"A terrible piece of bad metaphysics"? Towards a history of abstraction in nineteenth- and early twentieth-century probability theory, mathematics and logic

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Citation for published version (APA):
CHAPTER 6

“A modified acceptance of Mr. Mill’s view”: John Venn on the nature of inductive logic and the syllogism

0. Introduction

In his 1904 ‘Notes upon logical topics’, John Dewey (1859-1952) distinguished between some five positions in contemporary developments in logic: formal, empirical, real, mathematical and psychological. He then presented the empirical logic of John Stuart Mill (1806-1873) as the inevitable attempt of empiricism to dismiss the formalist cum Kantian idea of ‘a purely empty thinking process’ in favor a logic of experience. After observing that Mill, in his System of Logic of 1843, ‘repeats by his actions, if not by his words, what Kant said of Aristotle, that logic is henceforth complete and settled’, Dewey referred to John Venn’s (1843-1923) Principles of Empirical or Inductive Logic as a ‘such an independent rendering of Mill as to be worthy of more attention than it receives in the current Teutophile [i.e. Germanophile] philosophy’ (Dewey, 1904, p. 58).

Although the name ‘Venn’ is well-known to this very day due to what, since the publication of Clarence Irving Lewis’ Survey of Symbolic Logic of 1918, has become known as ‘Venn-diagrams’, John Venn’s voluminous work on logic never befell the honor of being read differently than as a relic of old-fashioned Millianism. The aim of this paper is to contribute to this long-overdue task by situating within his time and intellectual surroundings the person Venn and by exposing the details of his ‘modified acceptance’ of Mill’s overpowering viewpoints on inductive logic and its relation to the syllogism.
1. **John Venn: a biographical sketch – personal and intellectual**

Venn was born on August 4, 1834 in Drypool (Hull) into a family of intellectuals prominent in the eighteenth-century evangelical movement within the church of England known as the Clapham ‘sect’ (e.g. Hennell, 1958/2002, Howse, 1953/1971, Hylson-Smith, 1992, chapter 5, Venn, 1904).\(^1\) He was the son of Henry Venn\(^2\) (1796-1873) (Venn, 1904, pp. 148-174, Venn, 1834) and Martha Sykes (?-1840),\(^3\) the grandson of John Venn\(^4\) (1759-1813) (see Hennell, 1858/2002), who himself was the only son of Henry Venn\(^5\) (1725-1797) (see Venn, 1834, pp. 1-60) – all of whom were dedicated to both missionary as well as parochial work. After having attended Sir Roger Cholmley’s (or Cholmdeley) School in Highgate (now Highgate School), London,\(^6\) and the private Islington Prepatory (or Proprietary) School, Venn, representing the fifth generation of the Venn family to graduate at Cambridge, entered Gonville and

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\(^1\) The Clapham Sect, named after the village of Clapham were the group’s first members – e.g. Henry Thornton (1760-1815), John Shore (1751-1834) and the father of Venn’s cousins (James F. Stephen and Leslie Stephen) James Stephen (1758-1832) – settled around 1792 were part of a much broader group of Evangelicals which were dedicated to achieve results in social causes.

\(^2\) The Rev. Henry Venn who matriculated at Queen’s College, Cambridge, in 1818 where he was a fellow between 1819-1829, worked as a honorary secretary of the Church Missionary Society in the years 1841-1873. He published several sermons, pamphlets and memoirs including the *Life and Letters of Henry Venn* – who was his grandfather (see Venn, 1834).

\(^3\) If it is unknown when Martha Sykes was born, there is also seems to be some confusion as to the year in which she passed away. Yet from Venn’s *Annals of a Clerical Family* it is clear that this happened on March 21, 1840 (see Venn, 1904, p. 165, p. 271).

\(^4\) The deacon and priest, John Venn, who matriculated at Sidney Sussex College, Cambridge in 1786, was one of the founders of the Church Missionary Society in 1797 and played a pivotal role in the Clapham ‘Sect’.

\(^5\) The fellow of Queen’s College, 1749-1757, and son of his father Richard Venn (1691-1740), Henry Venn received is M.A. at Jesus College, Cambridge in 1749 and was elected as a fellow of Queen’s College in 1749 – which he remained until 1757.

\(^6\) The Venn family moved from Highgate to Highbury Crescent, near London, in the summer of 1848 – a change with Venn described as being ‘altogether […] a rather melancholy one’ (Venn, 1904, p. 166).
Caius College in October 1853 with the, predicable,\(^7\) intention of becoming a cleric. It was soon after ranking sixth wrangler in the Tripos of 1857\(^8\) and being elected fellow of the college several months later that he, having already started his work at the ministry of the Anglican Church, became a deacon at Ely, in 1858, and a priest, in 1859, at the church in Cheshunt, Hertfordshire, and later in Mortlake, Surrey (see Venn, 1954, p. 284, Wall, 2006, pp. 551-553).

Apparently due to his close contact with philosophically-oriented, religious liberal and/or well-nigh agnostic figures such as his friends John Robert Seeley (1834-1895),\(^9\) Henry Sidgwick\(^10\) (1838-1900) (see Harrison, 2001, Schultz, 1992) and Charles Henry Monro (1835-1908)\(^11\)\(^12\) and his cousins James F. Stephen (1829-1894) and Leslie Stephen (1832-1904) (see Himmelfarb, 1968/1981, chapter 5).

\(^7\) Even though it is, perhaps, true that it was taken as a given that Venn would continue in the family tradition and become a cleric, it may be pointed out that he himself, in a rare reflection on his personal relation with his father Henry, noted that ‘[u]nlike many parents of decided evangelical opinions, he never spoke much to us about religion [and] neither he nor our dear uncle [John Venn (1802-1890) (see Venn, 1904, pp. 175-208), LV] ever forced religious advice upon us’ (Venn, 1904, p. 174).

\(^8\) Venn’s classical and theological examinations took place at the end of the Lent term of 1857, the mathematical, in which he was sixth wrangler (the highest ranking in his college), at the end of the first May term (see Venn, 1913, p. 260).

\(^9\) The essayist, historian and writer of the highly controversial, and unanimously published, Ecce Homo (1868) (see Rothblatt, 1968/1981, chapter 5). Seeley was educated at the City of London School, administered as a pensioner at Christ’s College where he matriculated in 1852, became a fellow of Caius largely at Venn’s initiative, and was the Regius Professor of Modern History at Cambridge between 1869-1895 (see Venn, 1953, p. 458).

\(^10\) Venn thanked his long-time friend, the utilitarian philosophers and fellow of Trinity, Henry Sidgwick in the preface of the Logic of Chance and the Symbolic Logic for his help in preparing the manuscripts and valuable suggestions and criticisms.

\(^11\) Monro, who had a strongly ‘speculative and philosophical cast of mind’ (Brooke, 1985, p. 231), was admitted as a pensioner at Caius College in February 1853, passed the Senate-house examinations in 1857 – in which he ranked first in the Classical Tripos (see Venn, 1898, p. 310, Venn, 1951, p. 442). In the Alumni Cantabrigienses it is noted that he planned, but left unpublished a complete translation of Justinian’s Digest. The edition, which covered the book 1-15 (the last two being completed by the editor William Warwick Buckland), was published, in two volumes, in 1904 and 1909, respectively (see Monro, 1904, 1909). Apart from the historical fact that Monro worked as a lecturer in Roman Law from 1872 till the turn of the century (see Brooke, 1985, p. 233), not much is known about the actual development of his intellectual career.

\(^12\) Venn expressed his gratitude explicitly to Monro for his help during the process of writing the Symbolic Logic.
Venn's son, John Archibald, notes that '[i]t had long ceased to be regarded as an anomaly for a clergyman to preach the then circumscribed evangelical creed and at the same time, without the slightest insincerity, to devote himself actively to philosophical studies; yet, some years later [...] finding himself still less in sympathy with the orthodox clerical outlook, Venn availed himself of the provisions of the Clerical Disabilities Act [of 1870, LV]' (Venn, 1937, p. 869). It was in 1883 that Venn took the decisive step of separating himself from the Church of England by formally resigning his holy orders – this he did 'by taking advantage of a provision of the [abovementioned] Clerical Disabilities Act [...] which provided a mechanism for Anglican clergymen to renounce their clerical status in order that they might stand for Parliament. Venn used to Act because he could no longer agree with the literal interpretation of doctrines of the church expressed in the 'Thirty-Nine Articles [of] Religion' that formed the basis of doctrine in the Church of England' (Wall, 2006, p. 553).

Before taking the liberal step of separating himself from the Church of England by resigning his holy orders in 1883 – the year in which he was elected as fellow of the Royal Society – Venn, shortly after the publication of his Logic of Chance, was given the opportunity to prepare a series of sermons dedicated to 'the evidence for revealed religion, or to explain[ing] some of the most difficult texts or obscure parts of Holy Scripture – or both' (Cambridge University Calendar, 1869, p. 214) known as the Hulsean Lectures. The four lectures delivered, in 1869, in St Mary Great Church, were published the following year under the title of Some of the Characteristics of Belief, Scientific and Religious (Venn, 1870). In it, Venn, thereby retracing David Hume's footsteps (see Hume 1748/1999, section 6 & 10, Daston, 1988, section 6.3, Gower, 1990), primarily dealt with the struggle to reconcile 'his very religious upbringing and assumed faith with the assumptions and [scientific] methodology [of probability theory]' (Wall, 2006, pp. 557-558) concerning an issue that had earlier appeared in chapter 13 ('On the credibility of extraordinary stories') of the Logic of Chance, namely that of the belief in miracles (see Cohen, 2001, pp. 157-158).
influence of those ‘radical’ works of Augustus De Morgan,\textsuperscript{15} George Boole\textsuperscript{16} and, most of all, John Stuart Mill\textsuperscript{17, 18} as well as probability theory, under the influence of Henry T. Buckle’s \textit{History of Civilization in England} (Buckle, 1857, see also Semmel, 1976) and his re-reading of Mill’s \textit{System of Logic}.\textsuperscript{19} Between the early-1860s and late-1880s Venn made several major contributions to the

\textsuperscript{15} Somewhat remarkably, the \textit{Syllabus of a Proposed System of Logic} (1860) is the only book of De Morgan appearing in the catalogue of Venn’s collection of works on logic (Venn, 1889\textit{e}, p. 33); where Venn, in his \textit{Logic of Chance} (1866) and \textit{Principles of Empirical or Inductive Logic} (1889), merely, refers to De Morgan’s \textit{Formal Logic} (1847), the \textit{Symbolic Logic} (1881) contains references to both the \textit{Syllabus}, \textit{Formal Logic} and \textit{Trigonometry and Double Algebra} (1849) as well as four articles that had appeared in the \textit{Cambridge Philosophical Transactions}, namely De Morgan (1841, 1846, 1851, 1864\textit{a} or 1864\textit{b}). It may be remarked that this seems to be at odds with John Archibald Venn’s remark that his father was greatly influenced by De Morgan’s treatises (see Venn, 1937, p. 869), such as the \textit{Treatise on the Calculus of Functions} (1836), \textit{Treatise on the Theory of Probabilities} (1837) and, under his ‘superintendence’, Ramchundra’s \textit{Treatise on Problems of Maxima and Minima} (1859) – although this could be explained, in turn, with reference to the fact that Venn, soon after finishing his degree in 1857, sold most of his books on mathematics (see Wall, 2008).

\textsuperscript{16} Although Venn owned Boole’s \textit{Mathematical Analysis of Logic} (1847), it was the \textit{Laws of Thought} (1854) – with which he became acquainted in 1858 and which he read several times between 1861-1878/1879 – that mainly occupied his attention.

\textsuperscript{17} Venn was in the possession Mill’s highly influential \textit{System of Logic} (1843/1858) and, in his \textit{Principles of Empirical or Inductive Logic}, repeatedly referred to the \textit{Examination of Sir William Hamilton’s Philosophy} (1865).

\textsuperscript{18} Venn had been introduced to these works by his ‘very industrious and systematic’ (Venn quoted in Barrow-Green, 2001, p. 185), albeit somewhat conservative tutor Isaac Todhunter (1820-1884) on which he had settled after having tried the (more) popular William Hopkins (1793-1866) and Francis Jameson (1828-1869) (see ibid., pp. 185-186, Craik, 2007, Macfarlane, 1916, pp. 134-146). Venn once remarked that even though Todhunter ‘was an excellent and learned mathematician, and a very [...] systematic thinker [...] I [Venn] still feel convinced that my studies [...] would have been far more advantageous with a teacher of another stamp. He always had the Tripos prominently in view, and seemed to have no sympathy with those who wished to turn aside to study some detached point which interested them or to speculate about the logical and philosophical problems that arose in the way’ (Venn quoted in Barrow-Green, 2001, p. 185).

\textsuperscript{19} It is in this context that Wall refers to John Archibald Venn who once noted that ‘it was [the] argument of historical determinism by Buckle that drove John Venn to re-awaken his mathematical interests and make a thorough study of chance [...] [I]n Mill’s Logic, [Venn] found what he considered a framework for handling the incomplete information represented by statistics [...]’ (Wall, 2008, pp. 7-8).
field of logic,20 e.g. the *Logic of Chance* (1866), on which he began to work in 1863,21 *Symbolic Logic* (1881),22 the basis for which was laid in the years 1858-1878/1879, and the *Principles of Empirical or Inductive Logic* (1889a),23 which, together with numerous articles published, for example, in the newly founded *Mind* journal,24 afforded him the status as one of Britain’s leading logicians.25

During these years Venn belonged to those tutors26 responsible for the further development of the Moral Sciences Tripos – which, together with the Natural Sciences, had been part of the University reforms of 1848/1850 and became

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20 Because it is not often recognized, it may here be remarked that Venn considered probability theory to be a portion of (material) logic – rather than mathematics (see Verburgt, 2013).

21 The *Logic of Chance* went through three editions during Venn’s lifetime, in 1866, 1876, and 1888 (see Venn, 1866, 1876c, 1888b). In the Preface, Venn took the opportunity to thank ‘several friends, amongst whom I [Venn] must especially mention Mr. Todhunter, of St. John’s College, and Mr. H. Sidgwick, of Trinity College, for the trouble they have kindly taken in looking over the proof-sheets, whilst the work was passing through the press. To the former in particular my thanks are due for thus adding to the obligations which I as old pupil, already owed him, by taking an amount of trouble, in making suggestions and corrections for the benefit of another, which few would care to take for anything but a work of their own’ (Venn, 1866, pp. xv-xvi).

22 The *Symbolic Logic* went through two editions (Venn, 1881, 1894) – the 1971 edition being a reprint of the second revised and rewritten edition (Venn, 1971).

23 Though, perhaps, a ‘seminal’ textbook (Cohen, 2005, p. 152), the *Principles* went through merely two editions – the second appearing some eighteen years after it had first been published (see Venn, 1889a, 1907).

24 Between the year 1876, the year of the journal’s founding, and 1889 Venn contributed six articles (Venn, 1876a, 1876b, 1878, 1879, 1880a, 1881b, 1888a), three reviews (Venn, 1884a, 1884b, 1889d), nine ‘critical notices’ (one in 1878, two in 1879, one in 1881, one in 1883, three in 1884 and one in 1889), two ‘discussions’ (one in 1888 and one in 1889) and one ‘notes and discussions’ (in 1877) paper to Mind. He also published two articles in the proceedings of the Cambridge Philosophical Society (Venn, 1880c, 1880d), one in the *Philosophical Magazine* (Venn, 1880b), one in the *Princeton Review* (Venn, 1880e), one in the *Journal of the Royal Statistical Society* (Venn, 1891) and one in the *Journal of the Anthropological Institute of Great Britain and Ireland* (Venn, 1889c).

25 During the period of his life in which Venn worked on his ‘trilogy’, he gradually acquired what today is still recognized as the largest private collection of works upon logic. Venn presented his collection, which consists of some 1100 books in several languages and covering the sixteenth-nineteenth-century, to the University Library at Cambridge in 1888. For the entire catalogue see Venn (1889e) and for a characterization of the contents and origin of the collection see Boswell (1995).

26 The other moral science tutors at the time include both Venn’s friends Henry Sidgwick at Trinity College and Leslie Stephen at Trinity Hall as well as Joseph Bickersteth Mayor (1828-1916) and Henry John Roby (1830-1915) at St John’s.
institutionally and academically established through William Whewell’s (1794-1866) campaigning (Whewell, 1845, 1850, see also Williams, 1991) in 1851 (e.g. Anon, 1860, Palfrey, 2002, Searby, 1997, chapter 6, Winstanley, 1955, chapter 11 & 12). If Whewell ‘initiated the process that reformed the examination, tutoring and lecturing systems that organised the curriculum’ (Gibbins, 2005, p. 250), Venn’s lecturing on moral science for the Tripos in the 1860s was instrumental in bringing Caius ‘into the range of influence and discourse of the leading minds of the University of the day’ (Brooke, 1985, p. 233), including his friends Seeley, who belonged to the ‘new progressive reformers’, and Sidgwick and Leslie Stephen, who were part of the ‘young radicals’ (see Gibbins, 2001). Even though the main sources of the ‘reformers’ were, essentially, the German and Scottish idealists and those of the ‘radicals’ the utili-
tarian and empiricist works of Bentham and Mill\textsuperscript{31} (see Gibbins, 1987, chapter 3), they were united by their progressive battle against the ‘reactionaries’\textsuperscript{32} to achieve a position from which the curriculum could be re-determined. Importantly, Venn, for his part, ‘sat comfortably between them’ (Gibbins, 2001, p. 68). That is to say that Venn, following his intellectual mentor, the successor, in 1855, of Whewell as Knightbridge Professor of Moral Philosophy, John Grote (1813-1866) ‘synthesized’ (see Gibbins, 1987, pp. 215-216) idealism and empiricism to further reform, and make into a success,\textsuperscript{33} the Moral Sciences Tripos (e.g. Slee, 1986, chapter 3).\textsuperscript{34,35}

Before serving, from 1903 until his death in 1923, as President of Fellows of Gonville and Caius College, Venn was John Ward’s (1843-1925) and George Frederick Stout’s (1860-1944) main contender for the newly created chair of Professor of Mental Philosophy and Logic in 1897. Although Venn, given his position as a senior authority, seemed to be the natural choice for the new professorship, in 1903 the selection committee appointed Ward – a failure which Venn, despite his being ‘a kindly, friendly man [and] never ruffled’ (as said an

\textsuperscript{31} Between the 1850-1860s Mill, as the new spokesperson for the group of philosophically-minded English political liberals known as the Philosophical Radicals, attempted to claim victory over Cambridge studies by means of two influential, but – with a view on the practical issue of (re)shaping the syllabus and curriculum – quite sketchy, polemic works, namely Dr. Whewell on Moral Philosophy (1852) and \textit{An Examination of Sir William Hamilton’s Philosophy} (1862).

\textsuperscript{32} The group of ‘reactionaries’ – identified, by Cannon (1964), as the rationalist node of the Cambridge Network and consisting of figures such as Whewell and Adam Sedgwick (1785-1873) – against which both groups of reformers reacted had been the great liberal reformers of their time.

\textsuperscript{33} After his election as the Knightbridge Professor of Moral Philosophy, Grote was confronted with the task of saving the Moral Sciences Tripos which, to be sure, had not only come in ‘serious disrepute both inside and outside the University’ (Gibbins, 2001, p. 70), but was also widely considered a grand-scale failure. Between the 1850-1860s ‘a yearly average of fewer than five students sat the examination [such that] [i]n their present state the [Tripos] [was] hardly worth preserving’ (Slee, 1986, p. 32). This situation was due, for example, to the fact its subject matter included examinations in fields as diverse as moral philosophy, general jurisprudence and (modern) history and it did not even lead to the award of a degree.

\textsuperscript{34} It was in his contribution to John W. Parker’s \textit{Cambridge Essays} of 1856, entitled ‘Old Studies and New’, that Grote, against the background of Whewell’s (1850), addressed the issue of how the Moral Science Tripos should be reorganized (see also Gibbins, 1987, pp. 48-49).

\textsuperscript{35} The intellectual connection between Grote and Venn is the topic of section 2.
obituary in The Times), took rather hard. In a letter to Ward, Venn even talked of ‘ceasing to reside in Cambridge’ (Ward quoted in Wall, 2007, p. 147). Venn remained at Caius, but resolutely turned away from his own field of study and came to dedicate himself to the subject of university history (Venn, 1897, 1898, 1901, 1910, Venn, Roberts & Gross, 1912) – which included the meticulous editing of the university archives (Venn, 1910, Venn & Venn, 1913) and preparation, together with his son John Archibald Venn (1883-1958), of the monumental *Alumni Cantabrigienses*36– and the writing of the annals of the Venn family (Venn, 1904).37

2. Venn, Grote and Mill: the foundations of material logic

In the early years of his career as a lecturer in moral science, Venn belonged to the inner core of what came to be known as the ‘Grote Club’, ‘Grote Society’ or *Sabia Conversazation*. This philosophical discussion group – established shortly after Grote’s election as the Knightbridge Professor and the only alternative to those debating societies with a mathematical and classicist orientation such as the Cambridge Philosophical Society (see Hall, 1969) and the ‘Apostles’ – met regularly at Grote’s house in Trumpington where he himself took on the role of ‘admirable moderator’ (Venn quoted in Gibbins, 1987, p. 86) (e.g. Rothblatt, 1986/1981, chapter 4). Importantly, the philosophical work of Grote, on which

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36 The *Alumni Cantabrigienses* – being, as the sub-title has it, a complete ‘biographical list of all known students, graduates and holders of office at the University of Cambridge from the earliest times to 1900’ – consists of ten volumes – the first two of which he lived to see in print (Venn & Venn, 1922a, 1922b).

37 Venn also published *John Caius: A Biographical Sketch* (Venn, 1910b), a volume containing speeches addressed to his College and writings contributed to the College Magazine, *The Caian*, entitled *Early Collegiate Life* (Venn, 1913) (see also Craik, 2007, pp. 18-23) and a memoir of the life of John Caius (Venn, 1912) and his great-grandfather Henry Venn (Venn, 1834). In the entry on his father written for *The Dictionary of National Biography*, John Archibald Venn also refers to the fact that, by the end of the 1880s, Venn wrote ‘monographs upon statistical and anthropometrical subjects’ (Venn, 1937, p. 879). The author of this paper has not been able to either find these works or collect any information on them in secondary literature.
he began writing after his election, had not yet been published by that time,\textsuperscript{38} and was known probably only to the society’s regular members\textsuperscript{39} – to whom, apart from Venn, belonged Mayor, Sidgwick and the Stephen brothers (see Gibbins, 1987, pp. 86-87). Given that Venn started working on what would become his first book – the \textit{Logic of Chance} – in 1861 and he himself, in a letter to Mayor, noted not only that ‘[a] good deal of the substance of it was read [at] our meetings at Trumpington’ (Venn quoted in Wall, 2006, p. 336, f. 11), but also that he had talked ‘with [Grote] about […] the chapters which he looked over’ (ibid.), it seems likely that Venn benefited from the views presented in the ‘admirable and suggestive’ (Venn, 1866, p. 171) \textit{Exploratio Philosophica} even before its actual publication in 1865. The same goes, by and large, for Grote’s deep personal thoughts and open conversation\textsuperscript{40} – which, to be sure, appealed to any ‘a young man interested in the relationship between philosophy and social responsibility, ethical behaviour and political [and educational] reform’ (Rothblatt, 1968/1981, p. 138) in the Cambridge of the (early) 1860s.

Although Venn does not cite from any of Grote’s work in his oeuvre,\textsuperscript{41} the latter’s influence can be established both directly as well as indirectly. The present paper is devoted to showing that, and in what sense, Venn’s alternative formulation of material logic resulted from a quasi-idealist criticism of the ‘ultra-empiricist’ Millian approach to the nature of knowledge, language and the syllogism (see (see Grote, 1865, Gibbins, 1987, Gibbins, 1998, Gibbins, 2006, MacDonald, 1966, Whitmore, 1927). It could also be suggested that Venn’s Grotean-inspired transformation of material was also what enabled him to conceive of the possibility of symbolically generalizing traditional logic – or, more specifically, to come to terms with Boole’s ‘algebra of logic’ – without

\textsuperscript{38} Gibbins has shown that even though Grote ‘began writing seriously only after his election to the Knightbridge Chair in 1855 […] we can gather from [the] list of unpublished manuscripts, that he must have written profusely since this date […] he had no immediate intention of publication’ (Gibbins, 1987, p. 92). In fact, Grote published his first book (Part I of the \textit{Exploratio Philosophica}) as late as in the Spring of 1865. For a list of works by John Grote see http://johngibbins.co.uk/works-by-john-grote.pdf.

\textsuperscript{39} Grote’s colleague and discussant, the member of the Cambridge Philosophical Society, Whewell forms an exception to this ‘rule’.

\textsuperscript{40} In a personal note to Mayor, Venn once wrote that the talks with and letters from Grote were ‘full of sympathy and encouragement, as everything was that came from him’ (Venn quoted in Wall, 2005, p. 336, f. 11).

\textsuperscript{41} As a bibliographic aside, it may here be mentioned that Venn did not make use of extensive quotations anywhere in his books and articles.
having to commit himself to ‘conceptualism’. But this is done in another paper (see Verburgt, 2014).

2.1 Venn’s Grote: knowledge, language and logic

Grote’s aim of making the meetings at his house into a place for ‘perfectly free discussion’, all the while allowing himself to ‘keep [it] from struggling into side issues’ (Venn quoted in Gibbins, 1987, p. 86), reflected his fundamental idea that knowledge as a whole arises from the clarification of actual linguistic usage. If the clarification of language and thinking are, indeed, the same, it is also to be perceived that, for Grote, ‘language consists [not] in the mass of dictionary words [but] in the living intercommunication of thought’ (Grote, 1874, p. 165). It was on this basis that Grote dismissed in toto the attempt – pursued, for instance, by ‘the empiricists’ – to solve philosophical problems by either formalizing language or inventing a new one. In his ‘On glossology’, Grote wrote that

> ‘it seems to me an entire mistake to attempt to regulate our use of words [...] by consideration of what is, or is not, corruption [...] I [Grote] am inclined to think that language has always prospered best when the attention has been [...] to its essential purpose, the clear expression of thought’ (ibid., pp. 173-174).

This statement led Grote to put forward the claim that ‘every language is a perfectly new sphere of thought’ (Grote, 1872, p. 38) or ‘separate universe’ – characterized by both an internal organization of ‘elements ordered together in a system so that when one word is used it implies that all the other elements exist [etc]’ (Gibbins, 1987, p. 70) as well as common assumptions about the world such that there arises ‘a shared world of ‘things’ [and] ‘thoughts’” (Gibbins, 1987, p. 70). The fact that language does refer to the world – or, for that matter, that ‘the study of words is the study of things’ (Grote, 1874, p. 175) – is accounted for by means of the argument that words and things are ‘units’, or (as above) ‘elements’, of a shared world created by human thought. And this world ‘is [a] [systematic] abstraction from the actual universe, made by man [...] for
the purpose of translating reality into language’ (Grote, 1872, p. 65). Grote, thereby, committed himself to the view that the ‘thought side of a word, its […] ‘idea’ or ‘concept’ is what is meant by [a] ‘thing’ (Gibbins, 1987, p. 77, my emphasis) – such that, in turn, all propositional judgments refer to facts in so far as these are the result of a ‘self-consistent’ (Grote, 1900, p. 169) imaginative (re)construction ‘from the comparison together of the information […] on our various senses’ (Grote, 1865, p. 13).

It was against the background of his ordinary-language-philosophy-inspired ‘constructive’ idealism – or, for that matter, his eclectic ‘English idealist’ middle position between those empiricists who declared experience to be the source of all knowledge and the idealists who held that a great deal of human knowledge is antecedent and/or independent of experience – that Grote, in his Exploratio, set out to systematically criticize what he perceived as the ‘exaggerated’ claims of the philosophers and scientists of his time. In brief, where the first (so-called ‘notionalist’) group – including figures such as Hamilton and Henry Longueville Mansel (1820-1871) – is accused of granting their metaphysical claims a scientific status, thereby wanting to ‘[“realise”] […] or posit in reality concepts or notions that are merely logical or abstract’ (Gibbins, 1987, p. 246, see also Grote, 1865, p. 165), the second (so-called ‘mis-’ or ‘ultra-phenomenalist’) group, consisting, amongst others, of Mill, is said to confuse scientific findings with philosophical insights, namely by using ‘physio-psychological’ descriptions of the human mind to expose the process in which knowledge is obtained (see Grote, 1865, chapter 1, Gibbins, 1987, pp. 292-303). It is in the chapters dedicated to Mill (see Grote, 1865, chapter 8 & 9), that Grote extends his general criticism of the group of mis-phenomenalists, or, as he sometimes calls it, (materialist) empiricists, psychologists or positivists, to the phenomenalist conception of logic – as found, most famously, in the System of Logic. Perhaps unsurprisingly, Grote’s main point is the following:

42 As Gibbins explains, for Grote ‘[t]hought is an abstraction from both language and reality. The unity lies in the triadic relationship of the three. We might [refer] to Grote’s [claim that] “Reality and man’s minds are made for each other”’ (Gibbins, 1987, pp. 72-73).
'Mr Mill’s book is [...] a Phenomenalist Logic with a starting point from the Aristotelian or Formal Logic.\textsuperscript{43} It will be remembered that I [describe] the phenomenalist view [...] to be an abstraction,\textsuperscript{44} meaning [...] that when we have got the knowledge, we may suppose the things we know to exist without any reference to our knowing them or to the manner in which we come to know them but that in reality the manner in which we come to know them is by a great deal of imagination, speculation, and action of the mind’ (Grote, 1865, p. 157, emphasis in original).

The phenomenalist logic viewpoint which holds that true propositions correspond to the ‘ultimate fact[s] [found] out by physical research’ (ibid., p. 59), is premised on a twofold category mistake, the confusing of the phenomena researched by natural science for those appearing as terms in propositions and the deploying of the psychological phenomenon of ‘a state of belief upon evidence’ (ibid., p. 158) as the description of the activity of the human mind in forming and checking propositions. Consequently, for Mill, the sole function of any proposition is ‘the assisting [...] by standing by or looking on at [...] natural fact, which the terms of the proposition, indicate. [It] is not the reference by us of a thing, nor is a judgment [...] about a thing, but [...] an expression of a natural fact’ (ibid., pp. 157-158, f. 1) – such that he, in effect, is unable to either account for the (traditional) logic of ‘correctness of thought’ without finding

\textsuperscript{43} Grote summarized Aristotelian logic by means of the remark that ‘[t]here is assumed a subject of thought as a peg to hang predicates on, and in these predicates is knowledge; the subjects, in virtue of the predicates attachable to them, may be put together (as terms) in propositions, and the propositions again be put together in syllogisms leading to further propositions. Correctness of thought is in proper predication, in making propositions and putting them together: advance of thought is in the fruitfulness of such predication, making of propositions, and putting them together, in view of further predication’ (Grote, 1864, p. 151).

\textsuperscript{44} Somewhat confusingly, Grote seems to argue that Mill’s phenomenalist logic is an ‘abstraction’ from a mental process connecting ‘the remote, hidden or complicated phenomenon [with] human sense’ (Grote, 1865, p. 159) that itself can be described as a process of (constructive) ‘abstraction’. 
recourse to psychology or expose the (‘real’) logic of the growth of knowledge on any other than an individual level. Taken together, Grote claims that he himself does ‘not admit the propriety of the [Millian] process of settling [...] a [‘real’] logic from observation of the advance of physical knowledge (my ‘phenomenalism’) and then at once saying, All this is applicable similarly to the study of [the] mind’ (ibid., p. 161). Grote has it that this central confusion is due to one main factor; Mill’s phenomenalist account not only avoids, but is actually in contradiction with ‘the logical point of view in our simpler or more immediate knowledge of nature’ (ibid., p. 159, my emphasis) as it can be found in ordinary language – going, as it does, ‘to the bottom of our mind’ (ibid., p. 154) –, namely that of the idealist constructing of an immediately sensible world by a human intelligence that ‘is in its very constitution social’ (ibid., p. 154). Or, put differently, Mill’s ‘confusion’ is caused by his hope

‘that mental facts [...] should [one day] be recognized and understood as one kind of affections [...] or the organism. [But] [t]he phenomenalist’s test of reality is not our feeling about anything, but things [...] as he [individually] understands them [...] And conversely the logician or

Grote defined ‘real logic’ as that abstract ‘method of Logic, of any kind, which so far incorporates into itself the notion of actual experience as to be able to take into account the growth of knowledge, whether in the individual or the race’ and contrasted it to the ‘Aristotelian, which we may call if we like, when pure and by itself, Formal, and which [...] running wholly on [speculation], or on [experience] only in [...] very abstract a form [...] may have various valuable applications, besides this, if we consider it one: as to verification, to grammar, or to digestion of argument’ (Grote, 1865, p. 153). In the second part of his Exploratio, Grote also wrote that the subject of ‘Real Logic, which might also be called Physical Logic or Applied Logic, in contrast to Pure or Formal Logic [...] is the study of the actual advance of man in phenomenal knowledge with the view of drawing logical conclusions from it’ (Grote, 1900, p. 1).

Grote wrote that ‘[t]he great mass of ‘the Philosophy of the Human Mind’ is in its details an attempt at a Real Logic of individual knowledge [...] [W]e are [here] considering the growth of the knowledge of one mind in the midst of a quantity of others [...] This I believe, at bottom, is the origin of the mis-psychological error [...] ‘A stone lies before me: I see it’ (Grote, 1865, p. 153).

It may be repeated, at this point, that ‘[t]he original fact to us, the one thing of which we are, before all others, certain, is not the existence of a universe of which we, as organized beings, form a part, but the feeling, thinking, knowing, that this is so, and the knowing that we do know it [...] or that we who know it, are anterior, in our view of ourselves, to it’ (Grote, 1865, p. 84). In other words, the ‘immediateness’ of the sensible world is the result of a primordial situation consisting of the harmony between thought and reality.
philosopher who really looks upon the ultimate test of reality, for us, as being our consciousness, is [...] precluded by his initial view [...] from allowing the possibility that this consciousness can, by any process, be proved to be only a circumstance [...] of matter [for] [i]t stands to him as his basis for everything else that he knows, and therefore, whatever may be proved from this so as that he knows it, the utmost is that he must hold it in accompaniment with that his original thought' (ibid., pp. 162-163).

In sum, Grote aimed to counteract those theories of knowledge and logic which are in opposition to the fundamental constructive-idealist insight that ‘reality’ (or, in fact, existence as such), is only ‘the resultant arising from the comparison together of the information [...] on our various senses, or [...] our various means of communication with the external world’ (ibid., p. 13) – such that its knowability and the very possibility of linguistic truthfulness is guaranteed, so to say, by its very construction.

2.2 Venn as a reader of Mill: a ‘disaffected Millian’?48

It was about Mill’s System of Logic that Venn’s cousin, Leslie Stephen, once remarked that it became ‘a kind of sacred book for students who claimed to be genuine Liberals’ and was widely considered the single ‘most important manifesto of Utilitarian philosophy’ (Stephen, 1900, pp. 75-76). And the System of Logic was, indeed, explicitly the work of a reformer aiming to defeat those philosophies holding that there are certain necessary truths the source of which is the mind rather than experience. Somewhat to Mill’s own surprise, the book was very successful; it went through no less than eight editions in Mill’s lifetime and by the time of the publication of the revised edition of 1857 it had already sold over forty-thousand copies. At Cambridge, the System of Logic was widely read – in the first place by ‘the relatively few students taking the Moral Science Tripos’, including Venn, ‘for whom it was required reading’ (Snyder, 2006, pp. 99-100). It may, then, come as no surprise that Venn, in his first few publications, explicitly announced his agreement with the so-called material approach put forward by Venn (see Venn, 1866, Venn, 1876). And it may be

48 Even though the only place where this characterization of Venn as a ‘disaffected Millian’ can be found is in an encyclopedic entry on Venn by Eugene Seneta (see Seneta, 2001), it beautifully captures the underlying, and oft-forgotten, philosophical viewpoint of his oeuvre.
recalled that his becoming acquainted with the *System of Logic* was instrumental in his radical decision to turn away from the Clapham Sect and to return to Cambridge to devote himself to the study of logic.\footnote{49}

Be that as it may, the general view of logic which Venn developed in the course of his oeuvre can best be understood in terms of a growing disaffection with the fundamental pillars of Mill’s material system of logic.\footnote{50} On the one hand, Mill’s claim that in so far as knowledge is obtained by experience alone all non-trivial inference is of an inductive nature is criticized, by Venn, for several reasons (see section 2.2.1). Firstly, for its neglect of the (preliminary) creative role of the mind in drawing inductive inferences which not only allowed him, secondly, to conceive of the misguided idea of formalizing this process, but also, thirdly, to reduce logic ‘to a bare statement of objective laws or regularities [i.e.] to the subject matter of […] the physical sciences’ (Venn, 1889a, p. 22). On the other hand, Venn dismisses Mill’s doctrine that the ground of logic is ‘wholly borrowed from psychology’ (Mill, 1865, p. 388) because his psychologistic justification of induction in stemming from reflection on the mind’s actual practices in reasoning confuses the descriptive task of psychology (‘how we do think’) and the prescriptive function of logic (‘how we ought to think’).\footnote{51}

Now, it is precisely the ‘overobjectification’ and ‘psychologism’ inherent in Mill’s system of logic (see Godden, 2005) that had been criticized by Grote and that is transformed by Venn into an alternative (anti-psychologist) system that defines logic as the (non-ultimate) science premised on conventional objective and subjective conditions and concerned with ‘the judgments of the [mind] about […] the world of phenomena’ (Venn, 1889a, p. 22) (see section 2.2.1). This transformation leads Venn to a quasi-idealist revision of the Millian position vis-à-vis the relation between induction and the syllogism (see section 2.3).

\footnote{49}{For a description of these personal events see section 1.}
\footnote{50}{For accounts of the logical core of Mill’s *System of Logic*, namely Book I-V, see, for example, Stebbing (1869, pp. 3-147), Anschutz (1949), Jackson (1941), Scarre (1989), Skorupski (1989) and Skorupski (1998). The intellectual connection between Mill and Venn counts as a largely understudied topic. Yet, Buchler (1939/2000, part 3), and Johnson (1941, introduction) make some valuable suggestions.}
\footnote{51}{Given these fundamental differences between Mill’s and Venn’s logical outlook, Dewey was certainly right when writing that Venn’s work was a wholly ‘independent rendering of Mill’ (Dewey, 1977/2008, p. 63).}
It is true that Venn’s research for what would become his first publication was spurred by his reading of the System of Logic. But already in the middle part of the Logic of Chance does Venn explicitly align himself with the criticism of the idealist, political conservative and discussant of Grote, Whewell on the Millian theory of induction (Venn, 1866, chapter 7, see also Laudan, 1971, Strong, 1955, Snyder, 2006, chapter 1-3, Walsh, 1962). Venn defines this theory as follows: “Induction is that act of the mind by which, from a certain definite number of things or observations, we make an inference extending to an indefinite number of them”. And he continues by remarking that Mill assumes

‘that the data [...] are already clearly recognized. Whether we take the simple symbolic [formula], this $A$ and that $A$, and so on, are $X$; therefore every $A$ is $X$; or any special concrete instance [...] all practical difficulty which may have existed as to discovering and recognizing our $A$ is omitted from view. But though this omission is possible in examples, it is scarcely possible in making original inferences. The objects from which our inference started as its basis must have been selected [...] and there must [thus] have been some principle of selection in our minds’ (Venn, 1866, p. 195).

If this is already a far cry from Mill’s ultra-empiricism, Venn refers to Whewell as the author who, despite sometimes using ‘rather strong expressions to describe it’ (Venn, 1866, p. 195), has ‘not unnaturally attached extreme importance to this creative part of the act of Induction’ (ibid., p. 195) which is ‘introduced by the mind, and is not found in the things’ (ibid., p. 195). Venn, thus, wishes to separate the two parts of induction. Where the first (Millian) part suffices in those simple cases in which the conception accounting for the basis of an inference is already suggested by a word in everyday language, the second (Whewellian) part comes into play in those more complex cases in which these conceptions first have to be created. And it is on the basis of an understanding of these complex cases that the arbitrariness involved in the simple cases can be exposed:

‘It should be borne in mind that when we state the grounds of the inference [‘all men are mortal’] in the form, this man is mortal, and that man
is; we are presupposing that the observer has already not merely distin-
guished the class ‘man’, but distinguished it as appropriate to his imme-
diate purpose. Whereas the grounds of his inference were in reality
certain objects. It is true that these objects belong to the class man, but
[...] they belong also to an indefinite number of other classes as well [...]  
[Even if] the observer would have been right in his inference whichever
[...] classes and corresponding conceptions he might have selected [...]  
such considerations show us that there was scope for great ingenuity and
for considerable effort of mind in a preliminary process, which, accord-
ing to Mr. Mill, is no part of Induction’ (ibid., pp. 198-199).

Venn’s point is not that Mill was wrong in supposing that inductive inference
‘has to do with facts or things themselves rather than with our ideas about them’  
(Venn, 1876, p. 44), but that his project of formalizing induction was premised
on the neglect of the creative, non-mechanical, role of the mind.

2.2.2 ‘The difficulties of material logic’

And this was exactly what led Venn to recognize the difficulties of material
logic – as elaborated in the article, with this very title, of 1879. Here, Venn’s
main observation is that even though ‘the view of Logic in which it is regarded
from the objective standpoint instead of from the conceptualist is the essen-
tially sound view’ (Venn, 1879, p. 36), it is ‘an ideal towards which we are
to aim [rather] than a goal which we can consider ourselves to have attained’
(Venn, 1879, p. 36). In other, more specific, words,

‘[t]hings are what they are to out faculties; their attributes are at bottom
merely certain ways in which they affect us [such that] objectivity [...] 
does not in any way imply acquaintance with more than phenomena. [...]  
[Objective] knowledge [...] rendered final and general is, for all practi-
cial and speculative purposes, the same thing as the sum-total of “exist-
ences considered as objective” which [...] is [...] the subject-matter of
Logic. [But] [i]t is obvious enough [...] that any such attainment [...] is
at present indefinitely remote [Consequently, there is] a number of [subj-
ective] assumptions, or [...] conventions [...] forced upon us [...] if we
wish to render our system consistent and homogeneous’ (Venn, 1879,
pp. 35-36, p. 37).
Given this situation the task is to create a so-called ‘third science’ that stands between a purely (‘material’) objective or (‘conceptual’) subjective system of logic. It may be remarked that Venn, at several points in his articles, seems to suggest that this ‘midway’ is not merely a temporary construction, but follows from the fact that it is only in speculation that

‘we can make a clean split between the objective and the subjective, and set them apart over against another. [F]or if we look to the practical necessities of life and the actual processes of thought, we shall find that it is in the intermediate layer of tissue [...] that all the vital processes of growth and organisation are going on’ (ibid., p. 46).

And this is exactly what accounts for the abovementioned disagreement on the issue of the two parts of inductive inference between Mill and Venn.

Now, the task of the creation of a ‘third science’ – to which is relegated ‘all that now currently goes by the name of Logic’ (ibid., p. 46) – involves the enumeration of the assumptions functioning as the ‘subjective’ foundations of the ‘objective’ treatment of logic. These assumptions, essentially, concern the existence of the objects of names (ibid., pp. 37-39), class-names (ibid., pp. 39-41) and propositions (ibid., pp. 41-44). Venn’s general solution is to claim the following:

‘We have to rule, from time to time that such and such things do exist and that others do not [...] That is, we have as logicians, when asked to declare what is the denotation of any term [class-term or proposition] [...] [A]ny such arrangement is altogether relative, not merely to the age in which we live, but in some respects to the society with which we happen to mingle’ (ibid., p. 39).

This conventionalist solution enables him both to ascribe a role to ‘subjective’ assumptions without committing himself to conceptualism as well as to uphold the idea that logic is a science concerned with the truth and falsehood of statements about things while circumventing its (material) ‘objectification’. For example, in the case of class-terms Venn feels confident to attack the conceptualist’ criterion of the logical existence of the constituents of a class, by writing that it neglects ‘the teachings of nature [because] he [the conceptualist] ought not to try to fill his class-compartments unless he can actually find the
wherewithal to put into them’ (ibid., p. 40). At the same time, Venn’s wholly negative argument for this statement is that no ‘sub-division [is] eternally empty. The utmost we dare say is that it is unfilled at present, and will be found to be unfilled [merely] within a reasonable range about the period occupied in time by us of the present day’ (ibid., p. 41).

2.2.3 The complete reformulation of material logic

The transition from an initial acceptance of the Millian definition of material logic in 1876 to its reformulation as an ideal ‘towards which we are to aim’ (ibid., p. 36) in 1879 culminates in its total revision in the Principles of Empirical or Inductive Logic of 1889. For if Venn, in his article of 1879, was willing to acknowledge the difficulties of the material, or objective, view of logic all the while considering it as an ideal that was worthwhile to pursue, some ten years later he straightforwardly dismissed it when observing that ‘such a view [...] is altogether insufficient, and would [...] lead to the rejection of most what has always been regarded as forming a part of the subject-matter of Logic. [For] [...] it seems obvious that any attempt to confine ourselves to a bare statement [...] of facts of nature must be insufficient when what we are concerned with is inference about those facts’ (Venn, 1889a, p. 23).

It is in the Principles that Venn creates an alternative system of inductive logic with the character of a ‘third science’. That is, Venn now maintains that the whole enterprise of logic is itself neither purely objective nor purely subjective in so far as it is premised on ‘a duality, external and internal’ (ibid., pp. 21-22) – on the one hand, ‘outside us, there is the world of phenomena pursuing its course’ and, on the other hand, ‘within us, there is the observing and thinking mind’ (ibid., p. 22) – and concerned with ways in which the latter makes inferences about the former in the form of propositional inferences. The first five chapters of the book are dedicated to a detailed treatment of the foundational assumptions of material logic; chapters 1 to 4 put forward the ‘objective’ or ‘physical’ foundations of immediate inference (see ibid., pp. 1-110) and chapter 5 the ‘subjective’ or ‘mental’ foundations of inductive inference (see ibid., pp. 111-136). It must be perceived not only that the two (‘Millian’ and ‘Whewellian’) parts of inferentiality are here incorporated into one system, but also that the first is said to be premised on conventions drawn from ‘Metaphysics [...] Psychology, Physical Science, Grammar and so forth’ (ibid., p. 1) and that the
second, conditioned as it is on the ordinary powers of observation (see ibid., pp. 111-116), the faculty of memory (see ibid., pp. 116-118) and the belief in the uniformity of nature (see ibid., pp. 119-136), is presented as accounting for the possibility of induction. Taken together, Venn has transformed Mill’s material theory into a system of inductive logic in which the study of logic can only commence after the construction of the ‘world as the logician regards it’ (ibid., p. 1) and in which ‘true Inference’ (ibid., p. 112) is grounded on mental postulates and carried out by a ‘thinking mind’.

2.3 Mill’s psychologism: revisiting the relation between induction and the syllogism

The gradual dismissal of the Millian ‘over-objectification’ of material logic went hand-in-hand with a gradual revision of the doctrine of the syllogism accompanying it. In his ‘Consistency and real inference’ of 1876 Venn wrote that if this doctrine is to be regarded as Mill’s ‘strongest claim to originality’ (Venn, 1876, p. 47) it is also ‘the natural, simple, and almost necessary outcome of the general view of logic which he has adopted’ (ibid., p. 47) – and with which Venn himself, by that time, was in full agreement. Venn explained his position as follows:

‘Take, for instance, the proposition “All men are fallible”; from this we obtain [...] “Some infallibles are not men”. Now regard these propositions as judgments; that is, stop short at the mental process of framing the judgment instead of going on to the facts about which the judgment is made, and it can hardly be denied that one of them is an inference from the other [for] they have different subjects [...] predicates [...] quantity and [...] quality [...] But penetrate to the facts to which these judgments refer, and we see at once that they are identical [i.e.] that one is a portion of the other. The things are the same, being merely differently grouped, or looked at from a different point of view [...] The conclusion, [when] regarded as an objective fact, is the premisses, or [...] a portion of them [...] Hence Mill’s view readily follows, viz.: that it is the major premiss which really contains the whole inference’ (ibid., pp. 47-48).

It is in chapter 14 of the Principles that Venn returns to this very doctrine with the aim of offering ‘some criticism upon it’ (Venn, 1889a, p. 372). This crit-
icism is introduced by means of questioning Mill’s view that the syllogism contains a petitio principii (e.g. Nelson, 1925, Scarre, 1989, chapter 3, Skorupski, chapter 4) – i.e. ‘that it is the major premiss which really contains the whole inference, the remaining part of the syllogism consisting merely in identification [...] of what has gone before’ (Venn, 1876, p. 48). In other words, Mill has it that there is no inference within the limits of the syllogistic process itself in so far as, firstly, the true original premises are obtained by generalizing beyond the observed original facts such that, secondly, the whole inference is already ‘secured in the act of obtaining the major premise’ (Venn, 1889a, p. 373). Consequently, within Mill’s view it holds that ‘whoever asserts [e.g.] that “All M is Q” must know, or, if not, ought to know, that “P is Q”, because the fact that P is Q is simple a part of the general fact that “All M is Q”’ (ibid., p. 374).

Venn’s main argument against this doctrine of the syllogism is that it follows from the ‘over-objectification’ of the ground of logic. That is, he claims that the Millian neglect of the role of the mind in making an inductive inference not only implies the neglect of the inference involved in the formulation of the major premise, but also results in the idea that the conclusion of a syllogism is a repetition (in part) of the major premise alone.

‘I [Venn] do not think it would be possible to find any better illustration of this [over-objectifying] tendency than is offered by some of Mill’s remarks on the subject now before us [...] [His view] seems to me, I must confess, to involve [a] want of appreciation of the distinction between the objective facts and our subjective recognition of them. It is [...] true that when we contemplate the facts out of relation to our processes of acquiring them; when we think of them as they exist in nature and not as they come into a syllogism we see that the fact that “P is Q” is [...] a part of the broader fact that “M is Q”. But there is a very great difference, – for the purposes of Logic, all the difference required, – between saying this and admitting that our recognition of the former is necessarily given in that of the latter’ (ibid., p. 374, my emphasis).

After the ‘ultra-objective’ approach to the syllogism has been abandoned, Venn holds that it must be accepted that it is possible ‘for any one who has consciously realized that M is Q, and P is M, not to consciously realize that P is Q’ (ibid., p. 375). If Venn draws this possibility from the work of the conceptualist
Hamilton\textsuperscript{52} and explicitly rejects Mill’s criticism of it in his *Examination of Sir William Hamilton’s Philosophy* (see Mill, 1865, chapter 20-23), he also concedes that the impossibility of ‘realizing such a state of things […] has always constituted […] the principal difficulty in the way of accepting the Syllogism’ (Venn, 1889a, p. 375) within a material system of logic. And this, to be sure, is precisely the general goal which Venn sets for himself.

Venn is of the opinion that Mill’s refusal to accept the syllogism is due both to his over-objectification of inductive logic as such as well as to the fact that the theory as to the origin of knowledge underlying it, namely his psychologism (see ibid., pp. 378-379), prevents him from realizing the abovementioned possibility. This argument is explained with reference to the observation that Mill’s position seems to derive all its force from the simplicity of his examples, that is, from his discussing only the ordinary processes of reasoning which are ‘extremely short’ (Venn, 1889a, p. 377). Put differently, Mill’s assumption that the ‘data, viz. the limited number of things’ (Venn, 1866, p. 194) from which the inductive inferences providing the major premise start and on which they are grounded are always already clearly recognized does not sit well with those more complicated cases – found, for example, in mathematics and the ‘algebra of logic’ – that do not appear in the ordinary syllogism. For, as Venn wrote,

‘it is quite possible to suppose any one setting out from [….] two premises, as his real starting point, and reaching a conclusion which, regarded as a proposition or judgment held by him, may be something distinctively new. If this be so it is not necessary, with Mill, to insist upon going behind those premises in order to enquire into their grounds; the customary logical process of taking them for granted, and starting from them as the origin of our reasoning is quite consistent. [And] [o]ften the facts are [indeed] far too remote to be […] readily reached […] It [holds] that no general proposition can be a true ultimate starting point; but we may nevertheless admit that such propositions are often the only starting point from which the thinker […] did set out, and often indeed

\textsuperscript{52} In order not to commit himself to conceptualism Venn notes that the possibility is merely an outcome suggested by the conceptualist theory of judgments (see Venn, 1889, pp. 375-376).
the only ones from which he possibly could have set out’ (Venn, 1889a, p. 378).

It is for this reason that Venn concludes that any theory of the syllogism which does not allow for such cases ‘is surely unfitted for the purpose of Logic’ (ibid., p. 379). The claim that this applies to Mill’s theory is argued for by pointing out that, when extended to precisely these complex reasonings, it would transgress ‘into the province of Psychology’ (ibid., p. 379). And because it would thus always attempt ‘to determine the ultimate sources of knowledge’ (ibid., p. 379) it follows that it is unwilling to account for the unordinary cases.

As Venn himself suggests, his account of the relation between induction and the syllogism is a ‘modified acceptance of Mill’s view’ (ibid., p. xvi) – and this in two, rather profound, respects. On the one hand, it insists on the preliminary role of the mind in the inductive inferences which provide the major premise, that is, it emphasizes that there is ‘a great deal of labour and insight required […] for the acquirement of our major premise in the form in which we can employ it’ (ibid., p. 377). On the other hand, it extends syllogistic reasoning to those non-trivial cases in which ‘we hold a proposition, though we cannot […] and perhaps cannot at all, recall the [material] grounds on which we do […] hold it’ (ibid., p. 379). These differences can, hopefully, account for the truth of Dewey’s timely statement to which this paper was dedicated, namely that Venn’s logic was ‘such an independent rendering of Mill as to be worthy of more attention’.
Acknowledgments

I would like to thank the participants of the pre-doc seminar at the MPIWG for their critical comments on an earlier version of this paper.

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