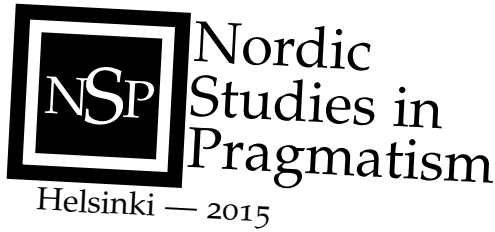

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In: Ulf Zackariasson (Ed.) (2015). *Action, Belief and Inquiry—Pragmatist Perspectives on Science, Society and Religion* (pp. 279–299). Nordic Studies in Pragmatism 3. Helsinki: Nordic Pragmatism Network.

ISSN-L 1799-3954
ISSN 1799-3954
ISBN 978-952-67497-2-3

Nordic Pragmatism Network,
Helsinki 2015

www.nordprag.org

On Quine's Pragmatic Conception of Ontology

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1. Introduction

My aim in this paper is to construe a pragmatic and rationally responsible account of ontological theorizing based on certain aspects of W. V. Quine's thought (cf. Koskinen, 2004, 2012; Koskinen & Pihlström, 2006; Sinclair, 2012). The account is *pragmatic* in the sense that it is compatible with philosophical naturalism and does not involve commitments to substantial and controversial doctrines like global realism or metaphysical essentialism. The account is *rationally responsible* in the sense that it incorporates a variety of rational constraints on ontological theorizing. I begin with a problematization of general metaphysics or ontology, and then suggest that by looking at different conceptions of rationality, we can build various types of rational constraints into our methodological picture of ontological theorizing. These constraints are based on *logical or argumentative rationality*, *trust in sense experience or scientific experiments*, and *the ability to organize our sensations by means of concepts*. To put the three conceptions of rationality to actual work, and to demonstrate their structural roles, a specific context of ontological theorizing is needed. As an illustrative example of how the relevant conceptions of rationality can be seen to provide rational constraints on ontological theorizing, I use Quine's analysis of mass terms.

2. The armchair problem

In terms of tradition as well as theory, i.e., considered both historically and systematically, it seems appropriate to characterize metaphysics as a highly general discipline, far removed from the senses and empirical observations. This is already recognized by Aristotle in *Metaphysics* (1.1, 982a, 24–5), where he states that the most general things are the hardest for men to know, because they are furthest from the senses. In a more recent estimation, Quine (1969, 98) seems to agree to some extent when he writes that existential quantifications of the philosophical sort belong to an inclusive theory of nature, although they are situated way out at the end, farthest from observable fact.[1] General metaphysics or ontology can indeed be seen as philosophy's unique contribution to the study of categorizing, and this uniqueness is based precisely on the generality and fundamentality of the ontological categories of being (cf. Westerhoff, 2005, 1).

Supposing that metaphysics thus does operate on a high level of generality, far removed from the senses and observable facts, some sort of "pure thought" or *a priori* reasoning might then seem to suggest itself as a natural method for the discipline. There is, however, an inherent and notorious difficulty built into such a methodological assumption. In "Fixation of Belief", C. S. Peirce (1877) famously criticized the *a priori* method, whose most perfect example he took to be found in the history of metaphysical philosophy (*ibid*., 252). The problem with the *a priori* method according to him was that metaphysical systems have not rested upon any observed facts, at least not to any great degree. Moreover, Peirce saw fundamental metaphysical propositions as something adopted merely because they seemed "agreeable to reason". Indeed, he took the very essence of the *a priori* method to be *to think as one is inclined to think*. This makes inquiry into something similar to the development of taste and a matter of fashion (*ibid*., 253). The method was accordingly taken by Peirce to resemble that by which conceptions of art have been brought to maturity.

If accepted uncritically, an aprioristic approach to metaphysics or ontology could lead to what Jonathan Lowe (1998, 26) has fittingly described as the impossible rationalist dream of being able to determine the fundamental structure of reality wholly *a priori* and with absolute certainty. Lowe's characterization of a degenerate metaphysical project actually incorporates a whole bundle of problematic features which might collec-

[1] On various aspects in which the Quinean and the Aristotelian conceptions of metaphysics specifically do *not* agree, see e.g. Schaffer (2009).

tively be called "The Armchair Problem". The predicament involves at least four discernible aspects: first, the problem of responsibly constraining forms of *a priori speculation*; second, the problem of combining metaphysical speculation with *empirical considerations* from the spheres of everyday experience and scientific theory; third, the problem of *absolute certainty*; and fourth, the problem of *global realism* related with the notion of determining the fundamental structure of reality. Within the confines of the present paper, my main focus will be on the first two sub-problems, although I shall comment also on the last two.

Logical empiricism or positivism famously propagated its own radical vision, according to which there was no empirical connection between metaphysics and science at all, and all metaphysical speculation was simply nonsense (cf. e.g. Neurath *et.al.*, 1929; Carnap 1932). Carnap (1935, 32) also placed metaphysics in the same category with art, as (merely) expressive language. Quine (1969, 97), on the other hand, thought that the positivists were mistaken when they despaired of evidence in cases of existence statements in the philosophical or metaphysical vein. On Quine's view, we can have reasons, and essentially scientific ones at that, for including or excluding certain entities in the range of values of our variables. As I hope to show in the following, there are reasons to think that we should take our cue from this general Quinean optimism regarding the relationship between ontology and rationality.

I wish to try out an intellectual strategy in constructing a pragmatic account of ontological theorizing which is, *contra* Lowe (1998, 4–5; 2002, 5–7; 2014, 130–2; cf. Corradini 2006), compatible with philosophical naturalism, and not inherently committed to substantial and controversial doctrines like global realism or metaphysical essentialism. Global realism can be understood as a view according to which there is a mind-independent reality, and in studying categorial frameworks, ontology is studying the mind-independent structure of this reality. Essentialism can be seen as the assumption that such ontological research is based on the real essences of entities (cf. e.g. Lowe 2008). It would seem to me that compatibility with naturalism as well as the avoidance of an outright commitment to realism or essentialism are something that the pragmatist might also desire. My alternative way of trying to grapple with the Armchair Problem is to focus on the overarching notion of *rationality*. The basic idea is that if rationality can be understood in a multifaceted way which goes beyond the purely *a priori*, then we can also build various types of rational constraints into our picture of ontological theorizing, including empirical

ones. This should provide us with the fundamentals for dealing with the Armchair Problem.

3. Rational and ontological context

Three distinct conceptions of rationality (cf. e.g. Haaparanta 2010, 7–8) can then be deemed especially important for our present purposes. The first of these is *logical or argumentative rationality*, connected e.g. with formal systems tracing patterns of valid inference. The second one is *trust in sense experience or scientific experiments*, pointing towards the observational sphere of the empirical. And the third one is *the ability to organize one's sensations by means of concepts*, which acts as a kind of go-between, moulding the empirical input into a conceptual form utilizable by the deductive machinery of logic. These three conceptions can effectively act as different types of controls or *rational constraints* for epistemically responsible ontological theorizing.

To put the three general conceptions of rationality to actual work, we need a specific context of ontological theorizing which demonstrates their structural roles. I propose to use an example which arguably goes back all the way to the pre-Socratics, and Aristotle's discussion of matter and form (cf. e.g. Laycock 2006, IX). Mark Steen (2012) concludes his recent entry on the metaphysics of mass expressions in the *Stanford Encyclopedia of Philosophy* by assessing that the category of "Stuff" seems to be where the category "Event" was thirty or so years ago: It is an important ontological category which remains poorly understood. He also estimates that in the absence of consensus on the referents of mass expressions, controversy about stuff is bound to continue. Intuitively, mass terms like "water" refer to stuff, while count terms like "wombat" refer to objects or things. Moreover, amounts of stuff can be measured, while objects or things can be counted, quantified over, and individuated. The categorial distinction between objects and stuff is fundamental for ontology, semantics, and epistemology.

Although the classification of common nouns as "mass" or "count" dates back to Otto Jespersen's *The Philosophy of Grammar* from 1924 (188–211), contemporary philosophical interest in mass terms is mainly traceable to Quine's (1960, 90–124) discussion of the topic in his *Word and Object* (Lockwood, 1981, 454; Pelletier 1998, 170). My present intentions, however, are not directed at contributing to the theoretical advancement of the semantics of mass terms or the ontology of stuff *per se*, but rather, at

using Quine's analysis of mass terms as an illustrative example or a case-study of how the relevant conceptions of rationality can be seen to provide pragmatic constraints on ontological theorizing. And when I say "pragmatic" here, I mean to emphasize the actual practices related with ontological theorizing. For the *making* of observations, the *defining* and *using* of concepts, and the *constructing* of arguments clearly are something that we *do*: they are different types of actions and practices in themselves. They also have various kinds of effects on and practical consequences for a wider realm of concrete experience. To the extent that pragmatism can be seen as committed to, or founded upon a supposed distinction between *theory* and *practice*, I therefore suggest that we turn pragmatism on itself, and revise the doctrine by blurring this very distinction. The result could count as another version of "a more thorough pragmatism" (cf. Quine, 1980, 46).

4. Trust in sense experience and scientific experiments

How does trust in sense experience or scientific experiments then function as a theoretical constraint in the context of Quine's analysis of mass terms? It would seem that there are at least two basic ways in which empirical considerations *can* constrain metaphysical speculation and ontological theorizing. First of all, trust in sense experience and scientific experiments can be interpreted as a requirement for a bottom-up epistemological story of how we get from sense experience to theoretical discourse, and to the heights of general metaphysics or ontology. We might call this requirement the "*Empiricist Epistemology Constraint*". Quine's influential vision of the ontogenesis (1960, Ch. III) or the roots of reference (1974) is precisely such a story of how we get from stimulus to science (1995), ascending from the level of empirical observation to more and more general concepts, eventually reaching the highest categories of being. Independently of Quine, it should be observed that although general ontological categories like *stuff*, *objects*, *properties*, *relations*, *states of affairs*, and *possible worlds* are in some sense highly theoretical, they are also clearly operational already on the level of everyday experience, where we talk and think quite fluently about various objects, their different properties, relations with other objects, possibilities, necessities, and so on. In a sense, these categories also have clear pragmatic consequences for our concrete actions, as when e.g. x decides to do y because she thinks that z is a real

possibility. Ontology, thus, can also have its beginnings in the most mundane and commonplace conceptual surroundings.

Secondly, once we have reached the heights of ontological theorizing, trust in sense experience and scientific experiments can be interpreted as a general requirement for consistency with the results of scientific experiments, accepted empirical data and established theories from the spheres of the various special sciences. We might call this requirement the "*Naturalistic Consistency Constraint*". Within his overall position, Quine certainly intends the Empiricist Epistemology Constraint to be in line with the Naturalistic Consistency Constraint. The whole point of Quine's (1969, 69–90) naturalized epistemology is to look to special sciences like psychology and cognitive science for answers to the genuine epistemological issues that remain in his revised conception of the theory of knowledge. On the other hand, among the special sciences relevant for the Naturalistic Consistency Constraint and ontology, physics clearly holds a special place for Quine. This becomes apparent, for example, in the way in which he (cf. e.g. 1960, 233ff.) develops his official ontology of physical objects and sets, arguing for the indispensability of the latter for serious scientific theorizing about the former.

When talking about trust in sense experience and scientific experiments as a rational *constraint* in connection with Quine, one might be swiftly reminded of the fact that his famous doctrines like the indeterminacy of translation and the inscrutability of reference (cf. e.g. 1960, 72–7; 1969, 30–5) seem to be based on exactly the opposite idea of the *empirical slack* to be found in our language and theories.[2] However, Quine also does have a constructive bottom-up story to tell, and important aspects of the story become clearly visible already in his paper "Identity, Ostension, and Hypostasis", or IOH for short, from 1950. IOH is central for the Empiricist Epistemology Restraint in general and for the analysis of mass terms in particular. In the paper, Quine tries to show how we get off from the empirical ground towards a pragmatically structured conceptual framework of spatiotemporally extended physical objects, and far beyond. As the title indicates, the notion of *identity* is crucial for getting from pure ostension to the hypostasizing of objects. Identity also plays an important part in the generated contrast between *singular terms* and *general terms*. This dual

[2] How these two aspects of Quine's view hang together is a deep issue at the very core of Quine's thought. For Quine's naturalistic-cum-pragmatist attitude, see e.g. (Koskinen, 2004, 242–8).

distinction, in turn, constitutes a conceptual prerequisite for Quine's ontological analysis of mass terms.

The relevant IOH thought experiment utilizes a river as an example of a four-dimensional physical object extended both spatially and temporally. How is it, then, that we are supposed to postulate or introduce into our discourse a river on the basis of a mere series of pure ostensions, when we are not yet even in possession of the concept "river" itself? Quine starts from momentary objects or things, which supposedly are something that can be directly pointed to. Transforming Quine's original example to a different spatiotemporal context, these are entities like *a*: a momentary stage of the river Spey in Scotland on the 24th of August 2013, *b*: a momentary stage of the Spey two days later, and *c*: a momentary stage, at this same latter date of the same multiplicity of water molecules which were in the river at the time of *a*. Let us suppose that part of *c* is in the North Sea, while other parts remain scattered in diverse distilleries of the Speyside area. Thus *a*, *b*, and *c* are three distinct objects which are variously related. We might say that *a* and *b* stand in the relation of *river kinship*, and that *a* and *c* stand in the relation of *water kinship*.

According to Quine (1950, 66), the introduction of rivers as single entities consists substantially in reading identity in place of river kinship. We would be wrong to say that *a* and *b* are identical, because they are merely river-kindred. But if we were to point to *a*, and then wait on the Speyside for two days before pointing to *b* and affirming the identity of the objects pointed to, we would thereby show that our pointing was intended as a pointing to a single river which included both *a* and *b*. The imputation of identity is essential to fixing the reference of the ostension (*ibid.*). If we pointed to *a* and two days later to *b*, saying each time "This is the Spey", then the indexical word "this" used in such a manner must have referred neither to *a* nor to *b*, but beyond them to *something more inclusive*, identical in the two cases (*ibid.*, 67). From the learner's point of view, a tendency to favour what Quine (*ibid.*, 68) calls *the most natural groupings* is required. With the help of this tendency, after repeated pointings, the learner can project a correct general hypothesis as to what further momentary objects we would also be willing to include. Because the various pointings provide an inductive ground from which the learner is to guess the intended reach of the object, in the recipe of spatiotemporal integration via conceptualisation, *induction* needs to be added to the ingredients of identity, ostension and hypostasis.

From spatiotemporal particulars, Quine turns to the ostensive explanation of general terms, and notes (*ibid*., 69) that the difference would seem to be merely that the spread concerned here is a conceptual one or a generality rather than a spatiotemporal one. Quine first plays down this difference by considering the general term "red" as an example, arguing that a theory of universals as concrete works for red, because it can be treated as the largest red thing in the universe, i.e., the scattered total thing whose parts are all the red things (cf. *ibid*., 72). However, he then argues that a general equating of universals to particulars breaks down, by using an example of geometrical shapes. The gist of the *reductio* type of argument is that if we try to apply the same approach that seems to work for red to geometrical shapes, we shall intolerably end up with a situation where different shapes like square and triangle count as identical (*ibid*., 73). This leads to a recognition of two different types of association: that of concrete parts in a concrete whole, and that of concrete instances in an abstract universal (*ibid*., 74). In effect, we also come to recognize two senses of "is", namely that of *identity*, as in "This is the Spey", and that of *predication*, as in "This is square" (cf. Haaparanta, 1986; Lowe 2009, 3–4).

The difference between the ostension of spatiotemporally extended objects on the one hand and irreducible universals on the other is that in pointing to *a*, *b*, and so on, saying each time "This is the Spey", identity of the indicated object is understood from one occasion to the next, whereas in pointing to various particulars, saying each time "This is square", there is *no imputation of identity* from one occasion to the other (Quine, 1950, 74–5). At best, what is supposed to be identical from one pointing to another is an attribute of squareness, which is *shared by* the indicated objects. But actually, Quine (*ibid*., 75) says, there is no need to suppose such entities as attributes in our ostensive clarification of "square" at this point at all. What suffices is that we clarify our *use* of the words "is square", and that the listener learn when to expect us to apply them to an object, and when not. The two different senses of "is" are intimately related with the contrast between *general terms* and *singular terms*. The ostensions which introduce a general term differ from those which introduce a singular term in that the former do not impute identity of indicated object between occasions of pointing. The general term also does not, or need not, purport to be a name in turn of a separate entity of any sort, whereas the singular term does (*ibid*.; cf. Koskinen, 2012).

Quine (*ibid*., 76) thinks it clearest to view the postulation of abstract entities as a further step which follows after the introduction of the corre-

sponding general terms. When "This is square" or "*x* is square" is already introduced, then we can derive the attribute *squareness*, or what according to Quine comes to much the same thing, *the class of squares*. What is crucially important in this further step is the new fundamental "*class of*", or "*-ness*" operator. Quine places much importance on the traditional distinction between *general terms* and *abstract singular terms* because of the associated ontological point: use of the former does not in itself commit us to the admission of the corresponding abstract entity into our ontology, whereas use of the latter does. Here the deep logical and metaphysical roots of the Quinean dictum "no entity without identity" become clearly discernible.

Once a collection of ostensively acquired basic terms is at hand, we may introduce additional terms by *discursive explanation*, paraphrasing them into complexes of terms already in use. Unlike ostension, discursive explanation can be used for defining new general terms like "shape" applicable to abstract entities. Applying the "-ness" or "class of" operator to such abstract general terms, we can get second-level abstract singular terms purporting to name such entities as the attribute of being a shape or the class of all shapes. This procedure can then be applied for the next level, and so on, taking us eventually to the highest generality levels characteristic of ontology that we started with. We do not have to accept all the details of the Quinean account to appreciate the way in which his story of the ontogenesis of reference can be seen as a response to the Empiricist Epistemology Constraint. The bottom-up epistemological story is an attempt to answer the empirical accountability requirement in this sense.

Having ascended to the heights of ontological theorizing, the *Naturalistic Consistency Constraint* can then be seen to present a general requirement for compatibility with the results of scientific experiments, accepted empirical data and established theories from the spheres of the various special sciences. D. C. Williams (1953, 3), Quine's contemporary in Harvard, stated that metaphysics is the thoroughly empirical science. Every item of experience must be evidence for or against any hypothesis of speculative cosmology, and every experienced object must be an exemplar and test case for the categories of analytic ontology (*ibid.*). Due to the generality of ontology, however, this is no straightforward matter. As Quine (1960, 276) himself points out, no experiment may be expected to settle an ontological issue. Systematicity, coherence, and simplicity may be appealed to, but since the general categories of ontology both transcend and unite the spheres of everyday experience and the various special sciences, it is not clear at all what the Naturalistic Consistency Constraint implies

in specific cases. This is a matter of further philosophical debate, which needs to be conducted in a careful case by case manner.

In terms of the semantics of mass terms, it might be useful to consider some input from empirical experiments and theories of psychology or neuroscience (cf. e.g. Mondini *et.al.* 2008; Warrington & Crutch 2005). In terms of stuff ontology, on the other hand, relevant empirical input might be obtainable from the field of chemistry and the surrounding philosophical discussion (cf. e.g. van Brakel 1986; Zimmerman 1995; Needham 2007).

5. Organization of sensations by means of concepts

In a supposed contrast between the armchair and the laboratory (cf. Haug, 2014), the relationship between ontological theorizing and our best empirical theories is readily problematized. However, another major aspect of the Armchair Problem concerns the problem of responsibly constraining forms of *a priori* speculation which is an activity more easily conducted from the confines of the armchair. These constraints need to be applied on at least two different intellectual fronts, namely, on what might in Quinean (cf. Quine, 1969, 69) terms be called the *conceptual* and the *doctrinal* side. The former has to do with the concepts we use, and the latter with the proofs or arguments that we employ. In this section, my focus will be on the conceptual front.

What kind of rational constraints could then be applied on the conceptual side of ontology? Again, it would seem that there are at least two different ways in which conceptual considerations can act as theoretical constraints. First of all, there is a semantic responsibility to make our concepts or ideas as clear as possible (cf. Peirce, 1878). This could be called the "*Conceptual Clarity Constraint*". Secondly, our concepts can be constrained by the requirement that they should be as useful as possible for the purpose at hand. This could be called the "*Pragmatic Utility Constraint*". Unsurprisingly, these two constraints are connected, because for systematic purposes characteristic of ontological theorizing, the clarity of concepts also contributes to their usefulness. Usefulness for the purpose at hand, on the other hand, is arguably a pragmatic notion which is healthily oblivious to the suspect dichotomy between theory and practice. The purpose at hand can be a theoretical one, and if the pragmatic utility of ontological concepts is judged in terms of the success of their practical application, then the relevant practices may also be theoretical ones. Irrespective of one's view of the categorial framework itself, as an illustra-

tive example, one might think of the way in which Lowe (2006, 121–140) argues for the usefulness of his four-category ontology in dealing with dispositional versus occurrent predication.

In the Quinean story of mass terms and stuff ontology, the ability to organize one's sensations by means of concepts begins with *occasion sentences*. These are sentences commanding assent or dissent only if queried after an appropriate prompting stimulation (Quine 1960, 36), variably from occasion to occasion (Quine, 1974, 39). In terms of both infantile learning and the first steps of radical translation, "Mama", "Red", and "Water" count as useful examples. For the child, the mother, red, and water are all of a type; each is just "a history of sporadic encounter, a scattered portion of what goes on" (Quine, 1960, 92). Occasion sentences belonging to this first phase of language learning are archaic, primitive, and indecisive in relation to the sophisticated dichotomy between singular and general. As we saw earlier, the distinction between singular and general terms is closely related with the notion of identity. With occasion sentences and mass terms, we still remain on a pre-individuative phase in the evolution of our conceptual scheme. It is only when individuation emerges that the mother becomes integrated into a cohesive spatiotemporal convexity, while water remains scattered in space-time. With the advent of individuation, the two terms part company (Quine, 1969, 10). The category of mass terms remains an archaic survival of the first phase of language learning (Quine, 1960, 121).

What we have termed the Conceptual Clarity Constraint may be seen to operate in the way in which Quine clarifies the distinction between singular and general terms. Initially, individuation is the one feature that distinguishes singular from general, or "Fido" from "dog" (Quine, 1974, 85). From a syntactic perspective, if a term admits the definite and indefinite article and the plural ending, then normally under our perfected adult usage it is a general term. A singular term like "mama" admits only the singular grammatical form and no article (Quine, 1960, 90). From a semantic point of view, the distinction between singular and general terms seems to be that a singular term names or purports to name just one object, while a general term is true of each severally, of any number of objects (*ibid*., 91). Actually, however, Quine (*ibid*. 95) says, the difference of being true of just one object and of many is *not* what matters to the distinction between singular and general. There are counterexamples like "Pegasus". This is a derived term learned by description, and it counts as a singular term though true of *nothing*. Another counterexample is provided by "nat-

ural satellite of the earth". This in turn is compounded of learned parts, and counts as a general term although true of just *one* object.

One could vaguely say that "Pegasus" is singular in that it *purports* to refer to just one object, while "natural satellite of the earth" is general in that its singularity of reference is not something *purported* in the term itself (*ibid*., 95–6). However, Quine takes such talk of purport to be only a picturesque way of alluding to distinctive grammatical roles that singular and general terms play in sentences. And it is precisely by their grammatical roles that singular and general terms are properly to be distinguished. The basic combination in which singular and general terms find their contrasting roles is that of *predication*. An example would be "Mama is a woman", or more schematically, "*a* is an *F*", where "*a*" represents a singular term and "*F*" a general term. Predication joins a general term and a singular term to form a sentence that is true or false according as the general term is true or false of the object, if any, to which the singular term refers (*ibid*., 96; cf. Quine 1974, 84).

In connection with mass terms, the organization of sensations by means of concepts leads Quine (1960, 97) to notice an ambivalence with respect to the dichotomy between singular and general terms. This ambivalence becomes strikingly apparent precisely in predication, where the mass term behaves in two different ways. Sometimes the mass term enters predication after "is", like a general term in adjectival form, and sometimes before "is", like a singular term. Examples of such cases are sentences like "That puddle is water" versus "Water is fluid". The way in which Quine tries to solve the observed ambivalence is to explicitly give the mass term both of these roles. According to him (*ibid*.), the simplest plan seems to be to treat it accordingly, as a general term in its occurrences after "is", and as a singular term in its occurrences before "is". This decision leads to what has in subsequent literature been called *Quine's dual analysis of mass terms* (cf. e.g. Pelletier, 1998, 170).

According to the dual analysis (Quine, 1960, 98), a mass term *in predicative position* may be viewed as a general term which is true of each portion of the stuff in question, excluding only the parts too small to count. Thus, "water", for example, in the role of a general term is true of each part of the world's water, down to single molecules, but not to atoms. A mass term *in subject position*, on the other hand, is not taken to differ from a singular term like "mama", unless the scattered stuff that it names be denied the status of "a single sprawling object". Quine (*ibid*.) sees no reason to boggle at water as a single though scattered object, *the aqueous part of the*

world. This is not conceived as a particularly curious case either, because as Quine points out, even the tightest object, short of an elementary particle, has a scattered substructure when the physical facts are in. It might be thought that since mass terms before the copula have been assimilated to singular terms by appeal to scattered objects, we could also treat mass terms as singular terms equally after the copula by reconstruing "is" in such contexts as the mereological notion "is a part of". Quine (*ibid*., 99) notes, however, that this version fails because there are e.g. parts of water that are too small to count as water themselves. A further difficulty has to do with the fact that the criterion of what counts as too small is not the same for water, sugar, furniture, and so on. The best strategy, Quine concludes, is to acquiesce in a certain protean character on the part of mass terms, treating them as singular in the subject and general in the predicate.

Quine does recognize that the primitive category of mass terms is ill fitting the sophisticated dichotomy into general and singular. But he (1969, 10) nevertheless insists that the philosophical mind sees its way to pressing this archaic category into the dichotomy. The motivation is *pragmatic*, and has to do with the organization and simplicity sought by science (cf. e.g. Quine, 1974, 88-9). Indeed, to get back to IOH, we may observe that the whole tone of the paper is conspicuously pragmatic, as Quine (1950) talks about identification determining our subject matter (*ibid*., 65), positing of processes or objects (*ibid*., 67), survival value of practices (*ibid*., 69), benefits of formal simplicity of subject matter (*ibid*., 70), relativity to a discourse (*ibid*., 71), conceptual convenience (*ibid*., 78), a pragmatically acceptable conceptual scheme (*ibid*., 79), and finally, about conceptual frameworks into whose absolute correctness as *mirrors of reality* it is meaningless to inquire into (*ibid*.). Accordingly, Quine also concludes the paper by suggesting—instead of a realistic standard of correspondence to reality—a *pragmatic* standard for appraising basic changes of conceptual schemes.

A central principle in IOH proposed by Quine (*ibid*., 71) towards the purpose of achieving a pragmatically acceptable conceptual scheme is the maxim of the *identification of indiscernibles*. The maxim states that objects indistinguishable from one another within the terms of a given discourse should be construed as identical for that discourse. As in our earlier river example, the references to the original objects should be reconstrued for purposes of the discourse as referring to other and fewer objects, in such a way that indistinguishable originals give way each to the same new object. Thus we get from various momentary river stages *a*, *b*, and so

on, to the single river Spey. Locally, this constitutes an application of Ockham's Razor. In a more global perspective, however, a new entity has simply been added to the old ones. The Spey is a convenient and pragmatic addition to our ontology because of the contexts in which it does effect economy (cf. *ibid.*, 70). The example constitutes yet another illustrative case of pragmatically organizing one's sensations by means of concepts.

6. Logical or argumentative rationality

Of the three central notions of rationality acting as different types of controls or constraints for responsible ontological theorizing, *logical or argumentative rationality* was mentioned first. In Quinean terms (cf. Quine & Ullian, 1978), logic and logical structure is what binds the *web of belief* together. The arrangement of our beliefs is crucial for any field's—including ontology's—counting as science. According to Quine (cf. *ibid.*), nearly any body of knowledge that is sufficiently organized to exhibit appropriate evidential relationships among its constituent claims has at least some call to be seen as scientific. As Quine (*ibid.*) puts it: "What makes for science is system, whatever the subject. And what makes for system is the judicious application of logic." Thus, science is a fruit of rational investigation. Logical structure is relevant for the coherence and consistency of theorizing, for seeing what follows from what, and how, as well as for connecting our theoretical enterprises with the empirical sphere of observations (cf. e.g. Quine, 1982, 3). Because of all this, logical or argumentative rationality can be seen as a structurally central notion of rationality that binds *trust in sense experience or scientific experiments* and *the ability to organize one's sensations by means of concepts* into a unified whole.

For Quine (see e.g. 1960), the supreme paradigm of logical or argumentative rationality is the privileged canonical notation of first-order predicate logic with identity. In the logical structure of implications charted by this formal system of logic, the bound variables of quantification constitute crucial nodes. They are also, I dare say, essential for Quine's methodology of ontology, where *to be is to be the value of a* [bound] *variable* (cf. Quine, 1980, 15; 1976, 199). In connection with the Naturalistic Consistency Constraint and physics, it was already noted earlier that in his official scientific ontology, Quine argues for the indispensability of sets because they are needed in mathematical reasoning about physical objects. What this means in terms of the canonical notation is that at some point,

we cannot avoid quantifying over sets, or accepting them as values of our bound variables, and thus making an explicit ontological commitment to their existence. This indispensability reasoning, too, seems to function in its way as an illustration of systematically combining *empirical*, *conceptual*, and *argumentative* notions of rationality.

As far as entailment relations between sentences go, however, in addition to arguing for the introduction of certain types of entities, argumentative rationality can also be used in making negative or eliminative points about specific analyses. And this has also been the case with Quine's dual analysis of mass terms. Without entering into further argumentation or ensuing adjustments and technical discussions, we can have a look at some of this critique *for our own purposes* purely as an example of how logical or argumentative rationality can function as a constraint in an ontological context.

First of all, it might be argued, as Tyler Burge (1972) has done, that Quine's theory is unsatisfactory because it is incomplete. The dual analysis does not seem to cover mass terms which occur neither before nor after the copula (*ibid*., 266). Considering the sentence "Phil threw snow on Bill", it would seem natural and intuitive to extend Quine's theory to handle "snow" in this sentence as a singular term. Ignoring the aspect of tense, the sentence might then be roughly formalized as "Threw-on (p, s, b)". However, the problem with this formalization is that unless Bill is what Burge (*ibid*.) calls "the diabolical supersnowballer", the analysis will make the sentence come out false even if Phil did throw snow on Bill. In Quine's analysis, "snow" as a singular term refers to all the scattered snow in the world, which is supposed to constitute a single sprawling object. This is not something that Phil is likely to be throwing around. Whether "snow" might be paraphrased in other ways or not, Burge's (*ibid*.) point is that any account that hinges on the appearance of a copula in the sentence to be analysed will inevitably be incomplete.

Secondly, and perhaps more importantly, logical or argumentative rationality can be applied directly in a deductive context to argue for a problematic feature of Quine's dual analysis of mass terms. The basic idea is that the account has unwanted consequences for formalizing intuitively valid deductions. Let us think of the following argument in English: "This puddle is water, water is wet, *ergo* This puddle is wet" (Pelletier, 1974, 88). Translating natural into artificial language, let us use the predicate "F" as a translation of "is water", the predicate "G" as a translation of "is wet", the individual constant "t" as a translation of "this puddle", and finally,

the individual constant "*w*" as a translation of "water". The whole argument would then be translated as "*Ft*, *Gw* ⊢ *Gt*", which is obviously not deducible. This unintuitive result arguably constitutes a *reductio ad absurdum* against the dual analysis (cf. *ibid*.).

For our present illustrative purposes, these two cases of negative argumentation serve as examples of tracing the *consequences* of given technical assumptions or ontological analyses. We may of course also work in the other direction as well, and track down various *presuppositions* built into a given solution or technical suggestion. In this way, ontological theories and analyses are constrained by their logical connections with other assumptions within the web of belief. In terms of logical or argumentative rationality, and in connection with Quine's canonical notation, it might seem natural to think primarily about *deductive* procedures and relationships. But to keep in line with the demands of the Naturalistic Consistency Constraint, the central role of statistical and *inductive* inference must also be duly recognized. This is something enforced upon us by the nature of empirical knowledge and the Quinean picture of organization of sensations by means of concepts in general, and by our advanced physical theory in particular. So, in view of our characterization of the rational constraints of ontological theorizing, instead of speaking exclusively about deductive argumentation, we should call the relevant constraint the "*Argumentative Traceability Constraint*". This covers both deductive and inductive inferences, and nicely emphasizes our (at bottom ethical) responsibility of providing and keeping track of reasons and justifications for our views.

It is customary to distinguish not only between deductive and inductive inference, but also between *demonstrative* and *dialectical* reasoning. In terms of ontological theorizing, the latter distinction comes into play as a methodological suggestion or a kind of constraint on the style of rationality, according to which we should not proceed in a demonstrative manner in the sense that we would take our ontological premises, or in Peircean (1877, 252) terms, the fundamental propositions of our systems of metaphysical philosophy, as evident and necessary truths from which we can then infallibly proceed via deductive chains of argumentation. Instead, we should adopt a more dialectical and hypothetical attitude, accepting our ontological premises as starting points for further discussion, elaboration, and possibly even eventual refutation. This "*Dialectical Contextuality Constraint*", as we might call it, keeps our minds open, and guides us away from what Russell (1912, 93–94) called "the dogmatic assurance which

closes the mind against speculation". It also effectively keeps the scientific spirit of fallibilism alive, and nurtures a pragmatic attitude spiced with an appropriate amount of Carnapian tolerance with respect to ontological frameworks. Quine exhibits this, when he (1980, 19) suggests that in the question of what ontology actually to adopt, the obvious counsel is tolerance and an experimental spirit.

7. Conclusions

To get back to our original Armchair Problem with its various aspects, we can pull our strings together now, and see what kind of methodological picture we have ended up with. After having distinguished empirical, conceptual and argumentative forms of rationality and further constraints within these, and after having utilized Quine's analysis of mass terms as an illustrative example, we should now be able to address the Armchair Problem in a more informed manner to produce a plausible pragmatic account of ontology as a form of scientific philosophy.

The first aspect concerned the problem of responsibly constraining forms of *a priori* speculation. Logical or *argumentative rationality* was seen to have a central role here, as well as in binding the other forms of rationality together into a unified whole. When constrained by logical or argumentative principles, our *a priori* speculations cannot proceed merely in terms of free association, or however one is inclined to think, as in Peirce's (1877) critique. Logic gives a rigorous structure to our thought, and also introduces intellectual responsibility to our theoretical discourse. Of course, it may be a pragmatic and discourse-related matter to what extent any given lines of argumentation are actually *formalized* within some system of logic. The choice of logical system is also a further pragmatic issue (cf. e.g. Lowe, 2006, 52–65).

Conceptual rationality was seen to constitute another important constraint on *a priori* speculation, and hence, on the first aspect of the Armchair Problem. The Conceptual Clarity Constraint imposes a responsibility of defining one's concepts as clearly and explicitly as possible, whereas the Pragmatic Utility Constraint operates with respect to the requirement that our concepts should be as useful as possible for the purpose at hand. With the conceptual and doctrinal constraints in place, that is, once our conceptual and argumentative forms of rationality have been specified as constraints, we may be said to proceed in a responsible scientific manner in theorizing about ontological concepts, judgements, and frameworks.

To apply the Carnapian principle of tolerance (cf. Carnap, 1937, 52) to recognizably un-Carnapian ground, we might say that, apart from the requirement to provide arguments and definitions, in ontology, there are no morals. Everyone is at liberty to build up her own ontological framework as she wishes. All that is required of her is that, if she wishes to discuss it, she must state her concepts and arguments clearly (cf. Peirce, 1878).

In addition to the problem of responsibly constraining forms of *a priori* speculation, aspects of the Armchair Problem also include the problem of combining metaphysical speculation with empirical considerations. Having gone through the Quinean examples, we have seen how the Empiricist Epistemology Constraint and the Naturalistic Consistency Constraint can operate. Quine's story of how we ascend from empirical observations to the heights of ontology is a useful suggestion of how metaphysical knowledge can be compatible with our status as a kind of natural creature.

As far as the third aspect of the Armchair Problem, or the problem of absolute certainty is concerned, there is no need whatsoever to build such an assumption into our methodological picture of ontological theorizing. On the contrary, we can emphasize the healthy scientific attitude of fallibilism across the board. We can and do get all kinds of things wrong in the empirical, conceptual, and argumentative spheres of rationality. A pragmatic view of ontology as practised by us humans should definitely recognize this as a basic feature of the whole intellectual enterprise.

The fourth and final aspect of the Armchair Problem is then related with the problem of global realism (cf. Alston, 2001, 8; Niiniluoto 1999, 21–41) and the associated notion of determining the fundamental structure of reality. This issue seems to be relevant especially in connection with combining ontological theorizing with empirical considerations. However, I would suggest that we can have the kind of picture presented so far of ontological theorizing without any need to commit ourselves to global realism. Instead, we may acquire whatever benefits there are to be acquired from our methodological view, and treat the commitment to realism as a further issue to be argued for or against in a different context altogether. In terms of use and practice, the assumption of a substantial and controversial thesis like global realism is an unnecessary burden for a pragmatic conception of ontology. The same applies, and perhaps even to a stronger degree, to metaphysical essentialism. In the way I have described above with the help of Quine, it is arguably quite possible to engage in scientific theorizing about categorial frameworks of ontology without having to buy either global realism or metaphysical essentialism

as parts of the initial package. We would do much better to follow Quine (1950, 79) in adopting a tolerant attitude and a pragmatic standard for evaluating the conceptual schemes of ontological frameworks.[3]

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[3] A longer version of this paper has been presented at *Logical Empiricism and Pragmatism*, Institute Vienna Circle, 8–9 November 2013.

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