

SOCIAL COMPUTING AS A PLATFORM FOR MEMORY

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How are digital platforms commodifying the desire to remember? And how do their resulting affordances for recall inevitably also embed a schema for judgment into our lives? Such questions should be seen as particularly pressing ones in any consideration of how digital platforms reconfigure life in networked societies. While paying lip service to the ethos of an open, participatory Web, new social computing platforms are altering the landscape of what Zittrain (2008) calls a 'generative' Internet in significant ways. As users make their way onto more privately managed information spaces, there's no question that fascinating new forms of conviviality are being enacted. But at the same time, these spaces generally restructure our relations with one another with a specific goal in mind: to generate some kind of audience commodity. Under these assumptions, the most singular and basic significances in our lives—where we were last night, what we searched for in October, who made us laugh eight years ago—are to be written down as interwoven networks of fact. Properly managed, the idea is that these networks can produce surplus value by way of strategic aggregation and reorganization, and the simple passage of time.

Technology makers have seen the writing on the wall. As information appliances connected to these commercial spaces become more common and capable, and cultural expectations shift to bring them into more intimate spheres of everyday life, certain metaphors coalesce to define an overall answer for what's going on, and what will happen next. A dominant one to have emerged from this turn is that our future is 'in the cloud' (see, for example, Naughton, 2012); here users are pitched to put their entire daily social and cultural output onto giant global platforms owned by Google, Microsoft and Apple. Fantasized as a kind of transcendental hive mind for keeping our memories in trust, behind the scenes our

relations will be perpetually data-mined for novel patterns. Coley and Lockwood (2010) write of this vision that it is, 'undoubtedly a central factor, if not apotheosis, of the continuing acceleration of globalization, itself concerned with a 'totalizing' integration of cultural difference within an overall system of control' (14).

With their tone in mind, this paper explores some semiotic and philosophical dimensions of cloud computing, which I will render more prosaically as industrial social computing. By social computing I mean a broad class of digital platforms that enroll the social participation of users into computational processes that support the goals of a platform. The 'Like' buttons that Facebook deploys across the web, thumbs-up/thumbs-down mechanisms on news sites, and the Netflix recommendation engine are all relevant examples here. By industrial, I mean that in terms of scale and execution, as a medium, commercial social computing exhibits many of the hallmarks of a systematic manufacturing process: standardization, rationalization, and the constant application of overarching criteria of efficiency. As Langlois (2011: 2) describes in a prior issue of *Culture Machine*, the resulting affordances and practices of social computing have tangible effects on the organization of everyday relationships, and on the production of horizons of expectation.

Making this assumption allows me to focus more on the intellectual and *formal* commitments that drive these systems in the first place. A specific concern will be with how social computing systems conceptually organize the retrieval of signs. Like other technological media before it—the alphabet, photography or cinema—social computing technology has become deeply implicated with the retention of lived experience, through its preservation of the present in the material-semiotic trace. Following Kittler's lineage of graphematic storage technologies—the phonograph, cinematograph, typewriter ('dactylograph'), and now the computer—we might say, awkwardly enough, that industrial social computing organizes signs 'decisio-graphically'. That is, it functions through the capture, storage and aggregate 'playback' of *choices* made by networked users, as they retrieve and circulate informational entities in their day-to-day lives. In what follows I explore how the technology achieves this functionality at the level of signification: organizing the decisions of prior users to produce a future-focused horizon of meaning for current ones.

Underscoring the importance of choice or decision as a constitutive mediating feature of social computing, consider the following

remark of Google's former CEO, and now Executive Chairman Eric Schmidt. Describing the future of search in a 2010 interview in the *Wall Street Journal*, he suggests the following:

one idea is that more and more searches are done on your behalf without you needing to type. ... I actually think most people don't want Google to answer their questions ... they want Google to tell them what they should be doing next. (Eric Schmidt, quoted in Holman, 2010)

To adapt his remark to more critical concerns, under what mediating terms of anticipation and recall does a technology like Google suggest what we should 'do next'? According to what logic, or set of metaphysical and ideological commitments, is the past *organized* so as to suggest what comes next?

To rehearse the response that follows, Part One relies on the work of Bernard Stiegler to suggest that current models of the social computing user can be read more philosophically as a theory of the subject. The longstanding tendency in both software engineering and the information sciences has been to characterize the user in rather functionalistic, epistemic terms—as one who seeks the resolution of a knowledge deficiency or need, through the successful retrieval of a unit or record contained somewhere in a storage system. Underneath this basic assumption, however, lies a deeper set of semiotic confluences between philosophy, mathematics, and software design. Relativizing the user as a construct articulated from out of these fields, having been produced by certain intellectual commitments over time, allows for an alternative reading of the relationship between subject and software technique. This is especially important given the contemporary moment, where networked digital media is now potentially as much about the everyday production and circulation of existential *expression*, as it is about the retrieval of information.

Part Two turns to Félix Guattari's asignifying semiotics, as a supporting framework for understanding how social computing produces a retentive structure that shapes a user's relation to signs. It draws out the specific features of industrial social computing that, following Genosko's (2009) gloss on Guattari, "automate" dominant significations by "organizing a system of redundancy" on the levels of expression and content...' (95). Finally, Part Three applies Guattari's theory of signalitics to the example of the *k*-

nearest neighbour algorithm, using it as a generic example of how systems deploy the aggregated prior choice of past users to steer future ones. The hope with this trajectory is to give a reasonably synthetic account of how industrial social computing comes to act as what Stiegler calls a mnemotechnology, while also illustrating how the mathematical abstractions that drive social computing's algorithms act as supporting mnemotechnique.

Part One

Stiegler (2010a) points to Plato as among the earliest to consider writing methods as mnemotechniques, and the recollection that occurred with their support, *hypomnesis*, a term in tension with what he called anamnesis, or living recall (67-8). The evolution of mnemotechniques, from basic tools to complex global apparatuses for remembering, has over time lead to mnemotechnologies. In claiming that networked digital media represent a qualitatively new horizon in mnemotechnologies, Stiegler (n.d.) recasts anamnesis and hypomnesis to account for the fact that remembering does not occur according to the logic of some idealized mind. Rather, anamnesis and hypomnesis share a material origin in *technicity*. Like Harold Innis' famous examples of papyrus and clay, or Stiegler's own example of Neolithic-era knapped flint (Stiegler, 1998:176), mnemotechnics have 'always already' been a technical means for exteriorizing the living memory of individuals onto some inorganic substrate. The preservation and reactivation of knowledge and significance through them allows us to learn from the dead, pushing memory far beyond the 'retentional finitude' of any living person or group. Stiegler argues that by surpassing us in this way, mnemotechnologies do much more than help us remember; they constitute a time-consciousness, a selective logic, and therefore a projective politics of memory that we take up as a 'hypomnesic milieu' (73).

In the case of industrial social computing, the premise is that it comes to act as a general substrate upon which our living, organic retentions of memory 'protend'. Borrowed by Stiegler from Husserl's phenomenology, and resonant with Schmidt's prediction for Google users noted above, protention denotes the lived, anticipatory perception of 'what happens next' in experience. There is a flow through which each moment of protention becomes the moment of retention in the next, and it is this movement that temporalizes our becoming. Like any other mnemotechnology

before it, social computing inflects a certain frame for the formation of a present—providing a certain ground of ‘now’—as it extends our perception into the next moment. At the level of interface, the temporal inflection occurs in the moment where significance triggered by phenomenal need in the experience of a given user meets the rational unit-spacing of significations that will make it computable, driving a platform’s logic for what will be stored and retrieved.

Recalling Heidegger’s *Ereignis*, or being-as-event, it’s in this movement that industrial social computing offers a truth-bearing thesis to participating users, which Stiegler calls an *orthothesis*. Formally stipulated relations of validity, embedded in the algorithms and semantic protocols of a platform, provide a rational basis for individuals to correctly perceive how things transpire; as well as a way of recognizing the past in the present and the present in the past. With regular use, the medium chains together protentions and retentions, naturalizing itself among bodies and their habits. Stiegler (2010b) writes that through this movement, mnemotechnologies ‘always constitute a spatialization of the time of consciousness beyond consciousness and, therefore, constitute an unconsciousness, if not the unconscious’ (8). Elsewhere he suggests that the intense commercialization of digital media sets it apart from prior mnemotechnologies. Though *hypomnesis* may be an ancient idea, he writes that,

something absolutely new happens when the conditions of memorization, that is, the criteria of effacement, selection, forgetting, anticipation, retention-protention—in a word, of temporalization—becomes concentrated in a technico-industrial machine whose finality is the production of surplus value. ... There has today occurred a veritable inversion in the relation between life and media: the media now relates life each day with such force that this “relation” seems not only to anticipate but ineluctably to precede, that is, to determine, life itself. (Stiegler, 2009: 80-1)

The point here is that in its capacity to generate a hypomnesic milieu, social computing brings a complex *retentional* economy in the wake of its attentional one (8). Industrial social computing stores and re-presents discourse in ways that increasingly displace

subjects away from knowing themselves temporally through anamnesis—local and living memory—and towards knowing themselves through an exterior function of memory; one that, for platform makers, should somehow reconcile its semiotic affordances with the logic of surplus value. For Stiegler, contemporary media’s capacity for capturing and retrieving the sense of events with near-simultaneity, or in *real-time*, is especially over-determining. In his example of 24-hour news, the dividing line that separates the contingent occurrence of an event and its mediated historical reception *as* event, becomes so thin as for the two to effectively coincide. In the case of social computing, recalling an information object is divided instantaneously in a similar fashion: between the object’s visibility as ranked in the overall universe of objects, and the constant recalibration of that visibility through the ongoing contingency of collective choice.

Whenever it’s necessary to make sense of a sum of events that transpire over a given stretch of time, a general condition is that only some cross-section of the events can matter. Some event-logic ‘makes the present pass’, by determining the form of the event’s reception, while also framing the way in which ‘what happens next’ will be anticipated (118). With the rise of real-time media like social computing, the immediate and the historical come to take place in the same instant, and *sense-making*—or judgment and rationality as it connects to memory—falls instead to ‘the affective participation of the masses’ (120). For Stiegler, this so-called tertiary retention, or memory at the level of technics, has the effect of constantly producing a factual certitude that leaves little room for ‘presenting the past’ as anything more than having ‘just passed’ (121). It is under these circumstances of technical delegation that algorithms come more sharply into focus; inducing sense from affective participation by organizing it computationally along asignifying lines. To see how, discussion must move to the level of code and instrumental technique.

Part Two

In its ‘manufacture’ of sense, industrial social computing relies largely on a set of so-called *eigenformal*, or self-coalescing strategies. At the level of software design and code, such strategies capture various internal signals from the daily churn of discourse itself, applying them mathematically to organize and rank the visibility of information-objects, effectively inducing salience from collective

social behaviour. The term *eigenform* comes from the works of physicist-philosopher Heinz von Foerster, who has had a broad influence on the fields of second-order cybernetics and systems theory. Computer science owes much to his theory of objects as tokens for ‘eigenbehaviours’, which Kauffman (2003) summarizes in the following way:

In an observing system, what is observed is not distinct from the system itself, nor can one make a separation between the observer and the observed. The observer and the observed stand together in a coalescence of perception. From the stance of the observing system all objects are non-local, depending on the presence of the system as a whole. It is within that paradigm that these models begin to live, act and converse with us. We are the models. Map and territory are conjoined.
(2)

Observing vast regions of the web as a territory of reference, social computing leverages just such a coalescence of perception with its users. Systems like Google and Facebook capture our selection behaviour statistically, sometimes at an unnerving level of detail, so as to be constantly feeding an algorithmic process that transforms their system into an improved map.

By way of algorithmic technique, the contingent signal of whatever topic keyed in by a user is instantly averaged against similar prior results, transforming a localized event of inquiry into a standardized moment for the platform. So standardized, prior events of choice by other users stored in memory can be used to anticipate the truth-value sought in the immediate query. Whether or not this anticipation should prove correct, *all* such ‘decisiographic’ input from users—the links on which they are clicking, how long they stay on a page, whether they return to the service after leaving it, for example—are stored as minute signals that strengthen or weaken the visibility rank of a given information object. The strategy is a central feature of social computing’s capacity for retention: the existential import of choices made while navigating a field of information is being constantly retranslated into asemantic terms for calculation, metabolizing the system so that it can produce salience. For Google, Facebook and similar systems like Amazon and Netflix, semiotic activity around documents and digital objects matters only in the highly formalized terms of objects ‘having been chosen’. The

procedure can be seen more clearly by connecting Stiegler's account of industrial memory up with that of Guattari's theory of asignifying semiotics.

Against traditional, Saussurean accounts of signifying semiology, which tie an 'I-ego', or reflexive consciousness directly to the referential power of a sign, Guattari argues for what he calls a mixed semiotics (Genosko, 2002: 155). Under his scheme the sign is not formed and secured 'personologically', or through a *cogito*; it is rather produced or achieved by machinic processes and what he calls assemblages of enunciation (Guattari, 2001: 45). Their function is to split the sign into a plane of content and a plane of expression, demoting the 'I-ego' relation in favour of a more impersonal 'it'. Guattari writes that, 'It' does not represent a subject; it diagrammatizes an agency. It does not over-encode utterances, or transcend them as do the various modalities of the subject of the utterance; it prevents their falling under the tyranny of semiological constellations...' (Guattari, 1984: 135). Here traditional semiology becomes one among other instances of machinic processes, the *cogito* working as a particularly powerful and overdetermining sign-machine. Assemblages of enunciation still connect to traditional semiology, but only as a representational machine to be repurposed so that the reflexive subject does work for the assemblage, as part of its power formation. Social computing platforms present themselves along just these lines—Facebook entreats you the user to 'share and highlight your most memorable posts, photos and life events on your timeline' in a public exchange of significance, for example. Underneath, however, the technology captures this relationality only as a constant stream of computable signals, or what Guattari calls 'diagrammatic sign-particles' (Guattari, 2001: 47).

Following Guattari's account, here is how the plane of expression is established: a non-representational procedure or formal syntax is organized, by which the sign can be stratified from out of material intensities in the world. At the same time, there is a plane of content that *justifies* the particular features of this plane of expression; fitting together a set of social norms and rules of right behaviour, or in Stiegler's terms, giving it an orthothesis. Together the planes of content and expression produce an abstract machine for signification; a 'relative de-territorialization, at the level of signifying semiologies and mixed signifying/a-signifying semiotics, whose aim is to secure control of the effects of de-territorialization by means of semiotic strata...' (Guattari, 1984: 137). The basic, non-representational (but still material) capacities for expression

produce a *form* of signification, underwritten by a dominant social order that provides a logic of subjectivization. Here one can finally ask, how does social computing line up with this account of a mixed semiotics?

As explained above, anyone who clicks on a digital object, comments upon it or establishes a link to it from elsewhere is held to be making a decision – a rational choice to reference or affiliate with a specific piece of information rather than some other. It is purposive choice understood in a utilitarian, economic sense, with the observed action of decision among ranked choices being what ultimately counts. Certainly this arrangement accords with our everyday use of Google: we use it to make a context-specific decision, say as to which restaurant to patronize from a set of results, or which document among a list seems most likely to answer a health question, or what model of laptop seems to best suit our needs, based on a general ranking. What is the overarching plane of content, or social logic here? To see how the application of choice to information processing is justified in a more philosophical register, one can turn to Herbert Simon. His work classically straddles the boundary between economic theory, administrative assemblages, attention, and computer science.

Through his writings on organizational theory, and what he calls behavioural economics, Simon explains that, 'A means-ends chain is a series of anticipations that connect a value with the situations realizing it, and these situations, in turn, with the behaviours that produce them' (Simon, 1997: 83). Individuals and organizations set down initial ends in the form of ethical imperatives, or principles of behaviour. From these ends flow some set of efficiency criteria for objectively judging, or choosing between the various means deployed to achieve them on the basis of facts, and this drives preference. His distinction between means and ends authorizes a rather stark division between decisions and their semiotic import, which fits well with the pragmatics of information processing. In Simon's hands, the deliberation of ends is labeled separately as politics, bracketed from the efficient administration of means. Ultimate goals and purposes are taken as an abstract given, achieved in some prior and distinct conversation about values, such that rationality becomes a value-neutral tool for their implementation. In other words, whether serving good or nefarious purposes, behaviour is substantively rational as long as it '...is appropriate to the achievement of given goals within the limits imposed by given conditions and constraints' (Simon, 1972: 161).

Embedded into social computing platforms as an assemblage of enunciation, it is these norms that effectively produce a plane of content. If only parenthetically, it's worth mentioning that this central feature of the mnemotechnology ostensibly embeds a neoliberal logic into memory, through a technical inversion of the relationship between the social and the economic (Foucault, 2008: 240). From a semiological perspective, users may be relying on intersubjective relations to find their way to the objects and people they seek; consensus over meaning is leveraged to send people to the right resources, to signal the best place to answer a query, or to make new acquaintances. But at the level of mnemotechnics, the machine logic for recall is actually highly decisionistic, and acts more like a market. In a commentary upon Foucault's lectures concerning the neoliberal form of governmentality for example, Lemke (2001) writes that economists like Simon tend to 'transpose economic analytical schemata and criteria for economic decision-making onto spheres which are not, or certainly not exclusively, economic areas, or indeed stand out for differing from any economic rationality' (197). With such neoliberal underpinnings, the economic and the social are no longer conceived as separately delineated realms that define one another in a dialectical or political tension. Instead, an intensified economic positivism comes to *wholly determine* the social through a monological means-ends analysis (Foucault, 2008: 241). As developed below, this logic of social production fits together with social computing's asignifying plane of expression through the mathematics of topology.

Part Three

To see how social computing produces a plane of expression, it's helpful to focus on a representative example; a single algorithm whose logic shares common features with many systems. The *k*-nearest neighbour (*k*NN) algorithm fits the bill; applied to the organization of information online, *k*NN is designed to recursively observe individual decision-making over time, treating it as a useful marker for aggregating objects on the basis of preference. The goal is to localize and steer users towards information objects that fulfill their preferences; through the capture and organization of prior choice, systems suggest novel affinities towards people or things not yet seen, which resemble one's present line of choice. For computer scientists, similarity in this sense is expressed via the topological metaphor of a *feature space*, which contains neighborhoods of similar things; either people, or items, like films, books or lawn mowers.

For every pair of users involved, the system continually asks the following: of the entire set of items rated by *either* user A or user B, what proportion of those items have been rated by *both*? Seen like a Venn diagram of two people with overlapping zones of 'have watched, bought, or befriended', what is the union of their intersection? This process is repeated exhaustively for all pairs of users in the system. To offer predictions, in a second step the system uses the statistical procedure known as regression analysis to aggregate preference. As the user selects informational objects, the system shows them a 'nearby-neighbourhood' of other similar users or items. The rank of what one might be interested in, in the neighbourhood of what one is currently observing, is based on the *weighted average* of ratings performed by similar users in the past, built into the regression function of the algorithm. In the final step where a user actually acts upon a suggestion, the system shifts from the transmission of prior taste to the reception of future taste. The user has been presented with a list of objects that she may find useful, based on the average weighted response of people like her. Selecting an item from that list—visiting a suggested web page, voting up a comment presented to them as salient, or buying a book that's been recommended—causes the system to register that selection as *itself* an expression of preference that will be useful in continuity with others who use the service in the future.

The eigenformal, or 'auto-positional' elements of the algorithm are enabled by theory in topology. Topology mathematically captures an abstract manifold, or set of nodes and their relations undergoing a state change, where the resulting transformation of state changes the topology endomorphically, or from the inside, without breaking its overall unity. Imagine squashing down a cube of modeling clay, stretching out a rubber band, or spreading a glob of soft butter in one direction across a piece of bread; in each case a vector of force is applied to a manifold, which changes the form in response to the force, by a function of its internal structure (Riordan, 2002). While its shape may be stretched or squashed, the form has not been torn or broken; the starting shape and end shape have essentially only shifted, creating different relationships of adjacency among points on its surface. In the case of social computing, neighbourhoods of taste are formed from the relations between people and information-objects as nodes, linked together to form a topology. Localized spaces are derived from the differential continuity of behaviour, as people make and respond to choices that position them in the topology (Lury, 2012: 21). The process feeds social computing's 'machinic nucleus'; its asignifying function under which the

topology of information objects will shift and change in prominence over time, making some objects more visible than others, to some people rather than others.

In pointing out these central mediating features of social computing, the hope is to have characterized the role of the user in a semiological sense more precisely, considered as an 'I-ego' protending through its machinic processes. Understanding how social computing organizes retention through a functional and normative account of protention—conceived as utilitarian *decision*—circles back to a central problem. If one follows Stiegler and Guattari in their respective claims that industrial information systems represent the intensification of capitalism along semiotic lines—through a kind of colonization of memory, which operates according to certain orthothetic commitments involving the act of decision around signs—then how might an alternative account of the metaphysical and sociotechnical relations between decision, signification and sense enrol the sign under new circumstances? Following Guattari, the goal here would be to '[launch] new machines of diagrammatic sign-particles to the detriment of semiotic fields and capitalistic abstractions' (Guattari, 2011: 50).

To conclude, one account of signification that affords certain possibilities for intervention in this respect can be found in the work of Guattari's sometime collaborator, Gilles Deleuze. In his 1968 book *The Logic of Sense*, Deleuze is at pains to critique and reconfigure a rationalist formulation of signification and reference; one that has structured the underlying truth-bearing thesis described above in important ways.

The judgment of truth and falsity in language has typically been understood through the notion of a speech act that contains or reproduces propositional content, wherein a speaker asserts that such-and-such is the case, and in so doing may or may not be correctly referring to something in the world. Against a historical backdrop of logical empiricism, assertions have been understood in the information sciences to have a disembedded validity, and reference-bearing import, as in utterances like 'Caesar crossed the Rubicon', or 'The sun is further away from the earth than the moon'. Long understood in philosophy as the best way to extract knowledge from utterances, embedded into computers as an orthothetic commitment, the approach has become a basic strategy for representing relations between people and things in the world. Social information systems like Facebook, Google+ and OkCupid

formalize everyday talk into these types of assertions, which can then be stored and transformed into knowledge statements that computational processes can manipulate in different ways; as in statements like 'Bernice watched The Lion King, and rated it 7 out of 10', or 'Regina is the capital of Saskatchewan'.

For Deleuze, the problem with such an approach is that it assumes that logical, denotative relation can be the only thing conditioning signification and sense. Under these terms of reference, conceptual implication grounds the possibility of signification, but yet must be simultaneously bracketed from the logical denotation of states of affairs, as in Frege's famous separation between sense and reference. Voss (2013) succinctly describes the operation:

within the conditioned or those propositions that we hold to be true (for example, scientific propositions describing objective states of affairs) we already find inscribed the logical form of identity of the concept as well as logical forms of the relations of concepts with one another. We then extract the logical forms of the propositional facts and stipulate them as the formal conditions of possibility for a proposition being true in relation to an objective state of affairs. (4)

This is the form of social computing's orthothesis--the way that it delegates conceptual implication--and for Deleuze it has the quality of a vicious circle. What we lose is the *genetic productivity* of signification in its relation to both denotation (states of affairs indexed to propositions) and manifestation (an 'I', or person speaking their beliefs and desires). What is this genetic productivity? It is a 'something' beyond traditional sense and reference: an *aliquid* that sits outside of propositions and states of affairs, expressing ratios of *becoming* that are entirely different from those enacted by traditional referential schema of predicative choice among objects-with-attributes.

To illustrate the point, he compares the assertion 'The tree is green' to the event of a tree 'expressing itself', as might be captured in the peculiar utterance, '*the tree greens*'; and as if this is similar to saying 'it's raining'. Deleuze here wants to capture an ongoing process rather than a stable object. Whereas the traditional analysis of language conditions sense to accord itself with the predicative concept of greenness, securing the possibility of correct reference,

Deleuze wants access to the singular, incorporeal mixture of tree, air and chlorophyll that is the tree in its *transcendental character*, expressing itself in an impersonal sense. It is for this reason that he redefines sense as *outside of individual minds entirely*. Where Frege brackets sense as a necessary but contingent phenomenon of thinking, requiring that it be subjected to the objectivity of logic, Deleuze reverses the priority, so that a radically impersonal sense pervades everything happening around us:

Sense is both the expressible or the expressed of the proposition, and the attribute of the state of affairs. It turns one side toward things and one side toward propositions. ... It is in this sense that it is an 'event': on the condition that the event is not confused with its spatio-temporal realization in a state of affairs. We will not ask therefore what is the sense of the event: the event is sense itself.
(Deleuze, 1990: 22)

To conclude alongside Deleuze in his line of thinking, sense should not be conceived as the subjective dimension of an individual mind; it is rather a generic 'differentiator of difference' that affects the chaotic field of life in such a way as to individuate series of stable identities from out of it, whether one construes these identities in biological, technological, linguistic or social terms. How might we read his approach into the future of informatics? Instead of conceiving of industrial social computing as a tool for the production of rational knowledge, does the technology not ultimately owe its success to the ways that it is putting difference 'to work on itself' in asemantic, *generic* ways, which we come to accept as rational only when they help us to achieve our *own* differentiation?

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