Before or beyond narrative? Towards a complex systems theory of contemporary films

Poulaki, M.

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1 See Film Criticism’s special issue “Complex narratives” edited by Janet Staiger (fall 2006). For an overview of the wave of complex narratives in cinema and the theories about them see Simons 2008.

2 Complex narratives have a long history in literature. Narrative “complexity” has been discussed by literary critics in relation to texts coming from entirely different backgrounds: the tradition of ‘metanarration’, extending from Cervantes (Don Quixote, 1605, 1615) and Lawrence Sterne (Tristram Shandy, 1759) to Italo Calvino, the literary modernism of, among others, James Joyce, Marcel Proust and Virginia Woolf, or the late modernist movement of nouvelle roman, are among the most oft-cited sources of complex narratives.

3 Other oft-cited examples include: Twelve Monkeys (Terry Gilliam, 1995), Lost Highway (David Lynch, 1997), Sliding Doors (Peter Howitt, 1998), Fight Club (David Fincher, 1999), Code Unknown (Michael Haneke, 2000), Donnie Darko (Richard Kelly, 2001), The Others (Alejandro Amenábar, 2001), Mulholland Drive (David Lynch, 2001), Irreversible (Irreversibles, Gaspar Noé 2002), 21 Grams (Alejandro González Iñárritu, 2003), Babel (Alejandro González Iñárritu, 2006), etc.

4 Complex narration is not new in cinema either. Unconventional and ‘complex’ ways to present stories have proliferated in the various modernist avant gardes, the new waves of the 1960s and 1970s, the art film tradition, and even ‘classical’ Hollywood films in certain historical eras of “narrative experimentation” (e.g. Orson Welles’ Citizen Kane, RKO production, 1941). Besides Welles, other contemporary directors have been considered as pioneers of complex narratives in cinema: Alfred Hitchcock (The Trouble with Harry, 1955), Alain Resnais (Last Year at Marienbad [L’année dernière à Marienbad], 1961), Louis Buñuel (The Obscure Object of Desire [Cet obscur objet du désir], 1977), and Krzysztof Kieślowski (Blind Chance [Przypadek], 1981) are some oft-cited names. The work of these directors has been recently discussed through the lens of the contemporary complex film tendency: for Welles and Hitchcock, see Bordwell 2006: 74; for Resnais, see Alan Cameron 2008: 34; for Buñuel, see Marsha Kinder 2002; for Kieślowski, see Cameron 2008, Bordwell 2006 and Ruth Perlmutter 2002.

5 Bordwell refers to three such eras: 1940-1955, mid-1960s – early 1970s and mid-1990s until today (see Bordwell 2006: 72-73).

6 Two peaks in the debate about these new forms of cinematic narration took place in 2002 and 2006. In 2002, the articles on forking-path narratives that appeared in Substance#97 (Bordwell’s and Branigan’s contributions) opened a debate on the level of complexity that narratives can afford. In 2006, apart from the publication of David Bordwell’s The Way Hollywood Tells It, which contained an extensive discussion of “puzzle” and “network” films, two special issues dedicated to this tendency appeared in the fall of the same year: Film Criticism’s “Complex narratives” edited by Janet Staiger and The Velvet Light Trap’s “Narrative and storytelling”. More recently, in 2009, the edited volume Puzzle Films (Warren Buckland) continued the debate and expanded culturally the scope of “complex storytelling” with the addition of many case studies from Asian cinema.
Several avant-garde literary movements, with the most striking example being perhaps that of nouveau roman, have relied on anti-novelistic and narratively unconventional ways of structuring stories, as prominent literary critics have discussed (see Kermode 2000: 22). The difference of the contemporary “complex narrative” tendency from such avant-garde experiments is the popularization and cultural pervasiveness that the traditionally unconventional means of narration now gain.

Post-classical narratology incorporates into the study of narrative influences from post-colonial theory, gender studies, cognitive psychology and philosophy, and gives more emphasis to the medium-specificity of narrative. For recent works that revise the classical narratological tradition see the book series Frontiers of Narrative (University of Nebraska Press, edited by D. Herman) and the series Narratologia, by the German publisher Walter de Gruyter, edited by Fotis Jannidis, Matías Martínez, John Pier and Wolf Schmid.

According to Kenneth Bailey (1994: 121), the main currents in systems theory have been four: cybernetics, information theory, general systems theory (GST) and nonequilibrium thermodynamics (established through the work of Ilya Prigogine on entropy). According to Melanie Mitchell, the complex systems research has its predecessors in all those theoretical and scientific attempts (in cybernetics, GST, biology—with Humberto Maturana’s and Francisco Varela’s theory of “autopoiesis”—and physics, with Hermann Haken “synergetics” and Prigogine’s “nonequilibrium systems”) to find common and universal principles applying to different systems (see Mitchell 2009: 297-298).

For a detailed overview of the precursors of systems theories in Russia of the end of the 19th and beginning of the 20th century, see Tikka 2008:72. Tikka also points to the German organicism of the 1920s as a movement that anticipated systemic self-organization in biology, with a main representator the zoologist Jakob von Uexküll (2008: 73-75).

For the epistemological background of simulation, see Hartmann 1996. For the use of simulation in complex systems modeling, see Law and Kelton 2000.

A constitutive complex is, according to Ervin Laszlo (1972), one that exceeds the mere addition of its parts, acquiring a functional role of its own, and is thus differentiated from a summative complex.

IMDb has been a popular object of research in several studies of systemic (network) complexity in the 2000s (indicatively see Ravasz and Barabási 2003).

Narratives have been thought of in the context of complex systems in the past, and in this respect the work of Hayles in the context of literary texts has been significant. In film theory, this direction has not been pursued as systematically, although there have been theorizations of groups of complex films with an eye to complex systems theories (this is the case in some of Bordwell’s writings and also in Wendy Everett’s conceptualization of the ‘fractal’ films). Jan Simons has linked the group of contemporary complex narratives in cinema with narrative as a complex system (2008). Allan Cameron has also referred to the play between contingency and order in his ‘modular’ films, although he associates this interplay with modernism and not with complexity theory (2008: 26). This dissertation, although posing certain counter-arguments to the association of narrative with complexity, would not have been
possible if the aforementioned but also other scholars had not already opened up a ‘space’ for the connection between texts and complex systems.

15 Characteristic of this tendency is Bordwell’s discussion of multiple-draft films in his article “Film Futures”, which turned the issue of complex films into a point of controversy in contemporary film theory.

16 Emphasizing their complex function I do not deny the existence of—an often overt—thematic influence by complexity theory on contemporary films. This influence has been stressed by other theorists as well. For instance Wendy Everett provides examples of scenes that directly refer to chaos theory, in films such as Free Radicals, Magnolia, Amelie, The Butterfly Effect (see Everett 2005).


18 IMDb mentions Vancouver and Berlin as filming locations.

19 ‘Hakman’ literally means ‘cutter’ in German.

20 According to the Classic Encyclopedia (online encyclopedia based on the 11th edition of the Encyclopedia Britannica), a “sin-eater” is “a man who for trifling payment was believed to take upon himself, by means of food and drink, the sins of a deceased person. The custom was once common in many parts of England and in the highlands of Scotland, and survived until recent years in Wales and the counties of Shropshire and Herefordshire.”

21 This happens in The Final Cut, but also in various other films, such as The Sixth Sense (1999), Donnie Darko (2001), Cypher (2002), Casshern (2004) etc.

22 As cinema foreboded at the expiration of the 19th century, the objectification of technology does no longer seem manageable. Our time and our perception is cyborgian. The ‘machine’ is not a graspable thing anymore, it is everywhere and nowhere, but most importantly, it is inside our bodies, it is us, as Donna Haraway would say (see Haraway 1991).

23 José van Dijck finds that The Final Cut “coveys a philosophical reflexivity based on Deleuze’s contention that cinema is not about concepts, but is itself a conceptual tool” (van Dijck 2008). My intention is to use the film as a conceptual tool to rethink the notion of reflexivity.

24 In the 1990s, with a scholarship by the Fares Foundation, Naim began his studies at the Emerson College, Boston. The Final Cut, with a total domestic gross of $551,281 (according to the Box Office Mojo database, see http://boxofficemojo.com/movies/?id=finalcut.htm), had a rather disappointing career at the box office, for a Lionsgate production. It was however nominated in a number of festivals and awarded the prize for “best screenplay” at the Deauville Film Festival, 2004.

25 Grand Theater is a documentary about the Lebanese Civil War.

26 See also the chapter “VR from Cimnemonics to Digitime” in Stewart 2007: 164- 203.

27 The faded sepia colors of the scene, as well as its placement in the beginning of the film before the credits, give some indication that it might be temporally situated in the past. The scene thus temporally anchors the film to the past and prepares the viewer for a return to it.

28 In this respect, the opening of The Final Cut brings to mind the self-referential opening of the classical Hollywood films, which, according to Elsaesser and Buckland, suggests a mise-en-abyme
“condensation” of the whole film, as well as a “manual” for the viewer’s interpretation. (2002: 47).

However, in The Final Cut, the opening is as much guiding as misguiding.

29 In his book on modular narratives Cameron emphasizes the elements of redemption in the films 21 Grams and Irreversible (2008: 35). Both Cameron and Sean Cubitt, through the latter’s book The Cinema Effect and the chapter “Infernal Affairs and the Ethics of Complex Narrative” that they co-wrote (in Puzzle Films, 2009), have set the basis for a more elaborate ethical critique of the puzzle/complex film tendency.

30 The moment when Alan runs away from the ‘scene of the crime’ and we watch him passing in front of the wall where his name is written with big capital letters, could be seen from a Lacanian perspective as the ‘symbolic birth’ of the character.

31 Johnny Mnemonic is a film based on the homonymous cyberpunk novel by William Gibson.

32 According to Stewart, the implant has already a totalizing effect upon consciousness, lived experience and memory: “With no lag time between perception and desire, with all impressions instantaneously retraced in process, such an omnivorous totality has […] excluded from its transcriptive register anything we would really call ‘memory’ in the first place.” (2006: 189)


34 For the same reason Charles Ramirez-Berg excludes from his taxonomy of alternative plots science fiction films such as The Matrix, because he finds that their non-linear temporality is genre-dependent, and fundamentally remains a linear quest for truth (or “for deciphering the mystery”) by a single protagonist, without allowing for alternative interpretations (2006: 11-12).

35 This digital recording eliminates, according to Stewart, the time-lapse characteristic of filmic temporality (linked to the virtualization of the present, according to Deleuze) and leads to the alienation of experience and self-consciousness.

36 In philosophy, reflexivity has been associated with self-reflection as a generative condition of self-consciousness and subjectivity itself. Since Descartes’s cogito ergo sum, the subject’s critical reflection is the foundation of its relation to the world. However, the “reflexive” turning of the subject upon itself, making itself the object of its own reflection, became more explicitly, after Kant and through German Idealism (Fichte, Schelling, Hegel)—and especially with Hegel and Nietzsche—a procedure not presupposing but constituting subjectivity (Stern 2000: 114). Michel Foucault (1984: 41) considered reflexivity inherent to modernity’s ethos, which requires from the subject of reason to subject itself to this very reason. According to Foucault, reflexivity, as soon as it embraces the unthought and “articulates itself upon it”, is not compatible with Enlightenment and its project (Foucault 1970: 325). This happens because reflexivity shifts the focus on issues of relativity, difference and the “unthought”, and constitutes, as scholars like Hilary Lawson have pointed out, “the postmodern predicament” (Lawson 1987). With the circular dynamics it develops, reflexivity becomes, as Dick Pels notes, “a standing critique of linear narratives, both everyday and scientific, which rely upon an objectivist ontology and a conventional logic of representation”. The result is “a radical
uncertainty in all our accounts of the world and in all our critical maneuvers in the agonistic space of science” (Pels 2003: 177).

Anthropology and sociology were significantly affected by the impact of reflexivity in the 1970s and 1980s. Particularly these fields tried to render reflexivity into a methodology of research. For the reflexive methods in anthropology see Scholte 1972, and for a critical perspective on them see Salzman 2002. For the discussions over reflexivity in Sociology of Scientific Knowledge (SSK) and its kin field of Science and Technology Studies (STS) see the work of Alvin Gouldner, considered as the founder of “reflexive sociology”. In the 1980s Steven Woolgar and Malcolm Ashmore made important contributions in the field of SSK with their declaration that “the exploration of reflexivity is the next natural development of the relativist-constructivist perspective in the social study of science” (Woolgar and Ashmore 1988: 7). Ashmore’s work The reflexive thesis: Wrighting sociology of scientific knowledge, published in 1989, re-reads the whole recent history of SSK (since the 1970s) through the scope of reflexivity, making links to similar concerns about reflexivity in other fields. Ashmore’s book furthermore contains an “encyclopedia of reflexivity”, as an attempt to clarify misunderstandings about this complicated term. In the 1990s Barry Sandywell’s large-scope work Logological Investigations (1996) connected reflexivity not so much with postmodernism, as with the phenomenological, hermeneutic and praxiological traditions. Sandywell’s conception of 20th century reflexivity has affinities with Scott Lash’s “hermeneutic reflexivity” (1994).

This iterative process tends to be triggered by first-degree self-reference itself. In philosophy, the self-referentiality of the self’s constitution is a paradoxical process which has troubled many thinkers. Dieter Henrich’s account of Fichte’s theory of self-reference reveals a “double aporia”: “The double aporia besetting the theory of reflection […] is that, first, the subject must somehow exist prior to the reflexive turn in virtue of which it becomes its own object, but this undermines the assertion that it is reflection itself that constitutes subjectivity; and secondly, in order for the subject to recognize itself as the object of its reflective act, it must presuppose a knowledge of itself that is supposed to be explained by the theory of reflection” (Stern 2000: 114—referring to Dieter Henrich’s “Selbstbewußtsein. Kritische Einleitung in eine Theorie”, 1970 and “Fichtes ursprüngliche Einsicht”, 1970).

Genette’s narratological model is considered to be one of the most refined in the study of narrative. It discriminates between three basic entities: story, narrative and narration (histoire – récit – narration) and four analytical categories: mood, narrating instance, level, and time.

The debate over the role of the narrating instance in narrative dates back to proto-narratological concerns such as the one expressed by the critics Friedrich Spielhagen and Käte Friedemann. The former declared, anno 1883 (Beiträge zur Theorie und Technik des Romans), that “the ideal narrative never alerts the reader to the ongoing process of narration” while the latter (Die Rolle des Erzählers in der Epik, 1910) considered the narrating instance an indispensable feature of narrative (Meister 2010).

Here ‘purity’ is not meant as qualitative category; it rather refers to the linguistic ‘autonomy’ of narrative in relation to other modes of linguistic expression.
According to Nünning’s classification (as summarized by Monika Fludernik, 2003: 4), metanarrative remarks in different media include: “stage directions, references to previous or later sections of narrative, and self-reflexive passages – these all invoke the narrator figure and the act of narration as well as the very process of narration.”

Christian Metz, drawing on Benveniste, related the absence of self-referential discourse in (classical) film with ideology (when the purity of histoire gives the impression of objectivity) and employed psychoanalysis to explain the workings of filmic enunciation (see Metz 1985).

Early “rube films”, such as Uncle Josh at the Moving Picture Show (Edwin S. Porter/ Edison, 1902), displayed self-reflexivity, most of the times involving situations of “film within a film”, as Elsaesser points out (2006). Elsaesser considers rube films symptomatic of a transition from cinema of attractions to cinema of narrative integration, but also as characteristic illustrations of his expanded notion of diegesis, which incorporates the deictic dimensions of discourse, still apparent in early cinema, with the temporal and spatial markers of narrative.

Barthes’ text has also been influential for the theory and practice of hypertext literature; see the “Electronic Labyrinth” project (Keep, McLaughlin and Parmar 1995).

In addition, Ruby mentions that (self)-reflexivity is not always a product of the “intentionality and deliberateness” of the makers, mentioning examples of “accidental reflexivity” in documentary films, which he regards as “narcissistic”, because of the lack of any intention to ‘arouse’ the spectator’s consciousness in them.

Lash here refers to Umberto Eco’s A theory of semiotics, 1976.

Here there is an echo of the distinction between the “two avant-gardes” that Peter Wollen made in the 1970s, one represented by the—mostly New York-based—“co-opt” movement and mainly focusing on the “play of the signifier” remaining indifferent to signification, and the other by European modernist filmmakers such as “Godard, Straub and Huillet, Hanoun, Jancso”, who remained to some extent devoted to a ‘mission’ of constructing a new cinematic language, which would break with older bourgeois chains of signification but still maintain a dialectical relationship between signifier and signified. See Wollen 1975.

Cameron, who finds that contemporary “modular” narratives in cinema display mainly “an analytic perspective on time” rather than “an analytic perspective on narrative” (2008: 25), appears reluctant to regard the traditional notion of self-reflexivity as a key feature of these films. He thus finds that “the precursor to the contemporary modular narrative is not so much the self-reflexive games of such French New Wave directors as Jean-Luc Godard, but more the contemporaneous ‘New Cinema’ of Alain Resnais” (1998: 34). However, the play with time in films such as Last Year at Marienbad is also self-reflexive in a metanarrational sense.

In his Figures III, parts of which compose the translated book Narrative Discourse, Genette made a complex analysis of a paradigmatic complex novel, Proust’s À la recherche du temps perdu.
51 As Frank notes (1978: 278), more developments in the coming decades after WWII (especially the influence of linguistics and structuralism) attracted the attention of subsequent critics and narratologists on how the relations in a text are spatial rather than temporal.

52 Ludwig von Bertalanffy in his General system theory: Foundations, development, applications (first published in the U.S.A. in 1969) refers to the “systems science” of his times as being centered in “computer technology, cybernetics, automation and systems engineering” (2001: vii).

53 Steven J. Bartlett has been the first editor who, together with Peter Suber, contributed to the publication of an interdisciplinary historical overview of the concept of reflexivity: Self-reference: Reflections on reflexivity (1987).

54 The most significant inconsistencies appeared in the gulf of mathematical set theory as paradoxes, just a few of the most well-known of which are Cantor’s paradox (1899), Russel’s paradox (1901), and the Zermelo-Konig paradox (1905). The culmination of reflexive undermining of the “formal deductive systems” came, according to Bartlett (1992: 6), with Godel’s “incompleteness theorem” (1931), and the research that it triggered that brought about even more ‘proofs’ of undecidability.

55 The Macy Conferences on Cybernetics, sponsored by the Josiah Macy Foundation, took place on an annual base between 1946 and 1953, and many prominent scientists of the period took part in them, like Claude Shannon, Norbert Wiener, John von Neumann and Warren McCulloch (Hayles 1999: 7). The development of systems theoretical thinking in the specific time period and geocultural area can be traced through the history of the conferences.

56 Other participants in the Macy conferences had also made contributions towards the same direction; for instance psychoanalyst Lawrence Kubies suggested to combine systems theory with the psychoanalytic approach to language (Hayles 1995: 84).

57 Hayles is critical towards this shift in the conceptualization of reflexivity, which, as she argues, came at a high cost: the “erasure of the environment”, reducing it to the status of a medium with which the organism effectuates “structural couplings”. This is a point of criticism that Hayles addresses to Luhmann’s epistemology too, which is based on Maturana’s theory of autopoiesis. Hayles implies that what Maturana started (a tendency of systemic closure and erasure of environment) continued in the work of Luhmann. The closure of the autopoietic theory downplays, according to her, the importance of the “living systems’ explosive potential for transformation” (Hayles 1999: 147). In this way, the theory might gain in epistemology, but is not capable of accounting “for dynamic interactions that are not circular in their effects” (ibid), that is, that do not have as their only goal the homeostatic preservation of the organism’s structure. According to my opinion, this criticism is partially valid: indeed Luhmann’s systems theory is not yet influenced by the complex systems developments in other fields like physics and thermodynamics. It also tends to exclude the not-meaningful information as “noise” (see Leydesdorff 2000: 277, 286). Still, the criticism does not do full justice to Luhmann’s approach, because Luhmann’s theory contradicted the sociological Parsonian model of social systems (based on equilibrium), and emphasized the increasing complexity and thus evolution that a system achieves through structural coupling. As Kenneth Bailey suggests, in the context of cybernetics and
systems theory, Luhmann’s theory of social systems can be seen as an attempt, parallel to those of Ludwig von Bertalanffy and Ilya Prigogine, to couple the second law of thermodynamics (increase of entropy) with organizational complexity (see Bailey 1994: 150).

58 Systems theory had already a background in sociology, mainly through Talcott Parson’s functionalism. Although Luhmann has been a student of Parsons, the latter’s (Parson’s) account of social systems emphasized equilibrium and its ‘automatic’ restoration in social systems. For a discussion of the differences between the Parsonian and the “new” systems theory in sociology (under which Luhmann’s work can also be classified)—see Bailey 1994.

59 Hayles notes that Maturana distinguishes between the functional circularity of systems in themselves and the inferences that an external observer (scientist) makes about them, studying them in the context of their environment. In Maturana’s epistemology, reflexivity seems to rely on the self-awareness of the borders between the observer and what is being observed, borders that also define the object of study (organism) as separate from the scientific subject (scientist) (Hayles 1999: 142).

60 In order to provide an answer to “the Kantian quest for the condition of possibility of experience”, traditional ontology had to invent the subject-observer (Luhmann 1995b: 50). On the contrary, in social systems theory, there can be no systemic Subject, observing itself from a transcendental vantage point. The subjective moment becomes duplicated, because the subjective pole is already induced as being observed by another system—which need not be only human but also animal, machinic, social… (Katti 2002: 63); and the only sense of individuality that can remain lies in the functioning of systems as “closed, circular, self-referential network[s]” (Luhmann 1990: 18).


62 Here, meaning has a systemic sense. It has to do with a selection according to the system’s organization and internal coherence, rather than with a rational form of intelligibility that the common sense of the word meaning implies.

63 Social Systems was originally published in German in 1984, as Soziale systeme: Grundriß einer allgemeinen theorie (Frankfurt: Suhrkamp Verlag).

64 In Bal, fabula (defined as “a series of logically and chronologically related events that are caused or experienced by actors”, Bal 1985: 5) is distinguished from ‘story’, which is the particular way in which the fabula is presented through a text. Bal here combines Genette’s distinction between story and discourse (histoire/récit) and the earlier one by the Russian Formalists, between fabula and syuzhet.

65 By contrast, Katherine Hayles stresses the difference between narratives and autopoietic systems, having particularly in mind Maturana’s and Luhmann’s theories. According to her, narrative is a contextual form of meaning-making, which always exceeds the “closed” borders of autopoietic systems, and implies the existence of a future goal and a sense of past and present that systems do not have (see Hayles 1995). Nonetheless, Hayles finds more connections between narratives and other, not autopoietic, strands of systems theory, such as chaos theory (see Hayles 1991).
Basal self-reference is the self-referential observation upon the way a system selects its elements in a contingent way, out of the unorganized and noisy complexity of its environment.

In his 1966 article “Reflexive Mechanismen” Luhmann “introduced the distinction between reflexivity and reflexion depending on whether an act refers to another act of similar kind or to the system which it is part of respectively” (Rossbach 2000: p. 11 notes). Rossbach indicates pages 99-100 in Luhmann’s untranslated article.

As Luhmann notes, “Here the self that refers itself is not an aspect of the distinction but a process constituted by it” (1995a: 443).

Every selection made by the system—which can be binary codified in relation to the options that were not selected—feeds back upon the system becoming a new selector and making the system more complex (see Leydesdorff 2000: 286). Reflexivity is related to feedback but also to “feed-before” mechanisms (see Ciborra 2004).

Apart from Luhmann, Francisco Varela and mathematician Louis Kauffman have also developed the notion of re-entry, extending it into a “calculus of self-reference”. See Kauffman and Varela (1980).

“A distinction discriminates; its mere occurrence creates a difference. To become relevant as form, the occurrence must be observed (retrospectively by the same system, simultaneously or later by another system); only then does the unity of the distinction become apparent as the blind spot that enables observation. This unity remains invisible while the distinction is used—this holds for all distinctions. It is as indisputable as our certainty about the world, a certainty based on inaccessibility.” (Luhmann 2000a: 32)

Here Luhmann’s conceptualization of reflexive temporality could be paralleled to Augustine’s idea of distensio (a mode of temporally distended attentiveness, explained in Augustine’s Confessions), which Paul Ricoeur applied to the analysis of narrative—as well as Frank Kermode and Joseph Frank did earlier, the latter in the context of his theory of the “spatial form of narrative” (Frank 1977: 246). Ricoeur finds that in Augustinian time, as opposed to Aristotelian time, “the future and the past exist only in relation to a present, that is, to an instance indicated by the utterance designating it. The past is before and the future is after [not by means of movement from cause to effect, as in Aristotle, but] only with respect to this present possessing the relation of self-reference, attested to by the very act of uttering something” (Ricoeur 1988: 19). As Haridimos Tsoukas and Mary Jo Hatch note in their narrative approach to complexity, distensio creates the experience of temporality, when past and future are bridged in the present moment: “it is the relationship between expectation, memory and attention forged by distensio that gives us the experience of time” (Tsoukas and Hatch 2001: 1005). However, Ricoeur finds that “Augustine’s attempt to found the measurement of time in the distension of the mind alone” (15) does not suffice to solve what Ricoeur calls the “aporia of temporality”, as the latter needs a combination of the human and the cosmological time (14), which narrative poetics effectuate, “between internal time-consciousness and objective succession” (22).

Luhmann notes that every event is a self-referential element because it reflexively refers to other events (1995a: 509n).
74 Luhmann stressed the factor of contingency in systems. As he writes, “action cannot be
temporalized, cannot be anchored to a specific temporal point, without a certain component of surprise,
without deviation from what is factually fixed. Therefore without an aspect of surprise there would be
no structural formation because nothing would happen for other things to link onto.” (Luhmann 1995a: 288)

75 Joel and Ethan Coen refer to these “two worlds” in their interview at about.com guide (see
Bibliography). Although it received mixed critiques, *Burn After Reading* was a financial success, and
became “the second highest-grossing [Coen] film to date” (Doom 2009: 174), with a $37 million
budget, and over $60 million gross.

76 Commenting on the music score by Carter Burwell in *Burn After Reading*, Joel Coen mentions: “We
wanted something big and bombastic, something important sounding but absolutely meaningless”
(Coen 2008).

77 According to Edward Branigan, “surface” POVs are point-of-view shots representing what the
character sees. Borrowing the distinction between mental and external focalization by Genette,
Branigan notes that surface POVs form part of *internal* focalization, but they are contrasted to other,
“deep” types of it, which reproduce the character’s mental state (see Branigan 1992: 112, 179). In
Branigan’s classification, internal focalization differs from the external one; the latter is achieved
through eyeline matches (shots following the direction of the character’s look and establishing
continuity through reverse shots), and not through POVs (*ibid*: 179). Thus, all POVs are instances of
internal focalization.

78 Sandy’s plotting, concealed in the most part of the film, becomes disclosed only near the end. Her
secret plan, however, has been one of the most important for the cultivation of *Burn After Reading’s*
paranoid atmosphere.

79 The comment, reproduced from prejudicemadeplausible.wordpress.com, appears under the title “The
Coens’ funniest film since ‘The Big Lebowski’” in the *IMDb user reviews for Burn After Reading*
(posting date 12 September 2008).

80 The emphasis upon positive feedback is what differentiates, according to Maruyama, the first from
the “second cybernetics”.

81 In this context, Robert Detmering hints at the importance of informational networks in *Burn After
Reading* and considers the film as a useful example for information literacy education. According to
him, “*Burn after Reading* becomes a satire of information literacy and the political information
networks that dictate what can be known and by whom” (Detmering 2010: 273).

82 The same pattern on zooming-in and out of the globe is found also in other films, such as *Men in
Black* (Sonnenfeld 1997) and *Night on Earth* (Jarmusch 1991)—with the latter offering a lower-tech
version of this shot.

83 Although the role of causality in narratives is very important, for some narratologists it is not the
defining characteristic of narrative. Coste maintains that “nontransactive narratemes”, which do not
involve a change of state brought by a subject to an object (or another subject), are “narratemes of
simple ‘becoming’” and do not need an “external agent of change” (Coste 1989: 42). Change may as well be internal, without being non-narrative. Thus, elements that for other narratologists are not included in the narrative, such as descriptive texts or passages within a text, or “nontransactive narratemes” and “descriptemes” for Coste, are still parts of the narrative, as “they make use of some temporal coordinates without necessarily inferring any form of causality” (ibid: 51). This view, however, is already oriented, through the notion of “narratemes”, to narrative pieces or units instead of narrative as a whole.

84 For an analytic description of these five stages through examples such as The Swan-geese fairy tale (also analyzed by Vladimir Propp) and Henry James’s In the Cage, see Todorov 1971.

85 With regard to the static and dynamic nature of motifs, Todorov draws on the Russian Formalist Boris Tomashovsky.

86 Berg notes that, although Robert Altman’s Nashville (1975) has been considered as a characteristic—and pioneer—example of the revival of this type of plot, its origins are to be found in the big studio practices of the 1930s. For instance, MGM launched the trend of ‘all star casts’ in multiple-character films such as Grand Hotel and Dinner at Eight. According to film theorist Paul Kerr, these multiple-protagonist films continued being produced after the war in many different countries, from Japan to Mexico, and became again popular in the mid-1990s (Kerr 2010: 38). Other authors give more emphasis to the differentiation of contemporary complex films from older ‘ensemble’ films, which they consider more traditional. For instance, Evan Smith (2000) points at contemporary complex films that contain fragmented “thread structures”, as their characters do not necessarily form part of the same “single dramatic journey”, but have independent trajectories.

87 Kerr has also referred to network narratives as “tales of interlocking lives and converging fates” (2010: 38). According to him, the popularization of this narrative strategy is relevant to the transnational networks imposed by the fiscal strategies of film production, and reflects the cross-cultural and cross-national mobilization of directors (many of whom belong to an emerging ‘social class’ of expatriates), crew, and funds. He considers Alejandro González Iñárritu’s film Babel as a paradigmatic case of this filmic tendency.

88 Convergences and connections are sometimes technologically mediated and sometimes not. Wesley Beal, who finds network narratives to be “the narrativized theorization of connectivity”, or a way of “narrating the network”, distinguishes two axes along which this connectivity becomes manifest: “a characterological axis that sketches connectivity along unmediated links of human relationships” and “the material axis, which sketches interrelationships according to concrete systems—the internet, the radio, the railroad, etc.” (2009: 405). We saw both these axes being present in Burn After Reading, where the lives of the individual characters get entangled through ‘acquaintances of acquaintances’ or through technological means such as a CD, and the internet.

89 In Physics II 3 and Metaphysics V2 Aristotle defined four categories of causes of change in nature: the material cause (the matter of an object), the formal cause (its shape), the efficient cause (the agency
that triggers a change of state in an object), and the final cause (the end-state of the change, or its purpose).

Following a categorical form of organization, a film provides different examples/categories of the same subject.

Branigan differentiates narratives from heaps, considering the two as different types of data organization: “The film’s events are linked together [as “focused causal chains”] by probability whereas elements of a heap or a catalogue are all equally likely with no single element necessary” (1992: 26).

The type of communication to which I am referring here is the systemic communication of the film at the level of its components, and not the narrational “communication” between narrator and narratee through the film’s text (which has to do with the amount of information that is shared with the viewers).

Branigan points out that it is information’s disparity that makes narrative possible. In a world where all information is “equally available” there is no need for narrative (1992: 66). He describes narratives in dynamic terms, as “a rapid oscillation in the balance of knowledge” between viewer, focalizer and narration (81). However, communication that makes a system more knowledgeable as a whole than it is when its units are taken independently, does not necessarily have to be called narrative, especially when the latter refers to a type of cognitive organization which boils down, according to Branigan himself, to a “cause-effect chain of events with a beginning, middle, and end”.

“Agent-based” simulations of complex systems, also referred to as “multi-agent approaches”, are used in the study of natural, economical and social systems. Referring to such simulations, computer scientist Pierre Marcenac distinguishes between “micro-agents” who lack knowledge of global constraints, “medium-agents” who model the interactions of micro-agents and who feed back (through a process called “back-propagation”) upon the micro-agents’s behavior, introducing constraints to it, and lastly, “macro-agents”, who observe self-organization and “generate” the medium-agents that model it (1998).

Strong emergence holds that the new properties of a system are not connected to the system’s previous states but rather consist in ontologically novel properties. Thus, although it shares the attributes of “supereminence” and “downward causation” with weak emergence, strong emergence denies the existence of any kind of link between “the aggregation of the micro-level potentialities” and “the supervenient downward causal powers” upon them (Bedau 1997: 377). However, as Jaegwon Kim stresses (2006: 200-201), talking about human consciousness as an emergent property (based on the complex interactions of the brain’s neural network), this negative—because of the absence of causal links—definition of irreducible, “strong” emergence tells nothing about what emergence is, and about the relations that connect the different levels with each other. Thus he poses the challenge for the researchers of emergence “to show that emergent properties do not succumb to the threat of epiphenomenalism, and that emergent phenomena can have causal powers vis-à-vis physical phenomena.”
Chalmers (2006) has suggested the term “intermediate emergence” to describe systems “in which high-level facts and laws are not deducible from low-level laws (combined with initial conditions)” and in this case, a change of level is necessary in order to understand the emergent procedure, a level in which combinations not deducible from the basic laws but only effectuated with a change of initial conditions occur.

There is also critique to this ‘synthetic’ approach. It has been argued that simulation already creates a somewhat isolated system in the beginning. According to Katherine Hayles, similar bottom-up approaches in the field of Artificial Life remain reductionist: “In place of predictability, which is traditionally the test of whether a theory works, they emphasize emergence. Instead of starting with a complex phenomenal world and reasoning back through chains of inference to what the fundamental elements must be, they start with the elements, complicating the elements through appropriately nonlinear processes so that the complex phenomenal world appears on its own” (Hayles 1999: 231-232). According to Hayles, the “analytic approach” of breaking down reality into more and more simple constituent parts that could be treated mathematically, in Artificial Life is supplemented by a “synthetic approach”, according to which the system is able to generate “complexities” spontaneously, in a procedure of emergence (234). However, both the analytic and the synthetic approach, Hayles maintains, are just the two sides of the same coin, as synthesis presupposes analysis, and emergence presupposes reduction. Hayles’ criticism is not unjustified. As computer scientist Ashok Sengupta also notes, adding complexity to the so far mainly linear scientific approaches “seeks to break down natural systems to their simple constituents whose properties are expected to combine in a relatively simple manner to yield the complex laws of the whole” (2006: vii-viii). However, the benefits of simulation and bottom-up approaches to complexity should not be dismissed altogether. My position is closer to the one of philosopher Manuel De Landa, who shares some of Hayles’ concerns but still finds value in bottom-up approaches. According to him, “emergent […] properties belong to the interactions between parts, so it follows that a top-down analytical approach that begins with the whole and dissects it into its constituent parts (an ecosystem into species, a society into institutions), is bound to miss precisely those properties. In other words, analyzing a whole into parts and then attempting to model it by adding up the components will fail to capture any property that emerged from complex interactions, since the effect of the latter may be multiplicative (e.g., mutual enhancement) and not just additive” (2009: 17-18). The determining factor here is the degree of spontaneity with which the properties emerge in simulations. In De Landa’s own emergent approach to the historical development of societies, starting from the basic subsets of geological and organic materials, each layer co-exists and interacts with others in a nonlinear fashion. So, viewed from the scope of emergence, the units and the subsets they form are not closed entities anymore, but open to interaction, re-negotiation and mutation (De Landa 2009: 21).

According to Peter Corning (2002: 22), synergy refers to “the combined (cooperative) effects that are produced by two or more particles, elements, parts or organisms—effects that are not otherwise attainable.”
John Holland maintains that complex adaptive systems have four properties: aggregation—sometimes also referred to as the “synergistic” attribute of emergence—diversity, flows, and nonlinearity (1995: 10-37).

This mathematical model is an alternative to the thermodynamical model of Ilya Prigogine.

Instability, appropriation of randomness, as well as “the actualization of potentials” are also causally related to emergence in dynamical systems—the latter being the effect of the former three attributes (ibid).

With ‘retrospectively’ here I do not refer so much to a temporal but to a structural category. It is not necessarily after the film/narrative that causality is established as a top-down process, but also during the film/narrative, through a process of trial and error of different, tentative narratives and causal-logical sequences, characteristic of which is the process followed by the recipient in the case of detective stories.

The phrases in quotation marks are Nietzsche’s formulations in The Will to Power (1967, section 477, p. 551). Boje also quotes Nietzsche’s phrase that causality is “an invention, a projection of our will unto an event, making some other event responsible for something that happens” (Boje 2001: 93).

The citation is from Ann Langley’s article “Strategies for Theorizing from Process Data” (The Academy of Management Review, 24(4), 1999).

Sengupta notes that in fact these two factors are the prerequisite for complexity: “In the vision proposed by complexity, we can identify forms and evolutive characteristics common to all, or almost all, systems that are made up of numerous elements, between which there are reciprocal, nonlinear interactions and positive feedback mechanisms. These systems, precisely for this reason, are generally called complex systems.” (Sengupta 2006: 269).


Network science (as opposed to network theory) is a relatively recently scientific field devoted to the study of networks as complex systems. Although the study of networks preexisted in various disciplines, from mathematics to sociology, it is only in the last decade that a unified science of networks made its appearance, with “a growing group of applied mathematicians and physicists [who] have become interested in developing a set of unifying principles governing networks of any sort” (Mitchell 2009: 230). The development of network science moves beyond the static (or reductive) graphic depiction of networks and considers how emergence takes place in them. The science of networks as complex systems uses models from statistical physics in order to analyze networks as dynamical processes, and not anymore as “haphazard sets of points and connections” (or “nodes”/“vertices” and “edges”/“links”, in the language of graph theory). As Barrat, Barthelemy and Vespigniani point out, dynamical and statistical approaches to complex phenomena are similar, in that their aim is “to predict the large-scale emergent properties of a system by studying the collective dynamics of its constituents” (2008: 64).

Emirbayer and Goodwin also refer to a model of “structuralist constructionism” as the one that achieved some relative balance in its payment of attention both to individual agency and cultural
determinations. However, this model also again fails—according to the writers—to adequately deal with the “interconnections among culture, agency, and social structure” (1994: 1436).

109 Todorov formulated this model through his analysis of Boccacio’s *Decameron* in the 1960s, a period when the popularity of functionalism in sociology had started fading, but not the interest in equilibrium.

110 Research in the field of nonequilibrium thermodynamics contributed to a paradigm shift with regard to entropy, which was initially considered to indicate the gradual disorganization and ‘death’ of a system. Out-of-equilibrium processes maximize entropy but also create—in open systems—an order that is different from the one of systems in equilibrium. This order is produced by the self-organization of a system in a “state of *increased complexity*” (Prigogine and Stengers 1997: 64). Thus nonequilibrium and entropy can be considered forms of organization.

111 Beyond the Parsonian tradition, social systems theory also engaged with Maturana’s and Varela’s research on self-organization and autopoiesis. Here the social domain is viewed as composed by “networks and hierarchies of intersecting systems of operationally closed and structurally coupled individuals”—such as biological organisms (in the case of autopoiesis) or social systems. According to the social systems theory, each agent makes its unique “structural adjustment”, depending on its particular ontogenetic history, in order to contribute to the overall pattern, the “structure” or “norm” (Goldspink and Kay 2007: 51).

112 According to Bailey (1994: 121), there are four main currents in systems theory: nonequilibrium thermodynamics (established through the work of Prigogine on entropy), cybernetics, information theory and general systems theory (GST). These currents with their combined principles generate the transdisciplinary field of “new”, as Bailey calls it, complex systems theory.

113 Albert Einstein and Josiah Willard Gibbs used the word “ensemble”, although they ended up with a model of “superimposition of trajectories”, as Prigogine and Stengers note (1997: 34).

114 “*The System*” (“*O Sistema*”) is the title of a documentary by Matteo Scanni and Ruben Holiva (2006) that also deals with the issue of Camorra. The organization of Camorra, which operates in the wider area of Naples, should be distinguished from the Sicilian Cosa Nostra (widely known as Mafia). The latter has a more hierarchical structure, while the former has a looser distribution. Camorra is structured as a network of semi-autonomous clans, which makes it more flexible and adaptable to new constellations of power. In this respect, it is a model for various contemporary mob organizations, which also operate in a less hierarchical way. In his book *Mc Mafia: Crime without frontiers* (2008), the British journalist Misha Glenny describes the effects of globalization on organized crime, and explains how crime also takes the form of a network: “What is important to understand is that the organized crime is a phenomenon without central coordination, but in the same time, a global phenomenon” (Glenny 2009). Control does not come from a sovereign centre but is instead materialized in local commercial transactions in every part of the world. Glenny also speaks about “mob franchising” that takes place across countries, with clans lending their ‘brand name’ to other emerging groups that extend the network of their business. Organized crime (itself far from a unified
object with similar tactics in every place and every time) can now be seen as operating through these ‘glocal’ networks, with older organizations trying to track, patronize and exploit the new ones, but without creating them.

115 The character of Maria is based on the true story of Carmella Attrice, who died in a similar way in January 2005 in Scampia (see Williams 2005).

116 As Saviano mentions in the book Gomorrah, this parable from Genesis was used by a priest in Saviano’s hometown (Casal di Principe) in a speech he addressed to the locals. The priest urged particularly the local ‘bosses’ of Camorra to look behind and face the monstrous artifice of their conduct, like Lot’s wife did in the Biblical story.

117 For a journalistic account of this feud see the article “Naples police in huge mafia swoop” from that period, available at the BBC online archive: http://news.bbc.co.uk/2/hi/europe/4075269.stm

118 The place, although seldom named, is inevitably betrayed by the use of language. To an external observer, the recognition of the Italian language situates the action somewhere in Italy. An Italian observer would possibly locate the place with more precision, because of the use of a very strong Neapolitan dialect. In Italy the film was released with Italian subtitles, and, as the director comments in an interview, the language spoken in the film was a shock even to the people of Naples, who found themselves unfamiliar with the slang spoken in the most part of the film, as well as with Camorra’s activity (Garrone 2009b). Commenting on the use of dialect in Gomorrah Mario Pezzela (2009) notes: “The Neapolitan dialect spoken by the bosses and, especially, by the younger boys is a sort of neo-language—broken, guttural, elementary, barely deciphered by the subtitles.”

119 This may also be seen as part of a strategy that made it possible for Garrone to shoot on location and to use locals as walk-ons. The local people would probably be more hesitant to participate if anonymity was not kept.

120 Gomorrah does not make exclusive use of non-professional actors. For instance Toni Servillo who plays the role of Franco is a well-known Italian actor. The mixing of professional and non-professional actors was a practice common in Italian neorealism; for example Roberto Rossellini’s Rome, Open City (Roma Città Aperta, 1945) starred Anna Magnani and Aldo Fabrizi among other non-professional actors.


122 However, some neorealist films like How to Kill Bad People and Miracle in Milan overrule this ‘general principle’ (see Bondanella 2000).

123 This multiplicity has been a characteristic of the book as well. Particularly about Saviano’s narrative style in Gomorrah, writer Wu Ming 1 observes: “C’est toujours ‘Roberto Saviano’ qui raconte, mais ‘Roberto Saviano’ est une synthèse, un flux imaginatif qui se propage d’un cerveau à l’autre, qui emprunte le point de vue d’un être multiple […] ‘Je’ recueille et fusionne les mots et les sentiments d’une communauté, bien des personnes ont façonné – dans des camps opposés, dans le bien et dans le
mal – la matière du récit. La voix de Gomorra est une voix collective [...]” (2008: 8-9). [“It’s always ‘Roberto Saviano’ who narrates, but ‘Roberto Saviano’ is a synthesis, an imagined flux that spreads from one brain to the other, that adopts the point of view of a multiple being. […] ‘I’ collects and merges the words and sentiments of a community, [in the sense that] many persons have shaped—from opposite camps, for good or evil, the story’s material. The voice of Gomorra is a collective voice [...]” (Translation mine)]

124 Something similar happens in the end of the film Babel, when a scene with a phone call re-structures the temporal order of the episodes and turns Babel, as Cameron notes, from just a multiple-protagonist film into a modular one (2008: 24).

125 In this respect the people from Campania resemble the inhabitants of the Biblical Gomorrah, out of whom God was not able to find even ten righteous men (see Curi 2009: 241-242).

126 This view is complicit with Curi’s alternative reading of Gomorrah, according to which, the film stresses the agency of its characters against the established order (or ‘State’) of Camorra, as it becomes particularly apparent in the story of Ciro and Marco (see Curi 2009).

127 It is worth noticing that the director of Gomorrah mentions in an interview that this ‘final information’ was the only thing he was uncertain about when the film was over: “As we mentioned before, the film is less journalistic than the book and goes in a different direction. But at the end, we thought, yes, it’s important to point out that this situation is something more universal. It’s just not that there have been a handful of people killed; there have been thousands. To be honest, I don’t know if including these titles at the end were the right decision. And putting them at the beginning would have predetermined the audience’s response; another kind of film would have been expected. A change of register might be jarring. It’s the only thing about the film I’m not sure about.” (Garrone 2009a)

128 Both Saviano and Garrone, as they stress in their interviews, tried to highlight the universality of the Camorra situation. Rather than a local phenomenon, Camorra represents the hidden side of the European economy, which is supported by criminal organizations such as the one of Camorra.

129 It has been argued that due to financial restrictions and international co-productions world cinema favors the network narrative form (see Bordwell 2007:197-198; Kerr 2010).

130 ‘Wu Ming’ is pseudonym for a collective of five Italian writers (see the official website of Wu Ming foundation: http://www.wumingfoundation.com). The names of the writers are known, but they prefer to call themselves Wu Ming 1…5. The real name of Wu Ming 1 is Roberto Bui.

131 With the term ‘New Italian Epic’ Wu Ming 1 refers to the literary tendency that appeared in the first half of the 1990s in Italy with writers such as Valerio Evangelisti, Gianfranco de Cataldo, Andrea Camilleri, Carlo Lucarelli, Helena Janecek, Roberto Saviano and Wu Ming. The novels participating in this tendency are “hybrid novels”, according to Wu Ming 1, based on participation, not only of writers from different generations and literary backgrounds, but also of different genres, styles and voices into the narrative itself. Thus, the novels of the New Italian Epic contain “unexpected and uncommon points of view, including those of animals, objects, places and also immaterial fluxes” (Wu
Ming 1 2008; translation from French mine). As Wu Ming 1 adds, these new Italian novels are not based on the traditional ontological grounds of realism, but on those of multiplicitous forms of being. What has also been stressed in the theorization of the New Italian Epic by Wu Ming 1 (2008) is the narrative ‘complexity’, both in terms of structure as well as in terms of content. These novels have high cognitive demands from the readers (thus rejecting the assumption that the audience is composed by passive receptors), but also offer them reading pleasure, as the readers become active participants in the solution of narratological problems and the decompression of tension. Often their texts are based on a “what if” assumption, a “non-time” (unchronie), where historical events are revisited to be imagined as proceeding differently (as it happens in ‘multiple-draft’ films, or counterfactual stories).

Gomorrah’s transmediality is not to the same degree market-driven as that of most of the cases Jenkins discusses (for example, The Matrix or The Lord of the Rings). Gomorrah participates not only in wider narrative and media tendencies but also in an emerging political movement, which has been inspired—among others—by Saviano and his book, and has been finding expression in the anti-Berlusconi protests in Italy. This movement has also presence at online communities such as various Facebook groups, blogs etc. (for example see http://www.antiberlusconi.it, http://www.facebook.com/pages/Anti-Berlusconi/98138518859). It is worth noticing that Berlusconi has publically opposed Roberto Saviano for glorifying Camorra through his book (see Popham 2010; the video is also available on Saviano’s official website at: http://www.robertosaviano.it/rassegna/berlusconi-mafia-famosa-grazie-a-gomorra/). Indicative of this opposition is also the tension that has been created between the producers of the cultural show “Vieni Via Con Me” (that Saviano currently presents on Italian television (RAI3) together with the journalist Fabio Fazio) and the general management of RAI (see the article of Corriere della Serra “Fini e Bersani da Saviano: è scontro. ‘Masi : Invitare anche Berlusconi e Bossi’”, 12 November 2010. Available online at: http://www.corriere.it/politica/10_novembre_12/fazio-bersani-fini_679f6e24-ee46-11df-8dee-00144f02aabc.shtml).

From an autopoietic systems theoretical perspective, such a move would be seen as drawing a line between the film as a system and its environment of other films and media systems.

According to the now classic model that philosopher and linguist Alexander Bain proposed in his English Composition and Rhetoric (1866), there are four main modes of discourse: narrative (narration), description, exposition, and argument (persuasion).

For a discussion of the role of space particularly in European cinema see the recent publications Spaces in European Cinema (2000, edited by Myrto Konstantarakos) and Space and Place in European Cinema (2005, edited by Wendy Everett and Axel Goodbody).

Borwell defines this space as “the imaginary space of fiction, the ‘world’ in which the narration suggests that fabula events occur” (1985: 113).

Editing space can be distinguished in “continuity” and “contiguity” space, depending on whether the editing is continuous or parallel. Michael Wedel indicates this duplicity of the editing space, as well as a number of other spatial layers, such as the “filmic space of the screen”, including the “shot space”
in its “left-right division”, “the story space of the narrative”, referring to the location where the story takes place and also to the location of shooting, the performative space of the acting, and the “imaginary space” that results for the audience in the cinema (Wedel 1996: 209, 212).

139 Gabriel Zoran, literary professor in Tel Aviv University and author of the article “Towards a theory of space in narrative”, uses the term “complex of space” to refer to the multi-level constitution of space in—mostly literary—narratives. His analytical model of space in narrative distinguishes between three different spatial levels, the topographical, the chronotopical and the textual, across which “scenes”—the units of narrative space—are distributed, in the form of “places”, “zones of action” and “fields of vision”, respectively (see Zoran 1984: 323).

140 Everett quotes Foucault from his article “Of Other Spaces”, published in Diacritics (1989: 25).

141 This is despite Bordwell’s analysis of the film in “Film Futures” (2002: 100), where he argues that the last version of Lola’s story becomes the most ‘valid’ one in the eyes of the viewer, and is the “least hypothetical one”. Thus, Tykwer’s film as well as other multiple-draft films provide a “final draft”, according to Bordwell.

142 The spatial attributes of poetry have been highlighted by linguist Roman Jakobson. Jakobson argued that, in the poetic message, equivalence is of greater importance than selection—which prevails in ordinary language (see Frank 1978: 280-281).

143 In the original French “Frontières du Récit”, we read: “la narration réstitue, dans la succession temporelle de son discours, la succession également temporelle des événements, tandis que la description doit moduler dans le successif la représentation d’objets simultanés et juxtaposés dans l’espace” (Genette, 158). In my text I use the translation of Frank (1978: 286) because I find it more accurate and less confusing than that of Levonas in New Literary History: “narration, by the temporal succession of its discourse, restores the equally temporal succession of events, while the description most successively modulate the representation of objects simultaneously juxtaposed in space” (1976: 7).

144 In the original: “la diffusion de voyages et la création de la notion de ‘site’ (classés dans les Guides, objets culturels a visiter Baedeker à la main)”. Here Hamon refers to the Baedeker travel guides, published by the homonymous German publishing house founded by Karl Baedeker in 1827.

145 Our perception of place affects our spatial thinking, in a way reminiscent of the connection between space and place in film theory, discussed above. Geographers and philosophers have been playing an important role in the theorization of space in the second half of the 20th century. The influence of the ideas developed in France in the 1960s, by thinkers such as Gaston Bachelard, Michel Foucault and Henri Lefebvre (see The Production of Space, 1974/1991) where the first “spatial turn” in philosophical thought took place, according to political geographer Edward Soja (2009: 20), is carried until the recent—after the mid-1990s—‘re-turn’ of theory, especially in the social sciences, arts and humanities, to spatial concepts. Since the mid-1990s there have been other influential thinkers of space such as geographer David Harvey, cultural theorist Fredrik Jameson, anthropologist Marc Augé and Soja himself (see Postmodern Geographies, 1989) who played a major role in this spatial re-turn (for
an overview of this turn see Barney Warf and Santa Arias 2009). This new spatial turn of theory can also be considered as a reason why description, as a concept associated with space in literature, becomes again—as also in this dissertation—worth of attention. Moreover, not only theory but also new types of media and informational networks transform and ‘spatialize’ our conception of place, and arguably affect the contemporary texts, such as the so-called complex narratives in cinema.

146 “Le référent à décrire est considéré comme une surface, comme un espace, rationalisé-rationalisable, articulé, découpé, segmenté [...].”


149 Bogost proposes the term “unit operation” as an amalgam referring to procedures also found in physics and cybernetics, apart from software technology; see Bogost 2006: 1.

150 In part 2, I mentioned that in nonequilibrium thermodynamics, through an analogous shift of perspective, entropy became an organizing force instead of a sign of disintegration.

151 In *Narration in the Fiction Film*, a book that is not primarily addressed to undergraduate students like *Film Art*, Bordwell seems to associate pattern making with “schema driven perception” (1985: 102). Thus he draws on Constructivist Psychology, which connects perception and cognition and renders the former into a process of “active hypothesis-testing” (31). In the same book, Bordwell maintains that stylistic patterning plays a significant role in the type of narration that he calls “parametric”, and he finds prominent in the work of directors such as Bresson and Ozu, but also in the novels and films of Robbe-Grillet. Bordwell considers parametric narration the only case where style becomes equally significant or even dominates narrative in films that involve storytelling. He also emphasizes the spatial effect that this type of narration has, due to motifs of repetition and difference of stylistic elements that structure the syuzhet. Pattern making as I will discuss it in the context of contemporary complex films lacks the parametric precision of the avant-garde works that Bordwell discusses; moreover, it does not result from the composition of elements of style distinct from the narrative elements. Nonetheless, the complex systemic function of parametric narration and the applicability of this type of narration to contemporary complex films would be hypotheses worth of future research.

152 Especially the neuroscientific complex systemic theories, which are not the ones that Bordwell and Thompson refer to, conceive pattern making as fundamental in the brain activity. According to Varela, the brain is always found in a process of “drift”, which drives it towards the creation of patterns,
through “fast oscillations between neuronal populations” (Varela 1995: 333), which happen independently of the stimulus that is each time being processed. For Varela, the process of pattern formation is emergent as long as it is the product of the coordination and co-resonance of a number of individual and distributed units/neurons, which are never found in a state of ‘rest’. Rather, a drift keeps the brain activity in a continuous dynamic state. Varela takes from biology the notion of “genetic drift” and resitutes it in the context of cognition dynamics. Therefore, drift is for him the driving force that keeps the mind in perpetual movement. Not only Varela but also Scott Kelso, psychologist and researcher at the Center for Complex Systems at Florida Atlantic University, who introduced the approach of “dynamic patterns” to cognitive self-organization, considers the brain as a complex system. The brain, according to Kelso, possesses a “tremendous heterogeneity of structure” and is characterized by “nonstationary dynamics”, which are inherently kept in constant instability, ready to respond with pattern formation when encountered with a meaningful task (1995: 283-284). It is this chaotic “dynamic instability” in the neuronal activity (manifested by the increase of fluctuations) that gives rise to pattern formation, which involves synergetic coordination of ensembles of neurons (276). Kelso’s theory of cognitive pattern formation does not only refer to the level of neurons and the patterns emerging from their synchronized firing but also to the (organizationally) higher level of consciousness and sensorimotor behavior. The formation of thoughts is, according to him, a distributed and nonlinear process. Thus, thoughts are emergent patterns, just like neural aggregations.

153 Holtz notes: “The guiding principle here is Ezra Pound’s definition of the image as ‘that which presents an intellectual and emotional complex in an instant of time’.” (1977: 273)

154 The logic of description has been associated, as both Chatman and Hamon mention, with that of metonymy in rhetoric. Metonymy is, according to Meir Sternberg, “a strong ordering principle [which] drives the contents of the descripta” (Sternberg, as cited by Chatman 1990: 24). The relation “container-contained” is prevailing in metonymy (ibid).

155 Tolva, with a background in English literature, was until recently the manager of the cultural program of IBM, working in the construction of 3-D environments such as virtual cities and museums.

156 In Convergence Culture Jenkins suggests that contemporary films, especially those that can fall under the category of complex narratives, from The Matrix and The Sixth Sense to Fight Club and Run Lola Run, involve the creation of a world before that of a story (2006: 119). He considers this to be a result of corresponding pressures from the film industry. Filmmakers are nowadays encouraged—and expected—to “pitch” worlds rather than characters or stories, in order to attract the interest of the producers, who have an eye for the potential transmediality of their film product (Jenkins 2006: 114). It is easier to create a new film or other media products such as video games out of the idea of Zion in The Matrix or out of Tolkien’s fantasy worlds rather than out of a completed, finite story.

157 Wagstaff refers to the ‘garden’ comparing neorealism with the melodramatic genre, which seems to be metaphorically based on the “lost idyll” of a “Garden of Eden” (2007: 64), and thus focusing on the characters’ suffering this loss. Although neorealism has some common characteristics with melodrama,
its stance differs from the melodramatic one, as neorealist films tend to (re-)discover a garden in the contingency of everyday life.