Rationality and Rupture

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## Abstract

Any thought which is true to the contemporary must, seemingly, recognise the complex ecologies of human and non-human assemblages, algorithms, data structures, planetary climate change, and so on. In this setting, it is unsurprising that there has been a recent shift towards consideration of basic questions of ontology and epistemology in order to attempt some traction on this terrain. In much of this, however, we find a constructed caricature of both reason and intuition, in which reason is reduced to the algorithmic by means of a recursively axiomatised formal system for the enumeration of all truths in a structure. Here, I suggest that this is a poor shadow of rationality that is rooted in a static, classical “image of thought”; and that many attempts to construct a category in excess of reason end up with an ossification and metastatisation of intution at the loss of any criticality and epistemic mediation. This paper provides an attempt to undermine these views from within the caricature itself. In so doing, we consider a form of rationality capable of gaining traction on the shifting-sands of the quasi-transcendental structure of experience, through the rehabilitation of abstraction as a process of navigational dialogue and transformation.

## Keywords

Rationality; Intuition; Incompleteness; Rupture; Construction

## 1 Introduction

Any thought which is true to the contemporary must, seemingly, recognise the complex ecologies of human and non-human assemblages, algorithms, data structures, planetary climate change, and so on. It is fairly unsurprising, then, that there is, concomitantly, a shift towards consideration of basic questions of ontology and epistemology in order to attempt some traction on this terrain. It has become typical, in this regard, to construct a forced choice bifurcating along the following lines. First, there is supposed, some domain of excess, which ends up with an ineffable and pre-critical space, which is supposed to be immune from (since in excess of) reason. Second, the view of reason that this domain “exceeds” is a caricature of rationality that is equated with a pre-determined abstract, and Universal, form of calculability. Plausibly, the latter is bound up with increasing attention to the algorithm, which, by definition, is a mechanical procedure consisting of a set of finite steps. To reduce reason to the algorithmic, could then be understood along the lines of attempts to “mechanise” thought by means of a recursively axiomatised formal system for the enumeration of all truths in a structure.

The forced choice is more than a little problematic. On the one hand, it accepts a poor shadow of rationality that is rooted in a static, classical “image of thought”; on the other, it postulates some category, which may ossify and metatstatise intuition at the loss of any criticality and epistemic mediation. What follows is an attempt to undermine the two from within the caricature itself. In so doing, we consider a form of rationality capable of gaining traction on the shifting-sands of the quasi-transcendental structure of experience, through the rehabilitation of abstraction as a process of navigational dialogue and transformation.

## 2 Abstracting abstraction

As I say, it is not uncommon to stumble across two interrelated positions in relation to the abstraction of thought and rationality. First, that abstraction is the process of a universalising tendency, which reroutes finite calculability to the level of the abstract and Universal. Second, that rationality itself is an abstraction that represents a conceptual domain of stasis, fixity and totalisation. The trick, then, is supposed to be to look beyond these confines, and towards some form of “excess” in the form of life, intuition, affect, virtuality, materiality and so on, that can be mobilised against this stale domain. This is something like the anticipation of disruption from the outside; a beyond that is capable of not being completely subsumed under the classical mode of thought (Deleuze, 1994). In this way, various forms of “life”, “creativity”, or “generativity” are marshalled as irreducible to calculation; or “affect” is taken to be a pre-rational intensity as compared to finitely axiomatizable thought.[[1]](#endnote-1)

There is, also, an increasing awareness of the complex modes in which human thought is enmeshed within non-transparent transitions and relationships between local and global levels of human and and computational communication. It is not by coincedence, then, that there has also been a demand placed upon thinking (across design; architecture; critical studies; philosophy; computation theory) to deal with the immanent complexities of the emergent eco-system of materiality, bodies, computation, algorithms. It is arguable that the technological augmentation of human experience, together with its extrication with the mutability of forms of social organisation and subjectivity is critical to the construction of a mode of reason that is capable of thinking the contemporary. Then, any consideration of the structure of representation in this context will face the requirement of understanding the corrsponding shifts in the structure of phenomenal experience. This surely requires a mode of thought that is capable of being wrested away from foundational impulse, and in which thought is at once active, pragmatic, provisional, and also capable of critical ramification.

In light of this, the aforementioned tendency addresses these issues by attempts to consider, in some sense, the generation of spaces that are both “outside”, as well as pervasive *vis-a-vis* contemporary capitalist production. To a degree, this is interlinked with the pop-credo take-up of concepts from the (rather splintered) “speculative realism”, which, supposedly wrests philosophical attention away from human intuition and interpretation.[[2]](#endnote-2) This, of course, has a great convergence with interventions regarding massive planetary climate change, and the anthropocene. The upshot of this is a retreat towards an “excess” that is supposed to exist autonomously to controllable and operationalisable modes of information manipulation. This is inextricable from a set of criticisms regarding the status of rationality, with supposed fixed and axiomatic foundationalism; hylomorphism whenever applied to materiality; restrictions to deductive closure, and so on. “Reason”, whatever is left of it, must always be embedded in particular structures with specific modes of pragmatic intervention. This leaves rationality as only ever possibly operating under the auspices of the Universal (upper-case U), whose strictures make it possible to see reason only as a form of the colonisation of the particular by processes of subsumption.

But, the cost, of such manouvres is that they render epistemic divides obsolete, and so often also lead to a loss of critical epistemology. In particular, any transparent accession to the materiality of thought brings with it a pre-critical, and worryingly modulatable (read controllable) space. This fairly blatantly renders obscure the way in which these domains operate across disparate and complex structures.[[3]](#endnote-3) If we have given up our ability to critically cognize at the expense of our ability to understand the augmentation and abstraction of such systems, how can we approach any form of reason that may accord with these? An examination of this approach reveals a contradiction: we are, supposedly, capable of indexing a real beyond the shackles of language, beyond temporal politics, beyond established power and frameworks of measure and assessment, and thus in a certain sense free of the constraining forces of the world. Yet, despite this faith in the radical potential of such aesthetic experience, any actual, particular mode of thought is assumed inevitably to be corrupted by those same forces.

This should already make us suspicious that we cannot simply slough off these entrenched constraints in order to access a “real” that has supposed priority over them. If speculation entails a release of thinking from the constraints of human phenomenality, this does not warrant our positing an absolute breach between the two. For the danger then is that we either return to naive realism, or deliver ourselves to ontological speculation that both occults and doubles its epistemological conceits.

For example, when we look at precisely what intuition is, what is striking about the research in cognitive science over the past fifty years or so is the identification of human doxastic conservatism.[[4]](#endnote-4) In this sense, the study of human reasoning has led to a pretty solid eradication of Piaget’s paradigm according to which reasoning, broadly speaking, follows the rules of classical logic. The experimental psychology of human reasoning suggests that humans have a fundamental bias in ‘the tendency to automatically bring prior knowledge to bear when solving problems’. In the literature around this, it is often suggested that most reasoning revolves around what is called ‘representative heuristics’ judgment, which results in a fundamental ‘belief bias’ across human reasoning. So, it looks like humans have a tendency towards doxastic conservatism, in that we routinely seek to confirm our existent beliefs (even when they lead to ‘incorrect’ reasoning measured against, for example, classical probability and so on). This makes sense if we think that a lot of cognition is (at least to an extent) driven by heuristics and connections at some sort of level of representation matching, associations, and so on. And, as I’ve suggested elsewhere, this massively complicates the relationship between “reason” and “intuition”, such that the two are caught in a dialectical and interconnected “web”.[[5]](#endnote-5)

Perhaps more interesting, is that appeals to “spaces” beyond reason may well end up shoring up this human tendency towards doxastic conservativeness. Then, our speculation cannot just ‘leap free’ of where we are because we run the risk of producing empirically overdetermined ontologies that are ultimately conditioned by our intuitions and associative tendencies.

Rather, when we attempt to grasp the structure of experience as mutable, plastic and augmented, we are required to ask a series of questions regarding the nature of rationality, experience and matter, without also collapsing the them into each other. This manouvre is possible from within thought itself, and without any sort of accession to a mystical excess. This is the rehabilitation of abstraction as a process of navigational transformation and the increase in information.

## 3 Ruptures in thought

This is not to say, of course, that the totalising gesture of the “classical image of thought” is an empty signifier. But, rather, it is something which we may view as already undone, from the inside (no appeal to the Outside is necessary). Indeed, is pretty much a platitude that, in the attempt to erect certain boundaries of thought, thought extends beyond those boundaries (e.g. Cantor’s, Russell’s, Tarski’s, Godel’s arguments). Typically, these have been understood to be “mere pathologies”, which engender contradiction and inconsistency that can be excised from thought before thinking even has chance to begin. Resultantly, the classical image survives in its (supposed) ability to range over all things by committing itself to an absurd stasis in which its foundation must be pre-given, and reasoning is essentially empty in the sense that it is devoid of action. The latter requires commitment to an objective realm of propositions with, what Dubucs (2002) terms an “inert platonism of proofs”:

[This] pays too much tribute to a «platonician» conception of mathematical inference: according to this conception, far from being deduced or extracted by ourselves, the consequences of an hypothesis follow from it by themselves, or rather in virtue of the existence of certain objects that it is none of our responsibility to conceive, or to make up, but only to discern; these objects may be likened to documents namely of documents already written, perhaps never read by anybody yet, but in which we could not fail to recognize, were we to become acquainted with them [...] By identifying proofs with sequences of formulas or, more generally, with objects that are independent from us, one almost unavoidably reduces the activity of justification to a scanning and control process that requires no cognitive or physical particular resource, and that consequently could not be affected by the limits of the cognitive capacities of the agents. (227)

So, the classical image is grounded upon the assumption that there is some realm that our reasoning is attempting to latch onto, whether that is “proofs” or “objects” or “predicates”, and which the action of reasoning itself has no bearing whatsoever. Classical logic, then, is concerned with the preservation of truth, which itself is predicated upon the notion of trasncendent truth, and a form of “realism”, which, in fact, is an idealism parading as realism which emerges through the sublation of its own viscious circularity.

This is built upon a purported ability to “preside over all”, which is a totalising gesture that requires the assumption that everything can be packaged neatly into the “true” and the “false”. But, we do not overcome this totalisating gesture by abandoning the claims of reason altogether (that way reason simply re-emerges as secret hidden undergrowth in a maddening system of empirico-transcendental doublets). And, we should note that this works up to a point, for example, there are numerous mathematical proofs that have been possible only because of model theory. But then, as the Joker puts it to Batman: “Hmmm? You know... You know what I’ve noticed? Nobody panics when things go "according to plan." Even if the plan is horrifying.”

The twentieth century’s (and before) relationship with these metamathematical and metalogical crises has been one of prophylatic recoil at the “inconceivable”, which is also a creation of the system in which it is conceived. The paradoxes that arise at each attempt to totalise thought provide us with content which potentially devastates this classical space of determination. For example, the antinomies, according to Kant, provide reason to think that there is no means by which that which may be supposed to be an external referent will reside under irresolvable dispute (this is linked to totalities such as the cosmos), and, as such, these can not possibly be legitimate objects of inquiry. Resultantly, anything breaching the haven of classical reason is forever inaccessible, forming a regulative role that also allows reason its systematic coherence.

This strategy of confinement maintains that logic is based on a notion of Truth, so that the foundation of logic is outside of logic itself in pre-formatted metaphysics. Indeed, grounding thought upon Truth is simply metaphysical fiat with the supposed formatting of semantics prior to the act of reasoning itself. In this respect, the ultimate (read incredulous) definition of truth is Tarski’s: “A is true iff true-A”. This essentialised truth is then nested in a hierarchy of metalanguages since truth can not speak of itself in the language in which it resides (injunction: do not speak of truth!). Tarski, for example, suggests that there must be a hierarchy of truth predicates, none of which can speak of truth in the language in which it is constructed, but reaches heavenwards for a predicate in a metalanguage. Anyone who uses a truth predicate defined as Tarski has it would be committed to contradictory statements. But since contradictory statements cannot both be true according to Tarski, it is clearly a mistake to use such expressions. Tarski effectively claimed that both ‘L is true’ and ‘L is not true’, as formulated in a natural language, is the correct definition of truth - but, that makes natural languages inconsistent. Consequently, Tarski’s (1956) response was to “abandon […] the language of everyday life and restrict [himself] entirely to formalized languages”.

Instead, what is required is that we foreground the provisional, and constructive role of reasoning by understanding that fundamental inconsistency does not reside at the edges of thought, rather, it ultimately uproots the (classical) bedrock of thinking itself. There is a wonderful novel, Rainforest (1987), by Jenni Diski, which sets up the contrast between a structure of grids and lines (Mo, the lead character is a research scientist who attempts to map a section of rainforest), and a grave form of dis-order which comes to the fore in the relationship between this formalism and its object (to some degree, this is allegorised as disorder = organic, but this is beside the point here). But, this dis-ordering process does not comprise a sublime state of nature, neither does it allow for a “mere pathologisation”, a negative result. Rather, there is a catastrophe from the “inside” of a structure, acting upon a limited, contingent, quasi-transcendental structure, which uproots that very structure. This, in essence, is what I think is achieved by the paradoxes of thought.

Of course, this also has ramifications for how we understand foundations to be at work here – and there is an obvious link to the foundational impulse as knowing proofs in advance. To a degree, this is straightforwardly Hegelian (in the Science of Logic):

Great stress is laid on the limitations of thought, of reason, and so on, and it is asserted that the limitation cannot be transcended. To make such an assertion is to be unaware that the very fact that something is determined as a limitation implies that the limitation is already transcended.

We find exactly this, afresh, in the generic form of paradox at the attempt to construct limits to thought:

The best part of this unified scheme is that it shows that there are really no paradoxes. There are limitations. Paradoxes are ways of showing that if you permit one to violate a limitation, then you will get an inconsistent systems. The Liar paradox shows that if you permit natural language to talk about its own truthfulness (as it - of course - does) then we will have inconsistencies in natural languages. Russell’s paradox shows that if we permit one to talk about any set without limitations, we will get an inconsistency in set theory. This is exactly what is said by Tarski’s theorem about truth in formal systems. Our scheme shows the inherent limitations of all these systems. (Yanofsky, 2003)

The problem of the bifurcated (forced choice) that we identified above, aside from epistemological doubling, is that the critique (and excess-mongering) also swallows the caraciture of limits. But, stratifications aside, the limitations of the classical image are undone from within the formal reflection that takes place in thought’s capacity to think itself:

In the ZF [Zermelo-Fraenkel set theory] world, [...] the paradoxes are viewed as large holes in the ground that one might fall into. [...] However, it is always a mistake to think of anything in mathematics as a mere pathology, for there are no such things in mathematics. [...] One should think of the paradoxes as supernatural creatures, oracles, minor demons - on whom one should keep a weather eye in case they make prophecies or by some other means divulge in- formation from another world not normally obtainable otherwise. One should approach them as closely as is safe, and from as many different angles as possible. (Forster, 2001)

## 4 Rationality as rupture

To swallow the classical image (either to reject it, or to accept it) is to give up on the power of thought that Hegel saw, and opt for something that is in excess of thought, but which ends up in pre-critical metaphysics - a hypostatisation itself (this, of course, is precisely what it was intended to bypass). But, to overcome the totalising tendencies of a universalising form of calculability, we ought to pitch our battle on the same front. This is, of course, a battle for meaning, which ought neither to be given up to life / affect / phenomena, or to the individual / social, but to find its place, rightfully in the difficult rational construction of thought’s abstract reflection. At each point where all meanings are supposed to be decided, paradox will arise. Both the classical image and its critics accept the limitative constraints on thought. But, as I say, these may be considered undone already. As with Hegel, we can see that the antinomies are constitutive of thought itself, and can lead us to a view in which paradox uproots the notions of limit and transcendence altogether. It is possible to understand the internal attempt of thought to grasp itself as a kind of dialectical motor which is at the core of the process of reasoning itself. The view that emerges from this is one which does not begin with a definite notion of truth / proof, but constructs those concepts in the act of reasoning itself.

For example, Godel’s incompleteness theorems are often cashed out as “there are some truths that are unprovable” - this, leading to all sorts of spurious invective having to do with quantum brains, the existence of God, and so on. But, this assumes already that there is an outside - a realm of truth that is somehow already accessed - in fact, the entire theorem can be performed with no reference to truth whatsoever. Others have responded similarly. For example, Gentzen (1969) discusses Godel’s incompleteness results. There, he interprets the results as showing: “that for number theory no adequate system of forms of inference can be specified once and for all, but that, on the contrary, new theorems can always be found whose proof requires new forms of inference”. And, Carnap (2002) reacts very similarly to Gentzen: “[E]verything mathematical can be formalized, but mathematics cannot be exhausted by one system; it requires an infinite series of ever richer languages”. Both are drawn to an understanding of mathematics (and logic) that puts reasoning first, rather than looking to truth first as pre-determined field of thought. We need not be satisfied with a static, final system for mathematics (and logic).

With paradoxes such as can be constructed with Gödel’s theorems, we have the appearance of contradiction as a result of a presupposed totality of truth. But, why not think that the concepts “truth” and “proof” are being constructed along with the reasoning in which they appear? In other words, we might take up Gentzen’s response to suggest that truth can not be defined in this way. Moreover, the result of Gödel’s theorems may be taken as evidence that provability, and truth, are expansive concepts that we do not have totalising power over. For example: the move from a proof of A to the truth of A is relatively unproblematic, given that we identify something having a proof with its being true. But, the other way around is less simple. To say that the truth of A allows us to move to a proof of A requires that we already assume that we can range over all proofs that A has a proof, including proofs that use “A is true iff true-A”. So, we already know that the equation of truth and proof, if it is supposed to do anything substantive, encodes a supposed ability to totalise. Gödel’s results simple formalise this fact, and show us that it is not unproblematic.

With this in mind, it is possible to construct a “speculative” logic which does not require nor assume that propositions are determined from the outset.[[6]](#endnote-6) Wittgenstein’s deflationism aside, this passage from the Tracatus is instructive for this approach:

Why should Russell’s contradiction not be conceived as something uber-propositional, something that towers above the propositions and looks in both directions like a Janus-head? Might one begin logic with this contradiction? And as it were descend from it to propositions. The proposition that contradicts itself would stand like a monument (with a Janus-head) over the logical propositions. (III.59)

This approach begins from the role of reasoning in dialogue, where we are dealing with hesitancy and “perhaps”; with conjecture, doubt, argument and often a lack of clarity. It is there, that we require it to be possible, for example, to “hold together” that some statement is both possibly provable and also possibly refutable – to do so, we need a middle-ground that is prior to actualisation and “truth”.

We can consider rationality, therefore, as delineating a state of disequilibrium that provides a motor for dialectical engagement. This paves the way for an understanding of rationality which concerns “acts”, rather than “objects”, and that the act of reasoning is one in which there is a structure-change: a symmettry breakage in which our commitments emerge, as in contrast to the crystal world of classicality. The virtual-space prior to decision and commitment is one of reflective disequilibrium - a state of movement, since reasoning alters the way that the statement is thought about - there is, then, a productive tension at work.

## 5 Rupture as construction

Indeed, it is arguable that the practice of updating one’s commitments is the key distinction to the ability to merely decompose algorithmic reasoning to non-discursive practices. This process must be highly sensitive to collateral commitments, and is ultimately subject to what Brandom (1998) suggests is a “rational critical responsibility implicit in taking incompatible commitments to oblige one ought to do something” (189). In this setting, we might identify a pragmatic account of “truth” with something like coherence over states of commitment, but this is not truth that ranges over all things; nor is it a transcendent concept. Concepts, in this sense, are speculative, open, and the limits of formalisation is something that must be overcome in the intertwining relationship between our capacity to formalise and the widened understanding of “provability” that we have at our disposal. Inconsistency is, here, at the very base of reasoning. There are “inconsistent” foundations, but this is not actualized, it is precisely that which is prior to, and determinative of, the structure of meaning.

For example, in dialogue, we have states of disagreement, and reasoning in those contexts may be reconsidered as an “act”, which has productive force. This is to follow Hegel’s understanding of speculative thinking in Science of Logic: an ‘organon for the production of objective insights’. If we follow this line of thought, then rationality can not merely be presented as a structure of truth-preservation or a universe of fixed calculation: it is an organon for the generation of truth.

In partial domains, the neatness of truth and falsity may hold, relative to that domain, and, there, things may be decidable. This is why, perhaps, reasoning takes on the appearance of a transcendetal requirement of the totality - perhaps this is a by-product of both our cognitive machinery and our inherent doxastic conservativeness: we search for what we anticipate, and see what we anticipate even where it doesn’t appear (this is the empirico-transcendental doublet). This is where we are led back to the rainforest, where the breach of the unthinkable is made pscyhologically tractable as the dissolution of the contingent-totality. Were classical reasoning the purview of thinking in total, then the domain of truth is pre-given and crystallised to the point of claustrophobia. But, at each stage, which may be experienced as limit, the limit is both breachable, and in a state of tension. It is in a restless sea as if a reverse whirlpool under centrifugal force. Whatever “totalities” there are, must only be relatively maximal, so that these are not really determinate totalities, they are rather generated partial states. We have, instead, a propellant force that pushes towards the partial coherence of our domains, but, why should we assume that every part of our reasoning terminates in resolution, or that each part of our dialogues will cohere? Reasoning is capable of breaching the supposed totality, and in doing so, this is the moment where reasoning *is* reasoning (as action, rather than object).

This is an image of thought which does not allow a space of pre-criticality to be immune to reason (i.e. can not be falsified), but neither does it construct a pre-determined abstract Universality. The “limits” of thought are, rather, restrictions put in place by the debased attempt to constitute totalities. Reasoning is driven by dialogue, mapping and rupture, allowing for local dialogue, for tentative conjecture, and open-ness to others in a continual and co-constructive process.

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1. Bennett, 2009; Connolly, 2002; Massumi, 2002. [↑](#endnote-ref-1)
2. See, for example, Bryant, L., Srnicek, N., & Harman, G. (Eds.), 2011. [↑](#endnote-ref-2)
3. I understand the latter in the terms discussed in Ladyman, J., Lambert, J., & Wiesner, K., 2013. [↑](#endnote-ref-3)
4. See Dutilh Novaes, C., 2012; Stanovich, K., 2009; Wason & Evans, 1975; Kahneman & Tversky, 1982. [↑](#endnote-ref-4)
5. See Trafford, J., 2014a; Trafford, J. & Tillas, A., *forthcoming*. [↑](#endnote-ref-5)
6. See Trafford, J., 2014b; Trafford, J., *forthcoming*. [↑](#endnote-ref-6)