

Sets

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The 'personal productivity' system, *Getting Things Done* or GTD stands on the periphery of new economy and network sociality. GTD represents an attempt to organise multiple, overflowing demands of work and life by defining things in terms of sets. Like many personal improvement or development techniques, GTD appeals to North American corporate managers, and business journalists. However, its popularity extends well beyond corporate U.S.A - to research social science and humanities academics, for instance, in the U.K. The official description runs:

GTD® is the popular shorthand for "Getting Things Done®", the groundbreaking work-life management system and book by David Allen that transforms personal overwhelm and overload into an integrated system of stress-free productivity (David Allen & Co. 2009)

The popularity of David Allen's GTD could be understood from many perspectives: as a symptom of the chronic dislocation of labour that Barbara Ehrenreich describes in *Bait and Switch* (Ehrenreich 2005); of what Zygmunt Bauman sees in *Liquid Modernity* as 'free-floating capitalism, marked by the

disengagement and loosening of ties linking capital and labour' (Bauman 2000, 149); or what Doug Henwood derides in *After the New Economy* as a 'manic set of variations' on old American theme of techno-utopia (Henwood 2003, 1). While there are many practical components of GTD that baldly express the fantasies of weightless, frictionless and clean productivity, rules for making sets are central to its promise of a feeling of efficacy. Set-based determinations guide people in responding to contemporary demands on their attention and time.



Figure 1: Practical set-making setting (Alldredge 2005)

Sets are often seen as banal, merely practical, disposable, somewhat ephemeral devices, the very epitome of insignificant social behaviour, not even

really a practice. We casually group, encounter, collect or sort things in sets. Set-related inscriptions such as labels, tags or codings are a part of routine knowledge-making across humanities, social sciences, engineering and natural sciences today, and data is itself often seen as a kind of set, the dataset. Many methods books in the social sciences advocate quasi-formal set-making habits in researchers (usually in the form of 'coding'). Software to assist in the conduct of qualitative and quantitative analysis of social and economic data (the standard statistics package SPSS – analysed in (Uprichard, Burrows, and Byrne 2008), or the standard qualitative data packages such as Nvivo and Atlas.ti, etc.) relies on sets and sets of sets as basic ordering devices (coding, grouping, tagging, cases). The *dispositifs* of important contemporary network services and products such as Google search, FaceBook pages, Amazon, Wikipedia, YouTube, and Flickr, the playlists, libraries, trees, menus, addressbooks, bookmarks, tags and labels of all manner of mobile devices, software interfaces and databases, or bodies of scientific knowledge such as PubMed, or GeneBank: every item in this list can be entail set-making. In such settings, informal inscriptive practices of collecting, sorting and grouping are increasingly shadowed by much more formal, intensively organised forms of set-making and set analysis. In the light of the 'coming crisis of empirical sociology' (Savage and Burrows 2007) occasioned by routine collection and analysis of transactional data, the question of how sets are made, and how forms of relationality materialise from set-specific practices becomes highly significant. Practices of set-making partly established in social sciences now structure the objects of analysis. By implication, social scientists and researchers would benefit from an increased awareness of how people's sense

of belonging, group, and inclusion embodies acts of set-making.

Techniques derived from the mathematical expression of set making, 'set theory,' underpin many of the most intense and pervasive instantiations of network media collaboration (for instance, Wikipedia), group discussion (FaceBook), entertainment (Amazon book recommendations; Netflix DVD recommendation, lastfm.com), blogging, knowledge, profiling and transaction, the profiling of consumers in markets segments, and the predictive analytics used everywhere from Tesco's supermarket shelf-stocking policies to airline flight scheduling. Sets make powerful calls to order, and act as world-making forms of collection and grouping. Here 'world' means more than community, or social grouping, because it 'because it necessarily includes more people than can be identified, more spaces than can be mapped beyond a few reference points, modes of feeling that can be learned rather than experienced as a birthright' (Berlant and Warner 1998, 558).

How can we appraise the overflows and excesses of the astonishing proliferation of sets and forms of set-making today? Pierre Bourdieu wrote

The structures of the social space ... shape bodies by inculcating in them, through the conditionings associated with a position in that space, the cognitive structures that these conditionings apply to them (Bourdieu 2000, 183).

GTD can be seen as a process of conditioning that structures space in ways

governed by sets. GTD offers a practice of the self that addresses a site of distress where exchanges and communication between habits, values, practices, transactions and institutions intensify:

We're allowing in huge amounts of information and communication from the outer world and generating an equally large volume of ideas and agreements with ourselves and others from our inner world. And we haven't been well equipped to deal with this huge number of internal and external commitments (Allen 2001, 7).

While the personal productive techniques advocated by Allen are scarcely representative of broader spectrum of set-making, the material specificities of sets and set-making in GTD illustrate in particularly exaggerated form the dynamics of collectively networked and collaborative activities. What social order do sets unroll or inculcate? What kinds of subjectifications do sets engender? How are sets and set-making enrolled in practices of the self? Are they processes through which things happen, or through settings are made? How are sets lived and experienced? Could the dynamics of sets give rise to altered ways of inhabiting the multiple, and different theorisations of the multiple?

Between open and closed sets

GTD promises to handle this dual excess coming from outside and inside, from 'outer world' and 'inner world.' From the outside come demands, deadlines, opportunities and accidents. On the inside arise ideas, worries, hopes,

memories, and promises. GTD prescribes the development and maintenance of a system of lists. The construction, organisation and handling of these lists is described in great detail in the books, seminars, websites and articles. The lists are well-ordered in themselves, and together form parts of a set of lists whose limits are defined and documented, electronically and on paper, in great detail. These lists comprise sets of projects, sets of actions, sets of events and contexts. Many different forms of sub-sets, of inclusion and belonging run across the GTD system. The feeling of being productive in GTD comes from (a) the work of constructing an all-encompassing well-ordered set of lists; (b) maintaining the currency and completeness of those lists by constant review, resorting and updating. How could sorting out all commitments as projects, and then generating sets of actions produce an affect of efficacy?

Sets have the property of being closed, open or closed-open. The opposition between open and closed implicitly steers much contemporary social and philosophical thought on events, on difference, on relations and multiplicity (for instance, in much post-representational social theory (Thrift 2007) and in recent science studies (Law 2004) (Latour 2007)). The formal contrast between open and closed in set theory seems relatively straightforward:

Then the [set](#) S is open if every point in S has a [neighborhood](#) lying in the set (Weisstein 2009a).

[A] [set](#) U is called **open** if, intuitively speaking, starting from any point x in U one can move by a small amount in any direction and still be in the set U . In

other words, the [distance](#) between any point x in U and the edge of U is always greater than zero (Wikipedia 2009).

By contrast, a closed set includes its boundary or limits points:

[A] closed set is a set which contains all of its limit points. Therefore, a closed set C is one for which, whatever point x is picked outside of C , x can always be isolated in some open set which doesn't touch C . (Weisstein 2009b)

The difference between open and closed as used in set theory is that an open set always includes some more space to move around. It might not be much room, but there is always space to wriggle in an open set. An open set has an edge that always allows a bit of movement that might touch something else. Put differently, we might regard an open set as always expandable. More room can always be found. A closed set, by contrast, has a boundary and that means that things can be isolated from it. For a closed set, inclusion and exclusion have strong effects.

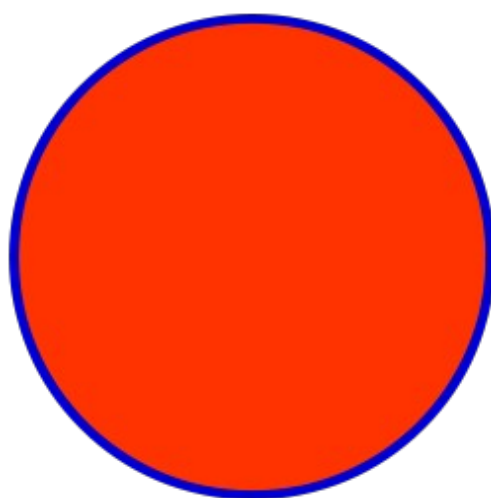


Figure 2: Open set

A set is 'closed' when no more entries or elements can be added to it. It is open to the extent that more can be added to it. Of course, in many situations sets are subject to constant re-ordering, and this allows lists to respond to change. But how does a set respond to something new? It can do that either by being open or closed, by either finding what happens in itself (as an element, as a subset, as a relation between existing elements, etc) or by adding something new to the set. What is interesting about the predicament of GTD as a set of lists is that it tries to be both open and closed. On the one hand, the feeling of control and productivity comes from the conviction that everything trivial or important has been captured by the system and its workflow. In set language, this means that it is closed. On the other hand, the system must remain constitutively open if only to the bare fact of the presence of others. In that sense, it must be an open set. This dual requirement to engender a sense of openness and closure introduces a certain instability that I find symptomatic of contemporary set-making more generally. One could say that set-making is response to the problem of how to sort things coming from the outside and things generated from the inside. Sets are devices for working on the boundaries and edges of collections. In the case of GTD, the solution to the problem of how to negotiate inner and outer is by controlling time. Timing and calendrical routines ranging from time scales of minutes to years ensure - if they are adhered to - that the sets of lists, projects and events will be regularly updated, resorted and kept current. The constant tension between being open to new things and keeping control of what is already in the system is

maintained and regulated by routinised reviews and checks on the list. During these reviews, sets open. Outside the review times, work is devoted to making sure that the set stays closed. This closure is diagrammatically expressed in the GTD workflow diagram (see Figure 2) that prompts people on how they should process events.

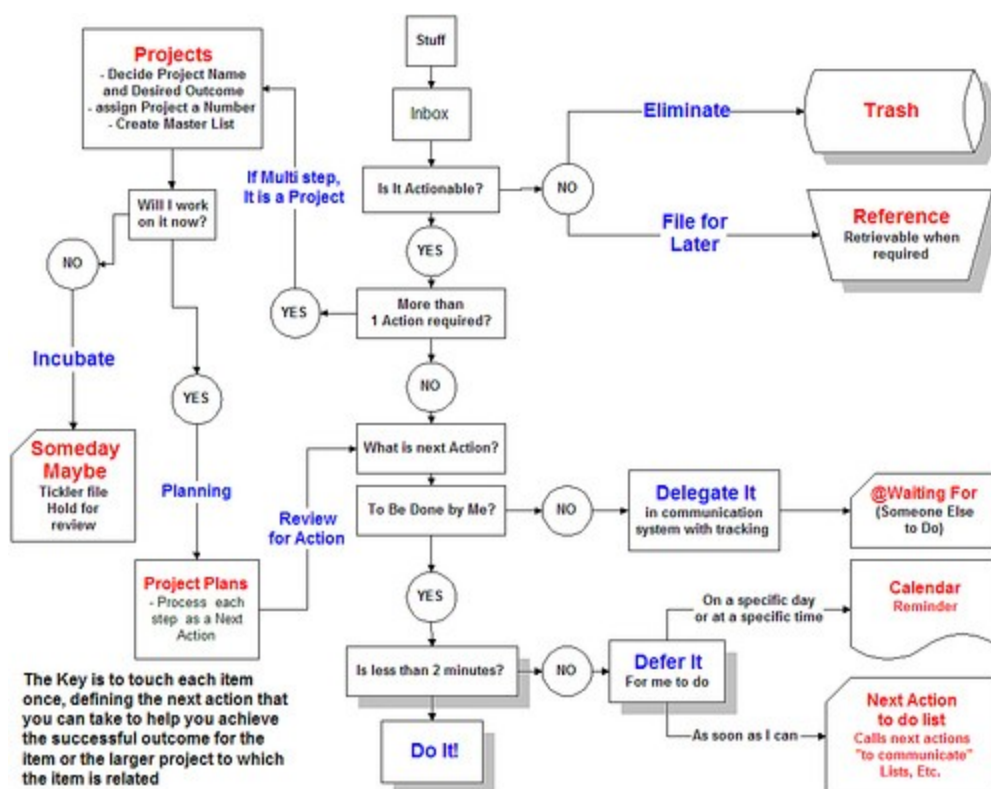


Figure 3: GTD workflow (Hsu 2006)

Outside open and closed: R

Does the opposition, unstable as it is in GTD, between open vs closed sets represent the primary feature of set thinking and set practice? At this point, I think it useful to turn a much larger scale set-making practices: those embodied in the predominating database architecture of the last two decades,

the relational database. In a sense – a very broad one admittedly – we could make two connections between GTD and datasets. Firstly, databases are in a sense responses to the same problems of closure and openness. In database design and management, an elaborate panoply of techniques, architectures, query languages, forms of professional expertise, training, product development and intensive research entwine around the problem of keeping datasets sufficiently open so that they can expand and grow, and keeping them closed so that can be manipulated, explored or mined, or in short, controlled. The history of database architectures and database management might be seen as a technological instantiation of the problem that affects all set-making, and all collecting. Secondly, from a different, more sociological perspective, GTD can be seen as a response to the increasing prevalence of interconnected databases. While I would be hesitant to ascribe the overflow and excess that GTD tries to staunch to databases as such, databases embody in almost exhaustively differentiated form the relational algebra that govern so many contemporary set-making enterprises. If the database, with all its tables, schemas and queries, attempts to construct open-ended processes of set-based relations, it might be that the personal productivity system, with all its lists and folders, attempts to seal out of the productive self the currents and shocks of rapidly transforming patterns of mobility, communication, production and governance generated by database-driven processes.

Database architectures and management run underneath much of the making of knowledge today in various ways. We need only think of the technology of the relational database. Dating from the 1970s, the relational database and its

long-lived search syntax called SQL (Structured Query Language), still form the 'engine' of many database-driven activities ranging across commercial, government and academic settings. The technology of relational database has been expanded to gigantic and shrunk to miniature scales. On the one hand, vast enterprise architectures in data-centres or increasingly in 'the Cloud' (Jaeger 2009) store trillions of item of data that survey populations, markets, environments and institutions. On the other hand, a variety of more or less embedded personal databases organise and sets preferences, contacts, addresses and references (for instance, in the form of reference and bibliographical management software widely used by academics).

Contemporary biopower, in all its guises and facets ranging from clinical drug trials through to patient health records or child protection databases, depends on relational databases or RDBMS (Relational Database Management Systems) such as Oracle's 11g or IBMs DB2 (IBM 2009; Oracle 2009).

The mathematics of set theory (dating from the late 19th century) quickly becomes unavoidable in making sense of the embedded set-workings of databases and datasets. The relational database relies on set formalisms. Basic technical terms still used today in database design and management such as 'tuple,' 'key', and above all 'relation' all date from papers published in 1969 and 1970 (Codd 1970). The motivation for this turn to a practical instantiation of set theory seems very simple:

Future users of large data banks must be protected from having to know how the data is organized in the machine (the internal representation) (Codd

1970, 377).

This desire to 'protect' users from knowledge still prevails today. The queries, searches, and sorts that organise and animate business processes, certain aspects of scientific work, and the layout of websites bear the traces of the relational database as a prophylactic against knowledge of form. In this setting, what sets provide is a way of bringing data into relation without fixing that relation or making those relations fully visible. Set-making retains forms of flexibility that other figures and devices (network, list, inference, deduction, etc.) find it harder to match. This flexibility, the flexibility that I am suggesting generates the stresses and overheating that GTD tries to quench, pivots on the relation R . What is a relation here? E.F. Codd writes:

The term *relation* is used here in its accepted mathematical sense. Given sets S_1, S_2, \dots, S_n (not necessarily distinct), R is a relation on these n sets if it is a set of n -tuples each of which has its first element from S_1 , its second element from S_2 , and so on (Codd 1970, 379).

A relation R is a set of sets, since a tuple (typically embodied in a 'row' in a database table) itself is a set that possesses some order (for instance, a row of a database table might include a name, an age, gender and address). The relation R allows set-making to become recursive (i.e. as GTDers know to their cost, sets of actions, TODOs, and reminders proliferate across different media, and the relation between these different sets multiplies - this could be seen as a both intrinsic to the relationality of sets, and as a result of the kind of

multiples that R gives rise to in contemporary data-driven collectives.)

A whole series of ramifications follow from this. They include techniques of database management. For example, a key technique in relational database design is the process of 'normalization' or 'elimination of non-simple domains' (Codd 1970, 381). The upshot of the normalization process is constructive – the potential to generate many relations by melding disparate things, by defining relations that observe certain constraints, and by remaining open to production of more relations, always in the simple domain of tuples. The absolute flatness of the normalized form remains indifferent to the difference between sets, to their hierarchical or convoluted intersections and unions.

If we want to see how the set-theoretical processes of normalized database forms impinges on lives not at the level of customer service, surveillance, or loss of privacy (through data-mining, etc), but as a sensibility, as experiential encounters with the multiple, how do sets and set-making come back into the world? The subjects of set-making, the subjects made by set-making: how do they inhabit worlds? What happens to their senses of open and closed, belonging and inclusion, in the light of the set settings they intimately and impersonally encounter? There are many places we could look for subjects of the set, forms of subjectivities whose practices of self, whose negotiated of the exchanges between self and other, thing and thinking, rest on set-making dispositifs. GTD is one response: make sets against sets, defend yourself against the flow of demands and commitments that carry you through the world by enclosing, grouping and sequencing them. But so many other

practices and promises respond to sets.

The relatively austere formalism of the 'relation' as a set of ordered sets underlying the dominant contemporary database architectures does represent the apogee of the set as device. Sometime in July 2007, the Google search engine switched to a different index of the web (Chen and Schlosser 2008; Catanzaro, Sundaram, and Keutzer 2008; Ekanayake, Pallickara, and Fox 2008; Dean 2006). A slight reduction in the time taken for search queries might have been the only sign of this change. In the thousands of servers seriesed in Google's scarcely visible data center, work on the switch had been going on for several months. A shift in database architecture away from the relational database model to an even more radically simplified set theoretical construct, Map-Reduce, took place. This change, part of the broader migration of data from single databases to federations of databases - the Cloud - also suggests the need to re-think about the experiential dimensions of set-making, to begin to formulate accounts of how the informal processes of grouping and collecting characteristic of so many cultural settings entwine with the ongoing transformations in the technical, economic, scientific and political production of sets.

An animated and motivated engagement with sets can be found in recent European philosophical thought. Here a key point of reference would be the work of the French philosopher Alain Badiou. He uses set theory as a 'guide for an ontological thought of the pure multiple' (Badiou 2000, 47). The intricacies of Badiou's thought are too complicated to follow in any detail here, but his basic

notion of 'pure multiple' is 'everything is not one.' It may do to focus on how his re-rendering of the basic opposition between open and closed sets might re-configure the predicament embodied in GTD and in Google's move from a relational database structure to MapReduce.¹ Badiou argues that sets exemplify 'subtraction' from any opposition between open and closed:

For the set is the exemplary instance of something that is thinkable only if one dispenses entirely with the opposition between the closed and the open. ... We could even say that the set is that neutral-multiple which is originally subtracted from both openness and closure, but which is also capable of sustaining their opposition. (Badiou 2004, 73)

Why does Badiou say that a set is thinkable only if we do without the opposition between open and closed sets? If sets undo the basic opposition between open and closed, then it would be important to track what this means in practice, in the practices of knowledge-making and contemporary world-making. While it would be possible to simply examine the proliferating open and closed sets of the present, the promise of the set as 'neutral-multiple' lies elsewhere, in the potential to understand how new patterns and configurations of open and closed sets materialise today. If this subtraction obtains in practice,

¹ The significance of this contrast between open and closed sets can be traced in terms of the theoretical polemic that Badiou conducted with Deleuze around sets over several years in the 1970s. Deleuze, following Bergson, resists set-based thinking as a way to think the multiple. The notion of set, for Deleuze, thwarts thinking multiplicity because a set is an external or analytical multiplicity comprising parts or elements. Nothing happens in sets or lists because the parts are external to each other. A vital multiplicity for him (and for many others who make derive their notion of multiplicity from Bergson) has no parts or elements. It only has intensive differences actualising as extended things, with boundaries, with orderings. While a set might display boundaries, partitions, forms of inclusion and exclusion, or even hierarchical sites such as the top and bottom we find in lists, the set itself only actualises something intensive.

a very different perspective on contemporary practices of set-making might open up.

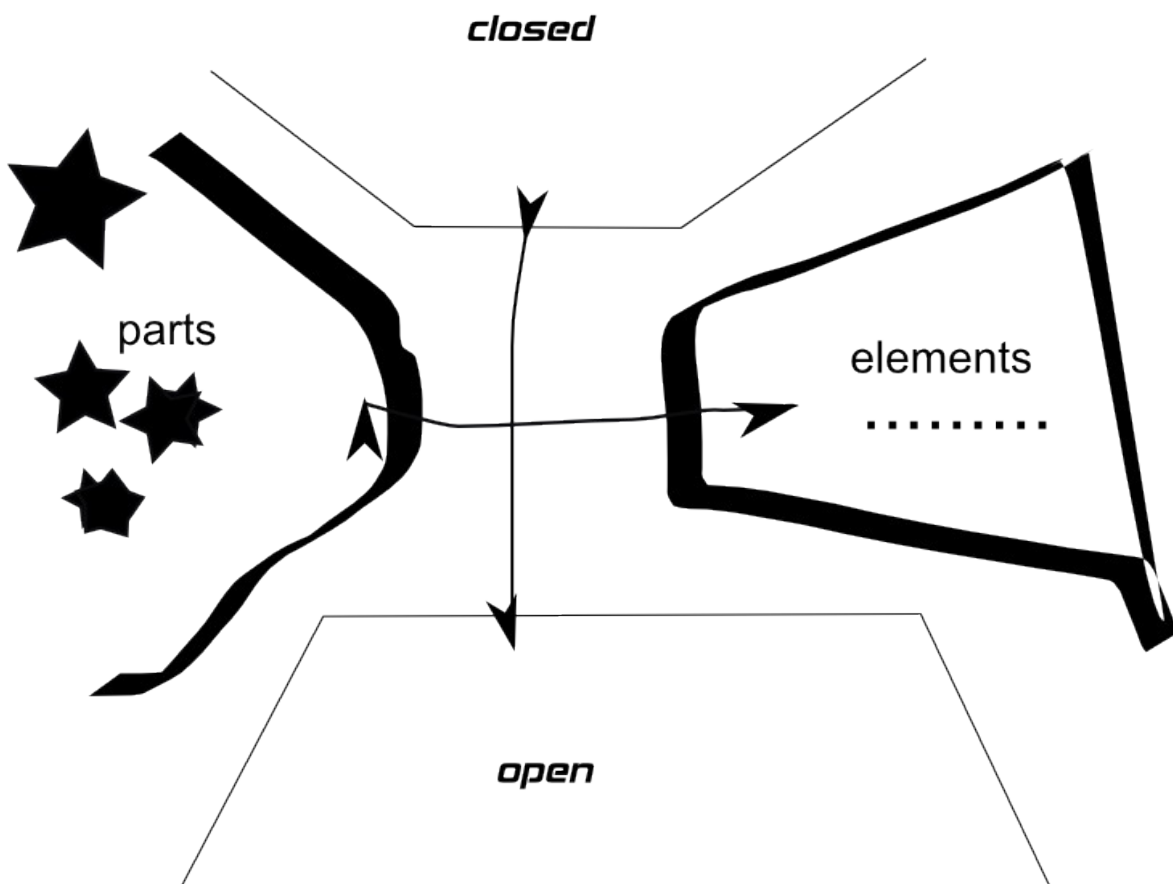


Figure 4: Open-closed; parts-elements

What happens to the open vs. closed distinction when Badiou thinks the set as pure multiple? There is no fundamental difference between open and closed at the level of the set as multiple. That means, for Badiou, that any attempt to valorise openness as the locus of vitality, creativity, event or difference is problematic. Despite the many appeals made to openness, the open has no special privilege, and there is nothing intrinsically unethical or negative about being in a closed set. (If Badiou is right, then much contemporary social,

political, cultural and organisational thought, in its attempt to locate vitality in openness will run into problems.) Badiou's alternative is try to think how '[e]very multiple is indeed *actually* haunted by an excess of power that nothing can give shape to, except for an always aleatory decision which is only given through its effects' (Badiou 2004, 79). So, while the open vs. closed distinction cannot ground any judgment about sets, excess can. What is excess in sets? 'The immanent excess that 'animates' a set, and which makes it such that the multiple is internally marked by the undecidable, results directly from the fact that it possesses not only elements, but also parts' (78). This 'fact' sends us back to a different distinction, that between belonging and inclusion. Some things - elements - belong to sets, some things - parts - are included. For instance, a GTDer's lists comprise hundreds of entries or elements (many photographic examples of this can be found on the web, particularly at photo sites such as flickr.com). The notion of the element is recursive - elements or entries can themselves be sets. The GTDer's notebook contains lists of lists (for instance, the GTD central list of projects has elements that themselves must sooner or later, gradually or suddenly, be made into sets of 'next actions'). However, a part can include many elements. What then is a 'part'? In set theory, a part is a subset. A set A is a subset of a set B if A is 'contained' or 'included' in B. A part may comprise one or many elements, but it does not belong in the same way to a set. When Badiou writes 'there is an ontological excess of representation over presentation' (78), he refers to a set excess that does not come from the outside, or from life or chaos, but from the internal non-cohesion of the set with itself, from the relation between elements that belong and parts that are included or contained. What he calls the 'actual' or

'immanent' excess of power of the multiple comes the irreducibly instable relations between elements and parts, between 'the two types of immanence' (78).

If it seems that contemporary databases teem with constant revisions, modifications, additions and amalgamations, it might be because of this ontological excess. If it seems that so many contemporary social-technical processes entail collecting, labelling, tagging, sorting or searching, they might be experiential attempts to determine this excess, to present it, to manage it, to undo it or to politicise it. While differences between open and closed matter greatly in the inhabitation in the topologically connected spaces of databases, they do not exhaust the overflows that animate sets.

Other settings

To what problems in interdisciplinary research does attention to sets respond? I would argue that set-making is already a strong, albeit somewhat latent, impulse in many social science and humanities methods attempts to produce knowledge through narrative, and through explanation. Wherever datasets, practices of coding, grouping or clustering occur, set-making with all its relationality (open, closed, elements, parts, excess) is not far behind. The work of set-making, whose dynamics I have explored in the context of database architectures and in personal productivity systems (a domain not so far removed from the practical exigencies of any academic today), necessarily figures in any of the processes of collecting, sorting, citing and ordering that underpin all research. At the present moment, there is something more specific

at stake in sets. Faced with much competition from market research and business analytics that access vast databases of transactions, actions, communication and consumption, sociologists have called for renewed attention to the work of description. Most prominently, Mike Savage argues for a shift away from attempts to provide general or specific causal explanations for particular phenomena to an engagement with the widescale deployment of inscription devices such as websites and loyalty cards (Savage 2009, 171). These mundane inscription devices constitute a massive capacity to describe what people do, without any reliance on the standard social science research techniques of surveys, statistics, interviews or ethnography. Faced with such abundant descriptive data, Savage suggests that 'a core concern might be how to scrutinize how pattern is derived and produced in social inscription devices, as a means of considering the robustness of such derivations, what may be left out or made invisible from them' (171). Here, alternative theorisations of the intense generativity of set-making may be very useful. Inscription devices, of which GTD would be one example, generate descriptions whose dynamics and potentials stem from the different ways they construct and deconstruct open, closed, closed-open inclusions and belongings. Many of these inscription devices rely directly on mathematical operations on sets. In such settings, many researchers would feel what Donna Haraway described as 'splitting': 'splitting, not being, is the privileged image for feminist epistemologies of scientific knowledge. "Splitting" in this context should be about heterogeneous multiplicities that are simultaneously necessary and incapable of being squashed into isomorphic slots or cumulative lists' (Haraway 1999, 179). Splitting, I would suggest, always affects the entangled practices of knowing,

not just feminist epistemologies of scientific knowledge. Sets and set-making ontologies are one way of figuring this splitting for researchers who are always in the contradictory position of affirming radical historical contingency and imagining historical change for the better.

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