**Social Media and the Politics of Small Data: Academic Value and Post Publication Peer Review.**

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**Abstract**

Academics across the sciences and humanities are increasingly being encouraged to use social media as a post-publication strategy to enhance and extend the impact of their articles and books. As well as various measures of social media impact, known as altmetrics, the turn towards publication outlets, which are open access and free to use are contributing to anxieties over where, what and how to publish. This is all the more pernicious given the increasing measures of academic value that govern the academy (see Burrows, 2012) and the stresses, strains and hidden injuries that structure academic life (Gill, 2009). This article will debate these issues and their consequences for the humanities and social sciences by analysing the contours of a recent controversy in academic science publishing, which follows the after-lifes of a highly cited journal article, which crosses cognitive science and social psychology. The controversies surrounding the article as it moved on from the event of its original publication bring together a number of different concerns; the use of social media and the value and status of post publication peer review; the politics of open access publishing; the social life and cultural politics of data; the politics of citation and the public communication of science within digital environments and archives.

**Introduction**

As Roger Burrows (2012) has cogently argued, the complexity and stresses of what counts as academic value and its various measures and metrics, are now a ubiquitous part of life in the neoliberal academy. Where Burrows outlines some of the key measures of value which structure academic life (including the H-index, various research assessment exercises, national student surveys and so forth), one recent addition to this assemblage of data are measures of the success of social media strategies by academics, publishers and editors to increase the impact of published journal articles and books. These strategies are situated within the changing landscape of academic publishing, and the 'digital disruption of the publishing industry' (van Mourik Broekman, Hall, Byfield, Hides and Worthington, 2014: 36). These disruptions are contributing to a range of anxieties over what, where and how one should publish. These anxieties are heightened for individual academics under pressure to increase the chances of one's article being read and cited, or conversely who want their work to be 'read, appreciated and re-used' (van Mourik Broekman et al, 2014: 43).

Journal editors and publishers who have attracted high impact measures, and whose journals are ranked in various hierarchies of value, know that impact measures are influenced by the likelihood that many if not most journal articles are zero-citations; that is they are rarely if ever cited. These anxieties are distributed across publishers, editors and individual authors, increasingly finding themselves in a publishing arena where it is not enough to secure a publication; one is now encouraged and sometimes incited to increase the visibility of their article through the use of social media. The aim of such strategic activities are to improve the likelihood that the article will be downloaded, read and cited and there are various measures of effectiveness, such as altmetrics, which can be used to audit such activities. The holy grail of these practices are an increase in visibility and possible impact and citation. Savvy academics are increasingly turning to social media to draw attention to a published article or book, as at the same time they find themselves negotiating potential accusations of self-promotion and self-branding, as well as sometimes (and especially in the case of feminist academics) attracting abuse, harassment, trolling and flame-wars[[1]](#endnote-1).

This article will explore the challenges of these new publishing environments by turning to science publishing and the difficulties facing scientists who have to tread a path between attracting attention and visibility and negotiating the problems that might arise from post publication practices, which are sometimes akin to strategic self-commodification, personal branding and practices of micro-celebrity (see Papacharissi, 2012). The anxieties and challenges of such practices will be situated within the emergence of what has come to be known as post publication peer review. Post publication peer review (or PPPR) refers to the afterlives of journal articles and other forms of writing as they circulate within and across social media. This movement affords the potential to extend review by allowing post publication contributions to comments sections of blogs and websites, discussion forums, and increasing circulation and traction of an article or book across Facebook, Google+ posts and Twitter. In some cases this extended and hyperlinked commentary can court the attention of broadcast media and contribute to the public communication of science.

Although it is recognized by scientists that post publication peer review can extend the article’s afterlife, allowing a bigger readership and more publicity, for many, this comes at the expense of the integrity of science. Post publication peer review is an inevitable part of new publishing cultures, but carries the dangers of opening academics and scientific theories up to scrutiny, judgement, reflection and evaluation that exceed those criteria that have been invested in as the cornerstones of scientific truth and objectivity, such as reliability, validity and replicability. There is also the very real danger that it might not hold up legally, opening the academic to the possibility of legal action and being sued[[2]](#endnote-2). Post publication peer review can also provide a corpus of data that make visible in new ways the citational politics that govern what it might mean to be highly cited and the ambiguities, conflicts and contradictions that participate in the making of various citational metrics.

These issues and their significance for humanities and social science scholars will be explored by following the fate of a highly cited journal article from 1996, published by the Yale cognitive scientist John Bargh. This article became the subject of a social media controversy in 2012 highlighting some of the issues shaping post publication peer review, its' possibilities and discontents. The article in question is one of the most highly cited articles in the area of priming (currently cited over 2300 times), which crosses cognitive science and social psychology. It is an area that was popularized by Malcolm Gladwell in his book, *Blink: The Power of Thinking without Thinking* (2005)*.* The article suggests that experimental subjects can be primed to walk more slowly to an elevator following being shown words associated with ageing on a scrambled language task. Priming is an already controversial area of study as it has close historical links with psychic research and is an area that is characterised by puzzles, anomalies, contradictions and what many have described as attention-grabbing studies. The article in question recently gained an after-life as it was revitalized and became the subject of an ongoing controversy, which took shape across various social media platforms and produced a corpus of data available for analysis and inspection (see Blackman, 2015).

What can we learn from the after-lives which this article accrued as it moved on from the original event of its publication and became an *attractor* for a series of contemporary debates confronting scientists writing within new publishing contexts shaped by digital media? As much as humanities and social science scholars have inherited various measures of value from science, I will argue that we are also being forced into a post publication environment that scientists have already confronted through the emergence and rise of digital, distributed forms of communication, sometimes, but not only linked to open-access science journals, and the architecture and topology of such relationships. This means that published articles are often hyper-linked to formal and informal networks of commentary, response, review and judgement, which introduce processuality into the review process, meaning that the review process is always subject to change post-publication. In some cases these distributed forms of post publication peer review are opening science up to controversies, which in the past have been occluded, obscured and contained by positivist forms of science writing. What does it mean to court controversy and attract visibility within this context, and what can we learn about the cultural and social life of data?

The anxieties that this is creating for scientists draw attention to the politics of academic publishing, the politics of citation practices, the social and cultural life of data, and the mystery of what attracts attention and gains a traction and visibility across social media and why? Post publication peer review entangles multiple actors and agents, including social media and open-access platforms, websites, communities of academic scholars and researchers, journal editors, science journalists, media broadcasters and particular interested publics. These entangled relations are simultaneously affective, material, technical, cultural and political, which extend post publication peer review beyond discussions of what peer review means as it is extended within digital environments. As we will see, if post publication peer review is approached as a material-semiotic-affective apparatus for producing, shaping and entangling entities, objects and processes, then it is provides an interesting repository for analysing the politics of data and its social, cultural and historical life. The analysis that follows will show how academic value and its various measures and metrics co-exist. They are co-produced and entangled with relations of status, prestige, hierarchy and worth. I will argue that these relations silence, omit, cover over and disavow the assymetries and inequalities that structure academic life and its' citational practices.

**The Social Life and Cultural Politics of Data**

A recent special issue of *Theory, Culture & Society* on 'The Social Life of Methods'(Ruppert, Law and Savage, 2013), has encouraged humanities and social sciences to confront the politics of data and the challenges and possible resistances to the development of post-positivist methods that move beyond the well-rehearsed qualitative/quantitative divide (see Savage, 2013). These methods will need to be able to confront metrics as well as analysing the 'social life' of data that are obscured by numbers and the scale of so-called 'big data' (Beers and Burrows, 2013). One focus of such data-analytics is social media and how to determine the reach and traction of what circulates -; sometimes referred to as 'networked virality' (Sampson, 2012). In this context, following the reach and traction of a highly cited science journal article across *time* provides an interesting corpus of data for analysis. The article became hyperlinked to an open-access science article published in 2012, a series of blog posts, and commentary, retort, review and analysis, which spread across a network of academics, commentators, journalists and interested publics. The reach and traction would not meet the criteria of 'big data' in terms of scale but is a good example of the importance of retaining a focus on what boyd and Crawford (2012) term 'small data'.

As the authors suggest, big data is a poor term (boyd and Crawford, 2012: 663), as it is 'less about data that is big than it is about a capacity to search, aggregate, and cross-reference large data-sets'. In relation to social media analysis for example, big data, or the capacity to map , aggregate, condense, measure and represent data is often linked to the actions of specific social media platforms or API's (application programming interfaces) - Facebook and Twitter, for example. In this sense the API affords and shapes the possibility of what counts as data, thus bearing the imprint of all those human and non-human agencies, which have already entered into the shaping of specific data-sets. As Gitelman and Jackson (2013: 8) argue, these aggregated patterns and their algorithmic supports often obscure 'ambiguity, conflict and contradiction', engaging in acts of erasure in order to associate, connect and produce what we might identify as a 'collective phenomena'.

My approach to the politics of small data will be an attempt to develop the principles of hauntological analysis within digital environments. This is captured by the concept of *Haunted Data* (see Blackman, 2015), which is designed to disrupt the distinction between big and small data and to explore what leaves the frame if we focus solely on metrics, quantification and digital methods based on counting, measuring and aggregating numbers. This is part of a bigger book-length project, *Haunted Data: Social Media, Wierd Science and Archives of the Future,* which is analysing two related social media controversies in the area of science communication. The controversies, which were carried by particular journal articles, all gained a reach and traction across social and broadcast media, including Ted lectures, Facebook tags, comments and groups; blogs and micro-blogs such as Twitter; google+ posts; on-line open access science magazines and journals, as well as attracting broadcast media attention, including newspaper periodicals and even American comedy shows, such as The Colbert Report.

The controversies blur the distinctions between fact and fiction, between the real and the imaginary, past and present and science and fantasy. They are all controversies which shape, police, animate and disrupt the borders and boundaries between cognitive science and the anomalies, puzzles, paradoxes and phenomena that enact a curious form of kinship between psychic phenomena and brain-based neuroscience. This queer kinship, which links cognitive science to archives populated by psychic machines, humans and animals, and to medial concepts, such as suggestion and telepathy (see Andriopoulos, 2008; 2013; Blackman, 2012; Derrida, 1977; Sconce, 2000) is one that cognitive science and scientists have to continually police.

The controversies are also therefore populated by key protagonists; science journalists keen to re-animate science's forgotten pasts and cognitive scientists who are fixed in the role of sceptics, repeatedly challenging, discrediting, overturning or lampooning the various claims that are made. The areas linked by these controversies are replete with fantasy, fears, anxieties and cultural fascinations, which operate at the borders or limits of what is considered intelligible. In this article I will focus specifically on what I have termed The 'John Bargh priming controversy', which speaks to these concerns and also has particular relevance for cultural theorists interested in affect theories. Priming, the subject of the controversy, demonstrates how people can be made to move by experimental apparatuses, which are consolidations, subtractions and intensifications of the supposed everyday ways in which we are open to being affected and affecting others (see Blackman, 2014). Priming techniques are seen to operate within registers below the threshold of conscious attention and awareness and to bring about change in thought, feeling, belief, action and perception, for example.

The 'John Bargh priming controversy' has multiple intersecting points of interest for cultural theorists; this includes the politics and ethics of open access journal publishing; the integrity of science in the context of increasing post publication peer review; the question of how we might re-imagine concepts of time, duration and temporality that govern digital archives with their capacity for re-mixing and remediation (see Derrida, 1995); and how to analyse the agency and autonomy of data as it accrues 'after-lives' (Fuller, 2009) - as data moves on from the particular event that originated it and becomes *active.*

**Social Media and the Politics of Post Publication Peer Review**

Mark Deuze' (2012: x) has coined the term 'media life' to argue that 'who you are, what you do, and what all of this means to you does not exist outside of media. Media are to us as water is to fish'. The refrain repeated throughout his book is that media mediate everything and have become intertwined with 'every single way of being, seeing, moving and acting' (p. 3). Deuze gives numerous examples of how media are organising and re-organising politics, celebrity and science, where people he suggests might perform themselves in terms of media -; a politician imagining him or herself as a photograph, soundbite or speech, for example. Deuze uses the term 'media self' to refer to the possibilities of being captured by media and how this possibility might change behaviour, thought, feeling and action. The Selfie is one such example of the intertwining of media with self-performance, which perhaps illustrates this process. There are problems with equating mediation solely to media, particularly if one assumes that mediation is simultaneously historical, social, political, technical, somatic and affective, for example (see Blackman, 2012; Kember and Zylinska, 2012). However Deuze's thesis is useful as it does open up the question of how digital and social media might be transforming science publishing particularly for scientists who are writing with an awareness of post publication peer review. Post publication peer review creates contradictions and ambivalences, which shape the desire of scientists to increasingly engage in the self-conscious staging of mediality; that is to enhance and even write articles that are more likely to gain a traction across social media, and the contradictions, which exceed the frame and control of the individual author as the article potentially accrues after-lives (Fuller, 2009).

There are two aspects to the self-conscious staging of mediality in the context of post publication peer review that I want to explore in this article; its' affective *and* hauntological dimensions (Derrida, 1995; Gordon, 2008). The affective dimentions of post publication peer review refer to the kinds of discourse which are shaped within on-line environments, where communication often becomes uncivil (Ashley, et al, 2013), emotional, and in the case of science writing exceeds the norms and conventions of positivist science writing. This is leading to anxieties amongst scientists and on-line open-access trade journals such as Popsci, which is a self-described 141 year old science and technology magazine, committed to stimulating intellectual debate. It has argued that comments sections, which it has made available to enhance post publication peer review on science journal articles, are primarily carriers of emotion and all that should be excluded from norms of rational deliberation. In the editor's words, they 'tend to be a grotesque reflection of the media culture surrounding them'. They have consequently closed comment sections to articles to mitigate against this possibility[[3]](#endnote-3) . This is a cause for concern for many scientists. Sanjay Srivastava in an entry in his blog The Hardest Science on March 25th, 2013, suggests, ' These comments aren't just like comments on some random website or blog - they become part of the published scientific record, linked from the primary journal article'.

The equating of post publication peer review (PPPR) to new media cultures and their potential for shaping forms of communication, which exceed the norms of positivist science writing are constituted as a negative and potentially damaging aspect of PPPR. Certainly this is one after-life that accrued to John Bargh's (1996) highly cited article as it was hyperlinked to a recent open access journal article, published in Plos One (Doyen et al, 2012). This article became hyperlinked to a blog post written by a respected science journalist, Ed Yong, who intervened in his blog for the Discover Magazine, *Not Exactly Rocket Science,* with the title, 'Primed by Expectations: Why a Classic Psychology Experiment Isn't What it Seemed' (January 18th, 2012). Ed Yong is considered influential in terms of his ability to court attention due to his large followers on Twitter and his extended Google+ readership. Doyen's article and Yong's subsequent blog post motivated John Bargh to respond in his blog for *Psychology Today,* which had laid dormant for two years prior to this. Bargh wrote two blog posts, "Angry Birds" and "Nothing in Their Heads", which were later taken down. If the reader follows the urls relating to these posts[[4]](#endnote-4) they will be taken to Psychology Today and the response, Page Not Found.

Despite the myth or 'fiction of the universal database' (Gitelman and Jackson, 2013), where it is assumed that every action and transaction leave a trace, this dystopian myth of complete dataveillance does not stack up. Data can be redacted, removed, accumulate, leave traces and also disappear. In previous writing I have used digital methods to recover the redacted blog posts and re-stage the haunted data (see Blackman, 2015). The re-animation and re-moval of the ghost-data not only illustrate the difficulties for scientists and academics of engaging in self-conscious mediality, but also make visible the regimes of remembering and forgetting, which characterise science as it becomes conjoined, shaped and re-shaped by software platforms, algorithms and programmes (also see MacKenzie, 2013). This includes prominent scientists, such as John Bargh, writing blogs for influential magazines, such as *Psychology Today,* to promote and brand their own academic theories and standing.

Many prominent academics, for example, have Wikipedia pages that might be considered forms of personal branding. They tell a particular story about the academic’s life and career and establish relations of influence, status, and prestige within Google’s Page Rank algorithm (Rieder 2012). Using a Wikipedia Edits Scraper and IP Localizer,[[5]](#endnote-5) it is possible to see the edited and erased content of John Bargh's Wikipedia page. This includes attempts by other users to include references to the controversy and what has been erased by the removal of Bargh’s blog posts from *Psychology Today*. The edited history discloses the dynamism of this controversy and the work that has to be done in order to remove it from particular regimes of visibility. Although the Wikipedia page “forgets” the erased content, the Wiki Scraper is not so forgiving and performs different regimes of remembering and forgetting (also see Blackman, 2015). An example of this is provided in a screenshot below.



(figure 1)

Data can disappear, are removed, become submerged or displaced, are lost, overlooked, deemed irrelevant, make accidental connections (rather than aggregated patterns) and can remain alert or lifeless (Gitelman and Jackson, 2013). Despite Bargh's efforts, which mined his standing, prestige and status as a star-academic, he was unable to completely redact the blog posts, and the capacity of these posts to remain as an absent-presence led to Bargh's final attempt to close down the controversy through staging a narrative of redemption, where Bargh draws on his status as a Yale scientist in a published article in The Chronicle of Higher Education, 'The Power of Suggestion' (January 13th, 2013). This was published some 12 months after the redacted blog posts and reveals how much scientists are having to engage in new forms of story-telling in order to manage reputation and the unpredictability of post publication peer review. I will argue that such strategies reveal the extent to which scientists are having to confront and engage in forms of story-telling that might be described as trans-medial. The concept of trans-medial story-telling usually refers to forms of multi-platform story-telling, which have emerged and are situated within practices of media convergence and the emergence of networked media (Jenkins, 2006). One might on this basis find reference to transmedia narratives and texts (Leavenworth, 2011), to transmedia television (Evans, 2011) to transmedia technologies, performances and even transmedial worlds. My approach to transmedial story-telling is more hauntological, as I will go on to develop in the article.

The importance of new forms of story-telling shaping science and its' public communication is also partially recognised by the editor of Popsci, who although closing down comments sections to articles recognises that social media has the potential to extend scientific debate and discussion. The editor argues that interested actors and agencies should 'talk back' - 'through Twitter, Facebook, Google+, Pinterest, livechats, email, and more' (ibid). But the goal or aim of such communication should be 'vigorous and intelligent discussion' (ibid). The injunction to intelligent discussion in this context individualizes the problem and reduces it to 'incivility' and the ethics of using social media, rather than opening up to wider questions as to how post publication peer review might help to innovate science and open up to what is often erased, forgotten, actively policed or simply deemed irrelevant or of no consequence in relation to science's multiple pasts and possible futures. This relates to the more *hauntological* dimensions of post publication peer review as articles move and are re-moved across *time.*

**Hauntologies and Media Time(s)**

Hauntology is often associated with Jacques Derrida (1994) and his meditation on the fate of Marxism following the so-called fall of communism at the end of the 1990's across Europe, which was articulated within a 'discourse of the end'. This was a melancholic moment for many left academics who lamented such a fall and wondered at the costs of this supposed ending to critical (Marxist) thinking. The refrain that is central to Derrida's reflections is the feeling of time being out of joint - what he terms a 'disjointed now' (p. 1). Derrida sets out to explore this ghostly and melancholic feeling and to conjure and summon the spectre of Marxism in the present by engaging with various ghostings - the ghosts within Marx's writing itself, as well as the way in which fictional writing (Shakespeare's Hamlet, for example) has staged apparitions and called forth, interpreted and interrogated ghostings.

Derrida's main site of reflection is the spectral quality of language itself, which Derrida mines to perform the different temporalities that language can evoke. The radical untimeliness of language, Derrida suggests, performs the myriad of ways in which a feeling of radically disjointed time can be conjured. This he suggests can create the sense of 'being-with spectres' (xvii). This might include time being 'off its hinges, time is of course, beside itself, disadjusted' (p. 20); 'does not walk straight, or goes askew' (p. 23). As well as ghosts or revenants always returning and coming back, language itself is structured, Derrida suggests, by relationships of condensation, displacement, metonym and metaphor, which perform temporalities 'beyond the living present' (p. xix). Derrida's writing itself is akin to a magical incantation, which calls forth the spectral qualities of language to question what it might mean to live and to learn to live with ghosts. This question is aligned to a 'politics of memory, of inheritance, and of generations' (ibid: xvii); to those he goes on to suggest are not present; 'those who are not yet born or who are already dead' (p. xvii). Or perhaps exist as an absent-presence.

Hauntological approaches extend well beyond Derrida's immediate concerns and are suggestive of an ontology of media time made possible by social and digital media. One dominant argument within media studies in relation to the ubiquity and pervasiveness of digital media is that time is experienced as 'living immediacy' (Deuze, 2012: 6). Deuze cites the work of Manual Castells and his concept of 'timeless time', where instantaneity and what Deuze also calls 'placeless space' (ibid: 8) is seen to define the new media times of the 21st Century. This argument is suggestive of a perpetual present, where users are 'always on', and where immediacy becomes the primary modality through which time is lived. There are many versions of this argument, which assume that such a logic of immediacy erases the forms of mediation which are shaping such experiences (see Bolter and Grusin, 2000, for example). These arguments become more insidious when it is deemed that there is no 'outside' to media, 'that would allow for a comparison between media and life' (Deuze, 2012: 62).

Rather than assume that media time can be captured by immediacy or instantaneity, or is primarily one of duration framed as flow, movement and change (see Kember and Zylinska, 2012), I will explore the different temporalities and media times that are disclosed when a hauntological imaginary is brought into the analysis and mediation of data associated with the fate of John Bargh's highly cited journal article. I am calling this an example of *transmedial time* (Chow, 2012)*;* a time that Chow suggests is performed hauntologically and characterised by 'non-linear temporalities' (Carsten, 2007:2; Cho, 2008; Gordon, 2008). Chow (ibid) describes transmediality in the context of digital and social media through the concept of entanglement, (influenced by Karan Barad's writings), which is extended by figurations such as knots, masks, traps, mazes, shadows etc. She develops performative methods of capturing such 'topological looping' (ibid: 1) including montage, collage and tableau. In the next section I will develop the concept of transmedial time by engaging with the work of Hans-Jorg Rheinberger (1994, 2010), a scientist and philosopher who has developed a hauntological approach to scientific controversies. Rheinberger is influenced by Derrida and develops an 'epistemology of time'. His work adds a useful supplement to the metrics of citation by situating science controversies within a longer period of time, and is illustrative for engaging with how what becomes submerged or displaced by classic or highly cited studies can always return or re-move to use Rheinberger's term.

**Controversy Analysis and Hans-Jorg Rheinberger**

Hans-Jorg Rheinberger is a significant German science studies scholar, who until his retirement was based at the Max Planck Institute in Berlin, and whose work, like many feminist science studies scholars (Haraway, Barad, Franklin, for example) has produced new objects, entities, methods and ways of thinking at the intersection of science and philosophy. His work was very influenced by Derrida, Haraway, Bachelard, Foucault and Canguilhelm, for example. He has been described as a leading historian and philosopher of the biological and life sciences (Lenoir, 2010). His philosophy of experimental practice is one that has many shared ontologies with those taken up within anthropology, sociology and literary studies (those which foreground process, enaction and relationality, for example) and is what Lenoir (ibid: xii) refers to as an 'exercise in historical epistemology'. His work and historical method present a critique of scientific positivism and explore the entanglement of science, the technical and cultural in the production of scientific objects and entities, or what we might term, following Karen Barad (2007), phenomena. Phenomena are akin to what Rhineberger terms 'epistemic things'. Rheinberger's approach foregrounds recursion or the patterns of repetition and difference, which underpin both the invention of new scientific objects, but also the epistemological foreclosure of specific materialized interpretations. Scientific objects are always mediated and become an agent in 'the process of making knowledge' (Lenoir, ibid: xiii). They are part of 'experimental systems' or apparatuses which are performative; they invent rather than discover. However, the processes of what becomes stabilized are always haunted for Rheinberger in terms of displaced and suppressed narratives, which always threaten to surface and come back; they exist as traces or deferrals in the Derridean sense (see Derrida, 1995).

The concept of 'epistemic things' captures the patterns of difference and repetition that are characteristic of scientific objects and entities. Although science controversies might be considered settled at particular times, Rheinberger (1994) shows how they have the tendency to resurface in new ways and forms. This is something he cogently shows when following the controversies surrounding chicken tumour agents within oncology *across time*. This is what Rheinberger (1994) following Derrida refers to as the historical movement of a trace (its haunting perhaps), the tension between persistence and transformation. He argues this process is not captured by Kuhn's (1962) more totalizing notion of a paradigm and a paradigm shift to understand change and transformation within science. Experimental systems are haunted by traces of the past, and these traces, those 'half-private, half public conjurations' (Derrida, 1995: 57) also open to what Derrida termed 'archives of the future'; those lost-futures of science or science-yet-to-come. Where Derrida asks how archival machines change the object(s) of science[[6]](#endnote-6), I argue that new forms of animation and automation in the form of post publication peer review and its often volatile displays of affect, emotion and feeling (see Ashley, et al, 2013), provide a way of responding to Derrida's prescient question. The time lags, time shifts and multiple media times and temporalities afforded by transmedial time(s) are forms, which can orient attention to the uncertainty and indeterminacy that characterises experimental systems. They present opportunities to analyse the hauntological dimensions of social and digital media and science controversies more generally.

Rheinberger's influence by Derrida is most telling in the neologisms that he constructs as heuristics, which shape his approach to science and scientific forms of experimentation. This includes the concept of *historiality*, which draws attention to the multiplicity of times that intrude within experimental systems. The concept also draws attention to science as a story-telling machine, where as he argues; 'an experimental system has *more stories* to tell than the experimenter at any given moment is trying to tell with it' (Rheinberger, 1994: 77). He equates this dynamic potential to older narratives that persist in the future, as well as 'fragments of narratives that have not yet been told' (ibid: 77). As is apparent from this discussion, controversies are scenes of entanglement where the past and future criss-cross, intervene, intrude and open up the potential for something new to emerge. Rheinberger also characterises this potential dynamism as an excess, which escapes definition; that has different momentums, and which allows for a potential tinkering. He also characterises this process as a form of 're-moving' (ibid: 78).

The concept of *re-moving* expresses what I take to be the hauntological vision of this thesis; the re-moving or animation of frozen time, or temporalities which haunt what has come to pass (as scientific truth or certainty for example). Controversies are potential scenes of entanglement which re-move, or have the potential to set traces in motion; traces which perhaps are not visible or knowable in relation to the intelligibility of particular experimental systems. Re-movings have the potential to perform retro-active re-shapings, but importantly such dynamism is not reducible to scientific research and practice itself. Re-movings are not internal to science or to the internal times and practices of formal scientific laboratories. This dynamic process of re-staging multiple temporalities and the gaps, contradictions, events, figures, objects and entities which might set such a process in motion is captured by the concept of Haunted Data. Haunted Data works with what remains foreclosed despite its absent-presence. I will illustrate this now by exploring the narrative archive that has become associated with the 'John Bargh priming controversy', and which takes prominence on Google PageRank.

**A Narrative Archive**

'If you’ve not been following the wires, when a research team couldn’t replicate Bargh’s study everything kicked off and hangbags were flailed around by Bargh, a Belgian research group, Nature, a Nobel prize winner and the internet.

Bin your copies of [Kuhn](http://en.wikipedia.org/wiki/The_Structure_of_Scientific_Revolutions) people, this is how science really works'[[7]](#endnote-7).

If a researcher interested in the latest priming controversies uses a prominent search engine, say google, and enters the following search terms, 'John Bargh priming controversy', they will be met with pages of articles, letters, blogs, google + posts etc., which refer to and shape how this controversy has come to be understood. Of course there are combinations of different search terms that will sequence different articles. As we know the algorithms which govern which articles, blog posts, etc, are likely to be given a prominent weighting on search engines, is itself based on calculations which are not immediately available to researchers[[8]](#endnote-8). In relation to this immediately available narrative archive of the event, the main framing of the data is that the priming controversy disclosed the politics and ethics of replication as an experimental technique and form of life within science. Replication is figured as one of the cornerstones of scientific progress and encourages replication of established studies in order to test their validity and reliability. The controversy reveals how the field of priming is 'in trouble'. This particular narrative framing is a good example of what Ruppert, Law and Savage (2013: 36) term 'bundled time'; this refers to attempts in qualitiative narrative analysis, for example, to provide an account or tell a story which is often bound up with particular story-telling devices[[9]](#endnote-9). These are seen to close down the potential liveliness of data.

The experiment which failed to replicate Bargh's classic study was carried out by a young Belgian post-doctoral researcher and his team (Doyen et al, 2012), with some changes made to the original material culture of the experimental apparatus.[[10]](#endnote-10) Doyen found it impossible to publish the study in any of the established proprietorial journals in the field[[11]](#endnote-11). After a history of rejection from these journals it was eventually published in PLoS one, an open-access science journal. The article came to the attention of a respected science journalist, Ed Yong, who intervened in his blog for the Discover Magazine, *Not Exactly Rocket Science,* with the title, 'Primed by Expectations: Why a Classic Psychology Experiment Isn't What it Seemed' (January 18th, 2012).The failed replication study and Yong's subsequent blog post motivated John Bargh to respond in his blog for *Psychology Today,* which had laid dormant for two years prior to this.

In the redacted blog posts, Bargh took issue with the experimental conditions of the Doyen study, with the business model of the open access journal PLoS, and towards the practices of science journalists such as Ed Yong (see Blackman, 2015). The interested reader can find hyperlinks to Bargh's post, commentaries on the post, responses to the responses, but the actual posts now remain elusive[[12]](#endnote-12). The subsequent erasure of Bargh's posts has been met with humour, puzzlement and parody with the erasures substituted by various images mocking Bargh's decision to attempt to erase and cover his tracks (see figure 2.).

 figure 2 - "The Barghinator"

However, this is not all there is to say, or that has been said about this controversy. Yong's intervention also introduced a different temporality to the proceedings, bringing the controversy to a wider attention, and setting in motion submerged narratives, displaced actors and some of the multiple pasts and temporalities which haunt priming as a field within cognitive science. These exist as traces, deferrals, absences and ghost-data, contained within a corpus of data associated with Yong and Bargh's blog posts. The *haunted data* are consolidated and carried by the image of *Clever Hans,* the subject of an earlier twentieth century controversy within psychology, which revolved around a horse who appeared to be able to tell the time and solve multiplication puzzles by stamping his hooves. Yong opens his blog entry with Clever Hans and compares John Bargh to William Von Osten, the owner of the horse and unwitting experimental actor. As Yong suggests, the legend of Clever Hans has largely been consigned to history, although it has caught the attention of many contemporary cultural theorists interested in embodiment and affect (see Despret, 2004). Yong ends this evocative or perhaps provocative opening with the words; *'But history, as we know has a habit of repeating itself'*.

Yong revitalizes this earlier controversy about a horse who could be made to move and how this controversy was settled within experimental psychology as an example of experimenter expectations-; explained as unintended minimal communication from experimenter to experimental subject - in this case Von Osten to Hans the Horse (Pfungst, 1911). Yong re-draws this historical association to amplify the conclusions that Doyen had made about his 'failure to replicate'; that is that his experimental subjects were not being primed by the semantics of words (associated with ageing) but by the *experimenters' expectations*. On page 4 of the article Doyen et al, argue, 'we were indeed able to replicate Bargh et al's priming effect, but only when the experimenter expected the primed participant to walk slower after having been primed'. Although this experimental non-event produced a particular narrative outlined above, Yong's interventions and the comparison of Bargh to Von Osten produced an archive of ghost-data that followed Bargh and his redacted blog posts, which were kept alive by a network of users and publics (see Blackman, 2015).

**A Logic of Preemption and Anticipation**

Daniel Kahneman, a prominent noble prize winning cognitive scientist sent a letter by email on September 26th 2012, at 9.30am to a range of undisclosed recipients who Kahneman suggested were named by John Bargh as current students of priming. These students were invited to pass it on to anybody else they might think relevant. It has found its way onto the internet and can be easily found as a pdf copy[[13]](#endnote-13). I am interested in how this letter became an object that entered into the narrative framing of the controversy and its after-lives[[14]](#endnote-14). The letter urges students to openly acknowledge the controversies surrounding priming (rather than deny or defend them) - particularly the failure to replicate - and suggests that the problem is more severe within the priming field 'because every priming study involves the invention of a new experimental situation'.

Rather than invention being conceived as an important component of the dynamism of science (see Rhineberger, 2010), it is rather framed as an insight that needs intense scrutiny via the development of new protocols, for examining the replicability of studies and to increase the reputation of replicability within and outside the field of priming research. Kahneman develops 9 protocols to do this and urges students to adhere to them in order to re-brand their research field, which he positions pre-emptively as a field that is under threat from 'outsiders'. This threat, he suggests, might result in a vastly decreased job market for young researchers and as a potentially severely eclipsed field 'yet-to-come' (Massumi, 2009). This is affectively consolidated in the form of an image of a looming train wreck, which requires urgent action to remedy. In this respect the address to his intended recipients acts as a form of premediation (Grusin, 2010); a logic which perpetuates 'an almost constant, low level of fear or anxiety' (ibid: 1), in relation to unspecified threats, which generate the requirement and adherence to particular practices of securitization (in this context 9 'experimental protocols'). Kahneman presents his invitation to premediate 'a future before it turns into a present' (ibid: 4), as one that perhaps acknowledges how the internet and social media proliferate media transactions and hence the potential shaping of controversies, but closes this down by positioning future researchers as mediators - those who can be 'actively involved in changing whatever they mediate' (ibid: 6). In the next section I will contrast this response to post publication peer review and the John Bargh priming controversy with a more confessional story-telling practice as it was enacted by John Bargh some 12 months after the priming controversy first erupted.

**A Narrative Redemption and Confessional Strategies**

Google's PageRank algorithm currently ranks an article based on an interview with John Bargh in the *Chronicle of Higher Education* number 2 in relation to the 'John Bargh priming controversy'. This article waspublished on the 30th January 2013 and is cast as a sober evaluation of events over the last year. The beginning of the article is framed by a photograph of John Bargh in his office at Yale taken in subdued lighting (adjacent to a floor-lamp) where he gazes at an angle to the camera. He does not meet the camera's gaze but looks into the distance, creating a feeling of composed reflection. This is a redemption narrative, one where he regrets his actions (taking down the blog-posts) and where the controversy is framed as a personal assault on his academic career. As the article suggests;

 ' I met Bargh on a Thursday morning a couple of weeks before Christmas. He was dressed in cable-knit and worn jeans with hiking boots. At 58 he still has a full head of dark, appropriately mussed-up hair. Bargh was reclining on the previously mentioned moss-green sectional while downing coffee to stay alert as he whittled away at a thick stack of finals papers. He rose to greet me, sat back down, and sighed'.

The evocation of the scene of the meeting is prefaced by the following narrative;

' By Bosch's standard, it's too much to say the past year has been hellish for Bargh, but it hasn't been paradise either. Along with personal upheaval, including a lengthy child-custody battle, he has coped with what amounts to an assault on his life's work, the research that pushed him into prominence, the studies that Malcolm Gladwell called "fascinating" and Daniel Kahneman deemed "classic." What was once widely praised is now being pilloried in some quarters as emblematic of the shoddiness and shallowness of social psychology. When Bargh responded to one such salvo with a couple of sarcastic blog posts, he was ridiculed as going on a "one-man rampage." He took the posts down and regrets writing them, but his frustration and sadness at how he's been treated remain'.

Bargh's redemption narrative acknowledges that his removed blog posts were a response to being compared to Mr Von Osten by Ed Yong in his blog post, 'Primed by Expectations: Why a Classic Psychology Experiment Isn't What it Seemed' (January 18th, 2012). It was this comparison which fuelled Bargh's anger and his subsequent redacted blog posts for *Psychology Today*; as Tom Bartlett, the writer of the article for *The Chronicle of Education* says,

'The post, on the blog Not Exactly Rocket Science, compared what happened in the experiment to the notorious case of Clever Hans, the horse that could supposedly count. It was thought that Hans was a whiz with figures, stomping a hoof in response to mathematical queries. In reality, the horse was picking up on body language from its handler. Bargh was the deluded horse handler in this scenario. That didn't sit well with him'.

In the subsequent 12 months following the controversy and despite redacting the intial blog posts, the ghostly trails of this comparison have extended across the internet and social media. Various committed and interested users have recovered the posts, circulated them via Twitter (available for recovery by the open access Twitter analytic Topsy), commented upon them, replaced the gaps with various animations mocking Bargh's responses, and attempted to keep this association *alive*. The data has been subjected to particular practices of remembering and forgetting and exists within specific regimes of visibility made possible by digital software practices, often used against the grain of predictive analytics. This controversy also discloses the multiple temporalities of science, its submerged pasts and lost-futures; those which open up the dynamism of science and also what is policed, managed and actively disavowed within particular scientific fields, knowledge practices and paradigms. Despite the complex politics that surround this data, Bargh's storytelling retains prominence in Google PageRank, and his confessional story remains as one last attempt to 'set the story straight'.

**Conclusion: Altmetrics, Academic Value and Social Media Impact**

As we can see from the fate of a particular highly cited paper and its after-lives, the new publishing cultures generated by post publication peer review in science are not without contention or controversy. The new media cultures generated by post publication peer review exceed the usual debate in academic publishing, which is often and usually polarized between proprietary journals and those that are open access and free to use, often antagonistically pitted against each other. I would argue that this misses the point. Open access does not guarantee attention and visibility and the use of social media to increase impact is bound up with issues that exceed the actions of particular scholars. These are often related to already-existing relations of prestige, status, value and worth underpinned by the social networks the academic belongs to and the social capital that this generates. However, there are other issues which shape visibility and the capacity of an article or book to capture attention. In this sense following the fate of articles as they enter and shape controversies is a useful case-study in highlighting some of the issues at stake.

As with the John Bargh priming example, Bargh's highly cited article was revitalized by the actions of a particular science journalist who picked up on the Doyen failed replication study and intervened to shape the controversy in a particular way. This created a corpus of data, which became entangled and shaped within specific regimes of remembering and forgetting. Despite the efforts of particular users to keep Bargh's redacted data alive, Bargh's status as a prominent Harvard scientist maintains his position in Google PageRank influencing how the controversy is likely to be remembered in the future. This is despite or even in spite of those cultural intermediaries, such as Ed Yong, who attempted to attach different histories of controversy in psychology to Bargh's article, and to keep these associations alive.

Despite the incivility and tone of John Bargh's attack on PLOS-One, on Doyen and the science writer, Ed Yong, it seems it is business as usual. Bargh's narrative of events is established and authorized by the google algorithms which enact John Bargh's Wikipedia webpage as the key player and actor shaping the controversy. This is confirmed by his number 1 page-rank status in google searches of the priming controversy and by his redemption narrative as a close second. The politics of page-ranking in the context of this controversy confirms the importance and conclusions of Rieder's (2012) geneological approach to software studies. His focus is on exploring the conditions of possiblity for Google's automated logic of page-ranking to take form; what he calls its 'conceptual *a priori*'. Rieder cogently analyses how software programmers have drawn on and materialized a particular ontology of the network, which is derived in part from sociometry, enacted by a specific algorithm known as Lawrence Page's *PageRank* . This algorithm, as analysed by Rieder, shows the exchanges between mathematical theory and the social sciences, and particularly social psychology and the theories of Leon Festinger.

Sociometry is a broad area of study which purports to analyse and importantly visualise the psychological characteristics of populations , linked to Kurt Lewin's topographical approach to psychology, for example. As Rieder argues, the concept of the network which was central to these theories, staged connections and links based on status, authority and influence. These concepts were put to work in particular ways where calculations of social status and social *power* were made from sociometric data, rather than other kinds of connections and influences, for example. The conceptions of social influence that this enacted provided the normative model for various metrics of ranking to be performed. These are based primarily on relations of prestige, hierarchy and canonization, rather than popularity per se. The Google PageRank algorithm therefore makes commitments to certain conceptions of the social, and I would add enacts specific forms of capital (social, educational and cultural) that are part and parcel of scientific networks, paradigms and traditions. In this sense, algorithms are part of a new micro-physics of power, which entangle material, psychological, cultural and historical processes as part of their automated logics. These extend beyond and have the potential to govern and shape the actions of individual users.

Where does this leave the humanities scholar negotiating new publishing and media environments and who is under increased pressure to increase the impact of an already-published article or book? As we have seen, post publication peer review in science publishing entangles multiple actors and agencies, including social media and open-access platforms, websites, communities of academic scholars and researchers, journal editors, science journalists, media broadcasters and particular interested publics. These entangled relations are simultaneously affective, material, technical, cultural and political. These relations ultimately disclose the new forms of power taking shape in new publishing cultures, which are governed by relations of status, prestige, hierarchy and already existing norms of academic worth and value.

Perhaps at this conjuncture the humanities and social sciences are at a cross-roads where there is the potential to invent and shape new forms of post publication peer review, which attend to assymmetries of power and their racialised, gendered, classed and sexed operations. There is an opportunity to learn from the sciences and create something new with the possibility of a more humane post publication environment. In this respect we can learn from our science colleagues who are all too aware of both the possibilities and problems of post publication peer review and the issues surrounding the politics of citation that fail to go away. These issues coelesce in relation to the increasing need and desire to dissseminate our works to wider publics as part of an impact agenda, and to manage the tensions and anxieties associated with what, where and how to publish. This is all the more vexed as publishing landscapes, publishers, higher education funding bodies and associated business models and legal frameworks change in response to the potentially more open, distributed and decentralized networks of communication *disrupting* higher education and academic publishing (see van Mourik Broekman et al, 2014)[[15]](#endnote-15). These issues I fear will not be resolved by pitting open access and proprietorial journals against each other.

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1. see http://www.timeshighereducation.co.uk/comment/opinion/the-dark-side-of-the-impact-agenda/2017299.article [↑](#endnote-ref-1)
2. <http://www.timeshighereducation.co.uk/news/can-post-publication-peer-review-endure/2016895.article> [↑](#endnote-ref-2)
3. (http://www.popsci.com/science/article/2013-09/why-were-shutting-our-comments?). [↑](#endnote-ref-3)
4. http://www.psychologytoday.com/blog/the-natural-unconscious/201203/nothing-in-their-heads. http://www.psychologytoday.com/blog/the-natural-unconscious/201203/angry-birds [↑](#endnote-ref-4)
5. https://tools.digitalmethods.net/beta/wikipedia2geo. [↑](#endnote-ref-5)
6. At the time of writing, Derrida reflects on how the traces of his own thinking were recorded on his portable MAC (which travelled with him to Naples) and the extent to which psychoanalysis might have been or indeed could have become a different object (in terms of its archivization) if it had been shaped and produced by archival machines of the future? The future in 1995 referred primarily to portable computers, printers, faxes, televisions, teleconferences and email, for example. As Derrida asks, 'do these new archival machines change anything?' (p. 15). He replies that indeed psychoanalysis would have been something quite different if email had existed. [↑](#endnote-ref-6)
7. This quote is taken from the MindHacks blog, 31st January, 2013, '*Violating the Prime Directive'* http://mindhacks.com/2013/01/31/violating-the-prime-directive/ *.*  [↑](#endnote-ref-7)
8. if one uses a meta search engine such as Clusty, the search will provide clusters of results which are based on comparative rankings. It is a metasearch which pushes the 'best' results to the top. This has the advantage of allowing you to see perhaps unexpected relationships or associations between different data entries. This is very useful in the beginning mapping of a controversy. [↑](#endnote-ref-8)
9. indeed, the desire for narrative sequencing and the capacity to 'tell a story' about an event is remediated within a particular software analytics, known as *Storify.* This tool allows a user to represent a series of Twitter conversations and to create stories using social media. [↑](#endnote-ref-9)
10. The 'failure to replicate' might not be surprising for many readers familiar with traditions within science and technology studies, which focus on how changes to the material culture of experimentation are central to the performance and production of new objects and entities. On that basis we might not find controversial the idea that changes to the setting might have produced new experimental objects, entities and the potential of the experimental culture to become differently. [↑](#endnote-ref-10)
11. known as the file-drawer problem within science. [↑](#endnote-ref-11)
12. however, I have recovered the posts using digital tools in previous writing (see Blackman, 2015). [↑](#endnote-ref-12)
13. There are numerous ways to access this open letter/email - one is via the tweets of Steve Flemming , a cognitive neuroscientist: https://twitter.com/smflemming/status/329364089669296129

 Another is via Ed Yong, the science writer and one of the key protagonists in this drama:

 http://www.nature.com/news/nobel-laureate-challenges-psychologists-to-clean-up-their-act-1.11535 [↑](#endnote-ref-13)
14. this email letter was also referred to by the social psychologist Tom Bartlett, writing in an issue of *The Chronicle of Higher Education* (October 4th, 2012), with the headline, 'Daniel Kahneman sees Train-Wreck Looming for Social Psychology'. He opens the article by commenting upon an email he had been sent by Kahneman 'last week', which had also been sent to a dozen or so social psychologists. The email was about the priming controversies arising from Doyen's failure to replicate and how to resolve them - http://chronicle.com/blogs/percolator/daniel-kahneman-sees-train-wreck-looming-for-social-psychology/31338. [↑](#endnote-ref-14)
15. The use of the term *disruption* in van Mourik Broekman et al's book, *Open Education: A Study in Disruption*, points towards the problems and creative and critical possibilities of the changing nature of publishing and education within the context and rise of de-centralized, distributed and potentially more open forms of communication*.* The question of what exactly the *open* is or could be in terms of open access or open education is the critical focus of the book. [↑](#endnote-ref-15)