

A Plea for a Naturalistic Ontology

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1. *Introduction*

In philosophy, Naturalism is understood to be a paradigm that confers a certain direction on our thinking and on scientific research.¹ In conjunction with this, there are often in the foreground conceptual and methodical constraints that a naturalistic orientation implies. Thus, it is characteristic of naturalists' self-understanding to reject as unscientific any inquiries whose presuppositions exceed the bounds of empirical knowledge. Inquiries of that sort are to be found in all realms of philosophy. Traditionally, it was the questions of metaphysics, ethics and theology that attracted the criticism of the Naturalists. Nowadays, this debate has shifted a bit, and it is issues in epistemology and the philosophy of mind to which the attention of both the detractors and champions of Naturalism are directed.²

What has not changed is the vehemence with which the viability of the naturalistic paradigm is being discussed. Here, world-view opposites collide and polarize opinions. Proponents of Naturalism see in it – as Quine once aptly remarked – an “object of loyalty,” whereas its opponents have made of it an “object of obloquy” (Quine 1995, 251). In this context, the loyal Naturalist views himself in the role of an enlightened human being of modern times, who does not believe in esoteric powers or paranormal phenomena. For his adversary, in contrast, there is concealed behind this enlightened posture an uncritical, and ultimately unphilosophical, scientism that is not shared even by the scientists themselves. A substantive reckoning with the naturalist paradigm hardly seems possible in view of such a deep conceptual gulf. Indeed, it seems altogether unnecessary. For what is the point of conducting a serious debate, when one has the choice between a Naturalism that cannot be challenged with rational arguments and a scientism that is self-contradictory? Geert Keil and Herbert Schnädelbach arrive at this skeptical conclusion in their futile efforts to endow the Naturalism-debate with a philosophically interesting content: “Much that passes for Naturalism,” so they

¹ I am grateful to Edmund Runggaldier for inspiring me to think about Philosophical Naturalism in this way.

² Cf. Villanueva (1993), Wagner (1993), French (1994), Quitterer (1999), Keil (2000), Craig (2000).

summarize, does not deserve this name, “whereas that which does deserve it does not merit subscribing to” (Keil 2000, 44, transl. AS).³

My objective in the sequel will be to sketch a picture of Naturalism that makes a substantive engagement with this paradigm both possible and meaningful. In doing so, I have no desire to invent any new type of Naturalism, but only to show how some of the familiar naturalistic slogans can be interpreted in such a way that they cannot be frivolously dismissed *ad acta*.⁴ A properly understood Naturalism, I aim to show, qualifies neither as an “object of loyalty” that one can accept untested, nor as an “object of defamation” that can be easily ridiculed. Rightly understood, so my thesis runs, Naturalism poses a mandate to ontology, namely, the mandate – in view of the diversity and complexity of scientific knowledge – to make plausible how all of reality can be uniformly constituted.

The two slogans that I shall consider in greater detail are (1) the denial of a “First Philosophy” and (2) the idea of a “Unified Science.” Together, these slogans make up the methodological core of Naturalism. On the ontological side, in contrast, we encounter two other slogans, namely (3) the thesis “Everything is part of nature” and (4) the principle “There is nothing new under the sun.” As concerns the proper interpretation of such sayings, I shall have to rest content with a few indications. I shall also not be able to discuss in this regard to what extent methodical and ontological issues can be separated at all, nor what other aspects a comprehensive Naturalism-concept would have to take into account. To my way of thinking, what is decisive is the proper interpretations of the methodological core, for it is from this that the mandate to ontology emerges. This is especially so with regard to the domain of philosophy of mind, which I have in my sights here as the primary target of application.

2. Quine as Anti-Fundamentalist

The fact that naturalist positions play such a significant role in contemporary philosophy is attributable not only, but primarily, to the influence of W.V. Quine. Quine is the “Piper-Naturalist” toward which both adherents and critics of the naturalist paradigm are oriented. While this focus on Quine has the advantage of being able to refer to a concretely spelled-out philosophical position when speaking about “Naturalism,” this also involves the danger of an insular exegesis of this concept. Not everything for which

³ W.L. Crane and J.P. Moreland also argue in a similar vein by setting Naturalism before the following dilemma: “Either Core Scientism is not itself a thesis included in or warranted by the (hypothetically completed) empirical sciences, or [...] it becomes harmlessly stipulative in nature, with no firm basis in what actually goes by the name “empirical science” [...] Given that dilemma, Philosophical Scientism becomes philosophically innocuous.” (Craig 2000, 13f)

⁴ On this point I differ from those who plead for a “naive” or “innocuous” interpretation of the naturalist standpoint, as, e.g., Almeder (1998) and Hornsby (1997). Kitcher (1992) also tends in this direction.

Quine has achieved fame must also therefore be regarded as part of the naturalist paradigm. This even holds for the central theses of Quine's philosophy: the critique of the analytic-synthetic dichotomy, the favoring of extensional over intensional languages, the theses of the indeterminacy of translation and of ontological relativity, or the program of ontological austerity that, apart from four-dimensional individuals, recognizes only sets of such individuals as constituents of reality. Since Quine's philosophy forms a finely spun web that draws its strength from the crosslinks between individual knots, revisions of central spots obviously have far-reaching consequences in the entire system of his philosophy.⁵ However, that need not be a reason for staving off such revisions with the argument that they would make questionable Quine's Naturalism as a whole.

With this outlook, I now wish to fathom the meaning of that slogan with which Quine is fond of giving expression to his naturalist position: namely, with the rejection of a First Philosophy. To begin with, I shall plumb the range of interpretations that allows for stronger and weaker readings. I shall then – in contradistinction to Quine – declare in favor of a relatively weak, though not trivial, interpretation of this slogan. The rejection of a “First Philosophy,” I propose, is a clear and unequivocal repudiation of philosophical fundamentalism in the theory of knowledge.

Quine himself has conferred the predicate “naturalist” on his position in a certain way only in hindsight – not until several years following the publication of *Word and Object* (1960) – in the now classic paper “Epistemology Naturalized” (1969a), as well as in the John Dewey Lecture on “Ontological Relativity” (1969b).⁶ In them, Quine programmatically proclaims that, following the debacle of empiristically-reductionist programs, theory of knowledge must be “naturalized,” i.e., it “simply falls into place as a chapter of psychology and hence of natural science.” (Quine 1969b, 82). He finds support for this idea in John Dewey, with whom, as he says, he feels himself to have a bond “concerning Naturalism.” It is in this connection that he decrees the end of a First Philosophy:

With Dewey I hold that knowledge, mind, and meaning are part of the same world that they have to do with, and that they are to be studied in the same empirical spirit that animates natural science. There is no place for a prior philosophy. (Quine 1969a, 26)

Quine names here three concrete themes – knowledge, mind and meaning – which should be investigated not under a “philosophical” rubric, but rather under a “natural-scientific” one. This is not to be understood as a thematic constriction, since Quine later extends this

⁵ The significance of these crosslinks in Quine's “web of belief” is stressed by, among others, Gibson (1982), Hookway (1988), Hylton (1994) and Decock (2000).

⁶ Both papers appeared one year later in the collection of essays Quine (1969a). In this connection, see also Quine's brief sketch on the history of empiricism in Quine (1981a).

disposition to all realms of philosophy. He then sets the naturalist stance on a par with the “recognition that it is within science itself, and not in some prior philosophy, that reality is to be identified and described” (Quine 1981, 21). What Quine is therefore keen on pointing out is that knowledge, mind and meaning do not merit any special treatment, but rather must be dealt with as part of the reality in which we live. This becomes particularly apparent in his answer to an objection raised by Putnam in the Schilpp volume: “I admit to naturalism, and even glory in it. This means banishing the dream of a first philosophy and pursuing philosophy rather as part of one’s system of the world, continuous with the rest of science” (Quine 1986, 430).

Nonetheless, there is still room for interpretation here. One could understand this rejection of First Philosophy as saying that philosophy should no longer concern itself at all with those ontological questions which, according to Aristotle, belong to *prima philosophia*. Since Quine did, however, continue to deal with such questions, and we do not wish to allege any kind of inconsistency on his part, we must assume that Quine did not want to exclude some particular *themes* of traditional metaphysics, but rather certain *methods* by which these issues have thus far been addressed. This is a first, important clarification which continues to leave some matters open however, as we shall presently see.

The decisive question at this point is in which “grade of naturalistic commitment” one might have to engage in this context, as Christopher Hookway has formulated it (see Hookway 2000). In parallel to Quine’s *Three Grades of Modal Involvement* (1966), Hookway sets up a three-tiered scale. The principle that philosophical and empirico-scientific theories must be consistent with each other, and should be interdisciplinarily linked, corresponds to a first grade of commitment. Secondly, a Naturalist can commit to the principle that the well-established explanatory models of physics are also to be applied in biology, and hence to human capacities – including our rational faculties. However, one arrives at the third grade of naturalistic commitment only when the possibility of there being any other cognitive methods for the realm of rationality is explicitly excluded, methods that philosophy in particular is supposed to contribute. Now as far as Quine’s orientation is concerned, Hookway maintains that Quine inclines rhetorically to a radical position, hence to a third degree commitment on this scale. But behind this rhetorical facade there is often concealed only a weaker Naturalism of the second, or even of the first, grade (see Hookway 2000, 37ff).

I consider this diagnosis as fundamentally on target, and might refine it a bit. There are two indicators, in my view, that the strength of Quine’s Naturalism is subject to vacillations. I have already mentioned one of these indicators: on the one hand, Quine formulates his naturalist theses by reference to the domain that can be circumscribed with the concept of rationality; on the other hand, he espouses a standpoint that does not allow for any restrictions of content. One can therefore distinguish between a *local* and a *global*

Naturalism. Secondly, Quine adopts an ambivalent stance vis-à-vis the humanistic and social sciences. Since these sciences too are through and through empirically founded, they are due the same respect as the natural sciences. It is clear, nonetheless, that Quine wants to grant the natural sciences a methodological privilege, resting on the premise that only the natural sciences embody that form of empirism which matters to Quine.⁷ Consequently, one can additionally distinguish in Quine between a *liberal* and a *restrictive* Naturalism. By permuting these possibilities, one arrives at a spectrum of four possible positions. This now extends from a local Naturalism, which is also liberal, all the way to a global Naturalism, which is also restrictive.

Having staked out in this fashion the playing field for possible interpretations of Quine's slogan, I would now plead for the second weakest interpretive option – namely, for an exposition in the sense of a local, but restrictive Naturalism. In doing so, I shall delineate the domain to which these restrictions apply even more narrowly than Quine, and shall disconnect from the issue of how a theory of rationality is to be developed.

To that end, I take my point of departure from a different quotation of Quine, which points in that direction:

My point in the characterizations of naturalism that I quoted is just that the *most* we can reasonably seek in support of an inventory and description of reality is testability of its observable consequences in the time-honored hypothetico-deductive way - whereof more anon. (Quine 1995, 252)

Quine speaks here once again as “global Naturalist” for whom every kind of cognitive effort contributes toward offering “an inventory and a description of reality.” What is more important, however, is that here Quine espouses a restrictive thesis in that he stipulates precisely the method according to which this inventory is to proceed: Only those theories are admissible which are verifiable by “observable consequences.” It is of course “intersubjective observation” that is meant by “observation” in this context. With this it also becomes clear what Quine wants to foremost exclude here: knowledge whose empirical basis is subjective, inner experience. A mentalistic, introspective psychology can make no contribution to a description of reality if its results are not verifiable on the basis of intersubjectively accessible data. In the case of mental experiences this means:

⁷ The problem that Quine faces here is that the boundaries between the so-called “soft” and “hard” sciences are fluid. Quine would therefore prefer, as he himself says, to forgo drawing demarcation lines: “Demarcation is not my purpose”. (Quine 1995, 252). But without such demarcations it is impossible to distinguish the empiricist disposition of the natural sciences from the empiricist disposition of other sciences, and thus stipulate priority for the former.

on the basis of intersubjectively observable conduct of subjects. It is therefore a behaviorist principle that Quine allows here to infiltrate into his Naturalism.⁸

It would appear superfluous to expend any further thought on behaviorism after it has lost its scientific justification in psychology. Yet it is not quite so. *Ad acta* one can only dismiss the claim that the domain of psychological facts is identical with the domain of intersubjectively observable conduct. One must also not discuss any further whether the domain of subjective experience should be ranked as an ontologically second-rate domain. At issue are plainly and simply facts that are a part of the reality in which we live and which call for scientific explanation. Despite this, I believe there is something about Quine's commitment to behaviorism that should not be overlooked. It seems to me that the operative point to be sought here is not whether or not intersubjectively verifiable observations are the *sole* legitimate source of knowledge. The pertinent question is whether there is some other subjective, cognitive method that is even *more foundational*, and therefore in a certain way *higher-ranking*.

With this we first get on the track of the idea of a First Philosophy, which Quine puts in question. What he denies is that philosophy can employ a method – in the form of subjective cognition – which confers on it a privileged status vis-à-vis all other sciences that make use of the familiar hypothetico-deductive method. It is precisely this claim that epistemologists in the tradition of Descartes have made by appeal to inner experience. They saw in it a cognitive method capable of providing an empirical foundation for all of science.

I therefore submit that Quine's slogan be understood as giving expression to an anti-fundamentalist stance, without thereby denying to inner perception every cognitive function whatsoever. How is this to be reconciled? Toward this end, it is requisite – in my view – to restrict the domain within which the intersubjective methods of the empirical sciences can lay claim to a cognitive monopoly. To my way of thinking, this monopoly can be substantiated when it comes to the *elementary* structure of reality. Fundamentalist theories of the Cartesian ilk assume, in contrast, that the subjective access to the elements of consciousness is simultaneously an access to the elementary constituents of reality. Consequently, they can advance the bold conjecture that the entire structure of science can be erected on the slim basis of subjective knowledge. If inner experience were not to provide any elementary cognitions in this sense, it would lose the relevance it is supposed to have as cognitive foundation of science. A grounding that is only of philosophical interest is thereby excluded.

⁸ This declaration undoubtedly attains the third grade on Hookway's scale of naturalistic commitment. For precluding inner perception from being any kind of selfsufficient source of knowledge also means "that the philosophical needs that prompt us to think about mind, cognition and rationality can be met entirely by research in the special sciences" (Hookway 2000, 38).

With this background, the anti-fundamentalist thesis of Naturalism can now be formulated somewhat more precisely, as follows:

The Anti-Fundamentalist Thesis:

The elementary constituents of reality – including elementary mental events – are only knowable with the aid of theories that are only verifiable on the basis of intersubjectively verifiable observational data.

This thesis undermines the pretensions of a First Philosophy which attempts to derive a special relevance for subjective knowledge from the evidence of inner perception. It is the end of a philosophy which, as foundational science, investigates the conditions of all possible knowledge, and wants in this fashion to procure the presuppositions on which all sciences ultimately depend. A Naturalist who rejects this does not thereby deny that inner perception is an autonomous source of knowledge. What it offers us, however, is no elementary knowledge concerning the structure of reality, but rather insights into highly complex processes even when subjectively these might appear to us as simple. This complexity implies that we also rely on intersubjectively accessible observational data as evidential basis when we investigate seemingly elementary mental facts.

3. Carnap and the Program of “Unified Science”

The rejection of a philosophical knowledge of elementary facts – which cannot be explained by the empirical sciences, and therefore must be presupposed by them – is the key methodological part of the naturalist paradigm. It is a form of *local* Naturalism that declares the methods of the empirical sciences to be indispensable in a certain domain – namely, in the exploration of the elementary structure of reality. At the same time it is a *restrictive* Naturalism, because it denies to philosophical knowledge a cognitive privilege within this domain.

How is this restricted cognitive privilege of the natural sciences now to be justified, and what further consequences follow from it? From a pragmatic point of view, it would be obvious to point to the success of the natural sciences. To be sure, the appraisal of this success is necessarily a double-edged sword, since every advance in science opens the door to new and as yet unsolved problems. We need to approach the present issue therefore from a different direction. Perhaps the cognitive privilege of the

natural sciences, as pertains to the elementary structure of reality, possesses an ontological legitimation in that its object-domain is more fundamental than the domain of all other sciences. Can such a justification be reconciled with the principles of Naturalism?

To answer this question, I shall now consider in greater detail the program of *Unified Science* as developed in the 1930s by exponents of the Vienna Circle, and by Rudolf Carnap in particular. Also here I shall call attention to the fact that there are various interpretations of this program. Viewed historically, what is at issue here is a program for the *semantic* unification of science. In contrast I shall propose a reading that rests on the idea of a *ontological* unity of reality. As I shall elucidate, the advantage of this interpretation for the Naturalist consists in the idea of the unity of science – so understood – being thoroughly compatible with the semantic autonomy of individual sciences. To begin with, I describe the program of Unified Science in its original form, based on Carnap’s early papers in which he advocated a rather naive semantic reductionism. I will then mention important modifications in Carnap’s view that can be found in his later works.⁹ In view of these modifications, I will then raise the question what remains of the Unity Thesis if one accepts the autonomy of the individual sciences. This is not only a challenge for Carnap, as we shall see, but also for Quine’s preference for extensional languages as the unifying bond in science.

The conviction that the natural sciences possess a methodological privilege vis-à-vis all other sciences, was a firm component of the scientific world-view of the Vienna Circle. Still, there was a considerable divergence of opinions as to what exactly this privilege consists in and how it is to be legitimated. Otto Neurath espoused in this connection a scientific-sociological and “encyclopedic” standpoint, while Carnap argued in a scientific-systematic fashion (see Mormann 2000, 122). In retrospect it looks like Neurath rendered better service to the naturalist standpoint than Carnap; but it was Carnap’s perspective that stamped the Unified Science program with its outward brand.

Carnap’s starting point was that the unification of science is to be conceived as a *semantic* unification of the language of science. This was supposed to lead in consequence to a methodological unification of science, and ultimately to its unification in terms of content (see Carnap 1938, reprint 422). For this reason Carnap strived to show that a natural-scientific language – namely the physical language – is the universal

⁹ By the early works I mean, in particular, the essays “Die physikalische Sprache als Universalsprache der Wissenschaft [The Physical Language as Universal Language of Science]” (1931) and “Psychologie in physikalischer Sprache [Psychology in Physical Language]” (1932). The later works I shall take into account are foremost “Logical Foundations of the Unity of Science” (1938) and the corresponding passages in Carnap’s Autobiography as well as his Reply to Feigl in the Schilpp volume (Carnap 1963, 50-53 and 882-886).

language of science. The following passage from Carnap's Autobiography makes clear how he understood this task:

In our discussions, chiefly under the influence of Neurath, the principle of the unity of science became one of the main tenets of our general philosophical conception. This principle says that the different branches of empirical science are separated only for the practical reason of division of labor, but are fundamentally merely parts of one comprehensive unified science. (...) In contrast to this customary view, Neurath maintained the monistic conception that everything that occurs is a part of nature, i.e., of the physical world. I proposed to make this thesis more precise by transforming it into a thesis concerning language, namely, the thesis that the total language encompassing all knowledge can be constructed on a physicalistic basis. (Carnap 1963, 52)

With reference to this portrayal, from today's vantage point one could say that Neurath suggests an ontological grounding for the unity of science: The boundaries between the individual sciences can only be pragmatically drawn because "everything that happens is a part of nature." In particular, there is no ontological reason that would justify seeing a divide between the natural sciences and the humanistic and social sciences. Carnap wants to make this thesis more "precise," as he says by reconstructing it into a semantic thesis that pertains to the total language of science.¹⁰ In the course of this "precisioning"-process, however, Carnap arrived at a conception that is markedly stronger than the Principle of Unified Science as understood by Neurath.

Carnap initially tackled this project with the aid of translations or by proffering rules of translation. All scientific propositions were supposed to be translatable into a physical language, whereby physical language is characterized by two features: It is intersubjective, and it contains only quantitative determinations (i.e., predicates for quantifiable magnitudes) or translations of such determinations (Carnap 1931, 441). How Carnap envisaged these translations is illustrated by the examples he employs. So, e.g., the psychological proposition "Mr. A has toothaches" is supposed to be translatable into a proposition of the form "Mr. A's body is in a state that is characterized by measurable properties of its micro-structure (e.g., neuro-physiological properties) as well as by measurable reactions to certain stimuli (e.g., pain tolerance)" (see Carnap 1932, 112ff).

Yet Carnap himself soon recognized the naivete of his project. One reason for this was that it employed a translation concept containing verificationist presuppositions that

¹⁰ That such reconstructions were needed was beyond question for Carnap: "The question of the unity of science is meant here as a problem of the logic of science, not of ontology. We do not ask: 'Is the world one?', 'Are all events fundamentally of one kind?', 'Are the so-called mental processes really physical processes or not?' [...]. It seems doubtful whether we can find any theoretical content in such philosophical questions as discussed by monism, dualism, and pluralism." (Carnap 1938, reprint 413)

were too strong. According to it, two propositions were supposed to be translatable into each other precisely when the same propositions of the protocol language are derivable from them. This is why in later works we find in Carnap markedly weaker criteria for correct translations: logical equivalence of expressions, intensional isomorphism, but also weakened verificationist criteria, such as equality in degree of confirmation (see Carnap 1947, and Carnap 1963, 883). But the question persists whether the adduced examples of translations satisfy these reduced standards.¹¹

Secondly, Carnap must have discerned that theoretical terms like, e.g., “electrical charge” are not definable in an observational language. Thus, if theoretical terms are involved, it is impossible to base a translation of psychological propositions on a definition of psychological concepts in terms of physical concepts. For this reason Carnap switched to speaking of a “reduction” of psychological propositions into propositions of physical language, and no longer spoke of *translations*. In doing so, he continued to understand reduction as a *semantic* procedure by means of which entire theories were ultimately supposed to be reducible to more basic theories. As tools for such a “semantic reduction” – or, better put: explication – Carnap considers conditional propositions of the following sort: “If certain conditions are fulfilled, then the following holds: Mr. A has toothaches precisely when Mr. A satisfies such-and-such physiological and behavioral criteria.” The accompanying optimistic assumption was that criteria can be found which unequivocally regulate the application of the predicate “toothaches” under the presupposed conditions (see Carnap 1938, reprint 418ff).

This procedure of explication is far more subtle than the simple idea of a translation with which Carnap originally attempted to realize the program of Unified Science. But nothing vital has changed about setting the goal itself: as before, a semantic procedure was supposed to prepare the ground for a unification of science, both methodically and in terms of content. As applied to psychology, this meant that everything that can be known by means of an introspective method would also have to be knowable by application of behavioristic (or physiological) methods. Beyond this, Carnap also hoped to be able to show that a derivation of psychological laws from physical laws is in principle possible (see Carnap 1938, reprint 421f).

Carnap’s explication-procedure remained just as hopeless as far as these demands were concerned as his original translation project. To be sure, the translation method poses problems that the explication-method avoids, such as, e.g., the problem that most of the concepts of science are cluster-concepts that cannot be defined by means of necessary and sufficient conditions. But the objections that target both procedures remain. To these

¹¹ In his later analysis of belief-sentences, Carnap treats terms like “belief” or “anger” as theoretical terms and admits that sentences containing such terms cannot be deduced from sentences of the “language of observables”, “but at best inferred with high probability” (Carnap 1947, 230).

belongs foremost the objection that psychological concepts are not definable or explicable in terms of physical concepts without a vicious circle. If, e.g., one attempts to adduce the conditions under which the expression ‘toothache’ is applicable, one cannot avoid getting started from presuppositions which in turn can only be described by way of psychological concepts, e.g., from the presupposition that a test-subject does not *intend* to feign pains, and that he or she *believes* that medications can alleviate pains, etc. Hence, also Carnap’s refined procedure of semantic reduction cannot show how psychological propositions can be traced back to purely physical propositions, but rather only how we can explicate them with the aid of propositions which, aside from physical concepts, also contain psychological ones.¹²

Quine was the first to recognize in full sharpness this problem of circularity. His attack on the “second dogma of empiricism” explicitly targets Carnap’s reductionism. Interestingly enough, Quine criticizes there not Carnap’s attempt to establish the physical language as the universal language of science, but rather his earlier enterprise in *Der logische Aufbau der Welt* (1928) to reduce all empirical propositions to a language of sensory data. However, since his critique is independent of the choice of a specific reduction-basis, it can also be carried over without curtailments onto Carnap’s new physicalist program. It is also noteworthy that in his critique Quine already distinguishes sharply between the “radical reductionism,” that above I termed as “naive,” and the “subtle reductionism” in Carnap’s later works. For Carnap radical reductionism was already done with, since Carnap himself no longer adhered to it.¹³ It is on Carnap’s later reductionism that Quine sets his sights:

But the dogma of reductionism has, in a subtler and more tenuous form, continued to influence the thought of empiricists. The notion lingers that to each statement, or each synthetic statement, there is associated a unique range of possible sensory events such that the occurrence of any of them would add to the likelihood of truth of the statement (Quine 1951, 38)

¹² A proposal for avoiding such circularities introduced by David Lewis offers here a possible way out, in that one begins from a theory that affords a complete psychological theory of a person, transforms this theory into a Ramsey-sentence, and in this fashion advances a non-circular condition of application for every psychological term. But since what must be involved is a theory that contains an enormous array of information, this procedure is surely to be understood as an *alternative* but not as a *rescue* of Carnap’s semantic reductionism. See Lewis (1972).

¹³ “Radical reductionism, conceived now with statements as units, sets itself the task of specifying a sense-datum language and showing how to translate the rest of significant discourse, statement by statement, into it. Carnap embarked on this project in the *Aufbau*.” (Quine 1951, 36). One could certainly question whether Quine here gives a plausible interpretation of Carnap’s *Aufbau*. More recent interpretations show that Carnap’s theory of constitution cannot be understood as easily as the exposition of the old empiricist program – as Quine assumed it could (see Mormann 2000, 83ff)

Quine does not object here to the verification theory of meaning that surfaces once again, but to the atomism bound up with it, i.e., the assumption "that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all" (Quine 1951, 38). It is in this that the "dogma of reductionism" consists for him, which cannot be justified by the *praxis* of science.

This holistic objection is intimately bound up with the problem that psychological predicates cannot be explicated free of a vicious circle. If an explication free of circularity were possible, it would show how a single proposition can also be confirmed in isolation on the basis of observational data (or sensory experiences). Conversely, the fact that such confirmations are only possible holistically adduces a reason to doubt that the search for explications free of circularity will be successful. These two arguments taken together constitute the principal reason why Carnap's semantic reductionism, even in its subtler form, is today considered as having failed.

What now does this mean for the thesis of Unified Science, to the "making precise" of which Carnap developed his program? It means that one can continue to pursue this idea only if one liberates it from the reductionist dogma. I have already indicated how such an understanding of the unity thesis might look by alluding to Neurath: It could consist in the empirical sciences' having a unified domain of objects. The thesis of Unified Science would then have to be interpreted *ontologically*, not semantically or methodologically.

Needless to say, one cannot draw from this the conclusion that no constraints at all can be imposed on the language of science and on scientific methodology. But such constraints are only acceptable insofar as they can be ontologically explained. It must be shown that the particular objects investigated within a science call for a language and methodology suited to these objects. It is a matter of concern in this connection that the concept of "ontological uniformity" can be understood not absolutely, but rather only relatively. Indeed, object domains are not straightforwardly uniform or non-uniform, but can be regarded in various respects as ontologically differentiated. For this reason one can subsequently only speak of a unity within science in the sense that there is *one specific* aspect with regard to which the various object domains appear uniform.

I wish to make these abstract deliberations more vivid by way of an example. As already mentioned, Quine defends the principle of extensionality as a principle which, in his opinion, a scientific language ought to satisfy (see Quine 1994). One could therefore expect that Quine's attempt to show how all scientific propositions can be translated into propositions of an extensional language, or how all concepts can be explicated in terms of concepts that are expressible in such a language. Were Quine to proceed in this fashion, he would clearly expose himself to the same objections that he leveled against Carnap's semantic reductionism. But how else can Quine back up his preference for extensional

languages? In my view, he is only left with an ontological argument. Quine's appeal must be that the ontology of scientific theories consists exclusively of four-dimensional individuals and sets of such individuals. An extensional language is sufficient for describing such entities, and therefore we can forgo intensional modes of expression in science.

This argument stands and falls with the assumption that reality consists only of four-dimensional individuals and their sets. Were Quine to also accept properties as a separate ontological category, it would pull the carpet from under his extensionalism. For predicates can be co-extensional even if they designate (or express) different properties. Likewise, the truth of a proposition does not depend only on whether an object belongs to the extension of a predicate. Thus, it can be true, e.g., that Oedipus believes himself to be embracing his beloved, but does not believe himself to be embracing his mother, even though the predicates "my beloved" and "my mother" refer in this case to the same person.

Now Quine can certainly defend his extensionalism by conceding that reality can be regarded from a point of view which makes the application of non-extensional languages superfluous. We need only relinquish treating Oedipus' convictions as something relevant, and confine ourselves instead to what Oedipus actually does. It then turns out that the embrace of his mother is identical with the embrace of his beloved. But what has been gained with this? The uniform describability of reality would in this case be a trade-off, in that it is constrained to a particular perspective of world-description. And what is this constraint supposed to justify?

To my mind, a consistent Naturalist has to forge a different path here. The possibility of being able to regard objects from various perspectives implies that we must also come to terms with a correlative diversity in our ontology. The question "What is there?" is resolved in the sciences themselves; it cannot be decided through the philosophical project of Unified Science.

But then what still remains of this project? It is quite surprising, but certainly no accident, that one can find the answer to this question also in Carnap. It is the idea that reality has a unitary "structure," tied to the idea that this unitariness can be demonstrated by means of a system of constitution. This seems to me to be for Naturalism the fruitful kernel from Carnap's philosophy, which can also be rediscovered in the program of Unified Science.

The interpretation of the notion of constitution is a topic onto itself, into which I cannot go any further here. I therefore propose, without further substantiation, a formulation of this notion, which, in my view, is consonant with the spirit of Naturalism:

Thesis of the Unitary Constitution of Reality:

The elementary constituents of reality – including the elementary mental events – form the basis of a unified ontological order, in which more complex unities and their properties are constituted by means of less complex unities and their properties.

This thesis undermines every attempt to enrich reality with events or entities whose existence remains puzzling to us. To these belong magical or esoteric phenomena, as well as objects of a transcendental order that do not have any kind of constitutive relationship to the elementary constituents of reality. To be sure, we do not know with certainty what these elementary constituents of reality are, and therefore every attempt to establish the constitutive unity of reality must remain a preliminary attempt. This, however, is part of how the Naturalists understand themselves. Whoever expects philosophy – especially ontology – to identify the elementary constituents of the world would contradict the anti-fundamentalist thesis of Naturalism.

4. *Conclusion*

In this paper, I have tried to provide Naturalism with both an epistemological and ontological lynchpin. In my estimation, both theses are accessible to a substantive critique and need not be object of polemical debates. The theses differ radically, however, in the claims inherent in them. The anti-fundamentalist thesis is, methodically considered, an appeal to philosophical restraint. Since it is not the task of philosophy to come up with theories that are intersubjectively verifiable on the basis of experience, neither can its mission be to indulge in a program whose goal is to found science by means of cognitions pertaining to the elementary constituents of the world. On the other hand, the thesis of the unitary constitution of reality is a challenge to philosophy, especially to ontology. Given the enormous diversity of object domains that are scientifically investigated today, it is by no means settled that this thesis is cogent. The substantive discussion should revolve here around the question of which fundamental problems loom when one claims that such complex entities as, e.g., human persons are capable of being constituted by means of processes or entities with “sub-personal” complexity. That is a formidable task for a naturalistically inspired ontology. It requires the kind of honesty that Russell demanded in philosophy of mathematics: “The method of ‘postulating’ what we want has many advantages; they are the same as the advantages of theft over honest toil. Let us leave them to others and proceed with our honest toil.” (Russell 1919, 71).¹⁴

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¹⁴ The present text has been translated from German into English by Arthur Szylewicz.

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