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On logic, intersubjectivity, and meaning: is reality an assumption we just don't need?

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The idea that our world is not just a mixture of unrelated incidents but shows some intelligible characteristics is probably the starting point of every analysis in International Relations (IR). We assume that what happens shows structure and significant connections of processes and flows. Unfortunately, opinions diverge soon thereafter: how does that assumed structure relate to our minds? Is it independent of our theories, cultural presuppositions, or opinions? What kind of objectivity can we hope for? Critical realists and radical constructivists seem to entertain different ideas about what the 'ontological status of reality' is and whether and how we can know about it.[1] An intellectual encounter between Colin Wight and Friedrich Kratochwil has shown to what extent related questions about intersubjectivity, reference, and meaning touch upon questions about *the logos*.[2] Interestingly enough, both agree that the 'classic' bivalent logic provides only an insufficient grounding for an adequate understanding of the world. Yet both are silent on providing reasons why this is the case.[3]

[1] A crucial concept at this point is the notion of truth. Various strands in constructivist and Critical Realist thought alike seem to entertain different convictions. A reconstruction of these differences and their implications would require a longer discussion than this article can provide. In the context of Critical Realism, an intriguing reference can be found in Roy Bhaskar, 'Where do we go from here', in Roy Bhaskar and Mervyn Hartwig (eds), *The Formation of Critical Realism: A Personal Perspective* (London: Routledge, 2010), pp. 195–215, in particular p. 215. I thank Benjamin Herborth for pointing this out to me. A good discussion from a constructivist perspective, see Friedrich Kratochwil, *Rules, Norms and Decisions: On the condition of practical and legal reasoning in international relations and domestic affairs* (Cambridge: Cambridge University Press, 1989), p. 29 and 149ff. For an overview on different truth theories see for example Frederick F. Schmitt, *Theories of Truth* (Oxford: Blackwell, 2003).

[2] Friedrich Kratochwil, 'Of False Promises and Safe Bets: A Plea for a Pragmatic Perspective in Theory Building', *Journal of International Relations and Development*, 10:1 (2007), pp. 1–15; Colin Wight, 'Inside the epistemological cave all bets are off', *Journal of International Relations and Development*, 10:1 (2007), pp. 40–56.

[3] Wight's endnote 10 on p. 253 in this respect reads: 'The rejection of formal analytical logic requires qualification, for to reject it in absolute terms is to affirm it. Like Derrida, I do not reject "all or nothing" logic in total. Some things are susceptible to this form of logic and some are not.' It would be interesting to know more about what bits and pieces he accepts and what not – and on what basis.

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Hence, it might well be that constructivists and critical realists actually do share some reservation or critique.[4]

To explore this possible similarity if not even some possible common ground for future discussion, this contribution deliberately does not want to formulate some form of critique. Rather, it is written as an *invitation* to (jointly) explore this territory and first tell us each other's stories about how logic is actually to be understood, why bivalent logic seems to be insufficient, and how this informs our position concerning ontology and epistemology.[5] The obvious problem with such an undertaking is that one cannot discuss 'politics' right away. One might get the impression that the history of logic has nothing to do with politics or international relations. However, when we agree that questions of ontology and epistemology are somehow relevant for the study of International Relations, and I think the IR literature has its share of references to ontology and epistemology, then it might be good to actually discuss what these terms actually refer to and what they are supposed to 'do'. Only then can we begin to understand why constructivists and critical realists entertain different ideas about praxis and politics.

This contribution argues that the constructivists' critical attitude towards classical logic has to be seen in the context of Wittgenstein's linguistic turn as an answer to the *Grundlagenkrise of the 1920s*. This context helps to understand why for constructivists inter-subjective constituted meaning and an assumed 'causal relevance' of reality are irreconcilable. From this perspective, Wight's claim that the notion of rule-following would imply an 'anthropocentric metaphysics with existence always linked to some or other human attribute'[6] is quite ironic. Radical 'thick' constructivists always criticised more moderate versions and their 'rump' materialism or on this point: exactly to focus on some human attribute or to locate the meaning of ideas in endogenous preference formation or motives is exactly not the way to go down as this model simply reproduces the Cartesian categories of mind and matter, the very categories constructivists try to leave behind.[7]

To make this argument, this article is structured in four parts. The first part provides a summary of three basic pillars of bivalent logic. This discussion first helps to identify potential differences between critical realists and constructivists and their interpretations later on. Secondly, it also allows us to reconstruct the importance constructivists ascribe to the linguistic turn: it's the result of an intellectual movement that starts with Kant, gains momentum with Russell's paradox and not only shakes up basic dogmas of Western philosophy, but abolishes the ascribed

[4] See Roy Bhaskar, *A Realist Theory of Science* (London: Verso, 1997); and Heikki Patomäki, *After International Relations* (London: Routledge, 2002). I thank an anonymous reader to point out this deficiency in a previous draft and point this literature out to me.

[5] One caveat is in order. Given the objective of this article, the following discussion does neither engage with Critical Realist positions, nor does it 'proof' its relevance for IR literature narrowly defined. The relevance of this discussion results from previous debates that raised these points. This could be read as some bias or that this contribution is too far away from IR. However, the 'excluded' dimensions are included through the very objective of the article.

[6] Wight, 'Inside the epistemological cave', p. 42.

[7] See Friedrich Kratochwil and Oliver Kessler, 'Systems Theory between Explaining and Understanding', in Mathias Albert, Lars-Eric Cederman, and Alexander Wendt (eds), *New Systems Theories of World Politics* (London: Palgrave, 2010). See also Oliver Kessler, 'From Agents and Structures to Minds and Bodies: of supervenience, quantum and the linguistic turn', *Journal for International Relations and Development*, 10 (2007), pp. 243–71.

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objectivity of logic and mathematics as *form* and *rules* of thought.[8] As in particular Tarski has shown, paradoxes emerge as soon as we buy into two assumptions: the idea of a natural language in which all other languages could be translated, and the idea that logical operations are necessary *a priori*. The second part discusses the attempt by Tarski and Carnap to uphold logical necessity by introducing the idea of several languages, that is, a hierarchical distinction of object-language and meta-language. The third part turns to Wittgenstein who showed that solutions based on types or different languages are based on an inadequate concept of language. It neglects its pragmatic and intersubjective dimension. Consequently, we have not only seen the emergence of *ordinary language philosophy* but also the deprivation of any assumed objectivity of logic: it cannot provide for its own consistency. The foundations of logic do not point to logic itself, but to its social preconditions.[9] As a result, constructivists are particularly interested in the prepropositional knowledge that precedes any propositional content. This prepropositional knowledge is often described with terms like 'tacit knowledge'[10] or 'habitus'.[11] This kind of knowledge is not to be found in propositions and laws, but in conventions and rules whose 'necessity' cannot be shown deductively, but needs to be established discursively. The fourth part then reconstructs the difference between constructivism and Critical Realism and argues that from a constructivist perspective, Critical Realism resembles the logical positivist position in strange ways: it wants to uphold a truth conditional theory of meaning despite the conventional nature of scientific thought.[12]

Four pillars of bivalent logic

The history of logic can easily fill entire shelves and the following discussion cannot even aspire to provide something like an overview. As a first cut, and strangely quite akin to what we actually can still find in the idea of an 'empirical' approach to social science, much of the debate in logic focuses on four pillars: the principle of identity,[13]

[8] For paradoxes see Nelson Grelling, 'Bemerkungen zu den Paradoxien von Russell und Burali-Forti' *Abhandlungen der Fries'schen Schule*, 2 (1908), pp. 301–33; Nicholas Rescher, *Paradoxes: their roots, range and resolution* (Chicago: Open Court, 2001). For the importance of Russell's paradox for early analytic philosophy see Michael Dummett, *Logical Basis of Metaphysics* (Cambridge, MA: Harvard University Press, 1993), and Ernest Nagel and James Newman, *Gödel's Proof* (London: Routledge, 2005).

[9] For a discussion of basic ideas see David Bloor, *Wittgenstein, Rules and Institutions* (London: Routledge, 1997); see also Alexander Miller and Crispin Wight, *Rule-following and Meaning* (Montreal: McGill-Queen's University Press, 2002). In IR, the philosophy of Wittgenstein has been explored in particular by Nicolas Onuf, *World of Our Making* (Columbia: University of Southern Carolina Press, 1989), p. 42 ff; Friedrich Kratochwil, *Rules*; see also Oliver Kessler, 'From Agents and Structures to Minds and Bodies', *Journal of International Relations and Development*, 10:1 (2007), pp. 243–71.

[10] See, for example, Michael Polanyi, *The Tacit Dimension* (London: Routledge and Kegan Paul, 1967).

[11] Pierre Bourdieu, *The Logic of Practice* (Cambridge. Polity Press, 1990); Joseph Margolis, 'Pierre Bourdieu: Habitus and the Logic of Practice', in R. Shusterman (ed.), *Pierre Bourdieu: A Critical Reader* (Oxford: Blackwell, 1999). For other alternatives see, for example, George Lakoff and Rafael E. Nâuänez, *Where mathematics comes from: how the embodied mind brings mathematics into being* (New York: Basic Books, 2000).

[12] See in particular supra 1.

[13] Questions of identity are of course nicely captured in the Cartesian 'ego' or Kant's transcendental subject in his transcendental aesthetic. One of the most intriguing exchanges in this respect is actually in H. G. Alexander (ed.), *The Leibniz-Clark Correspondence* (Manchester: Manchester University Press 1956). For a detailed description of monads see Benson Mates, *The philosophy of Leibniz. Metaphysics and language* (Oxford: Oxford University Press, 1986); and Glenn A. Hartz, *Leibniz's Final System: Monads, Matter, and Animals* (London: Routledge, 2006).

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the principle of non-contradiction,[14] *tertium non datur*[15] and the sentence of the 'ground'.[16] The identity principle postulates an identity between being and thought and therewith defines the theme of logic itself. Without it, it would not be possible to speak about truth at all. With the principle, it is possible to separate being and non-being and to define the object of reflection as 'true being' or the 'being of being'. Of course, the philosophical debate around what identity means and how thought and the being of being relate to each other ranges from Plato's cave, to Leibniz, who possibly provided the most elaborate discussion on the identity principle,[17] and finally to quantum mechanics.[18] Thus, without going down that road too far and complicate things unnecessarily, one can say the principle establishes that 'being' is not just a subjective motive within reason, but transcends the individual 'belief' and manifests itself as an objective 'thing' before the thinking mind.[19] This unity between being and thought is followed by a cosmology that divides the world into things and their relations (the two logical variables), where either something is, or something is not and that frames 'epistemology' as the problem of how to align the categories and definitions of our language with the properties of those things and relations, for example via verification or falsification.[20]

Having the theme of logic established, the sentence of *non-contradiction* shows that true being has to be thought of without contradictions.[21] While the identity principle provides the theme, the principle of non-contradiction secures that the process is not characterised by a simultaneous existence of positive and negative values. Logical values like positive/negative or being/non-being cannot be true at the same time. Something cannot be and not-be, a sentence cannot be right and wrong at the same time. If we would allow for contradictions, the basic convictions about true being would be shattered: every contradiction breaks the unity of the world. The principle of *tertium non datur* shows that always *either* something is *or* something is not. There is no other 'third' possibility: a coin will show head or tail – and nothing in between. The 'sentence of the ground'[22] states that there is a ground on which we can found our reasoning. Of course, for most of Western tradition,

[14] See in particular Aristotle's *Metaphysik* III, Chapter 4. A fun page is {www.non-contradiction.com}. Of relevance in this respect is the question of 'dialectics', the principle of double negation and the 'negation of negation'. For the latter see Charles Taylor, *Hegel* (Cambridge: Cambridge University Press 1975).

[15] *Tertium non datur* is most famously known by its associated distinction of 'appearance' and 'being'. See Michael Theunissen, *Schein und Sein* (Frankfurt/Main: Suhrkamp, 1978).

[16] Martin Heidegger, *Der Satz vom Grund*, 6th edn (Stuttgart: Klett-Cotta, 2006).

[17] See fn. 12 above.

[18] See in particular the recent publications by Alexander Wendt, in particular Alexander Wendt, 'Flatland: The Quantum Mind and the International Hologram', in Albert, Cederman and Wendt, *New Systems Theories*. Consider in this context Einstein's twin paradox. It introduces a spatial-temporal aspect to identity. For a description see for example David Bohm, *The Special Theory of Relativity* (London: Routledge 2006 [1965]), p. 68.

[19] This unmoving, stare and prevailing being is then seen as the very antithesis of the moving, subjective, and circular human life. See Gotthard Günther, 'Metaphysik, Logik und die Theorie der Reflexion', in Gotthard Günther, *Grundlegung zu einer operationsfähigen Logik* (Hamburg: Meiner, 1976), p. 8; or Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time* (New York: Columbia University Press, 2004).

[20] The debate between verification and falsification cannot be dealt with in this article. But the irremediable link to methodological issues such as the historical question of the 'evidence of evidence' is noteworthy. See Paul Feyerabend, *Against Method*, 3rd edn (London: Verso, 1996).

[21] Gotthard Günther, 'Metaphysik, Logik und die Theorie der Reflexion', p. 8.

[22] See in particular Heidegger, *Der Satz vom Grund*.

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this foundation was found in God. Without God, Descartes would have lived in despair and Kant unable to postulate his things-in-themselves. As cursory and necessarily incomplete as this discussion certainly is, we can nevertheless see that: (a) *identity, non-contradiction*, *tertium non datur*, and *sentence of the ground* provide the pillars of bivalent logic; that (b) logic operates with the form being/non-being; that (c) these four axioms determine the (hierarchical) relationship between human existence, nature, and God (with God being on top); and (d) they negates the *existence* of undecidable questions and put them into the category of non-being.

Exactly at this point, the re-emergence of paradoxes at the turn of the twentieth century is relevant. Bertrand Russell showed that paradoxes can be proven mathematically when mathematical concepts are deferred onto themselves.[23] To take a less technical example than Russell (who focused on the question whether a set can be a member of itself), let us consider Epidemides the Crete who says 'All Cretans are liars'. Now, can we believe him? If he is a liar he actually speaks the truth and if he speaks the truth he is a liar. Paradoxes are true and false at the same time. If it is taken as true, then it is false. If it is taken as false, its truth conditions are fulfilled and therefore it is by definition true. These kind of sentences are false if they are true (but then they are false) and they are true if they are false. As soon as we enter one side, we are immediately thrown to the other and back again. One finds oneself 'oscillating' between these two options because the condition of possibility is at the same time the conditions of its impossibility: A because non-A. Or as Wittgenstein once remarked: paradoxes don't lead astray, they don't lead anywhere.

Within the framework of bivalent logic, these kinds of questions would have to be treated as non-existent, as a failure of our thought, or the result of the limits of our knowledge. However, the way Russell derived the paradox made it impossible to negate its existence or to claim it's a problem of limited knowledge. Now if we agree that paradoxes do exist, their solution is neither to be found in an empirical test, nor is it *a priori* decidable as bivalent logic would need to argue. If nature is unable to determine the 'answer to' paradoxes, the truth-conditional theory of meaning is inadequate for their analysis. Paradoxes are neither solved by looking harder at the facts, nor by any other means that could establish some reference between the sentence and the 'fact'.

The discussion around paradoxes resulted in nothing less than the question about the very foundations of logic. Does the self-reference of logic, its own condition of possibility, point to itself – or to something else? If logic cannot provide for its own foundations and cannot fulfil its own criteria of rigour and coherence, its assumed objectivity cannot be sustained. In the subsequent debate it became clear that paradoxes emerge because self-referential questions like 'the proof of proof', the 'falsification of falsification' or the 'logic of logic', cannot be answered *within* the classic system itself. There is no ultimate proof that mathematical proofs are necessary; criteria like verification or falsification cannot be justified on their own grounds. The reason is that the third pillar – the *tertium non datur* – cannot be fully established in complex systems. Due to incompleteness, self-referential questions will always either produce contradictions, antinomies, and paradoxes despite the

[23] See 'Letter from Russell to Frege', in Gottlob Frege, *Briefwechsel mit D.Hilbert, E. Husserl, B. Russell*, eds G. Gabriel, F. Kambartel, C. Thiel (Hamburg, 1980), pp. 59f.

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'necessity' of logical operations.[24] If paradoxes cannot be solved by negation, then the question arises what to do with them. This question structured the subsequent debate and gave rise to two different solutions: the possible worlds semantic of logical positivism and Wittgenstein's language games.

Possible worlds: logical positivism, conventialism, and semantic conception of truth

Alfred Tarski realised that two assumptions are necessary for the construction of paradoxes: semantic closure of language and validity of basic logical rules.[25] Without this assumed validity, it would be impossible to grant logic – and science for that matter – any objectivity. Semantic closure is based on the idea that there exists one and only one 'natural' or 'genuine' language in which all other languages can be translated. Hence, if we find that language (formal logic for example) and can prove that a sentence is true in that language, then it's also true in all other languages. With these two assumptions, logic provides the means whereby we can analyse both language of nature and the laws of thought and thereby analyse the structure of true being. Unfortunately, paradoxes now stand at the entrance door.

For Tarski, the 'mistake' was to conflate the semantics of a language with the language itself. The basic idea is to have semantic terms like 'denotation' or 'truth' not to be found within the same language as the objects to which they refer: one cannot establish the truth of sentences of one language within that language. Consequently, Tarski along with his colleague Rudolf Carnap proposed a solution by abandoning semantic closure and allowing for the existence of a plurality of non-reducible languages,[26] or in their vocabulary: possible worlds. The problem for them is not the consistency of logic itself, but the fusion of different languages: the language *within* we speak (object-language) and the language *about* we speak (meta-language). While the first one is 'subjective', the second one tries to take an outside position to describe this language objectively. Meta-language is assumed to be constitutive for *how* the object-language is to be interpreted; it sets the boundaries in which an object-language is applicable. Carnap and Tarski formulate the problem of paradoxes as a problem of levels, types, or part-whole relationships to break the circle within 'how does logic explain logic' in order to find a solution to paradoxes without having to sacrifice logical necessity *a priori*.

It eventually should be noted that logical positivists realised that the assumption of a general and objective truth needs to be abandoned once and for all: whether or not some sentence is true or false depends on the language in which one speaks (in which world we are in). Questions of inferences and validity of truth conditions depend on which language a particular sentence belongs to. Without a necessary connection between signs and objects, without a 'natural' meaning, mathematical theorems cannot themselves determine their meaning. The choice of which language is to be preferred is a matter of a choice, that is, a matter of *convention*. If we wish to observe the world in terms of classical logic with strong rules of inference, we are

[24] For a discussion see Ernest Nagel and James Newman, *Gödel's Proof* (London: Routledge, 2005).
[25] Alfred Tarski, 'The Semantic Conception of Truth and the Foundations of Semantics', *Philosophy and Phenomenological Research*, 4:3 (1944), pp. 341–75.
[26] Rudolf Carnap, *Meaning and Necessity: A Study in Semantics and Modal Logic* (Chicago: Chicago University Press, 1956).

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free to do so. But there is no reason why logical systems with weaker rules might or might not be used. That is to say categories of true and false can only be examined *after* conventional decisions: logical positivism is a form of conventionalism as it claims that everything that is true is true by convention.[27] This 'possible world' led Rudolf Carnap to formulate his famous *tolerance principle*. As Section 17 of *The Logical Syntax of Language* explains:

> In logic, there are no morals. Everyone is at liberty to build his own logic, i.e. his own form of language, as he wishes. All that is required of him is that, if he wishes to discuss it, he must state his methods clearly, and give syntactical rules instead of philosophical arguments (*Syntax*, §17).

The principle is for Carnap deeply connected with the question of 'intersubjectivity'.[28] But the conventionalism of the Vienna Circle does not imply a conventionalist epistemology. Quite to the contrary. For logical positivist, if we want to make inferences we need to observe the world. If we want to know whether swans are white, and that the name 'white' is a convention, we nevertheless have to observe swans.

This belief is, in my understanding, deeply entrenched in the positivist distinction between meta-language and object-language. For Carnap, meta-language is essentially logical syntax: each system is viewed simply as a set of symbols and rules for their manipulation and consequently, the meta-language is independent of any question concerning the meaning of symbols which is rooted in the object-language.[29] All formal models can therefore be analysed from a neutral standpoint. Consequently, for logical positivists, this 'meta-language', and thus the 'self' and its conventions are objectively given. Conventions were just observable entities and ultimately an empirical question. But that means that science and the logical operations themselves are excluded from 'conventionalism'. Thus, despite this overall acknowledgement of the heterogeneity of languages, for logical positivist, this does not include an abandonment of the 'scientific' method.

Wittgenstein's language games

Wittgenstein showed that the avenue proposed by Tarski and Carnap fails to deliver what it promises. The distinction between meta-language and object-language requires a clear boundary that does not exist: or where does this distinction itself belong to? Wittgenstein realised that he had to opt for semantic closure (which then set off ordinary language philosophy) and give up logical necessity *a priori* by introducing the 'use theory of meaning' and the concepts of rule following and language games. Of course, I cannot do justice to the complexity of these concepts and only hope that a short remark on the general thrust is sufficient for the purpose of this discussion.

[27] William Van Orman Quine, 'Carnap and Logical Truth', *The Ways of Paradox and Other Essays* (New York: Random House, 1966), pp. 107–32 and 'Truth by Convention', *The Ways of Paradox and Other Essays* (New York: Random House, 1966), pp. 70–99.

[28] See, for example, also Rudolf Carnap, *Der Raum. Ein Beitrag zur Wissenschaftslehre* (Berlin: Reuther & Reichard, 1922); and Hans Reichenbach, *The Philosophy of Space and Time* (New York, Dover Publications, 1958).

[29] Carnap, *Meaning and Necessity*, §17.

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Wittgenstein's 'use theory of meaning' attempts to step beyond the solution in terms of 'levels' as termini of both languages obtain their meaning in their use.[30] According to Wittgenstein, the meaning of words derives not from some essence or property, but from its use. Crucially, the use theory of meaning argues that meaning cannot be 'shown', 'tested', or 'derived', but needs to be reconstructed. It needs to be shown how some notion works within a language game. He thereby breaks the connection between logic, language, and reality and shows that the self-reference of logic does not point to logic itself, but to praxis, rules, and life-worlds.

As the associated concept of rule following has been subject of a broader debate already, I think there is no need to discuss it at length at this point.[31] What is more important at this point is the self-referential logic of 'social' institutions or language games: each game consists of constitutive rules which define the game and thereby serve as conditions of possibility to ascribe meaning to moves within the game.

> When one shows someone the king in chess and says. 'This is the king', this does not tell him the use of this piece – unless he already knows the rules of the game up to this last point. The shape of the king. You could imagine his having learnt the rules of the game without ever having been shown an actual piece. The shape of the chessman corresponds here to the sound or shape of a word … the words 'This is the king' (or 'This is called the "king"') are a definition only if the learner already 'knows what a piece in a game is'.[32]

Analogously, without those constitutive rules, mathematics would be just ink on a piece of paper, a chess figure just a piece of wood or marble – without any meaning. Without those rules, we would not be in the position to say that 'this is right' or 'wrong' and we would not know how to go on within the game or even able to ascribe expertise or wit.[33] With these constitutive rules, the ink becomes a mathematical proof and the piece of marble a pawn. The same holds true for a variable in logic.[34] Especially in his later work, logical operations become part of language games:[35] each language game has its own constitutive rules and operations where the very idea of what, for example, it means to 'add' something differs. Sometimes one plus one makes two; sometimes it makes zero.

The crucial aspect is that Wittgenstein *redefines the entire problematique of epistemology from reference to the drawing of boundaries.* Wittgenstein's conventionalism implies an intersubjective epistemology. Tarski excluded science from his conventionalism and believed a rational or ideal language could be built upon logical atoms where words have fixed meaning and new sentences could be constructed rationally from prior ones according to the laws of logic. For Wittgenstein, language games overlap, show similarities and differences, change continuously, and refer to other language games. This means that when language games change, concepts and notions change and through that the meaning of words.[36] The primary question is not one of reference, but how the constitutive rules of a language game are drawn.

[30] Ludwig Wittgenstein, *Über Gewissheit* [On Certainty] (Frankfurt am Main. Suhrkamp, 1984), p. 61.
[31] See Crispin Wight, *Rule-following.*
[32] Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Blackwell, 1954), §31.
[33] Ibid., §42
[34] Ibid., §188.
[35] Ludwig Wittgenstein, *Remarks on the Foundations of Mathematics* (Oxford: Basil Blackwell, 1956), Part V, §23.
[36] Wittgenstein, *Über Gewißheit* [On Certainty], p. 65, Wittgenstein, *Remarks on the Foundations of Mathematics.*, Part VI, §28.

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In contrast to the Vienna Circle, Wittgenstein's conventionalism implies an intersubjective epistemology.

With the turn to language games, Wittgenstein thus redefines the way complexity is described: while Tarski and Carnap structured complexity in levels to define epistemology as the problem of reference, Wittgenstein puts emphasis on the drawing of boundaries and selections. Consequently, language cannot be defined as the 'sum' of all language games. The concept of language games cannot simply replace the logical atom: logic does not provide a comprehensive account of how language changes. Rather, semantic changes indicate a change of perspective, a new conceptualisation of a fact referring to some social or societal change. I think this is the answer of Wittgenstein to Russell's paradox: paradoxes are produced by the conceptual apparatus we use. To solve or unfold them requires the introduction of new distinctions or the change of the conceptual framework.

As a summary then, this 'linguistic turn' and Wittgenstein's critique on logical positivism stands behind the constructivist's rejection of bivalent logic. This is the reason why for constructivism, the distance and opposition to logical positivism and to early analytic philosophy is important – and why the 'abandon' epistemology sounds really strange: for constructivists, the entire *epistemology* defined in terms of reference has come to an end and has been replaced by one of boundaries. Most of the critique of epistemology seems to be based on an understanding that associates epistemology with reference, not boundaries.

Intersubjectivity and the (ir)relevance of 'the world'?

The previous section has argued that the notions of rule-following and language games break with the identity principle as a possible basis of logic. This implies that the entire constructivist project can, and I personally think it actually has to, be seen as the attempt to break free from the shackles of bivalent logic and develop an entirely new logic. A logic that replaces identity by difference, that puts paradoxes and contradictions right at the centre of inquiry and finally leaves behind the *either or* logic of the *tertium non datur* to realise that reality is polycontextual. This also implies that for constructivists, references to ontology and epistemology 'in themselves' don't say anything, especially when they are defined in terms of bivalent logic: With the advent of a new, multivariate logic, the very meaning of ontology and epistemology changes.

What does this new logic look like? The vantage point for constructivists is not some prefixed *identity* like a tree or car – but *difference*, the 'making' of an identity resulting from *qualitative* judgements that allow the pen to count as one object – and not as its five different parts. To observe these qualitative judgements, the constitutive *boundaries*, the logical 'bases' of constructivist thought are extended by (at least) *a third logical value*: 'undecideness'. That means – the vantage point is an unstructured 'reality' where only in time and through qualitative 'judgements' (inscribed not in reasoning but discourses) is it possible for observers to *ascribe* the values being/non-being. The world is structured by discourses, communication, or language 'in use'. The sentence 'it is p' refers not to an *a priori* given reality, but results from social processes. Hence, being and non-being are not universals, but result from social processes whereby the world is structured by bringing and inscribing semantic

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distinctions onto the world. There is no *a priori* separation of subject and object that might serve as some kind of ground or hook. All that is can only be through previous setting of boundaries: truth can only exist in contrast to error, the whole in contrast to the parts, the system in contrast to its environment. These differences are primary before any identity through differentiation and naming can be established.

What distinctions are used, how boundaries are drawn, determines what will be seen and what will be left unnoticed. This includes *categorisation processes* as Wittgenstein emphasised: 'how we group words into kinds will depend on the aim of the classification – and on our own inclination.'[37] From this perspective, categories do not represent material characteristics or intrinsic properties, and the 'materiality' of objects certainly does not determine processes of categorisation, but, as Mary Douglas once summarised a discussion on the materiality of risks:

> heuristics or mental modes that people use to make judgements about risks should not be considered merely as 'cognitive' aids for the individual decision maker. Instead, they should be regarded as shared conventions, expectations and cultural categories that are founded on clear social functions and responsibilities.[38]

Apart from the cultural dependence of perception and classification, this quote nicely shows how shared conventions, expectations, and cultural categories are the very 'stuff' of social structures. But this 'stuff' is not framed in terms of subjects facing an object, but in terms of how genuine intersubjective processes constitute objects and subjects in the first place.

Here is a difference between constructivists and logical positivists. As the discussion of the Vienna Circle has shown, a simple reference to 'intersubjectivity' does not do the trick. As much as intersubjectivity is understood as some space between pre-existing subjects, the subject-object distinction is maintained as 'the other mind' is framed similarly to an 'object' that an individual has to face, observe, and infer meaning from. In its attempt to leave this subject-object distinction behind, the 'constructivist' turn from the subject to language thus also needs to (re)define intersubjectivity and disconnect meaning and the mind. This is not the place to provide an overview over available alternatives. Rather, I would like to simply point out that a hook for 'ontology' in human existence – as the idea of a layered ontology in general – appears to be problematic. To start from existing subjects and derive social categories as some higher form of 'personality' already failed with Husserl's phenomenology. What is at stake seems to be a different concept of what the *world* is: For constructivists, the world is not crowded by substances or simply the sum of all things, but only process: The world is the unmarked space of distinction through which we look at her. This has important repercussions for 'necessity' and consequently 'causality' – points that cannot be dealt with at this occasion. Although it is tempting to show why the accusation that constructivists buy into a Humean concept of causality is problematic, as some critical realists repeatedly do, I simply would like to emphasise some repercussions of intersubjectivity as self-referential

[37] Wittgenstein, *Philosophical Investigations*, §17. See also Nelson Goodman, Mary Douglas, and David Hull, *How Classification Works: Nelson Goodman among the social sciences* (Edinburgh: Edinburgh University Press, 1992); George Lakoff, *Woman, Fire and Dangerous Things: What Categories reveal about the Mind* (Chicago: Chicago University Press, 1987).

[38] Mary Doulgas, *Risk Acceptability According to the Social Science* (New York: Russell Sage Foundation, 1985), p. 80.

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processes have for an understanding of the relevance of materiality for social processes: not the materiality of things produces meaning, but self-referential processes give meaning to the materiality of things.

That implies that the primary question is not how ideas derive from its material bases and then impact on it, but rather that there is a distinction between the physical and the social world. What is needed first of all is some concept of self-referential processes and how this is linked with notions of society or sociality. From this perspective, the kind of materiality we find in social processes is different from matter we find 'in the world'. The usual examples testifying the importance of the world – like 'a plane can fly, a tree is outside the window, or ''if I wish to know how many cars are parked in my drive then the easiest way is to probably go and look''[39] seems simply beside the point.

What is of interest is not the materiality of things *per se*, but the ascribed meaning or the 'function' of some 'thing' in some discourse, system, or society. John R. Searle has reminded us that the material properties of things do not determine their function: money is money not because of the paper used to print the symbols on it. The meaning of money is not reducible to its physics, particular with rise of cyber money. The semantics of 'money' has no reality beyond its talk. As Searle confirms:

> the very definition of the word 'money' is self-referential, because in order that a type of thing should satisfy the definition, in order that it should fall under the concept of money, it must be believed to be, or used as, or regarded as, etc., satisfying the definition. For these sorts of facts, it seems to be almost a logical truth that you cannot fool all the people at one time. If everybody always thinks that this sort of thing is money, and they use it as money and treat it as money, then it is money.[40]

In the same way, institutions like money, marriage, and property which structure expectations, inhabit cultural categories and are based on shared conventions. Institutions are linked to questions of recognition and status, facts which are constituted intersubjectively and do not have a material counterpart. I guess my wife would not be very pleased if I would try to explain the function or the meaning of the ring on my finger by pointing to its physical properties. And as John Austin reminded us, such a reference to 'the world' would even be potentially misleading. It would distort the view to the self-referential processes those institutions are based upon.

Acknowledging self-reference has important repercussions for the kind of materiality relevant for the observation or reconstruction of social processes. Without wanting to critique Colin Wight, I think an example he provided might serve as an illustration to highlight the different notions of materiality at play. In his rejoinder to Friedrich Kratochwil, he writes:

> It may be philosophically naïve of me to claim that if I wish to know how many cars are parked in my drive then the easiest way is to probably go and look. But I can do this without needing philosophy to prove empiricism infallible. Equally, in certain circumstances I might be able to ascertain how many cars are in my drive without looking; if for example I know that at time T1 that there were three cars and that one went at time T2, then, if asked at time T3 (assuming these events are sequential), I have a legitimate case to say 'two'. Of course, in either case I can still be wrong, but the point is that the claim about the existence of a certain number of cars can justifiably be supported on various epistemological

[39] Wight, 'Inside the epistemological cave', p. 4.
[40] John R. Searle, *The Construction of Social Reality* (London: Allen Lane, 1995), p. 32.

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grounds and we do not know in advance which will be the most appropriate. Hence the context in which the claim emerges is also an important aspect of its validity. In both cases, there is no doubt that observation, or the process of rational deduction is theoretically-laden, but to say that our concepts help carve up the world in certain ways is not to accept that they either determine the physicality of what exists, or can, in all cases, stop an object from existing.[41]

Apart from the rather obvious epistemological problems Colin Wight raises, it is rather obvious that there is no need for constructivist thought for 'solving' this problem. Any game theorist and positivist would be able to do that with his tool kit just fine. They might even run a regression and identify some correlations. What shines through in this passage, however, is the subject – object distinction and a rather unproblematic treatment of logical necessity which stands in contrast to his rejection of bivalent logic. Ultimately I think the conclusions Wight wants to draw are a classic case of a non-sequitur. He jumps from the problem of 'counting' to establishing the 'materiality' of cars and thus a world beyond the 'productive power of discourses'. A problem, for which the counting of cars is irrelevant. His example is parallel to the example 'a bullet in the head kills you' for establishing the materiality of the body. That of course leaves the question open why such acts are classified differently.

Conclusion

This contribution sought to provide an account for why constructivism rejects bivalent logic, how it allows reconstructing some key constructivist tenets, and why it matters for the current debates with both positivists and critical realists. The difference between constructivism and rationalism was identified as the difference between two-valued and three-valued logic around the question of 'undecidedness'. Constructivism treats undecidedness as third full logical variable and thereby transcends the bivalent logic of 'things' and 'relations'. Rather, the focus is on self-referentiality, world-structuring processes.

This has at least three repercussions: First, the necessity of bivalent logic is replaced by 'possibility' and contigency: probability is inscribed in the very foundations of logic opening the way for multiple worlds and alternatives. Already here, the different understandings of political processes rationalism and constructivism entertain become visible: While rationalism bases politics on well-defined problem settings, constructivism is interested in the very process of problem formation. In other words: while rationalism places politics on the modality of necessity where problem settings are already well defined, constructivists in contrast focus on the structuring of potentialities from where the actual is derived: on argumentative structures, distinctions by which decisions are determined and thus world constructed. This redefines the basic notions of ontology and epistemology.

Second, ontology is no longer the study of the world as the sum of all things and their relations, but things and relations are 'constructed', temporary manifestations of social processes and flows. The associated 'abandonment of the identity principle' to embrace more fully a 'move to difference' places contradictions and

[41] Colin Wight, 'Inside the epistemological cave', p. 7.

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paradoxes at the heart of inquiries to analyse how an identity is constructed and presents itself differently when observed from different contexts, perspectives, or angles. From this perspective, the attempt of Critical Realism to fuse intersubjectivity and some 'causal' relevance of the world which then allows for the reference of words or concepts to nature – bears strong resemblance to the project of logical positivism of the 1920s and 1930s.

Third, the basic problem of epistemology is altered: epistemology as the question about the conditions of possibility for knowledge is redefined from 'representation' to the observation of how constitutive boundaries are drawn. As a consequence, perception is not understood to be a representational problem directed at pre-existing 'things and relations'. The condition of possibility of perception is that things are differentiated and set apart. Each answer to the question 'what is' is preceded by qualitative judgements, boundaries, and categorisations which construct the things in the first place. These boundaries delimit the objects we can observe and investigate. The assertion 'this is a pen', for example, presupposes that all its different parts are seen as a unity. The idea of a representational epistemology where we can approach nature or the universal truth by looking harder at the facts is from the perspective of self-reference simply wrong, as the distinction and relationship between the world and our concepts or 'reality' and theory is always a theoretical one. Thus, the idea to come closer to the world goes right in the wrong direction. This discussion suggests that constructivist thought is more interested in what kind of knowledge we acquire when we move *away* from the world, what can (not) be seen – and by which distinctions this movement is structured.

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