest might be productively explored further within especially early cinema studies. Ladurie’s studies of for instance price and rent developments covered a temporal span of several centuries. New cinema historians tend to focus primarily on periods of roughly 30-35 years or less. In this respect, though inspired by Annales' serial history, it does not seem to fully engage with the conceptual implications of its historical model which, as Chaunu explained it, regarded histories with a time-span of 30-35 years as belonging to conventional economic history without a focus on the slow changes of societal structures.

New cinema historians might consider revisiting classic texts on cinema's emergence to develop
GIS-based *longue durée* representations of cinema's emergence spanning several centuries. A great variety of film histories, since the very beginnings of film history writing, depict cinema’s emergence by focusing on the history of the optical devices that preceded it. The title of Henri Langlois' essay collection "Trois cent ans de cinéma” and commitment to collecting optical devices from before cinema's emergence suggest this. Furthermore, 1970s' Apparatus theory and later early cinema studies focused in even greater detail on the deep histories of technological developments and their interrelations to cinema’s formal conventions and exhibition. Laurent Mannoni’s landmark study *The Great Art of Light and Shadow – Archaeology of the Cinema* (first published in French as *Le Grand art de la lumière et de l’ombre: archéologie du cinéma*, Nathan Université 1999) made it strikingly clear how cinematic conventions were conditioned by popular and scientific projection situations prior to cinema’s emergence. In this regard, one may suggest that while New Cinema History has fully integrated serial history's coding practices to develop macroperspectives, it has not yet truly established *longue durée* perspectives. Along those lines, one might imagine a research path for new data collection and organisation to produce cartographic representations of how preceding screen practices in rural areas and fairgrounds compare to cinema’s infrastructures at later stages. This could, I believe, yield interesting perspectives on the long and slow developments of screen history within New Cinema History’s conceptual lineage and practice.

Beyond this, new cinema historians have also recently begun experimenting with tools from digital archaeology to produce for instance 3D visualisations of historical cinema interiors. This was the case in Julia Noordegraaf, Loes Oppenhaffen and Norbert Bakker's recent reconstruction of the 1910s interior of Jean Desmet's *Parisien* theatre prior to its make-over in 1924. This reflects new methodological developments which New Cinema History has not yet considered broadly and which might produce new research directions. In this respect, there remains several new methodological paths to be opened, which requires that researchers take new steps in terms of collecting, processing and digitising data and engage with the representation of longer time series with GIS as well as consider a broader variety of representational formats, than has hitherto been the case.

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Part III – Further Perspectives and Conclusion
Chapter 5

5.0 From Figures to Figurations – The Subjective Projections of Cinephilia and Data Art

In this final short chapter which leads up to my dissertation's conclusion, I would like to offer an additional reflection on my last dissertation question: how do scholars develop reflexive approaches to show ambiguity, contingency and uncertainty of historical interpretation? As I discussed in my dissertation introduction, this question reflects my alignment with a meta-historical stance, which, to lend film scholar Philip Rosen's words, seeks to "knowledgeably confront the instabilities of the relationships that modern historicity establishes between past and present". ⁸⁹⁶ As I argued in the introduction and in Chapters Three and Four, this stance seeks to restore what I consider one of the fundamental tasks of the historian, namely to highlight the enigmatic and contingent nature of history making, by exposing its different temporalities and material conditions of production and interpretation. In line with de Certeau's conception of computational history as a "science-fiction” this implies repoliticising digital methods by challenging received ideas of science and assumptions embedded in them to question their circumstances of production, the reductionisms of formalised procedures as well as one's own positionality.⁸⁹⁷

In Chapters Three and Four I argued that a variety of reflexive approaches in film historical stylometry and socio-economic history are emerging along these lines. With regard to cinemetric approaches, I suggested that an emerging strand of "humanistic” cinemetrics could be discerned, which, branching out from Exploratory Data Analysis, engages with artistic strategies of visualistion. Furthermore, I discussed how new cinema historians, to similar ends, lean upon discussions in human geography and the social sciences to create visualisation formats which challenge the empiricism of scientific GIS, by engaging especially with Grounded Theory. These methodological developments have opened significant avenues for producing reflexive perspectives on film history's contemporary mediations in digital dispositifs. Yet, I think there are several aspects in which they can and should be developed further, not as rigourous methods, but to nurture a general attitude with which to keep our minds open when developing new research agendas with them. In particular, I wish to suggest two future developments.

The first suggestion is that digital, data-driven scholarship should forge stronger links to the anecdotal and idiosyncratic perspectives of cinephile, surrealist historiography and Apparatus

⁸⁹⁶ Philip Rosen, op.cit., 353-354.
⁸⁹⁷ Michel de Certeau, op.cit., 1986b, 208.
From Figures to Figurations

theory. Currently the historiographic perspectives of these theoretical strands tend to be excluded in the digital dispositifs I have discussed and I believe it would be productive to seek combinations with them. A trait which unifies the methods discussed in Chapters Three and Four is that they privilege formalised research procedures which to some extent limit the anecdotal, subjective stances of the founding cinephile histories. Arguably, this is most prominent in cinemetric methodology which, departing from Petric’s and Salt’s propositions, seeks to eliminate the subjective gaze's unruliness and fragmentary analysis, in favour of statistical accuracy, rigorous data collection and empiricism. To a certain, but lesser, extent, this also characterises New Cinema History's opposition to symptomatic, close readings of individual or selected corpora of films in favour of the analysis of consumption and exhibition patterns. While these research traditions are developing reflexive approaches – respectively EDA-inspired cinemetrics and cartographic visualisations rooted in Grounded Theory – their exclusion of these perspectives can also be taken to, perhaps inadvertently, create proceduralisms of their own. In particular, I find that by critiquing cinephilia's and Apparatus theory's anecdotal and idiosyncratic historiography and by focusing on very specific aspects of style, exhibition and distribution, that these traditions' digital dispositifs exclude potentially productive perspectives on data analysis from the former. Evidently, I do not believe one can nor should expect these distinct traditions and their dispositifs to be comprehensive. Yet, I do feel that they might benefit greatly from including perspectives from cinephilia and Apparatus theory's close, critical readings to further call into question their own assumptions and the procedures underlying their visual analytics to challenge analytical reductionism. Furthermore, I consider the current moment in which cinephile theory and historiography is experiencing a reinvigoration in film studies, marked by the emergence of the scholarly audiovisual essay, particularly fruitful for considering such combinations. With this in mind, my first suggestion is that the traditions I discussed in Chapters Three and Four should forge links with cinephilia's anecdotal and idiosyncratic observations by mixing quantitative methods, visual analytics and annotation with audio-visual essay production. To illustrate how this could be done, I will discuss the relevance of the audiovisual essay's historiographic perspective to then point to a couple of examples which I take to indicate possible ways of combining methods in the future. Such combinations could, I suggest, tentatively be qualified as Cinephile Anecdotal Data Analysis.

The second suggestion is to rethink the ways in which media art, film heritage institutions and film historiography can critically inform each other today. In this regard, I argue that we need to produce critical reflections on visual analytics by reinvigorating a dialogue between academics,
archivists and artists – the “three A’s” as Elsaesser calls this constellation - which was inaugurated in the 1970s.\textsuperscript{898} As I discussed in Chapter One with regard to early cinema studies, referring to André Habib, film historiography has for decades been dependent on an interpretative dynamics produced within a network of “historians, restorers, archivists and experimental filmmakers” which creates a “movement back and forth between historical understanding of the past and its reactivation in artistic works [which] is essential for illuminating our knowledge and enriching our experience of film history”.\textsuperscript{899} I observed that found footage filmmaking has been given prominent attention in the archival film festival circuit and in film heritage institutions as valuable forms of appraisal which self-reflexively highlights the specificities of films' current mediation and our present interpretation of them. To elaborate on Habib's point from the perspective of theory of history, this also ties in with a meta-historical stance which especially postmodern historiography has nurtured, which tends to value expressions of history in artistic representations for their ability to draw attention to the contingencies of our present interpretations.\textsuperscript{900} Moreover, as argued by philosophers of science Caroline A. Jones and Peter Galison, art and science tend to intersect more productively than we often think.\textsuperscript{901} Though often depicted as each other’s binaries, where science is perceived to allow for discovery and art for invention, their intersections nurture multifarious research avenues by letting them critically inform each other.\textsuperscript{902} To renew the dialogue between the three A’s, I argue that it is necessary to recognise that digital film historiography currently lags behind new developments in media art and needs to be reinvigorated by embracing new developments and rearticulating a critical relationship to them. This argument builds on observations I made during the final stages of my research in which I noticed how appropriations of scientific visual analytics in data art began to nourish film historical reflections among amateurs, artists and scholars, in a manner where they did not fulfil a role as visual evidence within rigorous, deductive methodologies. Used in an almost diametrically opposite manner of for instance cinemetric pattern-seeking, I took these examples to gesture towards ways in which film historians might in the future inquire into the shifting mediations of film historiography with media art, to question their own preconceptions and techniques.

\textsuperscript{898} Thomas Elsaesser, op.cit., 2009, 33.
\textsuperscript{899} André Habib, op.cit., 2013, 151.
\textsuperscript{901} Caroline A. Jones and Peter Galison, op.cit., 1998, 2.
\textsuperscript{902} Ibid.
The chapter falls into two sections. The section *Cinephile Anecdotal Data Analysis* attends to the anecdote's function in contemporary cinephile, audiovisual essays and annotation software to argue that these formats' idiosyncratic approaches and close readings may provide a productive historiographic counterpoint to visual analytics' evidentiary images and pattern-seeking. I consider in particular the scholarly audiovisual essay platforms *Audiovisualcy* and *[in]Transition* in relation to the cinephile and surrealist-inspired theories of appropriation and history of Laura Mulvey, Catherine Grant and Christian Keathley, arguing that their subjective analytical approaches to editing may provide a fruitful foundation for an anecdotal form of data analysis. In light of this discussion, I reflect on two key examples – the annotation software Lignes de Temps and Kevin L. Ferguson's audiovisual essay *Volumetric Cinema* (USA, 2015) – which I take to suggest fruitful approaches to data analysis along the lines of cinephile theory and historiography.

In the second section, *Data Visualisation as Artistic Research*, I attend to contemporary media art to argue that scholars may become aware of the limitations of computational procedures and challenge the logics of their own models of history, methodological operations and representational practices through data art. As particularly illustrative examples in this regard, I point to the appropriation works of artists Les Leveque, Jim Campbell and Cory Arcangel who each in their own way challenge the underlying, algorithmic procedures of for instance multiple-frame visualisations or SUM images. In several aspects I take these examples to illustrate how contemporary data art is increasingly inquiring into the shifting nature of film history's mediations, by questioning the preconceptions of software, the relations they establish in data and the situations that produce them.

With these suggestions I hope to inspire new critical attitudes towards digital film historiography's *dispositifs* to counter and challenge the potential reductionisms of quantitative procedures, methods and scientific visual analytics and nurture an understanding of them as ambiguous, polysemic figurations embedded in a continuous flux of interpretation.

### 5.1 Cinephilia's Anecdotal Data Analysis

As in most other humanistic disciplines, the introduction of scientific methods has been hotly debated with regard to its consequences for the humanities’ epistemology. In film studies this has been visible in how scholars coming from culturalist and Apparatus-theoretical perspectives have critiqued quantitative methods as being culturally contingent and sought to appropriate them to their own ends. For example, without intending to dismiss Cinemetrics' stylometry and its results, Tom
Chapter 5

Gunning has questioned the general value of numbers in film historical research in his lecture "Your Number Is Up!". As a witty way to highlight his reservations about Cinemetrics' ability to produce evidence for style history, he refers to a key sequence from the late Otto Preminger’s film *Skidoo* (USA, 1968). In the sequence, the incarcerated mafia boss Tough Tony Banks, played by Jackie Gleason, decides to try LSD, given to him by a hippie inmate. Lying on his cell bed when the trip kicks in, we follow Tony's vision in a dream sequence where dissonant piano, shotgun sounds and delay effects provide the backdrop for a vision in which a wide open pair of eyes move closer, a shotgun points at Tony and an explosion of colours and numbers being added appear and disintegrate into abstract patterns. When asked by his curious inmates what he sees, Tony promptly responds: "I see mathematics!", to which an inmate goofily replies "Mathematics... He’s got a loose screw!" Taking this clip as a departure point, Gunning humorously reminds us that numbers are abstract self-referential entities which do not create a more direct approximation to reality. Deep down below, numbers created with stylometry's diligent truth-finding operations, he argues, are conditioned by the "possibilities of human consciousness" and can potentially become "an image of the infinite". Along these lines, he encourages scholars to carefully reflect the disciplinary encounter between the sciences and film historiography, when applying its scientific terminology and aspirations to objectivity. For instance, it might not be immediately evident to a film scholar what “Kernel Density” and “smoothing” is, but this does not mean it is unproductive to know it. As I discussed in Chapter Three, cinemetric methods are clearly relevant for elucidating the inner workings of filmic structure and narration and the point of Gunning's critical remarks is not to dismiss the validity of these methods and their scope. Rather, with this observation, he invites a reflection on quantitative methodologies’ positionalities and the inherent contingencies and reductionisms of data visualisation, to ask how we might productively use them while reminding ourselves that they are essentially a product of our imagination.

I find this observation important as it touches upon a valuable fundamental, methodological quality of humanistic inquiry which I believe we might risk losing if we do not develop strategies for reflecting the contingencies of our interpretative endeavours in our methods. Thinking along these lines I find that cinephile theory is particularly relevant to draw inspiration from to develop

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904 Ibid., 00:10:49 – 00:10:58.

905 Ibid., 00:39:29 – 00:39:34.
From Figures to Figurations

film historiography’s digital research dispositifs, because it suggests ways of producing anecdotal, idiosyncratic observations which counter assumed objectivity and scientism. Broadly speaking, anecdotal observations may help foreground doubt and contingency to acknowledge that, as Drucker puts it, "Humanists work with fragmentary evidence when researching cultural materials. They produce interpretations, not repeatable results." Or, as media scholar Sean Cubitt, has phrased it "The anecdotal method does not abandon the project of making statements about larger, more abstract formations like ‘society’ or ‘cinema’ – it grounds them in the specific instance". In other words, anecdotal approaches can contribute with valuable analytical insights which are not quantifiable; by allowing us to think from the particular subjective experience, rather than the general pattern, they allow us to observe details and open new analytical avenues which can only be produced in close reading to theorise objects of analysis in serendipitous ways. In this way, they can be likened to the role which anecdotal historical sources in microhistory can play in combination with a macroperspective, but differ from them because they are articulated from the scholar's present-day perspective. As a consequence, their aim should not primarily be to nurture a productive variation of scale but rather to allow for scholars to suggest alternative interpretations as a counter-point to the potential reductionisms of the images which circulate within digital dispositifs, and the techniques that produce them.

To further develop digital research formats in media history, I therefore contend that scholars should reconnect with the idiosyncratic, anecdotal stances of cinephilia and Apparatus theory, which I believe offer a fertile ground for such endeavours. As I shall argue below, I believe that cinephile theory's underpinnings in surrealist theory and poetics, and its current reinvigoration in the form of the scholarly audiovisual essay, offers an adequate historiographic frame for rethinking data visualisation and interface design to foreground subjective and personal interpretations.

The Anecdotal Videosyncracy of Scholarly Audiovisual Essays

In recent years the audiovisual essay, also referred to as videographic film studies, has emerged as an online scholarly research format associated with a new cinephile, idiosyncratic approach to both film criticism and historiography. On platforms such as Transit Cine, Fandor, [in]Transition and the Vimeo forum Audiovisualcy, the work of among others Christian Keathley, Catherine Grant, Cristina López, Adrian Martin and Kevin B. Lee, has been instrumental in theorising the

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906 Johanna Drucker, op.cit., 190.
audiovisual essay as a scholarly cinephile practice and publication format.\textsuperscript{908} Going beyond closed, curated video formats, these scholars and critics rip, share, re-edit and remix films to impose idiosyncratic interpretations and experiences of \textit{photogénie} upon them. These uses of new techniques to express cinephilia can be qualified as, lending a term suggested by film scholars Marijke de Valck and Malte Hagener, “videosyncratic”.\textsuperscript{909} Their video appropriations produce close readings which anchor, to recap Cubitt’s words, the films’ interpretation in specific experiences and anecdotes which fall outside of general patterns. In doing so, they challenge the parameters and assumptions which sustain quantitative methods, for instance the overt focus on editing.

To provide a bit of background on the audiovisual essay format, as it is currently practiced, it is worth pointing out that it intersects amateur and scholarly contexts of production. It is the product of a new cinephilia's idiosyncratic forms of analytical intervention, which flourish on online platforms and are travelling into academia where they are being negotiated as scholarly forms of publication.\textsuperscript{910} Among other things this is visible in how audiovisual essayists draw on the repertory of the specialised DVD and Blu-ray editions. Created in San Francisco in 2010, \textit{Fandor} is for instance simultaneously a highly specialised platform for subscription-based VoD and open access film criticism, which attracts amateur and academic cinephiles alike. Collaborating with the Criterion Collection, it offers a repertory closely aligned with the reference frame and hardware aesthetics of the specialised video editions consisting of silent classics, \textit{auteur}, exploitation and avant-garde cinema. The site's publication section \textit{Keyframe} offers background articles, reviews and video essays of a more scholarly nature to theorise and contextualise the films.\textsuperscript{911} Established slightly later by Catherine Grant in 2011, and drawing on a similar reference frame, the Vimeo forum \textit{Audiovisualcy} brings together essays with an "analytical, critical, reflexive or scholarly" purpose and includes both amateur and scholarly user contributions emanating from a wide array of institutional and non-institutional contexts.\textsuperscript{912} Finally, the online video journal \textit{[in]Transition}, launched in 2014 in collaboration between the scholarly online community \textit{MediaCommons} and SCMS’ \textit{Cinema Journal} is an academic, institutionalised format, which introduces a peer-review


\textsuperscript{909} Marijke de V alck and Malte Hagener, op.cit., 14.


\textsuperscript{912} Currently, the forum counts approximately 1300 members and 1150 videos. See: \url{https://vimeo.com/groups/audiovisualcy}. Last accessed January 24, 2017.
process for audiovisual essays.\textsuperscript{913}

The audiovisual essay, as practiced on these platforms, draws heavily on cinephile theory to conceive its historiographical approach and anecdotal analytical intervention, largely within the same, unifying reference frame. Audiovisual essayists tend to locate their practices' origin points in early compilation film, structural and found footage filmmaking, the essay films of especially Chris Marker and Harun Farocki, while drawing extensively on classic cinephile, surrealist film theory and appropriation work.\textsuperscript{914} In particular, Joseph Cornell’s seminal appropriation film \textit{Rose Hobart} (1936) has been widely highlighted as an origin point.\textsuperscript{915} In \textit{Rose Hobart}, Cornell assembled shots of Hollywood actress Rose Hobart’s appearance in the film \textit{East of Borneo} (George Melford, USA, 1931), slowed down the projection speed, set it to music from records of his choice and projected the material through purple and blue filters so as to mimic silent cinema's colorisation processes and performative, material dimensions.\textsuperscript{916} In this way, he expressed, in what can arguably be characterised as an early videographic star study, his longing for Hobart through an elegiac gesture of appropriation, while interrogating the material transition from late silent cinema’s colours and projection speeds to sound cinema’s technical standards.\textsuperscript{917} Because its appropriation of Melford's film displaces its narrative coherence through slow projection speed and disjunctive cross-cutting to express passion, longing and surrealist dream logic, \textit{Rose Hobart} has been highlighted as an early, key surrealist found footage film which offers a blueprint for the audiovisual essayists' interpretative gestures.\textsuperscript{918} Taking Cornell’s work as a point of departure, film scholar Adrian Martin has argued that the audiovisual essay branches out directly from surrealist film criticism and historiography.\textsuperscript{919} He develops this argument by suggesting that in particular critic Ado Kyròu’s


\textsuperscript{914} In Chapter One, I discussed in particular academia’s intertwining with structural filmmaking practices, as seen in Noël Burch’s \textit{Correction Please: or, How We Got Into the Pictures}, and pointed to the practice of compilation films in 1920s cinephile circles as emphasized by film scholar Christophe Gauthier with the example of Julien Duvivier and Henry Lepage’s 1924-film \textit{Machine à refaire la vie}.


\textsuperscript{916} The versions of the film circulating in later years use music solely from Nestor Amaral and his Continental's \textit{Holiday in Brazil} (1957).


\textsuperscript{919} Adrian Martin, op.cit.
Chapter 5

classic monograph *Le surréalisme au cinéma* (Arcanes, 1953) incited cinephiles to get a hold of the films which produce intense experiences during a viewing, and produce appropriations of them to express and present their emotions and subjective visions as factual, experienced realities. Martin substantiates this by offering a translation of a passage in Kyrou’s book which states this ambition:

> Perhaps I would have to work on [these films]—make some editing modifications; cut, raise or lower the intensity of the sound—in short, interpret them so that, ultimately, my subjective vision could become objective…. All it needs are some small changes for everyone to perceive what I sense and detect.

Thus, with Kyrou, Martin sees the audiovisual essay as reaching back to the cinephile avant-garde’s theory and practice to articulate the analytical potential of filmic appropriation, namely to express a subjective, idiosyncratic vision and interpretation rooted in the experience of *photogénie*. As I shall discuss in more detail below, beyond *Rose Hobart* and Kyrou, audiovisual essayists broadly align the strands of structural and found footage filmmaking which I discussed in Chapter One with the analytical appropriation tactics of a surrealist, cinephile stance. What I also find important to emphasise in a present-day perspective is that the characterisation of the audiovisual essay, which Martin's discussion reflects, also strikes a chord with contemporary theorisations of digital, cinephile spectatorship and appropriation within the frame of Apparatus theory. In this frame cinephile spectators are seen as acquiring a strong position as co-creators of meaning as a consequence of video viewing and editing. While Païni highlighted how the "casettophiles" viewing modes facilitated close, scholarly reading through manipulation of direction and playback speed, film theorist Laura Mulvey has theorised such practices further as means which allow for challenging and subverting films' discursive framings through cinephile gestures. With regard to Hollywood cinema, Mulvey has for instance argued that by freezing the film image, the spectator makes "...a gesture that dismisses narrative and context and brings the cinephile’s love of Hollywood movies into touch with the counter-cinema of the avant-garde". Film viewing on digital formats, according to Mulvey, opens the possibility of becoming a possessive and pensive spectator who produces counter-readings and imposes subjective visions, to challenge films'}

920 Ibid.
921 Ibid.
924 Ibid.
ideological codings, for instance of gender roles, and elicit hidden meanings.\textsuperscript{925} It nurtures a cinephile, "fetishistic" form of viewing, in which a certain gesture, trait or moment – or an actor as in Cornell’s case – can be singled out as a marker of photogénie to produce a counter-interpretation.\textsuperscript{926} Through such acts of appropriation cinephiles can create fissures within larger systems to allow for personal, alternative meanings to emerge and take them in new directions.

In addition to nurturing an idiosyncratic form of anecdotal interpretation and appreciation, filmic appropriation is also considered to underpin a reflexive type of historical inquiry. With regard to Ken Jacobs' \textit{Tom, Tom the Piper’s Son}, film theorist Nicole Brenez has argued that this work embodies a general tendency in filmic appropriation – from L'Herbier, Razutis, Burch and Godard to Deutsch - to produce a subjective form of "self-history".\textsuperscript{927} While not defining exactly what "self-history" implies, Brenez clearly suggests that filmic appropriation's subjective perspective confronts and problematises established historiography's foci, analytical instruments and the symbolic insights they yield. In doing so, filmic appropriation redirects the attention of historical interpretation and inquiry to new problems and research agendas.\textsuperscript{928} Along these lines, Brenez has characterised \textit{Tom, Tom...}'s appropriation as a subversive, visual study which challenged conventional, historical understandings of filmic form and made scholars identify new problems, by interrogating and appropriating the technological conditions of their analytical enterprise. As she writes:

\begin{quote}
The visual study, too, is thus a matter of giving back to cinema the bottomless powers of the unknown, the unrecognized, the incomprehensible. This is what Jacobs, with his total kinetic materialism, elaborates: he presumes to identify and demonstrate what is unformed and unreadable, to rework what is problematic, what is possible, and what is taken for granted in the name of symbolic representation.\textsuperscript{929}
\end{quote}

In its opposition to a teleological account of film form's development centered around Griffith, Jacobs' appropriation, which departed from his profound curiosity to understand the film's structure, prompted scholars to attend to early cinema's intermedial, performative dimensions and identify new research problems in film historiography. As I discussed in Chapter One, several scholars have

\begin{footnotes}
\item[925] Ibid., 166.
\item[926] Ibid.
\item[928] Ibid.
\item[929] Nicole Brenez, trans. Adrian Martin, op.cit., 2011, 172.
\end{footnotes}
regarded Jacobs' work as a form of archival research which profoundly impacted the analysis of early cinema's formal aspects, not to say, as Burch suggests, that it heralded the very emergence of early cinema studies.\footnote{Noël Burch, op.cit., 2007 [1991], 166.}

To elaborate on this characterisation, I would also argue that Jacobs' highly idiosyncratic exploration of early cinema, can productively be considered an anecdotal counter-point to the potential reductionisms of the assumptions and techniques underpinning statistical style analysis' procedures. As Vlada Petric, Jacobs was interested in the techniques of stop-motion projectors and their potential didactic applications to explore early cinema’s formal developments, yet deployed this machinery to remarkably different ends. In Petric's practice, the stop-motion projector, in combination with the flatbed editing table, was used for developing a methodologically rigorous, quantitative film history which provided a firm empirical basis for existing canons. In Jacobs' practice it was deployed within an exploratory, artistic practice to support an exegetic and ecstatic trip into the grain of a materially diffuse and continuously morphing archival object to subvert existing canons. In this sense, its poetic deployments of analytical instruments for idiosyncratic pattern-seeking contributed to a reflexive historical stance which highlighted the madness and abstract, enigmatic dimensions of our objects of analysis by challenging a prevalent focus on narration and continuity editing in film historiography. In many respects, I consider this example to incarnate one of filmic appropriation's great virtues when it comes to challenging academic film historiography.

While the audiovisual essay, as practiced today, is a format mostly used for cinephile film criticism, rather than film historiography, several key audiovisual essayists can be said to think along the lines of the "self-history" sketched above, to produce alternative, anecdotal historiographies and uses of analytical techniques. As film scholar Christian Keathley has argued, cinephilia's emphasis on the moment and the anecdotal is rooted in historiographic assumptions from classic, critical theory. In particular, Keathley aligns "cinephilia history" with Walter Benjamin's and Siegfried Kracauer’s historical materialism, in which moments, fragments and memories are collected, to form the basis for personal image-archives and memories which are recounted through anecdotes and intuitions that challenge rigorised, scientific historical inquiry.\footnote{Christian Keathley, Cinephilia and History, or the Wind in the Trees. (Bloomington and Indianapolis: Indiana University Press, 2006) 126 and 145.} As Keathley writes: "The anecdote disrupts traditional discourses of history and criticism in the same manner as the cinephiliac moment or the filmic detail as described by Benjamin and
In line with especially Benjamin's conception of image-based history, this serves to challenge the linear causal chains and suggested direct relationship to the past implied in traditional historicism and to foreground multiple temporalities through emotive responses to the material. As Catherine Grant has further argued, the audiovisual essay allows for synoptically linking seemingly disparate film fragments to produce new associations and meanings, making them appear as "small, fleeting images" in a continuous flux towards other and different constellations of meaning. As she emphasises, this reflects a poetic gesture which "unsettle[s] a 'professional coziness' of traditional historicism". It is driven by a "mad poetry", which challenges the rules of professional, disciplinary film history and may be described as a form of theorising which: "...feels less consciously controlled than [conventional understandings of] academic rigour that we've had in the past." In this regard, the audiovisual essay invites disorderly and serendipitous analysis rather than rigorised, procedural analysis and does not produce clear-cut periodisations or notions of stylistic schools in the treatment of its sources.

Keathley’s audiovisual essays, available through Audiovisualcy among other platforms, take such an approach, using digital editing and zoom. An illustrative example is his key piece Pass the Salt (Bit of Business #23) (2006) which contemplates and analyses a scene in Otto Preminger’s Anatomy of a Murder (1959) by recounting his experience of it as a cinephiliac moment. The scene in question revolves around a lunch conversation between the lawyers Parnell Emmett McCarthy (Arthur O’Connell) and Paul Biegler (James Stewart) and takes place in the railroad yard in the town of Iron City. McCarthy and Biegler discuss the moral concerns of the latter accepting the defence of the dubious Lieutenant Manion, who is charged with murdering bar-owner Barney Quill but who claims to his defense that Quill raped his wife. In this scene, Keathley is mainly interested in the props, setting and sound design, not its dialogue. In particular, he attends to what he describes as the "bits of business" - a term he lends from film scholar James Naremore - supporting the dialogue; the small gestures and activities which dynamise a scene throughout a scene.

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932 Ibid., 139.
933 Ibid., 127.
935 Ibid.
936 Ibid.
937 Christian Keathley, op.cit., 127.
938 See: https://vimeo.com/23266798, last accessed January 24, 2017. As Keathley comments "There is this scene in Otto Preminger’s Anatomy of a Murder. I can’t stop thinking about it. It seems pretty straightforward. But I can’t help but feeling that I am seeing in it, more than is being shown to me. Let me tell you about it." Ibid., 00:35 – 00:55.
conversation to avoid it being static. A particularly interesting “bit of business” for Keathley is
the role which a salt shaker being passed on from O’Connell to Biegler, acquires during the
conversation. By attending to the passing on of the salt shaker, during the conversation as well as to
its sound's relation to the metallic noises produced in the railroad yard, Keathley opens for a subtle,
unexpected analysis of the characters' negotiation and suggests a surprising associative analysis of
the link between metal and salt as a thematic backdrop. Without going into details here, this link
allows him to frame his analysis of the film within a broader legal history in a highly intriguing
way. Though Keathley's analysis is delivered with detective-style diction, as if revealing the film’s
deeper historical meaning as hard forensic evidence, his analysis embodies a highly videosyncratic,
almost tongue-in-cheek, serendipitous approach to the scene's details. Its highly productive
anecdotal close-reading approach to the film, deploys digital editing techniques to present personal
perspectives which are not quantifiable and which do not fit into a rigorous scientific scheme. It
does not suggest, to recall the words of Drucker, a "repeatable result", because it is so deeply
embedded in his personal experience. Instead, it can be said to reach back to a surrealist strand of
cinephile film theory (Kyrou) and filmic appropriation (Cornell's Rose Hobart) to go beyond and
complement formalised methodological procedures to “unsettle a ‘professional coziness’” through
“mad poetry” (Grant and Martin). Thus, Keathley does not strive for a rigorous stylometric analysis
using digital editing. Instead he elicits alternative hidden meanings and offers a different
contextualisation of the film by using digital techniques to remarkably different ends.

To further qualify this cinephile approach, I would also tentatively suggest that we could
fruitfully move beyond and complement the familiar reference frame of film studies with
perspectives from classic philosophy of science, to elucidate how anecdotal, idiosyncratic
observations and gestures counter reductionism. For instance, in the playful terminology of scientist
and philosopher Gaston Bachelard, from which Science and Technology Studies takes many of its
concepts, we could think of this approach as “surrationalist” (surrationalisme). Influenced by
psychoanalysis and surrealism in the 1930s, Bachelard coined this term to articulate a dialectic
approach which embraced logical and formal deduction’s rationalities and methods, while

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940 Ibid., 113. Keathley has later supported this analysis with the Cahiers-critics' reception of Preminger, in particular that of Eric Rohmer, who argued that the small gestures in Preminger’s films should be considered constitutive of his art and seen as access points for analyzing its context and motivations. Yet Pass the Salt's analysis is distinctly Keathley's own.
941 Gaston Bachelard, L'engagement rationaliste (Paris: Les Presses universitaires de France, 1972[1936]) 12. See also Sergio Sismondo, An Introduction to Science and Technology Studies. (Chichester: Blackwell Publishing, 2004) 61. In making this suggestion I am highly sympathetic to Ferguson’s digital surrealism. As a possible way to develop this idea further I would suggest that we may also consider speaking of “digital surrationalism” to reflect a historiographical position more overtly located in-between scientific and artistic data visualisation.
constantly questioning them to open new paths for scientific discovery. For Bachelard, this implied to "take these forms - after all purified and economically arranged very well by logicians - to fill them up psychologically and put them back into motion and life again". ⁹⁴² To this end, surrealist poetics, he argued, could play a crucial role in creating an "experimental reason" as a scientific pendant to the surrealists' "experimental dream", with which to question scientific images' representational value, formalised methods and rigour to highlight unexplainable imaginary alternatives underneath them.⁹⁴³ Along these lines I take the audiovisual essayists' poetic and cinephile gestures to offer a "surrationalist" counter-point to the scientific representational practices of digital film historiography's established dispositifs. In doing so, I believe they serve the important function of challenging quantitative analysis' pattern-seeking and potential reductionism, and remind us to keep our options and minds open.

Having highlighted the valuable historiographic perspective of the audio-visual essay tradition I consider it crucial to nurture combinations with existing digital dispositifs, to allow for idiosyncratic approaches to acquire a more prominent place in data-driven scholarship. I believe this is a major challenge which media historians must try to confront by mixing methods to combine data visualisation and cinephile approaches. In the following section I conclude my reflection on how this could be done by discussing two examples which I believe may suggest fruitful future paths.

Mixing Quantitative and Anecdotal Analysis from a Cinephile Perspective

The first example which I find offers a fruitful perspective is the annotation software Lignes de Temps developed by the Centre Pompidou’s research and development centre Institut de Recherche et d’Innovation (IRI) in 2009. This software can be said to have nurtured a videosyncratic approach in combination with quantitative analysis. The software was first showcased at a joint exhibition of the works of respectively Spanish and Iranian film directors Víctor Erice / Abbas Kiarostami: Correspondances, in which visitors could use it to annotate and segment the exhibited works so as to impose their own readings.⁹⁴⁴ Lignes de Temps has since found different deployments in

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⁹⁴² Gaston Bachelard, op.cit., 12. Original quote: "C’est de reprendre ces formes, tout de même bien épurées et économiquement agencées par les logiciens, et de les remplir psychologiquement, de les remettre en mouvement et en vie”

⁹⁴³ Ibid., 11.

⁹⁴⁴ Livia Giunti, "L’analyse du film à l'ère numérique. Annotation, geste analytique et lecture active", Cinéma & Cie., vol. XIV, no. 22/23 (2014) 137. It should be pointed out that Lignes de Temps' software is no longer being updated and that its last version was launched in 2011. Instead it is currently being transferred and developed into an online annotation platform. See: https://ldt.iri.centrepompidou.fr/ldtplatform/ldt/. Accessed January 28, 2017.
scholarly work for film and discourse analysis. What I find interesting about this software is that it shares the core focus of applications such as Cinemetrics and ShotLogger on segmentation and shot length measurement facilitating both automatic shot boundary detection and manual segmentation. Yet, it also differs substantially from them by being conceived within a lineage of 1970s Apparatus theory – in particular that of Comolli – and by pointing back to Raymond Bellour’s structural approach to film analysis. One may describe Lignes de Temps' ambition along the lines of Mulvey's stance, as driven by a wish to empower the spectator by letting him or her take possession of the object of analysis and think from it on his or her own terms. Jean-Louis Comolli, who was involved as one of the key theorists in the tool's development, emphasises this when explaining that Lignes de Temps: “…is a software which allows to place the film before oneself to fix it in a certain way which asks you to get out of this role as spectator (...) to occupy a new place which one could provisionally define as a critical place”.945 By also involving Bellour as one of the first users whose annotation was displayed during the Pompidou exhibition, it seeks to embody the interaction and note-taking practice which he called for in the 1970s to stimulate medium-specific film analysis. Moreover, it reflects the ambition of IRI, headed by philosopher Bernard Stiegler, to develop technologies that let general users occupy an active role and enable them to go against the discursive framings embedded in consumer technology to develop critical, non-automatic perspectives.946

Technically, the software achieves this by offering a semi-automatic environment for annotating films. When importing a video file into Lignes de Temps, the software creates a segmentation using automatic shot boundary detection and generates statistics on ASL. Though not entirely accurate - but still fairly precise - these segmentations allow the user to navigate and run through a film's shots and create descriptions for each of them.947 In addition, the user can manually create personal segmentations, as separate timelines representing different, user-defined categories, and create rough cuts from them. Thus, the timelines can for instance contain segmentations of shots using

945 For interview with Jean-Louis Comolli on Lignes de temps, see: http://web.iri.centrepompidou.fr/demo_entretiens_lignesdetemps.html. Last accessed January 24, 2017. Original quote: "...c'est un logiciel qui permet de poser le film devant soi, de le fixer d'une certaine manière et qui demande donc de sortir de cette place de spectateur (...) pour occuper une nouvelle place qu'on pourrait définir de manière provisoire comme une place critique."


947 The problem with Lignes de Temps' shot segmentation function as I have experienced it is for instance that it mistakes dramatic shifts in lighting or flashes as cuts or is not able to detect transitions such as wipes.
certain angles or lenses, depicting specific objects or scenes or, on the other hand, dialogues revolving around abstract themes or concepts. In this way, the user categorises and describes clips through annotations in Lignes de Temps or by uploading or recording audio descriptions or material relevant for the segmentations, as an analytical template from which to create for instance rough cuts for audiovisual essays or hermeneutical units of multimedia material as in qualitative analysis software. Because of its combination of automatic segmentation and manual annotation, film scholar and documentary filmmaker Livia Giunti, has argued that Lignes de Temps goes beyond being merely a “statistical machine” to capture a personal experience of the film.948 The iterative process and analytical gesture of creating timelines, she contends, explicitates and advances the process through which we “grasp the film” and make sense of it.949 In this aspect, Lignes de Temps’ procedures, along the lines of the audiovisual essays discussed above, engages in a play between formalised, quantitative methodologies and the passionate insights of subjective experience and appropriation. It plays the procedures of the former out against the serendipitous and unexpected observations which might emerge in the latter by allowing users to create different segmentations and include related documents in annotations. In doing so it allows for combining the results of automated approaches with personal, idiosyncratic observations in a dialectic interplay which challenges the structures discerned by the former.

A second, and final, example which I believe illustrates a productive encounter between scientist data visualisation and a videosyncratic, cinephiliac approach is the analytical practice of film and media scholar Kevin L. Ferguson. Ferguson’s work enthusiastically embraces both ImageJ and Moviebarcode but utilises a greater variety of visualisation types than media scholars have hitherto explored, such as slitscan visualisations and tomographic scans, using in particular ImageJ.950 Thus, in addition to creating SUM visualisations, Ferguson uses especially ImageJ’s stacking function to enable the visualisation of film sequences as image stacks from a sideways perspective (see fig. 48). Thinking through surrealist and cinephile theory to develop his research strategy, Ferguson propagates the view that such interventions are inherently indiscriminate of narrative or stylistic time-space relations and therefore can be regarded as intervening into films in a surrealist fashion.951 Their operations eliminate the logics of these relations and consequently defamiliarise our analytical

948 Livia Giunti, op.cit., 129.
949 Ibid., 127 & 129. In this aspect, one might also suggest that Lignes de Temps shares similarities with Grounded Theory in that it develops theory bottom-up in the way it grasps film experience.
951 Kevin L. Ferguson, op.cit., 2016, 276.
objects. Furthermore, by taking this attitude, Ferguson can be said to interrogate, somewhat similar to Jacobs, the technological conditions of our analysis, rather than regarding the software as a generator of hard, scientific facts. Consequently, ImageJ visualisations do not interest him uniquely for the sake of statistical comparison, but as heuristic techniques to think speculatively with and analyse individual sequences to reconsider key concepts in film theory.

In his audiovisual essay *Volumetric Cinema* (2015) published by *[in]Transition*, Ferguson presents a broad variety of his results explaining how in particular the sideways visualisations allow him to study changes in volume and relations between characters and objects in film sequences. Attending primarily to classic and contemporary Hollywood cinema – John Ford, Alfred Hitchcock, Ridley Scott – he argues that this allows him to go beyond classic film theory’s binary conceptions of cinema as either a frame or a window to comprehend complex dynamics of volume and proportions in film style in new ways. As he further argues, the ability to study volume from a sideways perspective reflects one of the particular affordances of digitisation because it renders space in a different way. Thus, Ferguson's essay is interesting insofar as it combines the idiosyncratic audiovisual essay format with visual analytics not primarily for producing comparative statistics but to study specific, iconic moments from new perspectives which shed light on character relations and mise-en-scène, while grappling with ontological aspects of film (theory) and attending to film's technological transition.

The dynamics in these two concluding examples illustrate what I would like to see developed to
a greater degree in future data-driven approaches. By suggesting analyses which may not be easily quantified in combination with quantitative techniques, they nurture a conception of the latter as heuristic devices for producing theoretical and anecdotal reflection rather than attributing them an evidentiary, scientific function. Along these lines, I would encourage media historians to increasingly combine quantitative techniques and current visualisation formats with annotation, to allow the former to be contested through close readings and personal recollections. I believe this can be done by mixing methods in the different types of interfaces currently used in different research traditions, somewhat like Lignes de temps’ interface, but comprising a wider range of representational practices. Imagine for instance the possibility of including a scholarly video essay in a map interface to add a personal, cinephiliac recollection of a screening and theoretical analysis to a film whose distribution history can be studied within a larger socio-economic pattern in that interface. Or, by letting scholarly users manually discern new relations within datasets on colour, editing and sound, personal viewing experiences can be highlighted to reflect on patterns in relation to close, textual analysis. In these aspects, the cinephile audiovisual essay, in the combinations with quantitative techniques I have discussed above, could be regarded as opening productive new avenues for further developments of data-driven film history.

5.2 Data Visualisation as Artistic Research on Film Historiography

My second suggestion concerns nurturing a new relationship between media art and film historiography to recast the productive interpretive dynamics produced between academics, archivists and artists. To achieve this, as I argued in the introduction, I believe film historians should look beyond structural filmmaking and found footage to new developments in data art in particular. Data art has flourished for years as a consequence of increased availability of open source visual analytics software and data. In the US, renowned art institutions such as the Whitney Museum of American Art or the San Francisco Museum of Modern Art have displayed great varieties of data art throughout the 2000s, just as numerous European festivals and galleries such as Linz' Ars Electronica, Berlin's Transmediale or V2_ in Rotterdam have nurtured information and data art for decades.952 Computer scientists Fernanda B. Viégas and Martin Wattenberg, have characterised data art's core qualities as being able to draw critical attention to data bias and the contingencies of statistical reasoning.953 They argue that contrary to the assumed neutrality of visual analytics in


953 Ibid., 182.
scientific research, data art can allow itself to be opinionated and to overtly break the rules of statistical representation, by distorting data through poetic gestures to prove a point.\textsuperscript{954} They point to a piece such as Jason Salavon's \textit{Every Playboy Centerfold, the Decades} (2002) which, using a code written by Salavon in C to produce SUM visualisations, processes four decades of Playboy centerfolds to illustrate how the magazine's models have gradually become more light-skinned.\textsuperscript{955} Furthermore, they highlight a work such as \textit{The Secret Lives of Numbers} (2002) by Golan Levin et al., which produces a visualisation made from a wide range of datasets and search engine queries, to show how culturally contingent our preferences for specific integers are.\textsuperscript{956} Thus, somewhat along the lines of Gunning's critique, data art critically exposes how statistical procedures' trust in numbers reflect culturally contingent conventions and imaginaries.

While data art works that deal specifically with film data are still rather limited in number, they do seem to gain a stronger foothold and increased attention from scholars, while developing distinct artistic practices. In many respects, data art works which process digitised film emanate from experimental film practice and share several of its key concerns. They can be said to distinguish themselves from data art more generally by showing greater concern with film's material transition and the tension between the respectively continuous and discrete manifestations of analogue and digital cinema. Discussing filmmaker Siegfried A. Fruhauf's work, Nicole Brenez has succinctly encapsulated contemporary experimental filmmaking as seeking to counter software's streamlining and automatisation by producing a "...seemingly uncontrollable visual unlinking within a world of computerized programming."\textsuperscript{957} In other words, data art created from film data tends to destabilise and contest computerised images by producing and exploring errors and glitches, to deconstruct the technical conditions which delimit contemporary methodological procedures' and conceptions of films and related material as objects of analysis.

An early work which I consider interesting in this regard is Les LeVeque's \textit{4 Vertigo} (2000) which, as the title suggests, reworks Hitchcock's \textit{Vertigo}. From the film, LeVeque creates a kaleidoscopic, vertiginous montage in which recognisable scenes rotate - producing the illusion of a screen split in four and a linear, fast-forward experience of it. In a blurb for the work, the Australian Centre for the Moving Image has specified, that this appropriation was created by using an algorithm which:

\textsuperscript{954} Ibid.
\textsuperscript{955} Ibid., 186. For an impression of this art work see: \url{http://salavon.com/work/EveryPlayboyCenterfoldDecades/}, last accessed January 24, 2017.
t[ook] the two hours of Alfred Hitchcock's *Vertigo*, captured one frame of image and sound every two seconds, and then threaded them all into a gorgeous splatter movie made from the eviscerated parts of the classic.958

By applying this algorithm, I would argue that LeVeque's work can be said to critically deconstruct *Vertigo* and cinemetric visual analytics on a technical and a thematic level. On a technical level, LeVeque's intervention recalls ImageJ's procedure of sampling film frames at a fixed interval to create a SUM visualisation. Yet, rather than showing a visualisation as an end result, it can be considered to show and appropriate its underlying procedure of sampling. In doing so, it scrutinises the technical conditions and process of rendering a visualisation and arguably opens the black box of cinemetric methodology to expose its technical interventions. As I see LeVeque’s work in relation to contemporary scholarly methods, this yields a critical understanding of how scholars intervene into a digitised film and conceive it as an analytical object to rethink what is possible. In this sense, it brings attention to the technical conditions of contemporary digital methods and their interpretations by elicitng the contingencies of their procedures and assumptions.

To further substantiate this I would argue that it also produces a counter-reading of the work which offers a different framing of the film's point of view. In particular, I find it interesting how *Vertigo* uses an oft-cited passage by principal female character Madeleine's anxious description of her nightmare vision of her life in which she describes walking down a dark corridor, to realise that "the fragments of that mirror still hang there".959 Appearing at the end of LeVeque's work, it frames its fragmentary, visual exploration so as to evoke and embed it in the subjective nightmare vision of Madeleine. In doing so, it arguably challenges the predominant character alignment with Scottie's viewpoint in the original work, to suggest an alternative, possibly feminist, framing of the film, which aligns its vision with Madeleine’s subjective viewpoint. By producing such a counter-reading, arguably along the lines of cinemaphilia's idiosyncratic approach, *Vertigo* teases out a tension between the rigour of the work's current digital, technical configuration and the artist’s emotive response to it. Or, as media scholars Sharon Li Tay and Patricia R. Zimmermann have characterised LeVeque's approach, it "digitize[s] desire" by exploring "contradictory movement between algorithms as controlled experimental systems and desire as uncontrolled, inchoate,958


959 *Vertigo* (dir. Les LeVeque, USA, 2000) 00:08:38-00:08:45.
Chapter 5

Equally exploring the possibilities offered by cinemetric methods, artist Jim Campbell has produced SUM images of Hitchcock's *Psycho* (1960) in his *Illuminated Average* series (2000-2001). Different from LeVeque’s work, Campbell’s series revolves around the visualisations resulting from quantitative methods rather than their underlying procedures. As the first installment in the series, his visualisation of *Psycho – Illuminated Average #1* (2000) – is a SUM visualisation of the film, which shows the characteristic, multi-angled even lighting which this visualisation type produces in which some particularly luminous objects shine through as if offering analytical anchor points, in this case a lamp. Reflecting on the visualisation's fuzzy appearance and the lamp’s luminosity, André Habib has suggested with regard to Campbell’s works, that his data visualisations can ressuscitate fleeting, cinephile memories and anecdotes of film viewing rather than an elaborate content analysis. The lamp’s appearance is striking, as Habib notes, because it is the most luminous object in the key parlour scene, in which Norman Bates converses Marion Crane while revealing his sinister taxidermy hobby and excessive mother attachment. Yet, though the lamp’s appearance seems to confirm the scene's centrality in the film, this does not lead Habib to contemplate the visualisation as an evidentiary image which reveals facts about the film's lighting style. Rather, to Habib, the visualisation serendipitously captures the “voluntary and the accidental, the mechanic and the spiritual” because it evokes his cinephile memories of viewing the film in different situations rather than forming the basis for hypothesis formation. Thus, as he puts it, it transcends a ”purely statistical intervention” and can be seen in line with data art as appropriating the evidentiary function of visual analytics, by inviting a contemplation which triggers the remembrance of cinephile experiences rather than scientific reasoning.

Beyond these two examples produced around the turn of the millenium, one can discern a more recent trend of contemporary data art, working, again, especially with SUM visualisations. Recently, British artist Jason Shulman completed the series *Photographs of Films*, presenting a

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962 Ibid., 22 and 17. As Habib writes: "Au plus simple, *Illuminated Average #1* est une intervention purement statistique..." (p. 22) and "...où se sont mêlés le volontaire et l'accidental, le mécanique et le spirituel" (p. 17). For Jim Campbell’s *Illuminated Average* series see: http://jimcampbell.tv/portfolio/still_image_works/illuminated_averages/index.html, last accessed January 24, 2017.

963 Beyond Shulman, one may find similar, both artistic and amateur-driven examples of aesthetic contemplation and commodification of data visualisations of films. For instance, the software MovieBarcode, which I briefly discussed in Chapter Three has recently been used by Winnipeg-based photographer Chris Calvert to create and sell poster art through the website for independent art Redbubble. See: http://www.redbubble.com/people/armand9x, last accessed January 24, 2017.

294
number of SUM visualisations of film classics, such as *Fantasia* (Norman Ferguson and James Algar, USA, 1940) *Le voyage dans la lune* (Georges Méliès, France, 1902) or *2001: A Space Odyssey* (Stanley Kubrick, USA, 1968). For Shulman, these visualisations give rise to observations about filmic structure, for instance, as he remarks, when comparing visualisations of Hitchcock and Kubrick films, that it seems "...Hitchcock is all about character, whereas Kubrick was preoccupied with structure". Yet, to Shulman they remain meaningful mainly as art works to contemplate in a gallery setting, not as evidentiary images to reason from, also if only heuristically and in an exploratory fashion, as in Ferguson’s approach. This dimension is highlighted in the presentation of Shulman’s works which is provided by the itinerant museum Kinetica. As it states: "Shulman combines scientific experimentation with more formal artistic trajectories, using optics, and other aspects of basic science to expose the falsehoods that underpin our experience of reality". Though one may add, that Shulman's artistic approach is curiously presented here as more formalised and potentially more invested in a falsification procedure than its scientific counterpart, the blurb highlights how the works subvert a realist experience. In this respect, his work’s quantitative techniques can be seen as nourishing reflections on canonised auteurs and genres, but also as taking a reflexive approach by interrogating film history’s mediations and science’s contingencies.

Finally, along similar lines, one may also consider Cory Arcangel's playful single-channel video installation *Colors* (2005) created from Dennis Hopper's 1988-film of the same name. Using a QuickTime application created by Arcangel with the programming language C++, the work shows a row of colours of only one pixel's height stretched to fill the entire screen, while the soundtrack is left intact, resulting in an abstract, moving colour piece. Arguably, one may consider this, if not a comment, then a subversion of the algorithmic selection of pixels to create a colour average with visual analytics. Though less explicitly historicising or cinephiliac than the works discussed above, its literal pun on the title of Hopper's film may also be seen as a typical tongue-in-cheek desconstructionist joke on meaning-making processes and the technological conditions of filmic signification.

To these works can be added several other artistic appropriation pieces, which elicit hidden meanings in the films they appropriate through montage and colour visualisations to articulate critiques of cultural conventions and consumerism, while interrogating contemporary technological

conditions of data analysis. For instance Jason Salavon's video work *The Top 25 Grossing Films of All Time* (2001), Brendan Dawes' "visual fingerprints" of movies using the montage visualisation, or the colour visualisations of film classics by the art group Société Réaliste in the exhibition *Empire, State, Building* (2011).968

With the exception of Cory Arcangel's piece, these works remain quite conventional by staying safely within a classic reference frame of canonical films. In that aspect, they do not drastically challenge the choices made by scholars when choosing material for digital analysis. Yet, in their reflexive approach they can be taken to gesture beyond the canonical reference frame by highlighting the contingency of the techniques which form the basis of digital film historiography's research dispositifs. For this reason, I value these works as reflections on and appropriations of visual analytics which critically interrogate the processes which underlie scientific image production and question the ways in which scholars pre-constitute their objects of analysis. They call into question visual analytics' production of facts to expose their analytical fetishes and may in doing so invite scholars to imagine alternative analytical focal points and research avenues.969 In this aspect, I also consider these works to nurture a more radical historicity, because they point to the inherently biased and subjective enterprise of history making as a challenge to the proceduralisms and potential reductionism of contemporary digital methods. In doing so they fulfil what I consider an essential function of artistic research because they suggest alternative ways of approaching and analysing data in a way which underlines – or even undermines - their process of acquiring evidentiary status.

Yet, while I find these approaches to offer useful reflections on the processes and procedures of film historiography I also consider them in need of further development. First of all, I wish they could comprise a greater variety of visual analytics, including not only the diagrammatic forms familiar from what I have discussed in this dissertation as the philological research dispositif but also for instance New Cinema History's GIS visualisations. In this respect it would be interesting to see interpretations of GIS interfaces made by map artists similar to initiatives in scholarly cartography where artists and cartographers discuss and develop map visualisations together.970


970 For an impression of the rich, ongoing exchange between cartographers and artists in contemporary cartography, beyond film studies, it is worth visiting the blog of the International Cartographic Association’s Commission on Art and Cartography: [https://artcarto.wordpress.com/](https://artcarto.wordpress.com/), last accessed January 24, 2017.
Second, I wish these practices could be further advanced in collaboration between academic film scholars, archives and data artists – the three A's - to establish fruitful methodological encounters, critical insights and dialogues. A couple of film heritage institutions, have developed creative re-use projects inviting artists to make remixes, such as in EYE Filmmuseum's projects *Scene Machine* (2010) and *Celluloid Remix* (2009 and 2012), based on small film selections from their digitised collections prepared by curators. Yet, to productively develop the tradition of found footage and its critical relevance by forging links to data art I believe there is an urgent need to go beyond the scope of such efforts and create projects which let artists use and appropriate visual analytics for larger digitised corpora. In this regard, there is a need to forge links between scholarly, semantic annotation of content, material-specific and geographical features and data art's appropriations of them and make digitised collection and software available to artists on a broader scale. This could for instance take the form of artist-in-residence programs in film heritage institutions. In doing so, I believe that creatives and artists can gain a new position as mediators between film historians and archivists to produce critical insights into the material and stylistic histories of film heritage collections. A very small number of scholars – working primarily with films from the specialised DVD repertory – are beginning to work in this direction. For instance Kevin L. Ferguson whose visualisation work in his own words “balances between both new media art and digital humanities scholarship”.\textsuperscript{971} Yet, while such work – in addition to the examples discussed in this section – sketches the contours of a beginning, I believe there remains a great effort to be done to forge links between scholarly, archival and artistic film historiography. Doing so, I think, may ultimately contribute to developing a new dynamics within the network of agents which in past decades has produced the exciting interpretative processes and tensions which open new research avenues and which make film history.

\textsuperscript{971} Kevin L. Ferguson, op.cit., 279.
Conclusion and Further Perspectives

6.0 Conclusion and Further Perspectives

In my dissertation I have raised three interrelated questions to investigate knowledge production in a variety of contemporary digital dispositifs for film historical research. Through a number of case studies I elucidated their underlying methodological procedures and epistemologies while reflecting on how they recast scholarly traditions in style history and socio-economic cinema history. In this final conclusion I would like to reflect on what I learned from investigating the questions I raised one by one, and indicate the implications of my findings for future digital scholarship. Subsequently, I wish to point to further research directions by highlighting what I consider to be the clearest limitations of my dissertation's framework and results before I finish by offering a general concluding point on how I envision the film historian’s role in digital film historiography.

Scarcity of Source Material and the Need For Source Criticism

With my first research question I asked how film heritage institutions' selection and restoration practices condition digital scholarly research on film history. In order to answer this question, my first dissertation chapter offered a critical historical outline of the relations between film archiving and film historiography. This outline itemised a range of prominent historical discourses on archival sources reflected in early scientific film archiving, first-wave cinephile historiography, generalist film history, New Film History, Apparatus theory and audiovisual film history. Using this outline as a matrix for my dissertation's case studies, I analysed in Chapter Two how various historical discourses reflect in digitisation initiatives by European film heritage institutions on international, national and regional levels.

Chapter Two's discussion of digitisation first revealed a tension between the cinephile foundations of film heritage institutions and their intertwinement with European and national heritage agendas. As I observed, digital projects subsidised by the European Commission are woven into a process of Europeanisation in which mass-digitisation of cultural heritage is promoted to sustain identity building. Actors in the film heritage field do not always consider this compatible with their institutions' cinephile legacy but engage in its discourse for funding purposes while maintaining their respective institutional missions. My research showed this by collecting and analysing data on European film heritage institutions' DVD releases. Based on this data I observed that there remains a strong emphasis on the classic cinephile canon and the most heralded periods of
film history. Moreover, a closer scrutiny of the individual DVD repertories of European film heritage institutions showed that - with few exceptions - institutions closely reflect their traditions and local priorities. As a consequence, their releases provide access to a broad range of materials, ranging from film classics to industrial and amateur films. Furthermore, a few institutions - in particular the British Film Institute, the Austrian Filmmuseum and La Cineteca di Bologna – go a step further and use the DVD format to facilitate the (re)discovery of archival rarities in a revisionist spirit. Consequently, the cinephile canon remains a strong reference point after digitisation, while the DVD format has also offered a site for revision and rediscovery, albeit to a limited extent. In this sense, a broad variety of histories is reflected in the shared DVD repertory of European film heritage institutions, yet the emphasis remains primarily on canonical material. However, whereas, on the one hand, the analysis of the DVD releases gave a good indication of the available repertories for film historiography, on the other hand, it was also limited in not taking into account the digitised collections available onsite or online, at the servers of the archives themselves. For this reason, I argued that it remains urgent to produce better statistics on digitisation to achieve deeper insights into the scope of especially on-site digitised collections of films and related materials.

An important conclusion to draw with regard to digitisation’s implications for digital scholarship is that the scope of film heritage digitisation remains highly limited and tied to individual institutional traditions. Moreover, in light of the low digitisation numbers, it seems misleading to apply the term mass-digitisation to describe the current state of affairs and more suited to speak of a scarcity of sources; researchers can access only a very limited selection of sources digitally. While they can process larger corpora with digital tools than in analogue research by performing big data and distant reading analysis, the variety of sources they can choose from is much smaller in a digitised collection. The conclusion that institutions reflect their traditions closely in their digitisation work holds implications for how scholars should approach digitised collections on several levels. Scholars need to critically understand that the digital repertories of film heritage institutions are small-scaled in comparison to analogue collections and that they tend to reflect specific institutional traditions, focusing on prestigious collections, regionally themed material, canonised directors, themes or periods. For scholars to develop a critical attitude towards their digitised source material, a good starting point is to attend to the traditions and missions of the institutions that collect, preserve and make it accessible to comprehend how those institutions’ digitisation work affect their range of choice. Furthermore, scholars might also consider taking a
more active role to increase the variety of sources in digital scholarship by facilitating digitisation themselves. This can for instance be done by going to archives to explore analogue collections to see how a digitised collection reflects it or by budgetting digitisation costs when designing research projects.

To further answer my first research question I also attended to how various restoration philosophies reflect in DVD releases. Lending concepts from Fossati's *From Grain to Pixel*, classic restoration theory and the Bolognese school of film philology, I elucidated how the appearance of digital transfers on DVD result from institutionally specific scanning and restoration procedures. As I observed, digital restoration procedures and DVDs are important sites for institutions to negotiate the historicity of archival sources, in particular with regard to the visible appearance of film materiality. Beyond film archival practice I argued that such transfer and restoration practices hold significant implications for digital scholarship as they confine or support the analytical interventions of researchers. As I discussed in Chapter Three, the Digital Formalism project for instance maintained material features and artifacts instead of removing them with digital restoration techniques, despite the circumstance that this complicated the development of image analysis algorithms. This choice respected the Austrian Filmmuseum's vision of material signs of ageing as containers of historicity and had implications for the project's possibilities for intervening with automatic semantic annotation software. Beyond this example, as I pointed out in Chapter Four, the analysis of a broader range of image features, such as colour and light, is equally conditioned by restoration and transfer processes. In addition, I observed that digitisation also holds implications for the analysis of film-related paper sources. In New Cinema History, the scan quality of maps and OCR quality of text sources condition interventions such as text mining and GIS visualisation.

There is a need for film historians to understand that restoration and scanning practices have implications for how they can analyse and historicise their source material. They need to develop notions of source criticism in their scholarship by attending to the scan quality of digitised sources in relation to institutional traditions as conditioning factors for their analyses. The urgency of this need is further increased by the circumstance that scholars draw material from heterogeneous sources, not only film archives but also commercial releases or informal platforms which do not necessarily give elaborate details on scanning procedures. In for instance cinemetric analysis of light and colour in larger corpora, it poses a problem to use sources without elaborate technical specifications or similar standards. Scholars need to address such issues with attention to the different sources they process. For new cinema historians who work primarily with paper sources
and maps, source criticism can be developed by looking to literary studies and digital cartography which have discussed such issues in depth. For filmic sources, source criticism is a different matter which is less theorised and formalised. In my dissertation, I have suggested that film historians can develop more explicit procedures for source criticism of digitised archival material by engaging further with film restoration theory and the different traditions which have developed in this field since especially the 1980s. This may deepen their understanding of how digitisation condition their research practice, or simply help them highlight the uncertainties they have regarding the analysability of their sources when reflecting on their results.

In conclusion, I find it fitting to return to Philip Rosen’s discussion of digitisation’s implications for historiography to highlight that there remains a discrepancy between ideas and expectations projected in debates on digital archives and archival realities. As Rosen argues, academic debates on digitisation tend to be premised in the idea that “[i]n a fully realized digital utopia, such an electronic archive would presumably consist of all previously made images, now digitised and permanently available for such later uses”. Ideally, film heritage institutions would receive sufficient funding for digitising their entire analogue collections and for developing solid analogue and digital preservation programs simultaneously. Yet, this is currently not the case and the limited availability of source material is a consequence of this circumstance. Scholars need to draw attention to this or develop new research strategies in order to secure a greater variety. It remains pertinent to highlight that the petition launched by numerous media scholars at the Udine FilmForum in 2013, which I cited in Chapter Two, in favour of mass-digitisation of film heritage collections to improve conditions for digital archival research is as relevant today as it was then. Meanwhile, scholars need to reflect on how the digitised collections they access and use in their research reflect specific institutional policies of selection and restoration and condition their research interventions.

From Scientism to Methodological Pluralism

With my second research question, which primarily Chapters Three and Four revolved around, I asked which disciplinary negotiations digital methods undergo in their trajectories from the natural sciences into the film historian's toolkit. To answer this question I analysed a number of cases in the traditions of both style history and New Cinema History. To this end, I first argued that early quantitative historiography in the 1970s laid the foundation for a technical practice which has today

\[972^*\] Philip Rosen, op.cit., 323.
developed into more complex, multi-faceted visual research dispositifs which scholars use for analysing specific problems of film and cinema history. In particular, the techniques of statistical style analysis and socio-economic history’s quantitative approaches have offered strong hermeneutical antecedents for contemporary digital scholarship. I observed that throughout the 1990s and the 2000s, digital scholarship was limited, seeing a few pioneering scholars becoming interested in the quantitative techniques and visual analytics of other disciplines such as computational linguistics, cliometrics and GIS. For instance, Yuri Tsivian, Karel Dibbets, Deb Verhoeven and Jeffrey Klenotic – to name but a few – saw that these fields’ techniques and representational practices could make relevant contributions for their respective research traditions; the quantitative methods of computational linguistics inspired new metric approaches to film style history and GIS could produce new spatial perspectives on the historical study of cinema distribution, exhibition and consumption. In the past decades, these traditions have seen a continued formalisation of methodological procedures which amalgamates analogue and digital analytical practices and scientific visual analytics in multimedia dissemination formats. The dispositifs which this development has resulted in are used for studying and disseminating research results of film-philological, archival research as well as research on the time-space patterns of film distribution and exhibition.

In Chapter Three, on the basis of my analysis of the Digital Formalism project, I discerned a philological research dispositif which arranges video clips in combination with data visualisations and annotations - both manual and automatic – in a multimedia environment, to produce visibilities of complex film and print relations. As a visual arrangement it allows for citation and comparative viewing of excerpts from archival film in medias res in combination with metric analysis. This dispositif uses especially non-reduced scientific visual analytics to draw attention to material and stylistic features of film prints as cue points for analysis. By foregrounding the data visualisations resulting from these procedures and attributing them a structuring function in the navigation and analysis of video fragments, scholars use them to attribute archival prints an evidentiary status in histories of style, production and distribution focusing on clearly delimited periods or oeuvres. As I have argued, this dispositifs perspective can be characterised as visualising film history’s philological complex because it allows scholars to understand the inner dynamics of film editing by focusing on its smallest components in relation to the otherwise hidden side of its production history and its material elements’ archival life.

In Chapter Four, on the basis of my analyses of Early Cinema in Scotland, Going to the Show
and *Data-driven Film History*, I discerned a cartographic *dispositif* which scholars use to produce visibilities of historical time-space series of film distribution, exhibition and consumption. This *dispositif* draws heavily on GIS visualisation’s arrangement of map overlays originating in the earth sciences in combination with methodological procedures from *Annales*’ socio-economic historiography to process film-related sources. Through coding and mining of film-related sources new cinema historians discern patterns in them which, when plotted onto a map, produces visibilities of relations between exhibition location, industries, demographic data and changes in their relations over time. As I argued, the cartographic *dispositif*'s perspective should be considered multi-scopic. It carefully balances the macroscopic view proffered by *Annales* historiography’s serial approach to large datasets with the bottom-up perspective yielded by microhistory’s close reading of anecdotal sources. Developing in the lineage of these traditions, new cinema historians engage with digital cartography to discern and analyse the hitherto invisible spatial - and to a limited extent spatio-temporal - relations in their sources. In doing so it attributes an evidentiary function to film-related sources to understand relations between local human geographies, lived realities of cinema-going and consumption in relation to industrial modes of distribution and exhibition.

With regard to my second question’s focus on how the scientificity of these *dispositifs*’ visual regimes is negotiated, I observed that they are attributed different evidentiary statuses by researchers in the traditions they emanate from. At their core, they are both sustained by a profound engagement with and respect for history conceived as a (soft) science. The philological research *dispositif* is imbued with the scientistic aspirations which underpin its annotation practices and statistical concepts deriving from style analysis. The cartographic *dispositif* on the other hand has inherited *Annales* historiography's ambiguous relation to quantitative, computational history which concurrently invites scientific scrutiny of historical sources and reflexive stances towards its gauges. In both cases the traditions which these *dispositifs* emanate from are refined as scientific methods through technical and conceptual negotiation processes among their practitioners. For instance Cinemetrics’ addition of the MSL-parameter to style analysis’ ASL concept reflects how scholars produce new visibilities by questioning and refining already established scientific techniques and concepts to discern new patterns. In this sense, while scholars who practice these *dispositifs* do not necessarily conceive of film history as a science, a significant number of scholars working with quantitative approaches do pose as scientists and are inspired by the rigour and proceduralism of scientific discovery.
Conclusion and Further Perspectives

Yet, beyond these two dispositifs scientific underpinnings, I also observed how, with the rise of the digital humanities, their visual regimes are turned in new heuristic and hermeneutical directions. While digital scholarship in film historiography to this day remains very limited, recent initiatives and projects in style history and New Cinema History challenge their scientific underpinnings. As I suggested in Chapter Three’s discussion of cinemetric methods, there is an emerging “humanistic” tendency today to develop and use visual analytics within a tradition of Exploratory Data Analysis which nourishes inductive rather than deductive reasoning, producing less finite results. In addition, cinemetrician Michael Casey's appropriation work One Million Seconds tentatively explored artistic data visualisation to highlight the underlying contingencies and ambiguities of the ACTION project’s visual analytics through a deconstructive gesture. In doing so he prompted historians to reflect on the shifting material basis of their analytical instruments and their implications for the interpretation of historical sources. Chapter Four’s discussion of GIS methods in New Cinema History sketched a development towards displaying greater ambiguity and inviting critical data interpretation to nurture a multiplicity of viewpoints. New cinema historians achieve this by endorsing collaborative annotation practices, transparency, open data as well as by engaging with Grounded Theory and humanistic interface design as propagated by Johanna Drucker. This has nurtured a move away from a conception of New Cinema History’s research practice as primarily empiricist and realist. As I discussed in Chapter Four, beyond film studies this development can be regarded as congruent with the processes of negotiating visual analytics’ evidentiary status in history and human geography. For instance, throughout the 1990s GIS methods from the earth sciences were subject to similar discussions among human geographers, who challenged aspects such as data accuracy and representational finitude to develop formats more suited for humanistic interpretation. Debates surrounding digital scholarship in film historiography sketch the contours of such a development.

To conclude, the introduction of scientific visual analytics into established traditions of film historiography reflects a double movement. On the one hand, it consolidates the scientificity of statistical approaches among a number of film historians who refine empiricist and scientific stances towards data visualisation for both style analysis and socio-economic history. On the other hand, it fosters approaches which proffer humanistic data visualisation to reflect the critical, hermeneutical legacies of the humanities. In this sense, the rise of the digital humanities draws the contours of an emerging methodological pluralism in digital film historiography. The growing

973 Nadia Schuurman, op.cit ., (2000.)
amount of digital scholarship on film history has led to a multiplication of initiatives where scientist conceptions of visual analytics increasingly rub shoulders with new humanistic approaches to visualisation of film data.

Towards Increased Reflexivity in Digital Film Historiography

My conclusion that the digital humanities nurtures a greater methodological pluralism in digital scholarship on film historiography brings me to my final research question. With my third question, I asked which strategies scholars developed for expressing reflexivity, ambiguity and multiple viewpoints in historical interpretation which relies on digital tools. Throughout the analysis of my case studies in Chapters Three and Four I identified a set of strategies which reflect such endeavours, and in Chapter Five I indicated future research avenues which may take these research strategies in new directions.

In my case studies I identified a range of strategies which nurture reflexivity, by engaging with approaches from social science research and statistics. One prominent strategy is transparency and open data. In most of the projects I discussed, research data is made available not only to allow other scholars to verify interpretation but also as a way of encouraging different data interpretations or possible discernments of data bias. New Cinema History's engagement with Grounded Theory is particularly illustrative because it acknowledges that different scholars may exhaust the same datasets at different points or find it necessary to complement datasets with additional data. Furthermore, while still not widely practiced, new cinema historians also endorse collaborative annotation to allow for multiple – possibly competing – viewpoints to be expressed within the same cartographic dispositif. As for cinemetric techniques and the philological dispositif, which scholars arguably practice in a more scientistic fashion, there appears to be less explicit endeavours for developing reflexive approaches. Yet, what I labelled as a “humanistic” strand of cinemetric methodology could be seen as gesturing towards reflexivity by highlighting and challenging the contingencies and underlying assumptions of digital film historiography's data analysis and visualisation. As mentioned in the previous section, I regarded the deconstructive pattern detection by Casey within the ACTION project as an artistic interrogation of scientific representational practices which invites reflexive approaches. Furthermore, this reflected in Ferguson's attitude which highlighted scientific visual analytics not as producing finite, observer-independent representations but as images that foster multiple and possibly idiosyncratic interpretations.

Beyond the dissertation's case studies, I have contributed to further developing reflexive
strategies in two significant aspects. First of all, I have made a contribution by suggesting with my theoretical framework a meta-historical perspective on contemporary digital scholarship which can be used for outlining the methodological steps which scholars take when historicising digitised sources. Drawing on Michel de Certeau's theorisation of the historiographical operation in combination with François Albera and Maria Tortajada's *dispositif* theory I have analysed contemporary research and dissemination formats as *dispositifs* of which the conceptual underpinnings and technical practices reflect specific knowledge formations and types of historical inquiry. Within this framework I have critically elucidated the methodological steps of digital scholarship so as to simultaneously invite scholars to use new tools and develop them in original directions. This theorisation in itself invites a reflexive approach because it encourages scholars to critically disassemble, reflect on and reconstruct digital techniques and methods. By analysing the methodological steps of digital research *dispositifs* – from the conceptual definitions of their analytical objects to the configuration of human-machinery interactions and representation - scholars may identify the aspects in which they are too reductionist, closed or do not allow for analytical intervention. Subsequently they may challenge, develop or appropriate them to their own ends to reveal alternative historical insights. Somewhat like Edward Branigan's table overview of types of historical inquiry in the late 1970s, which I cited in the introduction, I believe my framework may inspire increased reflexivity in today's digital scholarship by bringing attention to how the arrangement of digital *dispositifs* reflect specific historical discourses.

My fifth chapter made an additional contribution towards increased reflexivity in digital scholarship by suggesting new approaches to existing *dispositifs*. First of all, by suggesting that scholars seek productive combinations between automated pattern detection and idiosyncratic and anecdotal commentary and annotating practices. Inspired by the recent reinvigoration of cinephile theory and approaches in digital scholarship, I suggested that such a combination may counter reductionisms in quantitative analysis to identify and articulate new research directions. Second, I argued that scholars should seek collaboration with data artists in a less rule-bound field of knowledge production to challenge the assumptions of established traditions. Inspired by exchanges between academics, filmic appropriation art and archives and the deconstructive perspectives they produced on the former group's representational practices, I argued that scholars and film heritage institutions should facilitate artistic data visualisation of archival sources to develop complementary interpretations. This could take the form of initiatives such as artist-in-residence programs in film heritage institutions to produce data art from digitised collections, or collaborations between artists...
and scholars to produce different visibilities with scholarly research dispositifs. If such initiatives will be realised is yet uncertain. Yet, I believe it would be immensely beneficial for digital film historiography at large as a way of critically reconsidering its relation to established concepts and research traditions.

To conclude, reflexive approaches in digital film historiography are still sparse and in need of further conceptualisation. Recent developments in digital scholarship in film studies and data art suggest new directions which may nurture such endeavours through new types of cinephilia and appropriation strategies which can lead to original combinations of automated analysis, annotation and visualisation. In order to realise more reflexive approaches, film historians need to attend to and acknowledge the idiosyncratic and artistic dimensions of data visualisation to a greater degree to invite the complementary and potentially challenging perspectives they may produce.

Future Research Directions

In addition to the above conclusions, I wish to indicate a few research directions which I did not cover in my research but which I see a future relevance of. First of all, I see a need for scholars to develop increased technical literacy. It remains difficult for humanities scholars to analyse the underlying algorithms of the tools with which they create approximations to their objects of analysis. Often we neglect that algorithms result from machine learning processes developed in step-wise programming phases conceived by computer scientists. My research has highlighted the importance of analysing such processes through its framework’s notion of technical practice while not being able to offer detailed, critical discussions of them. To give a concrete example, in my analysis of Digital Formalism it could have been relevant to look further into the research of programmers Dalibor Mitrović and Matthias Zeppelzauer which explains the project’s techniques from a computer science perspective. However, to do so would have required a technical literacy I do not (yet) possess. In this regard, I see an urgent need to develop a closer dialogue between computer scientists and film historians for the latter to familiarise themselves with the work processes of computer scientists. Hopefully, increased interdisciplinary research at the nexus of film studies, computer science and film archiving will nourish such dialogue in the coming years.

Second, I see a need for film historians to focus increasingly on interface and graphic design to further discuss how graphic arrangements steer data interpretation and how multi-modal arrangements of text, images and videos create meaning in digital dispositifs. My research

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downplayed this aspect slightly as I did not wish to focus primarily on visual communication but rather – with my use of the dispositif concept - to elucidate the relation between researcher, tradition, scholarly discourse, technical practice and visual arrangement. Recent scholarly work does focus on the visual dimension of digital scholarship more prominently to suggest best practices to a greater degree than I have done. I would encourage more research being done in such a direction. Adelheid Heftberger’s recent monograph Kollision der Kader: Dziga Vertovs Filme, die Visualisierung ihrer Strukturen und die Digital Humanities (Edition Text + Kritik, 2016), beyond delivering an insider’s account of the Digital Formalism project’s analysis of Vertov’s films, offers interesting reflections on data visualisation for formalist film analysis and thoughts on how to give shape to them. It engages with Rudolf Arnheim’s visual communication theory articulated in his classic work Visual Thinking (University of California Press, 1969) to discuss relations between graphic design, reasoning and cognition. Such aspects may be useful for developing best practices or further critical discussion of digital scholarship on film historiography from a meta-historical perspective.

Finally, I would stress a need for further developing accreditation and evaluation of the research dispositifs I have discussed in film studies. My critical elucidation of these dispositifs has shown that they require as much thorough research, conceptualisation, planning and hard work as for instance writing a scholarly monograph. Digital scholarship is – as any original research – labour-intensive and not a simple novelty that works by pushing a button. Digital research dispositifs give scholars in specific traditions a sense of creating highly meaningful - sometimes better - approximations to their objects of study, through annotation, statistics, appropriation and visualisation, and they produce highly innovative results. On a personal level, I consider the Hyperkino series and the DVDs resulting from Digital Formalism among the most rewarding publications on film history I have engaged with. Furthermore, I would contend that Hyperkino is arguably the most ground breaking publication series on Soviet cinema in recent film historical research for the sheer variety of archival material and interpretations it has contributed with. With the current wave of audiovisual essays, map projects and historical databases our understanding of film history will increasingly be shaped through these and other research dispositifs. In this regard it remains an urgent problem – as well as a great pity - that few university institutions acknowledge their results as publications or have quality indicators for evaluating them. This in itself constitutes an important future research area.
From Film History Writers to Image Makers

To finish my conclusion I would like to end on a more general note by highlighting what I consider to be the main implication of my research for future digital scholarship by reiterating one of my introduction's key observations. Film historians who engage with digital research dispositifs need to become acutely aware that they are not primarily writers of film history but also image makers and observers. Their work amalgamates variegated analogue and digital analytical techniques which imply procedural human-machinery interactions to produce graphic representations of data, interfaces and inscription devices to think with, analyse and reason from. As a consequence, scholars need to be able to theorise the variety of visual representations they produce to a greater degree by understanding their underlying discourses, traditions and procedures critically. I consider this the crux of today's meta-historical discussion of film historiography – a discussion which is currently still limited in scope and which tends not to highlight such aspects of digital scholarship. Consequently there is a need to move away from a primary focus on literary models of history to instead understand the role of visualisations as symbolisations of historical data embedded in machineries of seeing through which we establish relations to the film medium's past.

This means that film historians should develop the ability to conceive and legitimise digital techniques and methods critically while carefully attending to interaction design and their visual structuration of data. They need to be able to carefully legitimise why they choose a specific visual component for representing and contemplating historical data in a dispositif; for instance a specific base-map for studying film distribution, a type of histogram or a data visualisation which arranges film frames in a particular way. I strongly agree with Tara McPherson's and Deb Verhoeven's suggestions, that film and media historians are in a privileged position to conceive data visualisations and interfaces because they have a grounding in a broad range of visual theories. Furthermore, film historians need to be thoroughly aware of the underlying conditioning factors of their dispositifs, comprising institutional discourses, technical interventions, traditions and policies, in order to be able to challenge and turn them in new directions. In the decades following the 1970s' historical turn, scholars began legitimising their preferred types of historical inquiry - for instance why they wrote a narrative film history or favoured foucauldian genealogy. Today, scholars need to consider the dimensions of knowledge production in digital scholarship which I have discussed in my dissertation. We are not yet there, but I hope my research’s meta-historical perspective provides a direction of where this may lead. In this sense film history might truly be in the making.

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317
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Atlantis, dir. August Blom, Denmark, 1913.

American Dreams (lost and found), dir. James Benning, USA, 1984.


Appunti Per Un'orestiade Africana, dir. Pier Paolo Pasolini, Italy, 1975.

Arbeit in Öesterreich, dir. Viktor Blum, Austria, 1928.


Avonturen van Fifi, De, prod. Eclipse, France 1912.

Bronenosets Potyomkin (The Battleship Potemkin), dir. Sergei Eisenstein, USSR, 1925.


Berlin – Die Sinfonie Der Grosstadt, dir. Walter Ruttmann, Germany, 1927.

The Big Parade, dir. King Vidor, USA, 1925.


Blade af Satans Bog (Leaves From Satan's Book), dir. Carl Theodor Dreyer, Denmark, 1920.


Cabiria, dir. Giovanni Pastrone, prod., Itala Film, Italy, 1914.
Filmography

Casabianca, dir. Georges Péclet, France, 1951.
Casanova, dir. Alexandre Volkoff, USSR, 1927.
Chapeau de Paille d’Italie, Un, (The Italian Straw Hat), dir. René Clair, USA, 1928.
Cheat, The, dir. Cecil B. de Mille, USA, 1915.
Cendrillon, dir. Albert Capellani, France, 1907.
Chemin de fer du Loetschberg, Le, prod. Eclipse, France 1913.
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Chien andalou, Un, Dirs. Luis Buñuel and Salvador Dalí, France, 1929.
Celovek S Kinoapparatom (Man With a Movie Camera), dir. Dziga Vertov, USSR, 1929.
Coeur Fidèle, dir. Jean Epstein, France, 1924.
Coming Attractions, dir. Peter Tscherkassky, Austria, 2010.
Correction Please: or, How We Got into the Pictures, dir. Noël Burch, UK, 1979.
Das Cabinet des Dr. Caligari, dir. Robert Wiene, Germany, 1920.
Les deux soeurs, dir. Albert Capellani, prod. , France, 1907.
East of Borneo, dir. George Melford, USA, 1931.
Easy Virtue, dir. Alfred Hitchcock, USA, 1928.
El Dorado, dir. Marcel L’Herbier, France, 1921.
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Fantasia, dirs. Norman Ferguson and James Algar, USA, 1940.
Faust, dir. Friedrich Wilhelm Murnau, Germany, 1926.
Filmography

Fête espagnole, La, dir. Germaine Dulac, France, 1920.

Fièvre, dir. Louis Delluc, France, 1921.


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Körkarlen (The Phantom Carriage), dir. Victor Sjöström, Sweden, 1921.

Landscape Suicide, dir. James Benning, USA, 1986.

Léonce à la campagne, dir. Léonce Perret, prod. Gaumont, France 1913.


Filmography


*Dr. Mabuse, der Spieler*, dir. Fritz Lang, Germany, 1922.


*Metropolis*, dir. Fritz Lang, Germany, 1927.


*Moulin Rouge*, dir. Ewald André Dupont, Germany, 1928.

*Mr. Pyp als Champignon-zuechter*, dir. Charles Decroix, prod. Monopolfilm, Germany 1913.


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*Proekt inzhenera Prayta (Engineer Prite's Project)*, dir. Lev Kuleshov, USSR, 1918.


*Quatre-Vingt-Treize*, dir. Albert Capellani, France, 1921.

*Quo Vadis*,

*Filmography*

*Šestaja čast' mira (A Sixth Part of the World)*, dir. Dziga Vertov, USSR, 1926.
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*Sylvester*, dir. Lupu Pick, Germany, 1924.
*Tri pesni o Lenin (Three Songs of Lenin)*, dir. Dziga Vertov, USSR, 1934.
*Tom, Tom the Piper's Son*, prod. American Mutoscope and Biograph, USA, 1905.
*Summerkii zhenskoi dushi (Twilight of a Woman's Soul)*, dir. Yevgeni Bauer, Russia, 1913.
*Varetié*, dir. Ewald André Dupont, Germany, 1925.
*Vittoria o morte*, prod. *Itala Film, Italy 1913*.
*Voyage dans la lune, Le*, dir. Georges Méliès, prod. Star-Film, France, 1902.
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Filmography


Appendix

1. Use of previously published work in the dissertation

Parts of this dissertation have appeared in previously published work. In this section I would like to indicate which parts from my publications appear in my dissertation.

In my dissertation's introduction, “Film Historiography, Digitised Archives and Digital Research Dispositifs”, and Chapter Three, “Microscopic Visions of the Film-Text: Stylometry, Archival DVD Editions and Film Philology”, I have made use of short excerpts from the following article:


This article reflects my first steps towards the articulation of my theoretical framework's meta-historical perspective. I have used and significantly expanded excerpts from this publication in my introduction, in particular in the section Developing A Metahistorical Approach to Digital Film Historiography. Furthermore, the article also contains my first reflections on Cinemetrics as a technique of tradition. Small parts of these reflections appear in Chapter Three's section Cinemetrics as technique of tradition in revised and expanded form.

My introduction's section Digital Film Historiography's Places of Production also includes a short excerpt from the conclusion of the following article, which contains a brief discussion of Régis Debray's work:


Parts of Chapter Four, ”Writing Film History from Below and Seeing it from Above: Data Mining, GIS and Socio-Economic History” are based on the following co-authored publication, of which I am the first author:

- Christian Gosvig Olesen, Eef Masson, Jasmijn van Gorp, Giovanna Fossati & Julia
Appendix


The article discusses the results of the research project *Data-driven Film History: A Demonstrator of EYE's Jean Desmet Collection* in which I was Project Manager and researcher. The paper builds on material from conference papers which I presented in 2014-2015. Co-author Julia Noordegraaf drafted the article's introduction and contributed to the article's editing as well as with her expertise on New Cinema History research in the article's discussion of related GIS projects. Eef Masson co-ordinated the planning of the article's writing and was responsible for the article's final editing together with co-author Giovanna Fossati. Eef Masson also helped sharpening the article's discussion of colour visualisations with her critical feedback. Giovanna Fossati also contributed with her expertise on silent cinema colour historiography, particularly in relation to initiatives and restoration practices at EYE Filmmuseum in Amsterdam. Co-author Jasmijn van Gorp drafted the article's discussion of the project demonstrator's interface design and contributed with critical feedback on its development based on her role as Project Supervisor. The article provides the fundament for Chapter Four's sections *Mapping Desmet, The Desmet Collection as Site for Silent Cinema Colour Historiography* and *Visualising the Chromatic Patterns of Desmet's Distribution*. In my dissertation, these parts have been expanded substantially and reframed within a broader discussion of historical GIS and New Cinema History methodology. I have also cited from this text in my introduction's discussion of summary images.

Furthermore, I also wish to point out that I have presented a few preliminary thoughts on the Hyperkino project on my research blog – filmhistoryinthemaking.com – which I developed in Chapter Three's section *Philological DVD Editions and Cinemetric Concerns*. See:


Finally, I have also made shortened sections from my dissertation available online on the blog of EYE Filmmuseum's E*Cinema program series, in which I gave an introductory lecture to a screening of Ken Jacobs' *Tom, Tom the Piper's Son* and Peter Tscherkassky's *Coming Attractions* on June 8, 2015. This concerns material from Chapter One's sections *Audiovisual Film Histories* and *Contemporary Dialogues of Film Appropriation, Archiving and Historiography*. See:
Appendix

- https://ecinemaacademy.wordpress.com/2015/06/08/ken-jacobs-and-early-cinema-studies/
### 2. List of DVD releasing European film heritage institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Location</th>
<th>FIAF Membership Status and Year</th>
<th>ACE Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Filmarchiv Austria</td>
<td>Vienna, Austria</td>
<td>FIAF Member 1955</td>
<td>ACE Member</td>
</tr>
<tr>
<td>2. Österreichisches Filmmuseum - Austrian Film Museum</td>
<td>Vienna, Austria</td>
<td>FIAF Member 1965</td>
<td>ACE Member</td>
</tr>
<tr>
<td>3. Cinémathèque royale de Belgique - Cinemathek</td>
<td>Bruxelles, Belgium</td>
<td>FIAF Member 1946</td>
<td>ACE Member</td>
</tr>
<tr>
<td>4. Det Danske Filminstitut Museum &amp; Cinemathek - The Danish Film Institute Archive &amp; Cinematheque</td>
<td>Copenhagen, Denmark</td>
<td>FIAF Member 1946</td>
<td>ACE Member</td>
</tr>
<tr>
<td>5. Kansallinen Audiovisuaalinen Instituut</td>
<td>Helsinki, Finland</td>
<td>FIAF Member 1958</td>
<td>ACE Member</td>
</tr>
<tr>
<td>6. La Cinémathèque française – Musée du cinéma</td>
<td>Paris, France</td>
<td>FIAF Member 1938</td>
<td>ACE Member</td>
</tr>
<tr>
<td>7. La Cinémathèque de Toulouse</td>
<td>Toulouse, France</td>
<td>FIAF Member 1965</td>
<td>ACE Member</td>
</tr>
<tr>
<td>8. Cinémathèque régionale de Corse – Casa di Lume – Collectivité Territoriale de Corse</td>
<td>Porto-Vecchio, France</td>
<td>FIAF Associate 1994</td>
<td>Non-ACE</td>
</tr>
<tr>
<td>9. Cinémathèque de Bretagne</td>
<td>Bretagne, France</td>
<td>FIAF Associate 1993</td>
<td>Non-ACE</td>
</tr>
<tr>
<td>10. Institut Jean Vigo / Cinémathèque Euro-Régionale</td>
<td>Perpignan, France</td>
<td>FIAF Associate 2007</td>
<td>Non-ACE</td>
</tr>
<tr>
<td>11. Bundesarchiv-Filmarchiv</td>
<td>Berlin, Germany</td>
<td>FIAF Member 1973</td>
<td>ACE Member</td>
</tr>
<tr>
<td>12. Filmmuseum Potsdam</td>
<td>Potsdam, Germany</td>
<td>Non-FIAF</td>
<td>Non-ACE</td>
</tr>
<tr>
<td>13. Deutsches Filminstitut - DIF</td>
<td>Frankfurt am Main, Germany</td>
<td>FIAF Member 1952</td>
<td>ACE Member</td>
</tr>
<tr>
<td>14. Filmmuseum München</td>
<td>München, Germany</td>
<td>FIAF Member 1979</td>
<td>ACE Member</td>
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<tr>
<td>Appendix</td>
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<tr>
<td>15. Hungarian National Digital Archive and Film Institute (MaNDA)</td>
<td>Budapest, Hungary</td>
<td>FIAF Member 1957</td>
<td>ACE Member</td>
</tr>
<tr>
<td>16. IFI – Irish Film Archive</td>
<td>Dublin, Ireland</td>
<td>FIAF Member 1989</td>
<td>ACE Member</td>
</tr>
<tr>
<td>17. Fondazione Cineteca di Bologna</td>
<td>Bologna, Italy</td>
<td>FIAF Member 1989</td>
<td>ACE Member</td>
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<tr>
<td>18. Fondazione Cineteca Italiana</td>
<td>Milano, Italy</td>
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<td>ACE Member</td>
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<td>19. La Cineteca del Friuli</td>
<td>Gemona, Italy</td>
<td>FIAF Member 1989</td>
<td>ACE Member</td>
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<tr>
<td>20. Centre National de l’Audiovisuel</td>
<td>Dudelange, Luxembourg</td>
<td>FIAF Associate 1996</td>
<td>Non-ACE</td>
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<tr>
<td>21. Cinémathèque de la Ville de Luxembourg</td>
<td>Luxembourg Ville, Luxembourg</td>
<td>FIAF Member 1983</td>
<td>ACE Member</td>
</tr>
<tr>
<td>22. EYE Film Institute Netherlands</td>
<td>Amsterdam, Netherlands</td>
<td>FIAF Member 1947</td>
<td>ACE Member</td>
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<tr>
<td>23. Slovenský Filmový Ústav/Slovakian Film Institute</td>
<td>Bratislava, Slovakia</td>
<td>FIAF Member 1997</td>
<td>ACE Member</td>
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<td>24. Filmoteca Española</td>
<td>Madrid, Spain</td>
<td>FIAF Member 1956</td>
<td>ACE Member</td>
</tr>
<tr>
<td>25. Filmoteca de Catalunya</td>
<td>Barcelona, Spain</td>
<td>FIAF Member 1992</td>
<td>ACE Member</td>
</tr>
<tr>
<td>26. Svenska Filminstitutet</td>
<td>Stockholm, Sweden</td>
<td>FIAF Member 1946</td>
<td>ACE Member</td>
</tr>
<tr>
<td>27. BFI National Archive - Film Archive</td>
<td>London, United Kingdom</td>
<td>FIAF Member 1938</td>
<td>ACE Member</td>
</tr>
<tr>
<td>28. Imperial War Museums - Film Archive</td>
<td>London, United Kingdom</td>
<td>FIAF Member 1980</td>
<td>ACE Member</td>
</tr>
<tr>
<td>29. North West Film Archive</td>
<td>Manchester, United Kingdom</td>
<td>FIAF Member 1994</td>
<td>Non-ACE</td>
</tr>
<tr>
<td>30. Scottish Screen Archive - National Library of Scotland</td>
<td>Aberystwyth, United Kingdom</td>
<td>FIAF Member 1989</td>
<td>Non-ACE</td>
</tr>
</tbody>
</table>
Appendix

3. Occurrences of National (co)-Productions in Titles Released by European Film Heritage Institutions - breakdown

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of Titles Released</th>
<th>Compilations or unverified releases</th>
<th>National (Co-)Productions (Merged)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filmarchiv Austria</td>
<td>320</td>
<td>69</td>
<td>310</td>
</tr>
<tr>
<td>Austrian Film Museum</td>
<td>43</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Cinematek</td>
<td>354</td>
<td>28</td>
<td>320</td>
</tr>
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**4. Numbers of film titles per decade released on DVD – breakdown 1**

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*Numbers appearing in italics are unverified titles or compilations.


## Appendix

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### 6. Number of DVD releases by European film heritage institutions per year - breakdown*

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* The list reflects the releases of the following 23 institutions: Filmarchiv Austria, Österreichisches Filmmuseum, the Danish Film Institute, Kansallinen Audiovisualinen, La Cinémathèque française, La Cinémathèque de Toulouse, La Cinémathèque de Corse, Institut Jean Vigo, Deutsches Filmmuseum, Bundesarchiv, Deutsche Kinemathek, Filmmuseum München, Cinémathèque de la ville de Luxembourg, Magyar Nemzeti Filmmarchívum, Irish Film Institute, La Cineteca di Bologna, La Cineteca del Friuli, Fondazione Cineteca Italiana.
English Summary

Film History in the Making: Film Historiography, Digitised Archives and Digital Research
Dispositifs
C.G. Olesen

The dissertation Film History in the Making: Film Historiography, Digitised Archives and Digital Research Dispositifs investigates the implications which digitisation bears upon scholarly film historiography. It addresses a deficit in our critical understanding of knowledge production with digital methods and their representational practices in film historical research, attending in particular data visualisations and their uses in GIS mapping, scholarly DVD editions and audiovisual essays. The research project argues that if we do not shed light on the underlying assumptions, procedures and representations of digital scholarship we risk losing our ability to critically navigate in contemporary film historiography and evaluate its results. From this point of departure, the project develops a meta-historical framework which accounts for such practices to further the critical analysis and conceptualisation of digital archive-based scholarship. To this end the dissertation contends that it is necessary to elucidate how film archives, scholarly research traditions and scientific visual analytics condition emerging digital methods and stresses that film historians need to develop strategies for reflecting the humanities’ critical, hermeneutical legacy in digital scholarship. The dissertation answers the following research questions:

• How do film heritage institutions, their restoration and preservation deontologies and in particular their digitisation work, condition film historical research with digital techniques and methods?
• How have digital methods travelled from other disciplines into the film historian's toolkit and which disciplinary negotiations do they undergo in this process?
• How may digital tools allow for expressing reflexivity, ambiguity and multiple viewpoints in historical interpretation?

To answer these questions, the dissertation’s meta-historical framework draws on theory of history, media theory and visual studies to analyse how visualisations function as symbolisations of historical data in digital research formats. Using the dispositif concept to combine theoretical insights from these fields, the dissertation elucidates how digital research formats amalgamate variegated techniques and imply procedural human-machinery interactions to produce graphic
representations of data, interfaces and inscription devices to think with, analyse and reason from.

The dissertation contains five chapters divided into three parts. Part One, *Sources, Repertories and Theories of Film History* which contains the first two chapters, analyses the interrelation between film archiving and film historiography in a historical perspective. Chapter One, "Film Historiography and Film Archives", discusses the interrelation between historiography and film archiving, its shifting material basis, and the discourses which have underpinned shifting conceptualisations of film and related material as historical source material. It offers an account of how a network of institutions, sites, social groups and techniques – in particular cinephile film critics, historians, archivists, filmmakers, laboratories and projection technologies - emerged and has inflected changing definitions of film historiography in scholarship.

Chapter Two, "Film Heritage Digitisation Between Europeanisation and Cinephile, Curatorial Agendas” discusses digitisation of archival film and related materials in a contemporary European context against the backdrop of especially the European Commission's Digital Agenda. First, the chapter investigates how cultural policies of Europeanisation have shaped cultural heritage digitisation and created fundamental challenges, as well as opportunities, which individual film heritage institutions negotiate in relation to their respective curatorial agendas. Second, the chapter goes beyond the framework of the European Commission to analyse which historical discourses characterise the discussions around film heritage digitisation, restoration and access among film archives. Combining institutional analysis and basic descriptive statistics it investigates in particular how European film heritage institutions' DVD releases reflect historical discourses and condition scholarly research through selection and restoration procedures.

The dissertation's second part, *Data-Driven Mediations of Film History: Traditions, Techniques and Dispositifs*, which contains Chapters Three and Four, analyses a number of case studies to elucidate the methodological steps which scholars take when conceptualising and conducting film historical research with digital tools of analysis. It elucidates how scholarly traditions function as hermeneutic antecedents in digital research projects and inform the choice and methodical uses of digitised source material and techniques to create new research dispositifs. Chapter Three, “Microscopic Visions of the Film-Text: Stylometry, Film Philology and DVD editions”, analyses how the DVD format has been developed into a philological research dispositif at a juncture of quantitative style analysis, scientific visualisation and film philological restoration theory. It considers how video editing, hyperlinking and pattern recognition software in recent projects such as Hyperkino and Digital Formalism, enable the visualisation and comparative study of
micropatterns in cutting rates, movements and colours in archival films. These techniques, the chapter concludes, lend scientificity to the philological study of archival film and play a vital role in conceptualising the DVD as a scholarly research dispositif.

Chapter Four “Writing Film History from Below and Seeing it from Above: GIS Mapping and New Cinema History's Macroscopic Vision” analyses the use of data mining and GIS techniques in New Cinema History research. Attentive to New Cinema History’s primarily contextual focus and use of film related sources, it discusses how information on locations, dates and persons is extracted from digitised collections of periodicals and business documents with data mining techniques to visualise and historicise distribution and exhibition networks with GIS mapping. Analysing New Cinema History’s integration of methodologies from especially Annales historiography and historical GIS, the chapter argues that its use of digital mapping creates a cartographic dispositif which carefully balances macro- and microperspectives in a “multi-scopic” approach, while reflecting a high degree of ambiguity in its use of data visualisations as evidentiary images.

The dissertation’s final part, Further Perspectives and Conclusions, contains a short fifth chapter and conclusion. Chapter 5, “From Figures to Figurations – The Subjective Projections of Cinephilia and Data Art” suggests ways for combining annotation and visualisation techniques at an intersection of scientific and artistic research to nurture idiosyncratic and less methodologically rule-bound data visualisations. The chapter argues that such combinations may foster reflexive approaches which challenge scientistic conceptions of visual analytics and statistical figures and give way to an understanding of histories as contingent figurations. The dissertation's conclusion considers the prospects of integrating and developing digital research methods into film and media studies curricula discussing both conceptual and institutional challenges. As a key point, the conclusion stresses that film historians who engage with digital research dispositifs need to become acutely aware that they are not primarily writers of film history but also image makers and observers. As a consequence, scholars need to be able to theorise the variety of visual representations they produce to a greater degree by understanding their underlying discourses, traditions and procedures critically from a meta-historical perspective.
Het proefschrift _Film History in the Making: Film Historiography, Digitised Archives and Digital Research Dispositifs_ onderzoekt de gevolgen van de digitalisering op geesteswetenschappelijk onderzoek naar de filmgeschiedenis. Het proefschrift bespreekt vanuit een wetenschapstheoretische invalshoek het tekort aan kritisch inzicht op de huidige onderzoekspraktijken en methoden binnen digitaal filmhistorisch onderzoek. Hierbij beschouwt het onderzoek voornamelijk het gebruik van datavisualisatie voor onderzoekers in GIS cartografie, bij wetenschappelijke DVD edities en bij audiovisuele essays. Het onderzoek stelt dat wij ons vermogen om huidige praktijken binnen filmhistorisch onderzoek goed te positioneren en te evalueren zullen verliezen als wij de onderliggende onderstellingen, procedures en visualisatie-praktijken niet kritischer benaderen. Zodoende ontwikkelt het onderzoeksproject een meta-historisch theoretisch kader om digitaal onderzoek kritisch te kunnen analyseren en conceptualiseren. Hiertoe suggereert het proefschrift dat het noodzakelijk is om helder in kaart te brengen hoe en op welke manieren filmarchieven, filmhistorische onderzoekstradities en wetenschappelijke visualisatiepraktijken digitale onderzoeksmethoden beïnvloeden. Verder benadrukt het proefschrift dat filmhistorici strategieën moeten ontwikkelen om kritische, hermeneutische perspectieven van de geesteswetenschappen beter te koppelen aan digitale onderzoeksmethoden. Het proefschrift beantwoordt de volgende drie onderzoeksvragen:

- Op welke manier beïnvloedt de conservatie- en restauratie-filosofie van filmerfgoedinstellingen, en in het bijzonder hun digitaliseringspraktijken, filmhistorisch onderzoek dat gebaseerd is op digitale technieken en methoden?
- Op welke manieren zijn de digitale methoden van andere disciplines opgenomen binnen filmhistorisch onderzoek, en welke disciplinaire onderhandelingen geven vorm aan deze ontwikkeling?
• Op welke manier kunnen digitale tools kritische reflexiviteit, ambiguïteit en/of meervoudige invalshoeken binnen een bepaalde historische interpretatie uitdrukken?

Om deze vragen te beantwoorden combineert het theoretisch kader van het proefschrift perspectieven vanuit de historiografie, mediatheorie en visual studies om te analyseren hoe visualisaties fungeren in termen van de symbolisatie van historische data in digitaal onderzoek. Middels het gebruik van het theoretische concept dispositif tracht het proefschrift deze theoretische perspectieven samen te brengen, om zo te analyseren hoe verschillende technieken en procedurele mens-computer interacties samensmelten binnen digitaal onderzoek en leiden tot nieuwe grafische datavisualisaties, interfaces en tools, die daaropvolgend weer kunnen dienen als basis voor verdere reflectie, analyse en beredenering.

Het proefschrift bevat drie delen met daarbinnen vijf hoofdstukken. Deel één, Sources, Repertories and Theories of Film History, dat de eerste twee hoofdstukken omvat, analyseert het verband tussen de filmarchivering en de filmhistoriografie vanuit een historisch perspectief. Hoofdstuk één, "Film Historiography and Film Archives", bespreekt de verschillende relaties tussen filmhistoriografie en archivering, diens veranderende materiële basis en de theoretische discoursen die verschuivende conceptualiseringen van films en gerelateerde documenten als historische bronnen ondersteunen. Het hoofdstuk biedt een historisch overzicht van de opkomst van bepaalde instellingen, plaatsen, sociale groepen en technieken – met name cinefiele filmcritici, historici, filmarchivarussen, regisseurs, laboratoria en projectietechnieken – en hun belang voor en invloed op veranderende definities van filmerfgoed en filmhistoriografie.

Hoofdstuk twee, "Film Heritage Digitisation Between Europeanisation and Cinephile, Curatorial Agendas” kijkt naar de huidige Europese samenhang van de digitalisering van filmerfgoed, binnen de context van de digitale agenda van de Europese Commissie. Het hoofdstuk bespreekt eerst hoe het cultuurbeleid van de Commissie, met als doel de europeanisering, vorm heeft gegeven aan de digitalisering van cultureel erfgoed, en hoe daarbij zowel grote uitdagingen als mogelijkheden zijn gecreëerd voor filmerfgoedinstellingen gezien hun eigen curatele agenda’s. Vervolgens bespreekt het hoofdstuk welke verschillende historische discoursen de huidige discussies over de
Nederlandse samenvatting
digitalisering van filmerfgoed, restauratie en toegankelijkheid voor de verschillende Europese filmarchieven het beste kenmerken. Door institutionele analyse en basis beschrijvende statistiek te combineren, onderzoekt het hoofdstuk voornamelijk hoe DVD-publicaties van Europese filmerfgoedinstellingen en verwante selectie- en restauratiepraktijken verschillende historische discoursen reflecteren en hoe deze universitair onderzoek beïnvloeden.

Deel twee van het proefschrift, *Data-Driven Mediations of Film History: Traditions, Techniques and Dispositifs*, dat hoofdstuk drie en vier omvat, analyseert een reeks case studies om te laten zien welke methodologische stappen historici volgen wanneer ze met digitale tools filmhistorisch onderzoek doen. Dit deel van het proefschrift bespreekt hoe deze onderzoekstradities ‘hermeneutische antecedenten’ vormen voor huidige digitale onderzoeksprojecten, en daarmee vorm geven aan een bepaald methodisch gebruik van gedigitaliseerde bronnen en digitale technieken om zodoende nieuwe onderzoeks-*dispositifs* te creëren.

Hoofdstuk drie, “Microscopic Visions of the Film-Text: Stylometry, Film Philology and DVD editions”, analyseert hoe het DVD formaat zich tot een filologisch onderzoeks-*dispositif* heeft ontwikkeld, omdat het zich op een belangrijk kruispunt bevindt tussen de kwantitatieve stijlanalyse, de wetenschappelijke visualisatie en de filologische restauratietheorie. Het hoofdstuk bespreekt hoe de combinatie van videomontage, hyperlinking en software voor patroonherkenning binnen recente projecten zoals Hyperkino en Digital Formalism de visualisatie en vergelijkende analyse van kleinschalige patronen in filmmontage, beweging en kleuren in gedigitaliseerde archieffilms bevordert. Deze technieken, beargumenteert het hoofdstuk, lenen wetenschappelijkheid aan de filologische studie van archief-film en spelen een centrale rol in de conceptualisering van de DVD als een onderzoeks-*dispositif* voor universitaire onderzoekers.

Hoofdstuk vier, “Writing Film History from Below and Seeing it from Above: GIS Mapping and New Cinema History's Macroscopic Vision”, analyseert het gebruik van data mining en GIS technieken binnen onderzoek naar socio-economische bioscoopgeschiedenis. Het hoofdstuk bespreekt, vanuit de onderzoekstraditie van New Cinema History en diens gebruik van filmerrelateerde collecties, hoe gegevens over plaatsen, data en personen met data mining
technieken en GIS kartografie worden verkregen en gevisualiseerd om bepaalde historische patronen in distributienetwerken te bestuderen. Het hoofdstuk beargumenteert dat de integratie van de methodologieën uit met name *Annales* historiografie en historische GIS, een kartografisch dispositif heeft gecreëerd dat analytische macro- en microperspectieven samenvoegt binnen een "multi-scopische" benadering die daarbij tevens de ambiguïteit van wetenschappelijke datavisualisaties als bewijskrachtige beelden benadrukt.


De conclusie van het proefschrift kijkt tot slot naar de mogelijkheden om het gebruik van digitale onderzoeksmethoden verder te ontwikkelen en te integreren binnen film- en mediastudies, en wat de eventuele institutionele en conceptuele uitdagingen daarvan kunnen zijn. Als kernpunt benadrukt de conclusie dat filmhistorici die zich bezighouden met digitale onderzoeks-dispositifs een bewustzijn dienen te ontwikkelen van het feit dat ze niet uitsluitend schrijvers van de filmgeschiedenis zijn, maar ook beeldmakers en waarnemers. Daarbij is het belangrijk dat filmhistorici hun visualisatiepraktijken beter theoreetiseren, aan de hand van een verdiepend en kritisch meta-historisch inzicht dat de ondersteunende veronderstellingen, tradities en procedures van digitale tools zelf aan de kaak stelt.
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