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**QUINING EXTENSIONALISM**

Diplomová práce

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## **Abstrakt**

Naturalismus a extenzionalismus tvoří dva hlavní aspekty díla W. V. Quina. V této práci se však pokusím ukázat, že nejenže je Quinova formulace extenzionalismu nejasná, ale extenzionalismus je navíc inkonzistentní s jeho názory na povahu (vědeckého) poznání. Quine tvrdí, že v logice, filozofii i vědě by měl být využíván pouze extenzionální jazyk. Podle Quinova anti-fundacionalismu však neexistuje žádný vnější bod, z něhož bychom mohli mít přístup k objektivní skutečnosti. Ve spojitosti s jeho pragmatismem anti-fundacionalismus nakonec implikuje právě odmítnutí extenzionalismu.

## **Klíčová slova**

extenzionalismus, extenzionalita, extenzionální jazyk, intenze, naturalismus, holismus, reglementace, reifikace

## **Abstract**

Naturalism and extensionalism are two main aspects of W. V. Quine's thought. I will claim, however, that not only is Quine's formulation of extensionalism unclear, but it is in fact inconsistent with his claims about the nature of (scientific) knowledge. Quine also argues that only extensional language should be used in logic, philosophy, and science. According to his anti-foundationalism, however, there is no external point from which an epistemologist could access objective reality. Finally, together with pragmatism, his anti-foundationalism implies rejection of extensionalism.

## **Key words**

extensionalism, extensionality, extensional language, intensions, naturalism, holism, regimentation, reification

“You may bathe in the same river twice without bathing in the same water twice, and you may, in these days of fast transportation, bathe in the same water twice while bathing in two different rivers.”

—W. V. Quine, “Identity, Ostension, and Hypostasis”

“We have left the land and have embarked. We have burned our bridges behind us—indeed, we have gone farther and destroyed the land behind us. Now, little ship, look out! Beside you is the ocean: to be sure, it does not always roar, and at times it lies spread out like silk and gold and reveries of graciousness. But hours will come when you will realize that it is infinite and that there is nothing more awesome than infinity. Oh, the poor bird that felt free and now strikes the walls of this cage! Woe, when you feel homesick for the land as if it had offered more *freedom*—and there is no longer any ‘land.’”

—Friedrich Nietzsche, *The Gay Science*

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## Introduction

W. V. Quine (1908–2000) was a prolific systematic thinker, and his philosophical work incorporates many ideas from mathematics and logic, some of them even his own, as well as discoveries from different sciences, such as psychology, linguistics, or physics. Putting the factual accuracy of these attempts aside, it is abundantly clear that he was a naturalist through and through. Indeed, in an interview with Rudolf Fara, Quine confirms that his most important doctrines were naturalism and extensionalism, and that the whole of his work may be seen as elaboration of these two theses.<sup>1</sup>

Quine gives several characteristics of both naturalism and extensionalism, but they may easily be misunderstood, and they do not clarify much without further explanation of their interconnectedness. However, in the interview mentioned above, Quine describes his naturalism as the opinion that science is “the avenue to knowledge.”<sup>2</sup> Even though science is fallible, and therefore always open to revision, it is still the best method, in fact, the only available method, to gain anything that could be rightfully called knowledge—although even the elementary notion of knowledge is questioned by the method itself. The idea of a “foundation for scientific certainty firmer than scientific method itself” is an untenable “Cartesian dream,” and it must be abandoned.<sup>3</sup>

It is important to emphasize that the scientific method is not a source of some perfected “new certainty” that could somehow

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<sup>1</sup> *In Conversation: W. V. Quine – The Fara Interview*, VHS (Philosophy International, 1994).

<sup>2</sup> *In Conversation: W. V. Quine – The Fara Interview*, VHS.

<sup>3</sup> Willard Van Orman Quine, *Pursuit of Truth*, 2nd ed. (Cambridge: Harvard University Press, 1992), 19.

replace the failed project of rationalism. On the contrary: It eliminates the notion of certainty altogether, and with it the notions of analyticity, necessity, or modality in general. We may establish this description as a working definition of Quine's naturalism, and we will see below how it jeopardizes even the most basic concepts of philosophical tradition, such as justification, truth, reality, and meaning.

However, Quine is far from resorting to a relativist anarchism or a defeatist agnosticism. Instead, the philosopher's predicament may be seen as a positive turn, even if not a positivist one, and it gives us no reason to despair. As Gibson puts it, "skeptical doubts about science are themselves scientific doubts; fear of circularity is misplaced, once hope for a first philosophy is abandoned."<sup>4</sup>

By giving those concepts "proper" naturalist treatment, Quine contributes to a philosophical revolution that can hardly be reversed or overlooked, even in cases where the naturalist reflection seemingly produces the same result as the former methodology. I will expand on this point throughout the work, and I will also focus on justification of Quine's naturalist method, his naturalized epistemology and the resulting ontology, as well as the constitutive thesis of all these aspects of Quine's work—holism.

Extensionalism, on the other hand, is a much more controversial thesis, and it has received harsh criticism, maybe surprisingly, from both naturalists and non-naturalists. However, the term "extensionalism" is quite tricky to define in the context of Quine's thought. As a working definition, Quine describes extensionalism as the conviction that "a class is no more than a sum of its members,"<sup>5</sup> which is not a metaphysical principle as much as a logical one. Extensionalism will need deeper analysis in order for us

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<sup>4</sup> Roger F Gibson, "Quine on Naturalism and Epistemology," *Erkenntnis* 27, no. 1 (1987): 65.

<sup>5</sup> *In Conversation: W. V. Quine – The Fara Interview*, VHS.



to fully appreciate its scope and consequences. For instance, Quine says, it results in his rejection of essentialism, since “nothing is more essential than anything else,”<sup>6</sup> or, we could say that no class is defined *qualitatively*—Quine’s rejection of *qualities* themselves is no coincidence.<sup>7</sup> After all, that also follows from his naturalism, since essential qualities are those that the individual possesses *necessarily*,<sup>8</sup> and the notions of “necessity” or “essential qualities” are enough to give any Quinean naturalist a fright.

Extensionalism, however, is immediately problematic both conceptually (based on the definition of a set)<sup>9</sup> and pragmatically (many would say that the attempt at a reduction of all meaningful language to extensional language creates more problems than it was supposed to solve).<sup>10</sup> Still, there is no clear-cut definition of extensionalism to be found in Quine’s writings in the first place, and it is even less clear what pragmatic arguments might support it.

We would expect extensionalism to be consistent with holism, since these are the two theses that Quine advocates the most. Quine adopts the pragmatic criterion as a tenet that should help us decide between our competing theories of the world (together with some “aesthetic” criteria, such as simplicity and coherence).<sup>11</sup>

Indeed, some arguments for extensionalism are perfectly compatible with holism and pragmatism, yet other arguments are

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<sup>6</sup> *In Conversation: W. V. Quine – The Fara Interview*, VHS.

<sup>7</sup> Hylton says that according to Quine, “there are no fundamental differences of kind” within knowledge. Peter Hylton, *Quine* (New York & London: Routledge, 2007), 8.

<sup>8</sup> Essentialists postulate the existence of essences, or at least separate essential qualities from accidental ones. For discussion of essentialism vs. extensionalism, see for example Nimrod Bar-Am, “Extensionalism in Context,” *Philosophy of the Social Sciences* 42, no. 2 (2012): 548.

<sup>9</sup> See for example Marta Vlasáková, “Nevyřešené slabiny extenzionalismu,” *Organon F* 15, no. 1 (2008): 29–40.

<sup>10</sup> See for example Jaroslav Peregrin, “W. V. Quine a jeho ‘logický postpozitivismus,’” in *Hledání pravdy* (Praha: Herrmann & synové, 1994), 122.

<sup>11</sup> See for example Willard Van Orman Quine, *Word and Object* (Cambridge: MIT Press, 2013), 250.

only justifiable from a point of view that is different from the pragmatist's. Essentially, Quine's central argument for extensionalism are in fact foundationalist in principle, requiring such a strict standard of identity that it cannot possibly be met, much less if we are advocating holism.

That is not to say that this inconsistency between extensionalism and holism cannot be resolved. I will attempt to present a more non-committal stance, which I consider more compatible with the whole of Quine's work—a more "Quinean" view of extensionality—revised on the basis of "where logic is going".<sup>12</sup>

As opposed to Quine's dogmatic "confirmed" extensionalism, I will argue for the only resolution I find reasonable, which is that we should stick to extensional language where it suffices, but that intensional language is indispensable for many reasons, one of them being its "expressive power" without which the logical system simply fails, analyzing true sentences as false, and vice versa.<sup>13</sup>

Just as Quine was forced to give up his nominalism based on the indispensability of universals in mathematics, I will try to show that Quineans are, by the same token, just as forced to give up their extensionalism if they are to adhere to their own principles of justification. Extensionalism can, of course, still be sustained, and even immune to all its criticisms, but that would come at a price of accepting foundationalism, with extensionalism as its dogma—but foundationalism was supposed to be the first to fall.

Some might argue that Quine took his criterion of economy a step too far, at the expense of other, more scientific criteria, and the poor expressivity of extensional languages is too big a sacrifice. Its

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<sup>12</sup> Allusion to Quine's article "Where Logic Is Going" (1947).

<sup>13</sup> See for example Jaroslav Peregrin, *Philosophy of Logical Systems* (New York & London: Routledge, 2020), 103.

transparency, economy, and relative simplicity cannot make up for this flaw. Of what use is a logical system if it is not truth-preserving? Naturalism is a doctrine that was supposed to serve as an antidote to foundationalism, so let us not invent new, more resistant foundations, for they are mere illusions. And as Quine assures us: “[T]here is no such cosmic exile.”<sup>14</sup>

Extensionalism must be quined.

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<sup>14</sup> Quine, *Word and Object*, 254.

# I Regimentation

## I.1 Defining Extensionalism

There are no better words to describe Quine's commitment to extensionalism than his own short paragraph from his very late essay "Confessions of A Confirmed Extensionalist," which expresses his lifelong fidelity to this doctrine:

I am neither an essentialist nor, so far as I know, an existentialist.  
But I am a confirmed extensionalist. Extensionalism is a policy I  
have clung to through thick, thin, and nearly seven decades of  
logicizing and philosophizing.<sup>15</sup>

However, in Quine's work, extensionalism serves as an umbrella term for a cluster of distinct but related doctrines. Despite its central position in his philosophical system, Quine uses this term in a rather wide range of contexts, without fully explaining it or investigating its repercussions.

Of course, we must bear in mind that his extensionalism, like any other doctrine, is historically conditioned, and must be understood in relation to a long philosophical tradition.<sup>16</sup> Extensionalism as such is surely not Quine's invention, and it was implicitly present throughout the whole history of our philosophical tradition, even though it is now considered to be a highly technical term.<sup>17</sup>

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<sup>15</sup> Willard Van Orman Quine, "Confessions of a Confirmed Extensionalist," in *Quintessence: Basic Readings from the Philosophy of W. V. Quine*, ed. Roger F. Gibson (Cambridge: Belknap Press of Harvard University Press, 2004), 330.

<sup>16</sup> Sander Verhaegh, *Working from Within: The Nature and Development of Quine's Naturalism* (New York: Oxford University Press, 2018), 9; see also Bar-Am, "Extensionalism in Context," 544; and Hylton, *Quine*, 3. Hylton, 3.

<sup>17</sup> Bar-Am, "Extensionalism in Context," 545.

As we will see, its connection to ontology and epistemology is not arbitrary. The discussion of the thesis of extensionalism that took place in logic, metalogic, and mathematics in the 20<sup>th</sup> century, was largely preceded, e.g., by the medieval discussion of universals. Extensionalism is closely related to nominalism because they both criticize the more realist and essentialist opinions that there are abstract entities, such as ideas, concepts, or meanings—both extensionalists and nominalists prefer to talk about particulars, and they argue that meaning of general terms is exhausted by the particulars which they denote.<sup>18</sup>

Another interpretative, and partly historical, problem that we face is that even Quine's lifelong work and development is tremendously hard to interpret despite its attractiveness and the amount of commentary. It is not always clear how to interpret his statements, since he tends to write in a condensed, and even enigmatic style.<sup>19</sup> Therefore, instead of imposing an arbitrary, forced definition on the term "extensionalism", it is essential to first distinguish the contexts in which it is used.

I argue that we can distinguish at least three relevant contexts in which Quine's hypothesis of extensionalism has far-reaching consequences; and even though they may be treated separately by different disciplines, I believe that their common label is no coincidence. On the other hand, we will see that this view of discrete "extensionalisms" may be idealized and untenable, due to Quine's holism, according to which all disciplines in science, or the "web of belief," are continuous. Therefore, it would be hard to even imagine where the boundaries between these disciplines should lay.

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<sup>18</sup> See Vlasáková, "Nevyřešené Slabiny Extenzionalismu," 29–30; Bar-Am, "Extensionalism in Context," 550.

<sup>19</sup> Verhaegh, *Working from Within: The Nature and Development of Quine's Naturalism*, 9; see also Bar-Am, "Extensionalism in Context," 544.

The most obvious sense of the term “extensionalism” is connected to the problem of meaning in ordinary language, and it directly concerns the distinction between the *extension* of a term (denotation, reference) and its *intension* (meaning), as we will discuss below.

Indeed, extensionalism is often seen as a reaction to the development of alternative, or non-classical, logics and intensional semantics. In this context, Quine’s extensionalism is an explicit rejection of the usefulness, or even intelligibility, of “intensions,” or “meanings” as abstract entities; meaning is, according to Quine, fully *exhausted* by extensions of predicates. The question is, of course, *which* language is thus reducible, and therefore, fully extensional.

As I have suggested, the distinction between extension and intension applies to meaning in natural languages, which is studied using specific methods within linguistics and philosophy of language. However, the different conceptions of extension and intension (especially in semantics and pragmatics) are mere hypotheses which grant no prescriptive force: They merely attempt to describe what is the case, more or less successfully; and there is hardly any space, or need, for prescriptive semantics. In our observable linguistic behavior, we as speakers do *not* tend to ostracize intensional terms from our natural languages. In short, natural languages are simply not extensional.

Here, it is also important to distinguish between *extensionality* and *extensionalism*. Extensionality is the property of being extensional. *Extensionalism* is “a predilection for extensional theories.”<sup>20</sup> That is all there is to it: a preference for extensional languages over intensional ones for extralogical reasons, which

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<sup>20</sup> Quine, “Confessions of a Confirmed Extensionalist,” 330.

include, for example, simplicity, clarity, and above all, crystal clear *criteria of individuation*.<sup>21</sup>

This seems abundantly clear. What is not so clear, however, is the question: How do we get from extensionality to extensionalism? How can Quine argue for this position, apart from expressing his “predilection” and life-long clinging?

To sum up, we can distinguish:

- (i.) “extensionality” in *logic and set theory*: the property of (formal) languages,
- (ii.) “extension” in *semantics and pragmatics*: reference of a term, and
- (iii.) “extension” in *ontology*: “extendedness,” i.e., the quality of being (usually spatiotemporally) extended.<sup>22</sup>

The third category might be surprising, and perhaps the connection between the first two and this one seems arbitrary and forced, but I will attempt to show that these uses are in fact conceptually inseparable, and Quine’s extensionalism does indeed incorporate all of them.

In the description given above, they differ with respect to the domains or disciplines in which they are applied—but, as we will see, even the distinction between the disciplines themselves is blurred in Quine’s thought. As Quine often says, we must draw a line somewhere, if only for the sake of clarity; despite the “untidiness of human behavior” and everything man-made, we must “foster perspicuity by fancying boundaries.”<sup>23</sup>

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<sup>21</sup> Quine, 331.

<sup>22</sup> For this account, see for example Itay Shani, “The Myth of Reductive Extensionalism,” *Axiomathes* 17, no. 2 (2007): 155–83. It will also be discussed below.

<sup>23</sup> Quine, *Pursuit of Truth*, 3.

## I.2 Extensionality in Axiomatic Languages

Firstly, we will discuss the nature of Quine’s contribution to the mathematical and theoretical framework of set theory. The famous short article “New Foundations for Mathematical Logic,” published in 1937,<sup>24</sup> gave rise to the name of his system of *axiomatic* set theory: New Foundations (NF).<sup>25</sup> He had worked in this field extensively even before that: Set theory was the topic of his dissertation, and before the article in 1937, he had published numerous important texts regarding the foundations of mathematics.<sup>26</sup>

The first important problem, however, is that we need to understand a big portion of Quine’s set theory as a mere mathematical, formal system; and without metalogical or philosophical interpretation, it does not reveal anything about the nature of reality and the world that science investigates. All that set theory itself amounts to is the status of a useful *tool*.

It is a completely different question, one that we will discuss later on, whether mathematics and set theory are analytic, *a priori*, and theoretical in essence. If we find a reason to think so, the extensional framework of NF might be promoted from the status of a “useful tool” to that of a *calculus universalis*, a fundamental, universal language

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<sup>24</sup> Quine worked on his set theory even before publishing this article, starting with his dissertation; see Sean Morris, *Quine, New Foundations, and the Philosophy of Set Theory* (Cambridge & New York: Cambridge University Press, 2018), 107.

<sup>25</sup> See for example Forster, Thomas, “Quine’s New Foundations”, *The Stanford Encyclopedia of Philosophy* (Summer 2019 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/sum2019/entries/quine-nf/>>.

<sup>26</sup> Morris mentions especially “Ontological Remarks on the Propositional Calculus”, “Truth by Convention”, and *A System of Logistic*, see Morris, *Quine, New Foundations, and the Philosophy of Set Theory*, 107.



of all things meaningful; but ultimately, according to Quine, this cannot be done.<sup>27</sup> This is my first important point.

NF was further discussed and developed in Quine's later, essential monography *Set Theory and Its Logic* (1963), which also had the ambition to compare it to other set theoretical systems. This is my second important point: Even though Quine advocated set theory as the foundations of mathematics, and thus, of science itself, there is in fact no such thing as a "fundamental" or "analytic" set theory within mathematics. The set theoretical *axiomatic systems* themselves differ from each other, some of them quite drastically; and for Quine, as we will see, there is no foundationalist way to decide between them.

NF itself still remains one of the "alternative set theories," not the "mainstream" one, and there are many more, including those based on Quine's system.<sup>28</sup> This tolerance of other set theories is very "Quinean:" Morris says that Quine "approaches set theory as an explorative project much like the rest of science."<sup>29</sup> None of the set theoretical systems, Quine thinks, captures an "essence of sets" or anything to that effect.<sup>30</sup> Within the philosophy of set theory, Morris makes a distinction between

a conception of set theory as *explication* with that of *conceptual analysis* which strives to discover a single correct conception of

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<sup>27</sup> See also Jaakko Hintikka, "Quine as a Member of the Tradition of the Universality of Language," in *Lingua Universalis vs. Calculus Ratiocinator: An Ultimate Presupposition of Twentieth-Century Philosophy* (Dordrecht: Springer Netherlands, 1997), 214–32.

<sup>28</sup> Holmes, M. Randall, "Alternative Axiomatic Set Theories", *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/win2017/entries/settheory-alternative/>>.

<sup>29</sup> Morris, *Quine, New Foundations, and the Philosophy of Set Theory*, 65.

<sup>30</sup> Morris, 66.

set theory that can somehow be drawn out of the very concept of set.<sup>31</sup>

Essentially, as Morris concludes, even the choice of a specific version of set theory is motivated pragmatically for Quine, given his conception of set theory as *explication*. He adds:

We might find Quine’s open-mindedness about set theory surprising, given his usual preference for ontological parsimony and his oft-stated commitment to classical first-order logic.<sup>32</sup>

On the contrary. What we should find surprising is not Quine’s open-mindedness about set theory but his narrow-mindedness about classical first-order logic. This will prove to be, in my opinion, another argument against Quine’s extensionalism. Since there is no way to decide the only suitable *set theory* for scientific discourse, by the same token, there is hardly a privileged criterion to decide the only suitable *logical system* for scientific (or any other) discourse—unless, of course, we stipulate such criterion, and we plead guilty of foundationalism, which Quine rejected in the first place. But there is still a long way to go before we can make this generalization, and our overall argument will not depend on this local conflict in the slightest.

To sum up, let us look at the axiom itself:

Axiom of Extensionality:  $\forall x \forall y (\forall z (z \in x \leftrightarrow z \in y) \rightarrow x = y)$

This simply means, in Quine’s words, that “classes are identical when their members are identical.” And for our purposes,

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<sup>31</sup> Morris, 85n1. Here, Morris points out the similarity between his conception and that of Michael Potter between “regressive and intuitive approaches to set theory.” See Michael Potter, *Set Theory and Its Philosophy* (New York: Oxford University Press, 2004).

<sup>32</sup> Morris, 133.

“[s]ets are classes.”<sup>33</sup> Finally, if we ask for a definition of a set, we will end up empty-handed: The concept of sets in set theory is primitive and undefined, just as the concepts of membership ( $\in$ ) or equality ( $=$ ) that serve as additions to the system of predicate logic.<sup>34</sup>

While many languages have this property, there is one extensional calculus *par excellence*, as Gibson expresses;<sup>35</sup> the *lingua franca* of the scientific community, and that is first-order, or predicate logic. It is also the language in which set theory is formulated, and the axiom of extensionality defines the criterion of identity for *sets*, or classes. It simply states that classes are identical iff they have the same members,<sup>36</sup> or, we could say that it is “precisely determined by its elements.”<sup>37</sup> Let us remind ourselves of Quine’s exposition of meaning and substitutability of expressions.

In his words,

an expression is extensional if replacement of its component expressions by coextensive expressions always yields a coextensive whole.<sup>38</sup>

The criterion of identity for sentences is the sameness of truth value, for predicates or both singular and general terms, it is the sameness of referents. The result of extensionality in any language is that coextensive expressions are freely interchangeable: They can

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<sup>33</sup> Willard Van Orman Quine, *Set Theory and Its Logic* (Cambridge: Belknap Press of Harvard University Press, 1969), 1.

<sup>34</sup> Roger F. Gibson, “Quine, Willard Van Orman,” in *A Companion to Metaphysics*, ed. Gary S. Jaegwon, Kim; Sosa, Ernest; Rosenkrantz, 2nd ed. (Malden: Wiley-Blackwell, 2009), 7.

<sup>35</sup> Roger F. Gibson, “Willard Van Orman Quine,” in *The Cambridge Companion to Quine*, ed. Roger F. Gibson (Cambridge: Cambridge University Press, 2006), 7.

<sup>36</sup> Quine, *Set Theory and Its Logic*, 34.

<sup>37</sup> Holmes, M. Randall, “Alternative Axiomatic Set Theories,” *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/win2017/entries/settheory-alternative/>>.

<sup>38</sup> Quine, “Confessions of a Confirmed Extensionalist,” 330.

always be substituted by one another without a change in truth-value of the sentence, which is called substitutivity *salva veritate*.<sup>39</sup>

### 1.3 Extensionality in Natural Languages

Extensionalism is without a doubt a promising and attractive doctrine. It goes hand in hand with our aspiration, or indeed, our need, for an unambiguous, transparent, unclouded language of logic, philosophy, and science. Modern advancements in the philosophy of language brought about many attempts to revolutionize language, from the projects of logical positivists to their critics, Ordinary Language philosophers, and the twists and turns were much needed, although perhaps confusing and overwhelming. Extensionalism, on the other hand, has many advantages: It is elegant, coherent, explanatory, and it does not multiply entities without necessity, which is the principle of Occam's razor much favored and enforced by Quine.<sup>40</sup>

As we have already said, the thesis of extensionalism was already in circulation, so to say, before Quine embraced it and took up the difficult task of defending and refining the original idea. One of the first proponents of extensionalism in logic was George Boole (1815–1864), who, as Bar-Am says, “suggested a flat and unequivocal identification of terms with their extensions” almost a century before Quine.<sup>41</sup>

Unfortunately, as attractive as it is, extensionalism is also simply wrong. While many logicians and philosophers contributed to its downfall, it was Gottlob Frege (1848–1925) who noticed a devastating problem of extensional conceptions of identity and

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<sup>39</sup> Quine, 330.

<sup>40</sup> Willard Van Orman Quine, *From Stimulus to Science* (Cambridge & London: Harvard University Press, 1998), 49.

<sup>41</sup> Bar-Am, “Extensionalism in Context,” 549.

interchangeability, as well as meaning and regimentation, and in effect, this “traditional extensionalism” was “soon refuted” by him.<sup>42</sup>

Frege, although he was originally interested in the problem of identity for the foundations of mathematics, points to a difficult problem with the extensionalist identification of identity with substitutability. In cases where identity is synthetic, i.e., non-trivial, extensional semantics cannot make sense of identifying objects, or referents, that were previously unknown conceived as distinct.<sup>43</sup>

For example, the expressions “the Morning Star” and “the Evening Star” denote the same entity, planet Venus;<sup>44</sup> but this is surely a synthetic statement, according to Frege. It is perfectly conceivable that those who do not know that the Morning Star and the Evening Star do not treat them as interchangeable *salva veritate*.<sup>45</sup>

Therefore, there are contexts in which two sentences about the same object may differ in truth value, e.g., in propositional attitudes, such as believing, thinking, knowing, et cetera.<sup>46</sup> Thus, Frege concludes that some sentences are unanalyzable by, and irreducible to, extensional language. We must distinguish between the denotation, or reference of a term (*Bedeutung*),<sup>47</sup> and its sense (*Sinn*), traditionally called “meaning.”

It was Rudolf Carnap (1891–1970), Quine’s mentor, friend, and philosophical adversary, who replaced Frege’s terms with the more precise labels “extension” and “intension,” and provided them with a more technical interpretation.<sup>48</sup> However, these canonical early

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<sup>42</sup> Bar-Am, 550.

<sup>43</sup> Bar-Am, 551.

<sup>44</sup> Gottlob Frege, “Sense and Reference,” *The Philosophical Review* 57, no. 3 (1948): 215.

<sup>45</sup> Frege, 215.

<sup>46</sup> See for example Frege, 218–19.

<sup>47</sup> For the purposes of this work, we will not distinguish between denotation and reference.

<sup>48</sup> Hylton, *Quine*, 58.

attempts at intensional semantics were not without its problems, and it would go beyond the scope of this thesis to discuss their evolution.

Importantly, Quine attempts to deal with both Frege’s and Carnap’s objections to extensional semantics, but his “confirmed” extensionalism largely exceeds the question of linguistic meaning. That is why we need yet another notion of extensionalism, and it will be gradually exposed in the next chapters.

### 1.4 The Confusions of Extensionalism

**Table I. Quine on Extensionality<sup>49</sup>**

	(A) IN FORMAL LANGUAGES	(B) IN SCIENTIFIC LANGUAGE	(C) IN NATURAL LANGUAGES
(1) EXTENSIONALITY	Present	Present	Present
(2) EXTENSIONALISM		Adopted by Quine <sup>50</sup>	
(3) INTENSIONALITY	Rejected by Quine <sup>51</sup>	Rejected by Quine <sup>52</sup>	Present
(4) INTENSIONALISM		Criticized by Quine	

Table 1 shows my attempt at a systematic overview of the arguments described in this chapter. It captures a) the relation between extensionality and extensionalism (intensionality and intensionalism, respectively), b) the complementarity of extensionalism and intensionalism (extensionality and intensionality,

<sup>49</sup> As defined above.

<sup>50</sup> But widely criticized.

<sup>51</sup> But present.

<sup>52</sup> But present.

respectively), and c) the distinction between the three different “languages.”

Line (1) seems uncontroversial given what we have said so far. All three languages use extensional restrictions on identity and substitution. Intensionality is, in simple terms, *failure* of extensionality. Tichý makes an interesting point, though, claiming that

natural language as a whole is intensional in that its expressions regularly, in ‘normal’ contexts refer to their intensions (concepts) and only occasionally to their extensions (things).<sup>53</sup>

For example, the observation “It is raining” refers to its “subject matter”, not its extension: Surely we do not want to convey merely its *truth-value*.<sup>54</sup> However, the principle of extensionality is irredeemably indispensable in all three types of languages.

Tichý is not alone in this position; Kamp, for example, also states that intensional logic should not be seen as an “extension” of extensional logic in those context where the default extensionality fails. Instead, we should see the extensional part of the language as exactly that: a part; it constitutes an enormously important part, but the point is that intensionality can always preserve extensionality, but the opposite is not true.<sup>55</sup>

Line (2) demonstrates that extensionalism is a *meta-logical* theory formulated in meta-language. We can see that it has prescriptive ambitions (all language should be thus reduced). We can see that it is an external imposition on a language. As for (2.C), natural languages do not have any metalanguage and cannot be restricted, because that would make them simply non-natural.

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<sup>53</sup> Pavel Tichý, “An Approach to Intensional Analysis,” *Nous* 5, no. 3 (1971): 119.

<sup>54</sup> Not even pointing to the event is necessary, or even possible. Tichý, 120–21.

<sup>55</sup> Hans Kamp, “The Philosophical Significance of Intensional Logic,” in *Proceedings of the Aristotelian Society, Supplementary Volumes*, vol. 49 (London: Methuen & Co. Ltd., 1975), 21–22.

Therefore, we can see that Quine's extensionalism boils down to his extralogical views about the nature of the scientific method. Thus, I argue that his extensionalism is best expressed by (2.B).<sup>56</sup>

Its epistemological aspect amounts to the thesis that anything that is not expressed (or expressible) in extensional language is in principle *incomprehensible* due to its lack of criteria for individuation. Its ontological aspect of the argument is that stipulating existence of any intensional entities, such as meanings, attributes, propositions, or possible worlds, is futile and misguided, which is partly based on the epistemological argument, because we simply cannot understand intensional expressions in the first place.<sup>57</sup>

In this chapter, we will continue with the exposition of Quine's philosophy, and we will discuss the main tenets of naturalism, holism, and the general ideas in his philosophy of language. We will see that some of these claims will seem inconsistent with some of Quine's aforementioned theses, and we will attempt to analyze the ways in which Quine's thought forms a systematic whole. This will be done in the spirit of reconciliation of the contrasting theses, but we will also show the limits of such endeavor.

Logic in the sense described above is, in Quine's words,

the grammar of strictly scientific theory. When a bit of science is thus regimented, the one place where extra logical vocabulary enters the picture is as interpretation of the schematic predicate letters.<sup>58</sup>

Undoubtedly, science, or any kind of rational thought, requires us to use logical reasoning and sound arguments. But Quine

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<sup>56</sup> "The language of first-order logic is the best way, according to Quine, to know the ontological commitments of a theory because the existential quantifier is the only way to express existence and is itself neutral, since it can range over all kinds of objects." Saloua Chatti, "Extensionalism and Scientific Theory in Quine's Philosophy," *International Studies in the Philosophy of Science* 25, no. 1 (2011): 5.

<sup>57</sup> Gibson, "Willard Van Orman Quine," 7.

<sup>58</sup> Quine, "Confessions of a Confirmed Extensionalist," 335.



goes much further than that: He is convinced that it is only the extensional, first-order logic that can precisely, meaningfully, and intelligibly capture the relations that are sufficient and necessary for logical inference and truth preservation.<sup>59</sup> These more pragmatic arguments for extensionalism are largely derived from his epistemological and ontological viewpoints.

When we implied that formal, scientific, and natural languages generally do not “overlap”, this was almost completely wrong in one aspect. They more than “overlap,” in Quine’s view, and one can, and does, influence the rest. They are separable only as instruments in idealized non-fuzzy domains. Otherwise, there is constant interaction between them and between the elements within them. At least that is Quine’s mature view, as I will show.

For example, we can see that (2.B) is not an independent thesis, and it co-occurs with (3.A), i.e., with Quine’s rejection of intensional logic. This is absolutely essential, because we have said that extensionalism is a meta-logical, yet pragmatic preference of one of the many languages; we did not say anything about it being impossible or unacceptable to have a non-extensional formal calculus. But it seems that Quine’s extensionalism is a “package deal,” and it includes the discriminative tendency to reject intensionality, despite it being such an overwhelmingly “natural” phenomenon across languages.

This leads us to the problem of drawing the lines between the columns (A), (B), and (C). If the languages are in some ways continuous, it is hard to imagine what would constitute the extremely sharp distinction between, e.g., (3.A) and (3.C). We will further investigate these problems in the next two chapters.

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<sup>59</sup> See for example Saloua Chatti, “Extensionalism and Scientific Theory in Quine’s Philosophy,” *International Studies in the Philosophy of Science* 25, no. 1 (2011): 1.

As I have already mentioned, there are at least two groups of arguments that Quine uses to defend his extensionalism. The first group is concerned with the commitments of languages: their form, their relativity, and their role with respect to individuation and identity of objects. I will claim that as a result of his extensionalism, Quine does not really get far from the attempt at a universal language, the *calculus universalis*, of Leibniz, Frege, or the logical positivists.<sup>60</sup> Only the language itself is much more modest, and we can doubt the effectivity and utility of such a limited universal language.

This ontological economy stems from Quine's methodological and epistemological wariness, among other things; and we would think, after everything we have said, that Quine's rejection of intensionality can at least be derived from this methodological skepticism, and that it is in accordance with his pragmatic criterion. He states that adoption of the extensionalist framework in science is pragmatic *enough* to refute intensions. I am afraid that the opposite is true. Intensions are *indispensable* enough to survive this attack, even if *pragmatic* is all they are—useful fictions, theoretical models, or technical and engineering tools.

Because I could not find any reasonable justification of extensionalism in Quine's work, I argue that just like other attempts at construing a universal language, extensionalism is a *dogma* that also goes against Quine's holism and naturalism, because it is foundationalist. Intensional contexts are clearly part of many successful logical systems that have enough expressive power to complement (if not replace) the extensional calculi, even if in a limited part of logic, philosophy, and science.

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<sup>60</sup> Hintikka, "Quine as a Member of the Tradition of the Universality of Language."

That alone should be enough for the Quineans to declare extensionalism a falsified theory, as an example of a tentative conviction heading in the right direction, but which, unfortunately, has shipwrecked. But if this omnipresence of intensionality is not enough to convince a *confirmed* extensionalist, perhaps it would be possible and preferable to refute extensionalism by other means—while staying afloat on Neurath’s proverbial boat.

## 2 Rehabilitation

In the first section, we have seen that it is fairly difficult to even define extensionalism, much less to defend or criticize it. We attempted to make a short exposition of the problem, contrasting a) extensionalism with extensionality, b) extensions with intensions, and c) the notion of extensionality in different contexts, languages, and disciplines. These languages were: a) formal, axiomatic languages, b) natural languages, and c) languages used in ontology, or even science, which we will further explain below.

We have also established that it is somewhat problematic to draw a line between the three areas of interest, although it would be a fallacy not to distinguish them. It was emphasized that these three categories are schematized and serve merely as a model—but this problematic distinction also points to some inconsistencies in Quine's own treatment of language, philosophy, and science.

We have shortly outlined the possible lines of argument regarding extensionality in logic and semantics, without the ambition to pursue them further. In the chapter concerning Quine's work in logic and set theory, we introduced the axiom of extensionality, which is a logical principle applicable across many languages—at least to a certain degree. The principle of extensionality is universally applicable for example in classical predicate logic or set theory. For these contexts, the criterion of substitutivity also serves without exception as a criterion of identity: If two sets have the same members, they are *the same set*.<sup>61</sup>

However, extensionality is not completely universal. In some parts of natural languages, for example, this principle does not hold,

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<sup>61</sup> See for example Morris, *Quine, New Foundations, and the Philosophy of Set Theory*, 168.

and these contexts are referred to as intensional. Analyzing these contexts using extensional calculi, such as classical predicate logic, leads to obvious contradictions—expressivity of these language is simply too low for some purposes. Many famous examples of this phenomenon come from Frege’s work.

The question was, of course, what logicians should do about these “failures” of extensionality. Some thinkers see them as an opportunity to enrich the modest extensional calculi, thus forming new kinds of intensional logic and semantics, including, e.g., modal logic. Indeed, the twentieth century saw an unprecedented boom of new, fine-grained intensional logical systems.<sup>62</sup>

On the other hand, some thinkers would have none of it—including, of course, W. V. Quine. According to Quine, failures of extensionality are just that: *failures*. They do not deserve refinement because they can be successfully reduced to transparent, unproblematic extensional expressions—and if not, they simply have no place in logic, philosophy, much less in science.

As we can see in both dated and contemporary discussions, this view has both its critics and its adherents, and the problem of meaning in Quine’s philosophy remains widely commented. Therefore, this could be the end of the exposition of extensionalism—as it was in the first chapter—and we could continue with an overview of the aforementioned problems in, for example, the analysis of language.

But we surely do not need yet *another* list of all the different problems of extensionalism. Firstly, much has been written about this, and this thesis would hardly be worth reading compared to those much more informed criticisms. More importantly, the boom of intensional and modal logics was already in full gear during Quine’s

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<sup>62</sup> Pioneered by, e.g., Richard Montague’s *Intensional Logic* and Pavel Tichý’s *Transparent Intensional Logic*.

long and fruitful life and career, and that did not seem to convince or impress him.

Another question is whether extensionalism is *extra-scientific*. This will be the main question of this work: The question whether all scientific language can, and should, be “extensionalized”—i.e., *expressed* or *expressible* solely in extensional language. Quine’s extensionalism has received much attention in semantics, the theory of meaning and reference, and I will touch upon this topic very briefly. I think the main controversy lies in extensionalism in scientific language.

I will argue that the argument for extensionalism *should* be scientific, according to Quine’s demands on justification stemming from his naturalism. But it is not. What is more, I believe it *cannot* be scientific in principle, at least for two different reasons. The first reason is conceptual and theoretical because naturalistic, holistic extensionalism is inconceivable. The second reason is pragmatic and practical because naturalistic, holistic extensionalism is untenable, impractical, and dogmatic.

However, perhaps the main problem of Quine’s extensionalism is its inconsistency within his otherwise very systematic, revolutionary, and elaborate philosophical thought. It turns out, in my opinion, that if Quine is a naturalist and a pragmatist, he cannot be an extensionalist, and if he is an extensionalist, he cannot be a naturalist and a pragmatist. That is in startling contradiction to the first paragraph of this chapter and of his own words that the two most prominent doctrines of his work are naturalism and extensionalism. Some authors conclude that in fact, “Quine’s extensionalism is stronger than his naturalism.”<sup>63</sup>

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<sup>63</sup> Lieven Decock, *Trading Ontology for Ideology: The Interplay of Logic, Set Theory and Semantics in Quine’s Philosophy* (Dordrecht: Springer Netherlands, 2002), 76.

On a more positive note, I also believe that the controversy about Quine's extensionalism is mostly a misunderstanding, and there is an easy fix for the peculiar situation, one that is directly derived from his naturalism and pragmatism. It can easily be quined.

## 2.1 A Postscript on Language

One persistent preliminary question might still seem unanswered, and that is the question why we should consider the problem of extensionalism in the first place. How could a theory about *language*, or rather a mere opinion about it, have such implications for science, its method, epistemology, and the resulting ontology? What could the technical, logical notion of extensionality reveal about the nature of reality that Quine's other more prominent and respectable doctrines could not make sufficiently clear? In a word, what does extensionalism have to do with science?

The answer to this question is complex and perhaps speculative to some extent – let us remind ourselves that Quine himself did not discuss the relation between extensionalism and naturalism systematically enough to answer it unambiguously. Hopefully, many partial observations about this problem will be made obvious in the course of this thesis.

Firstly, it is a legacy of logical positivism in Quine's thought that *everything* is a "matter" of language in some sense. That is clearly a truism, but I argue that *just how* we use language to construct or discover reality is a fairly non-trivial question, and we can make good sense of it using Quine's terms, such as "theory", "science", "language," or "conceptual scheme," the treatment of which is specific for Quine, and certainly not self-evident. I will deal with this terminological problem below.

Secondly, although the analysis of language is essential for understanding the rest of Quine's philosophy, we must not imagine it

as an independent, “second-order” project that can be superimposed externally on “non-linguistic” problems: There is no higher level of reasoning, justification, or analysis, as we will see when we discuss the implications of naturalism. There are, strictly speaking, no purely linguistic problems, and thus, perhaps more interestingly, there are no purely *non-linguistic* problems, i.e., problems untouched by our conceptualization and schematization of them. We must adopt an intensionalist framework, remembering that “we are schematizing: positing sharp boundaries where none can be drawn.”<sup>64</sup>

As a result, the importance of the language of scientific investigation simply cannot be overemphasized. Moreover, when we remind ourselves of the fundamentals of logic, we can see how its laws, together with the rest of the given language, generate valid and sound arguments. The key to success here is, of course, regimentation or formalization: The process of capturing (only) those parts of our sentences that are relevant for valid inferences. Peregrin uses the metaphor of a sieve: Only the desired elements of language are gathered for further analysis, and the rest of it simply falls through the holes.<sup>65</sup>

Naturally, we aim to preserve the aspects that are relevant for preserving the truth value: If we substitute two co-extensional expressions in the premises and we get a different truth value in the conclusion, we sure have a problem. The ability of a logical system to capture the elements of our language is called “expressive power,” and logicians have always strived to find an axiomatic system rich enough not to let any aspects relevant for truth preservation slip; but the resulting system should also be economical and elegant enough not to postulate redundant entities.<sup>66</sup>

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<sup>64</sup> Quine, *Pursuit of Truth*, 12.

<sup>65</sup> Jaroslav Peregrin, *Doing Worlds with Words: Formal Semantics without Formal Metaphysics* (Dordrecht: Springer Netherlands, 1995), 18.

<sup>66</sup> See Peregrin, 13.



This is, therefore, the real dilemma of extensionalism: Is our current logical system fine enough to preserve all the aspects of truth that we, as logicians, philosophers, or scientists, *need* for a given purpose, or can we settle for using only those parts of it that the default, “extensional” sieve can hold? And if all language that is relevant for epistemology can be reduced to a more fundamental, *extensional* language, what are the methods that will prove that it is still enough? How can we say *the least that we can* without disregarding some, perhaps utterly unanticipated, relevant aspects of truth? And even if we can do all that, how can we know that we still can?

This is a question that even Quine asks: How to have an ontology which is minimalist enough, but still rich enough to be adequate for science?<sup>67</sup>

Quine himself claims that

[t]he quest of a simplest, clearest pattern of canonical notation is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality.<sup>68</sup>

## 2.2 The Confusions of Existence

There are still a couple of issues we need to discuss in relation to Quine’s conception of science. The result of his naturalism is that not only is philosophy continuous with science, but science is also continuous with common sense. Since there is no other method of gaining knowledge, we generally only use one method, and we can use it either conscientiously or less so, but it is essential that there is no difference or gap in quality or method.

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<sup>67</sup> Willard Van Orman Quine, “A Logistical Approach to the Ontological Problem,” in *The Ways of Paradox and Other Essays* (New York: Random House, 1966), 68.

<sup>68</sup> Quine, *Word and Object*, 147.

As Hylton adds, the scientist on one side of the imaginary spectrum and the layman on the other would not even differ in their methods of inquiry or their standards of knowledge, but the one using common sense falls behind simply because “unreflective common sense has not yet absorbed an improvement made by science.”<sup>69</sup> Knowledge is simply entirely “seamless.”<sup>70</sup>

The term “science” is used quite broadly in Quine’s work—from “soft sciences” such as economics or history to the “hardest” one of all, theoretical physics.<sup>71</sup> This should be seen not only as unavoidable but also as the ultimate goal, the naturalist “disregard of disciplinary boundaries [...] with respect for the disciplines themselves and appetite for their input.”<sup>72</sup> Interestingly, even though the whole of science is increasingly less accessible to the layman, it still holds that “science is self-conscious common sense,” says Quine.<sup>73</sup>

This view is also consistent with the difficulty of defining different disciplines and their “languages” that we saw in Table 1. It is also what Peregrin points out when discussing the relation between natural and artificial languages: Formal languages can never be truly independent on the natural language that construed them. They will always be connected to them by a “semantic umbilical cord.”<sup>74</sup> Therefore, we should understand the terms language, science, theory, or even conceptual scheme rather freely because Quine seems them, at least in some contexts, as continuous.<sup>75</sup>

There is another related reason why extensional languages might serve us well, and that is Quine’s conception of ontological

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<sup>69</sup> Hylton, *Quine*, 8.

<sup>70</sup> Hylton, 11.

<sup>71</sup> Quine, *From Stimulus to Science*, 49.

<sup>72</sup> Quine, 16.

<sup>73</sup> Quine, *Word and Object*, 3.

<sup>74</sup> Peregrin, *Philosophy of Logical Systems*, 4.

<sup>75</sup> Hylton, *Quine*, 74.

commitment. This doctrine is both complex and well known, so we do not have to go into much detail here. However, it might cause some confusion later on, so it would be wise to discuss the notion of existence. We are, after all, in the beginning of a chapter called “Rehabilitation”—that is because Quine is known for his willingness to rehabilitate ontology and clear its name in the context of analytic philosophy.

Even though the notion of existence is primitive to a large extent (and we will see why), Quine uses it in several ways; or rather, the answer to the question on what there is may be answered differently each time, depending on the way in which we specify the question.

The first answer to the question “What is there?” is, according to Quine, curiously simple because we can answer it in one word—and that word is “Everything.”<sup>76</sup> This is, of course, a problem for the particular reason we have already stumbled upon. We understand terms that do not refer, in fact, we use them all the time: So they must exist in some sense, in some trivial way. But how should we understand the explanation that there are different senses, or ways, of existence? Quine calls this puzzling question “Plato’s beard,” because “historically it has proved tough, frequently dulling the edge of Occam’s razor.”<sup>77</sup>

Quine’s doctrine of ontological commitment problematizes this question, and he informs us that “what is under consideration is not the ontological state of affairs, but the ontological commitments of a discourse.”<sup>78</sup> Thus, in this first, trivial sense, it truly is a question

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<sup>76</sup> Willard Van Orman Quine, “On What There Is,” in *From a Logical Point of View: Nine Logico-Philosophical Essays* (New York: Harper & Row, 1963), 1.

<sup>77</sup> Quine, 2.

<sup>78</sup> Willard Van Orman Quine, “Logic and the Reification of Universals,” in *From a Logical Point of View: Nine Logico-Philosophical Essays* (New York: Harper & Row, 1963), 103.

of what *we say* there is, rather than what there “really” is.<sup>79</sup> Undoubtedly, this question is an important part of the whole ontological problem, and we need to distinguish it from the other usages.

Interestingly, this answer has a much more theoretical and technical basis, which can again be summarized with one of Quine’s slogans: “To be is to be the value of a variable.”<sup>80</sup> This is closely connected to the problem of regimentation that we discussed in the previous chapter. If a given part of language is regimented, its ontological commitments become transparent. The entities that the theory, or language, postulates as existent, are those that are the *values of the variable*. Therefore, this criterion fits only those theories that are construed within classical predicate logic.<sup>81</sup>

Foreign languages, or those that are not yet regimented, present a challenge because in order for us to even find out what the theory says there is and what it is talking *about*, translation to extensional language is required. If it is impossible, we need to give up the ambition to comprehend it: It simply uses the term “existence” differently. This is, Quine says, “the cosmic burden borne by the humble variable. It is the locus of reification, hence of all ontology.”<sup>82</sup>

Hopefully, this formulation of the ontological problem is at best suspicious. For speakers or logicians with a different conceptual scheme at hand, for example, intensional logic or natural language, there is no possible way to communicate with the extensionalist. This criterion of ontological commitment is itself an imposition on language and ontology that precedes actual exchange of opinions; and if our talk does not fit this presupposed scheme, the extensionalist is

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<sup>79</sup> Quine, 103.

<sup>80</sup> Quine, “On What There Is,” 15.

<sup>81</sup> Quine, *From Stimulus to Science*, 33.

<sup>82</sup> Quine, 33.

free to simply declare that we are speaking “a different language.”<sup>83</sup> There is, of course, no exchange after that.

At first, the criterion looks metaphysically innocent, even reasonable—*everything exists*; in case of disagreement, only our variables are under fire. And indeed, there are countless specific disagreements “over cases”.<sup>84</sup> That leads us to the second sense of existence, where we may finally find out what it is that actually exists. But before we do, let us sum up the problem of Quine’s notion of ontological commitment.

Any speaker who dares to disagree with an extensionalist is forced to either give up and admit that there truly is no common language, or translate his sentences into a quantified, extensional calculus. He, of course, has no choice in the matter. For example, if he disagrees with the formulation of ontological commitment itself, there is no way to communicate this disagreement, and any communication is over before it even begins. Quine’s notion of ontological commitment already presupposes an implicit, *a priori* ontological commitment to *extensional frameworks*. This position is unjustified, and unjustifiable given *his own* requirement on justification: holism, which we will discuss below.

Moreover, I find it suspicious and overly reductive that the speakers must be able to translate between these languages in principle. The grammatical form is either expressible in extensional language, and in that case, it is perfectly possible to express it using an extensional part of intensional language; or the translation is impossible (in a given situation), and therefore, the theories are radically incommensurable, and the reduction cannot serve any purpose in principle. My point is that if we are theoretically able to translate a part of our intensional language into extensional language,

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<sup>83</sup> Bar-Am speaks about “reprogramming.” Bar-Am, “Extensionalism in Context,” 559.

<sup>84</sup> Quine, “On What There Is,” 1.

the notion of translation is immediately rendered useless—because there is no content to translate anymore. I will come back to this argument later.

The second sense of existence is, perhaps surprisingly, just as interesting. We are now confronting our regimented theory with the world in general. Since there is the possibility of *real* disagreement over specific cases, we still need a criterion, ideally a normative one, to decide between these theories. The most canonical example that Quine uses is the comparison between science and its alternatives.<sup>85</sup>

We will discuss Quine’s defense of the scientific method later, but perhaps it is already clear that there is a difference between, e.g., physicalism defended *a priori* as a dogma of scientism, and physicalism as a pragmatic decision open to revision in case it simply does not work out. The main question is whether Quine’s extensionalism can still be conceived as non-foundationalist—as a mere pragmatic, even if unconscious, preference of a more efficient theory, or whether it is a preestablished, *a priori*, extra-scientific, foundationalist *dogma*.

### 2.3 A Methodological Quandary

The first obvious trouble that we face whenever we attempt to introduce a systematic philosopher is where to start the inquiry. It follows from the character of Quine’s thought that, as Hylton puts it, there is “no point at which an exposition can begin” because every thesis can only be understood in relation to the rest of his work;<sup>86</sup> and perhaps “any linear account of his philosophy will distort it.”<sup>87</sup>

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<sup>85</sup> E.g., the examples in Willard Van Orman Quine, “Two Dogmas of Empiricism,” in *Quintessence: Basic Readings from the Philosophy of W. V. Quine*, ed. Roger F. Gibson (Cambridge & London: Belknap Press of Harvard University Press, 2004), 31–53.

<sup>86</sup> Hylton, *Quine*, 3.

<sup>87</sup> Hylton, 8.

Unfortunately, the same goes for Quine's extensionalism: Attempting to define it as a thesis isolated from the rest of his work would turn out to be "under-motivated or even arbitrary."<sup>88</sup> This difficulty arises both from the form and the content of Quine's writing.

As for the form, Quine's style may often prove misleading. Even though his texts are full of brilliantly formulated, resolute aphorisms, that should not tempt us into taking them as axioms from which we could derive his whole philosophical system—simply because they make little sense in isolation, spectacular as they may sound.

This interpretive problem is, among other things, a problem of formulation, and as such, it affects the possibility of faithful interpretation of the content. Quine's habitual reinterpretation of traditional philosophical terms, such as justification, truth, knowledge, or meaning, makes both Quine's reasoning and our attempts at understanding it a circular and repetitive endeavor.

The result of this peculiar situation is that there is hardly any universally accepted interpretation of even Quine's most central theses. Far from it being an immunization against criticism or a justification of any possible misinterpretation, many of the questions that Quine posed in his work have not been resolved. There is a wide range of disagreement not only over the question whether Quine was right, but also about what he meant by his statements.<sup>89</sup>

After all, given his fallibilism and constant progress of science, which he considers to be "the last arbiter" of all questions, it is conceivable that some questions may not even be answerable or meaningful in principle. Moreover, as I will attempt to show, Quine's

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<sup>88</sup> Hylton, 2.

<sup>89</sup> Peter Hylton, "Analyticity and Holism in Quine's Thought," *The Harvard Review of Philosophy* 10, no. 1 (2002): 11.

reasoning is a dialectic process, and a fruitful one at that. In Quine's words, "we must all start in the middle."<sup>90</sup>

Therefore, we—as interpreters—find ourselves in a similar predicament to that of Quine's philosopher: We are, as Neurath famously said, "like sailors who have to rebuild their ship on the open sea, without ever being able to dismantle it in dry-dock and reconstruct it from its best components."<sup>91</sup> This metaphor later became Quine's philosophical mantra and also a working definition of his naturalism. It is a *working* definition because he does not offer us any systematic treatment of this term, and, as Verhaegh says, many of his naturalist views had been implicit for a long time before they were even formulated.<sup>92</sup>

## 2.4 Naturalism and The Circularity of Knowledge

Quine eventually defines his naturalism as the lack of "an *a priori* propaedeutic or groundwork for science," an "external vantage point," or a "first philosophy."<sup>93</sup> This negative formulation serves, first and foremost, as his rejection of methodological foundationalism.

It is (perhaps surprisingly) problematic to reconstruct Quine's arguments for naturalism, and it is surely not possible to do it here.<sup>94</sup> However, it is possible to track down at least two sources of his mature naturalism. They are both negative, just as the definition discussed above, and they can be identified as holism, which is itself

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<sup>90</sup> Quine, *Word and Object*, 20–21.

<sup>91</sup> Otto Neurath, *Philosophical Papers, 1913-1946* (D. Reidel Publishing Company, 1983), 92.

<sup>92</sup> Verhaegh, *Working from Within: The Nature and Development of Quine's Naturalism*, 7.

<sup>93</sup> Willard Van Orman Quine, "Natural Kinds," in *Ontological Relativity and Other Essays* (New York: Columbia University Press, 1969), 126–27.

<sup>94</sup> See for example Verhaegh, *Working from Within: The Nature and Development of Quine's Naturalism*.



defined negatively here as “despair of being able to define theoretical terms generally in terms of phenomena,” and “unregenerate realism,”<sup>95</sup> which complicates our debate even more because it is unclear what the term “realism” could even mean to Quine. Therefore, it should be enough to say for now that this realism is “the robust state of mind of the natural scientist who has never felt any qualms beyond the negotiable uncertainties internal to science.”<sup>96</sup>

However, this negative definition does not mean that the knowledge we do gain from this method is somehow inferior or limiting—quite the opposite. The naturalist has more than enough to go by since the whole of science is available to him as a source of his reflection. That hardly represents a restraint on knowledge. Naturalism is also defined positively as “readiness to see philosophy as natural science trained upon itself and permitted free use of scientific findings.”<sup>97</sup>

This leads to what Quine refers to as methodological monism, the idea that there is only a single method of gaining knowledge, and in this case, it is the scientific method.<sup>98</sup>

In short, the naturalist

begins his reasoning within the inherited world theory as a going concern. He [...] tries to improve, clarify, and understand the system from within. He is the busy sailor adrift on Neurath’s boat.<sup>99</sup>

Naturally, methodological monism and naturalism put together constitute *methodological* naturalism: the imperative that

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<sup>95</sup> Willard Van Orman Quine, “Five Milestones of Empiricism,” in *Quintessence* (Cambridge: Harvard University Press, 2004), 305.

<sup>96</sup> Quine, 305.

<sup>97</sup> Willard Van Orman Quine, “Russell’s Ontological Development,” in *Theories and Things* (Cambridge & London: Belknap Press of Harvard University Press, 1982), 85.

<sup>98</sup> Quine attributes this name to Morton White, Quine, “Five Milestones of Empiricism,” 301.

<sup>99</sup> Quine, 306.

restricts our method of acquiring knowledge to that of our current or best science, whatever that may be. Methodological naturalism has far-reaching consequences, so this approach cannot be omitted when discussing the issue of extensionalism.

So far, we have not touched upon the question whether the more radical thesis of *metaphysical* naturalism is also a part of the deal. As with so many issues in Quine's work, the answer is: yes, and no. This question is, however, far from arbitrary in the context of our topic. I suspect it reflects a deeper characteristic trait of Quine's philosophy, and that is the peculiar way in which he bridges the notoriously insurmountable gap between epistemology and ontology—or perhaps we should reveal right away, using Quine's own metaphor, that there is no such magical bridge—and nor is there a gap to be bridged to begin with.<sup>100</sup>

Metaphysical naturalism is, roughly, the thesis that “reality is exhausted by nature as it is studied by the sciences,”<sup>101</sup> and that ultimately, “the last arbiter is so-called scientific method, however amorphous.”<sup>102</sup> It may seem odd to imagine naturalism as a method of inquiry that only recognizes the scientific method as a road to knowledge, but which could, at the same time, refrain from inferring from its results some claims about the nature of reality.<sup>103</sup>

Indeed, Quine's naturalism is *both* methodological and metaphysical. Clearly, what Quine himself advocates is exactly that it is within the jurisdiction of science to decide what reality is like and how we come to recognize it as such, which is essentially the question of what there is.

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<sup>100</sup> Quine, *Pursuit of Truth*, 8.

<sup>101</sup> Verhaegh, *Working from Within: The Nature and Development of Quine's Naturalism*, 2.

<sup>102</sup> Quine, *Word and Object*, 20–21.

<sup>103</sup> For criticism of the claim that methodological naturalism could be metaphysically neutral, see, e. g., Robert A. Larmer, “The Many Inadequate Justifications of Methodological Naturalism,” *Organon F* 26, no. 1 (2019): 5–24.

So far, we have considered the problem outlined in the first part of this thesis, namely the difficulty of interpreting Quine, especially when we are forced to choose an arbitrary aspect of his thought and use it to establish a comprehensive introduction to his whole work. In our case, the said aspect was extensionalism—which is neither his most famous nor his most successful doctrine, but which, in my opinion, points to a very distinctive feature of Quine’s thought. Hopefully, it will become even clearer how this leads to Quine’s conception of “naturalized epistemology” as “the scientific investigation of the acquisition of scientific knowledge.”<sup>104</sup>

However, since Quine goes as far as to claim that epistemology should be part of “empirical psychology,”<sup>105</sup> immediately there emerge doubts about its normative status – much like other concepts of Quine’s work, the traditional term, namely epistemology, seems to lose its original meaning.<sup>106</sup> Quine argues that this is another misinterpretation, and that the normativity of naturalized epistemology is in fact even more powerful than any other. The scientific method imposes its strict requirements on itself. The thorough scientific exposure of our epistemic faculties regulates our belief formation; and it prevents us from believing “telepaths and soothsayers.”<sup>107</sup>

These interpretative problems are caused by many factors which I attempted to pick out. Quine’s conception of knowledge, epistemology, and philosophy is as labyrinthine as it is enticing, and indeed, revolutionary—but his project is undoubtedly complicated by his limited resources. He must often resort to using traditional philosophical terminology, such as “knowledge”, “being”, or

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<sup>104</sup> Gibson, “Quine on Naturalism and Epistemology,” 58.

<sup>105</sup> Quine, “Five Milestones of Empiricism,” 305.

<sup>106</sup> Gibson, “Willard Van Orman Quine,” 9.

<sup>107</sup> Quine, *Pursuit of Truth*, 19.

“justification”,<sup>108</sup> even though the explication of these terms is so complex that it would perhaps be less confusing if he simply invented new ones.

Unfortunately, it is impossible to impose on a discipline a brand-new language—which is, after all, the predicament of a Quinean epistemologist, who must eventually settle for partial and slow reinterpretation of traditional terms. The risk is, of course, that the new, extensive explication gets “lost in the translation,” as we saw for example in the case of analyticity; and the result is confusion. The Quinean epistemologist is uncomfortably familiar with this chaotic picture from which there is no escape. Instead of quietism, however, Quine encourages the “new epistemologist” to rejoice.

After all, the possibility to use scientific findings in philosophy should not surprise us if we remember that one of the main principles of Quine’s philosophy is his empiricism. His naturalized epistemology, which we will discuss below, sticks to the traditional empiricist principle that “*nihil in mente quod non prius in sensu.*”<sup>109</sup> Even though philosophy is specialized, it is only different from any other “in detail, but in no such drastic way as those suppose who imagine for the philosopher a vantage point outside the conceptual scheme he takes in charge.”<sup>110</sup>

After all, naturalized epistemology is

an enlightened persistence rather in the original epistemological problem. [...] It is enlightened in recognizing that the skeptical challenge springs from science itself, and that in coping with it we are free to use scientific knowledge. The old epistemologist failed to recognize the strength of his position.<sup>111</sup>

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<sup>108</sup> See Hylton, *Quine*, 3.

<sup>109</sup> Quine, *Pursuit of Truth*, 19.

<sup>110</sup> Quine, *Word and Object*, 254.

<sup>111</sup> Willard Van Orman Quine, *The Roots of Reference* (LaSalle: Open Court, 1973), 3.

The “new epistemologist,” on the other hand, is in fact better off: Nobody has a privileged access to some higher form of knowledge, but the enlightened epistemologists can at least be aware of the fact and use it to his advantage when devising an enlightened theory of knowledge, whatever that term amounts to.

The answer to the question of an ultimate justification of naturalism, then, is easy: None is needed, and none is possible.<sup>112</sup> The best arguments that we have are scientific; and scientific evidence itself points to the fallibility of our epistemic faculties.<sup>113</sup>

These systematic epistemic errors, I imagine, are reflected in the philosophical conceptions that Quine criticizes, the most famous ones being the two “dogmas” of empiricism. Quine himself was an example of an “enlightened epistemologist” to a large degree. Throughout his life, he kept consulting, discussing, explaining, and in consequence, improving or even giving up his ideas, even if grudgingly. Epistemology is, after all, “integral to science, and science is fallible and corrigible.”<sup>114</sup> Anything else, as we have seen, is a “Cartesian dream.”

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<sup>112</sup> Quine, “Five Milestones of Empiricism,” 72.

<sup>113</sup> See Verhaegh, *Working from Within: The Nature and Development of Quine’s Naturalism*, 59.

<sup>114</sup> Quine, *Pursuit of Truth*, 21.

### 3 Reification

So far, it seemed as if Quine's extensionalism and holism were independent convictions: It is surely possible to be a naturalist without being an extensionalist, and vice versa. In this chapter, I will attempt to show how Quine connects these doctrines. I will shortly introduce the notion of reification and discuss the implications of holism on individuation of objects, as well as Quine's famous indeterminacies. I will then investigate whether the identity criterion of extensionalism is even conceivable in a holistic and underdetermined world, and whether it is applicable at least to physical objects.

#### 3.1 Holism and Anti-Reductionism

We have postponed an analysis of Quine's holism and his rejection of analyticity long enough, even though it is often seen as his central to his philosophy, but in a way, we will continue to do so. The reason is that not even holism is defined by a single principle: It is a "convergence of various hypotheses, theories, beliefs, truths; even when one focuses on any one of these, the others have to help."<sup>115</sup> For the purposes of this work, we do not necessarily have to draw a sharp line between Quine's naturalism and his holism.

Much of what we have already said directly contributed to the definition of holism. The first obvious sense in which Quine is an adherent of holism is the omnipresent problem of meaning. In the influential article "Two Dogmas of Empiricism" (1951), he famously criticizes not only analyticity, but also the notion of meaning, since he

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<sup>115</sup> Willard Van Orman Quine, "Twentieth-Century Logic: Interview with Giovanna Borradori," in *Quine in Dialogue*, ed. Dagfinn Føllesdal and Douglas B. Quine (Cambridge: Harvard University Press, 2008), 65.

is convinced that they are inseparable. Analyticity of sentences directly depends on meaning: Analytic sentences are those that are necessarily true, i.e., true in virtue of meaning of their expressions.<sup>116</sup>

However, there is more to holism than just holism concerning meaning. It is a doctrine about the nature of justification of our sentences. According to Quine, sentences alone cannot be justified, i.e., verified or falsified directly in relation to experience, like the logical positivists imagined. Sentences, Quine says, “face the tribunal of sense experience not individually but only as a corporate body.”<sup>117</sup> It is not the individual sentences that are confirmed, as Hylton says, “at all.” It is always a substantially larger piece of theory.<sup>118</sup>

As a result, “no statement is immune to revision,”<sup>119</sup> on the other hand, “any statement can be held true come what may, if we make drastic enough changes elsewhere in the system.”<sup>120</sup>

There is much to say about the problem of analyticity in Quine’s thought. For example, Quine attacks the idea that analytic sentences do not “reveal” anything about the world: Theoretical sentences play an important role in our description of the world, even though they do not contribute to forming any observations—they are untestable even when put together, but still we cannot form observations without them.<sup>121</sup>

Quine often uses this line of argument, i.e., about a theory’s applicability and explanatory power. Whatever we think about

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<sup>116</sup> Quine, “Two Dogmas of Empiricism,” 32.

<sup>117</sup> Quine, 49.

<sup>118</sup> Hylton, “Analyticity and Holism in Quine’s Thought,” 19.

<sup>119</sup> Quine, “Two Dogmas of Empiricism,” 51.

<sup>120</sup> Quine, 57.

<sup>121</sup> “You can add a whole bunch of them [non-empirical beliefs and truths] together and they won’t be enough to imply any observations, and yet they’re important. [...] Science would be paralyzed if we excluded the untestables.” Willard Van Orman Quine, “The Ideas of Quine, by Bryan Magee,” in *Quine in Dialogue*, ed. Dagfinn Føllesdal and Douglas B. Quine (Cambridge: Harvard University Press, 2008), 53.

abstract entities, science would be so “hopelessly crippled” without them that we simply have to quantify over them, and thus accept them into our ontology.<sup>122</sup> This is an important step employed, e.g., in Quine’s reluctant acceptance of “extensional Platonism,” which is his realism about classes, as we introduced it in the beginning of this thesis.

It is well known that Quine had strong sympathies for nominalism throughout his life, and when he worked on his set theory and its philosophy, he still tried to make it as economical as possible. He summarizes this preference nicely in his statement that once he was forced to accept Platonism, or realism, about abstract objects, “the least [he could] do is least I can do is keep it extensional.”<sup>123</sup> This argument, the indispensability argument,<sup>124</sup> although it was presented very roughly here, is also worth adopting for our extensionalism. Extensionalism can only ever be repudiated when it finally proves to be desperately impractical.

### 3.2 Science Is the Limit

It is essential to point out that not knowing where to start any inquiry, or not really having a choice in the matter, presupposes neither failure nor an epistemological paralysis. This is nicely described in Quine’s prominent work *Word and Object* (1960): Even though we—as scientists, philosophers, or in our case, interpreters of Quine—are limited in the beginning by our peculiar epistemological situation, this limitation does not apply to “where we may end up.”<sup>125</sup> Even though our *methodology* is, and always must be, naturalist, by no

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<sup>122</sup> Quine, *From Stimulus to Science*, 40.

<sup>123</sup> Willard Van Orman Quine, “On The Individuation of Attributes,” in *Theories and Things* (Cambridge: Harvard University Press, 1981), 100.

<sup>124</sup> See for example Hylton, *Quine*, 79; Gibson, “Willard Van Orman Quine,” 6.

<sup>125</sup> Quine, *Word and Object*, 4.



means does that imply that our *conclusions* are limited to what is now considered true, and perhaps even unlikely to change, by our current science.

Take, for example, the case of physicalism. Physicalism is, according to Quine, the ontology we should prefer because right now, science as a whole seems to be more successful with this particular ontology than without it. But physicalism is only “true” (and as we will see, it is never really *true* at all) insofar as the *current* state of the same, but changing, science indicates that sticking to it is somehow worth it. There is no predictable relation of a cause and its *necessary* consequence; there is no ideological link between the scientific *method* and its *result*, and in Quine’s view, there is no meaningful notion of necessity anyway.

Perhaps telepathy or clairvoyance will find extensive support of scientific evidence, says Quine (although it is highly improbable). In that case, we would be forced even to give up the principle of empiricism—but the whole transition would be scientifically legitimate, given, of course, that the *method* was truly scientific. Would telepathy still count as science? we might ask. Indeed, it “would still be science, the same old language game [...]. [T]he test of the resulting science would still be predicted sensation.”<sup>126</sup>

In other words, the outcome of scientific method is always worthy of its name if the method is such, even if our particular scientific findings are mistaken, which they probably are anyway, given the constant progress in science. In this sense, Quine is a thorough fallibilist, and his “commitments to physicalism and empiricism are firm but tentative.”<sup>127</sup>

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<sup>126</sup> Quine, *Pursuit of Truth*, 21.

<sup>127</sup> Gibson, “Willard Van Orman Quine,” 9.

### 3.3 The Indeterminacy of Reference

We have established that Quine's most fundamental commitment is the doctrine of naturalism, accompanied by his holism and pragmatism. As a result, Quinean epistemology repudiates any attempt at extra-scientific, *a priori* knowledge which could serve as a foundation from which the rest of our knowledge could be deduced. This is in accordance with his rejection of analyticity: There are no purely analytic and no purely synthetic sentences, or rather, they form an ever-changing, but organized structure, the "web of belief," and their analyticity is a matter of degree.<sup>128</sup>

In the web, there is practically no way to verify or falsify individual sentences or statements. It follows that even the seemingly purely observational sentences are contaminated by some amount of theory (e.g., language), and only the whole system can be judged, and moreover, it must always be from within it.

I argue that this approach is in stark contrast with Quine's extensionalism. Extensionalism is the opinion that only purely extensional entities can be individuated: sets, for example, as well as ordinary objects which are construed by our cognitive apparatus using the process of *reification*. Physical objects in the "outside world"—even though we will see that this distinction is also fairly obsolete and useless, in Quine's view—are individuated by the space and time in which they are *extended*, whereas the extension of sets is the sum of their members.

However, Quine also argues for a cluster of ideas with indeterminacy as their principle: the indeterminacy of translation, the inscrutability of reference, and the underdetermination of scientific theory. This is demonstrated on a famous example of the

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<sup>128</sup> See, e.g., an example for synonymy in Willard Van Orman Quine, "The Problem of Meaning in Linguistics," in *From a Logical Point of View: Nine Logico-Philosophical Essays*, 1961, 63.

impossibility of direct, one-to-one translation between two completely alien languages without no existing common lexicon: Quine calls this situation radical translation. If we hear a word, or even a sentence, it is impossible, according to Quine, to fully individuate the expression, at least in the sense of correspondence. I will shortly comment on some of the aspects of indeterminacy before considering its relation to extensionalism.

It is essential that the indeterminacy of translation is not a thesis about the impossibility of translation in practice.<sup>129</sup> Firstly, successful translation is possible even under these difficult circumstances. What is more, as Hylton puts it, “it may be possible in more ways than one, not less.”<sup>130</sup> That is the case because since there is no meaningful notion of synonymy for Quine, he replaces it with his behaviorist, practical criterion of language use. On this view, successful translation amounts to the achieved fluency, effectivity, and communication with the other speakers.<sup>131</sup>

This can result in the situation where different independent linguists in the same predicament come to incompatible “translation manuals”—but if the practical criterion holds, they are both equally, in fact, fully successful.<sup>132</sup> After all, we can never be sure what it is that we are referring to because there might be more aspects that are co-instantiated in one object or a situation.

This means that even if two speakers of different languages agree on the reference of an expression when “pointing to,” e.g., the same object, it is still impossible in principle to fully determine the reference of the given term. To sum up, as Decock points out, we can have two terms with the same *extension*, but they may still constitute different objects, or concepts. Our lexicon is “insufficient

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<sup>129</sup> Hylton, *Quine*, 201.

<sup>130</sup> Hylton, 201.

<sup>131</sup> Quine, *From Stimulus to Science*, 82.

<sup>132</sup> Hylton, *Quine*, 197.

to establish all the relevant discriminations between objects.”<sup>133</sup> The result is that we cannot in fact always distinguish and individuate different objects—not if we only have access to their extensions.

Moreover, this is not merely the case in two “incommensurable” languages with no common aspects that the speakers know of—it is in fact the reality of our own language, as well. There is no fundamental, qualitative difference between the two ontologies.<sup>134</sup> Since science, as we have shown, is a continuation of common sense, the underdetermination of theory by empirical data is inherited even in science.<sup>135</sup>

The most fundamental criterion of extensionalism, transparent identity conditions, is in danger. That is not to say that the Indeterminacy Thesis leads to some unacceptable relativism or that no objects have clear-cut boundaries. This is merely a reminder that perhaps we should not be so eager to embrace extensionalism in the radical form explained in this thesis.

It poses several problems for Quine’s extensionalism. I argue that it is problematic to require such a strict reductive language that would be clean from intensions: Quine hardly offers any clear-cut criterion of successful “translation” from our ordinary, intensional language, into the classical predicate logic. We could say, of course, that the extensional calculus is good enough for science; and indeed, it is good enough for some parts of it. However, there is no pragmatic or “scientific” reason to forcefully reduce a functioning, indispensable language to one that will simply not work as well in some contexts.

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<sup>133</sup> Lieven Decock, *Trading Ontology for Ideology. The Interplay of Logic, Set Theory and Semantics in Quine’s Philosophy* (Synthese Library. Kluwer/Springer, 2002), 53.

<sup>134</sup> Hylton, *Quine*, 319.

<sup>135</sup> Hylton, 323.

That means that as far as I can tell, there is no extra-scientific criterion for extensionalism—and even if there were, it would automatically get disqualified by Quine’s anti-foundationalism: All we have is putative, fallible, evolving scientific method, which is measured by the way it works, not some other, ungrounded predilection.

### 3.4 The Importance of Being Reified

In Quine’s view, we both discover and construct the everyday objects around us by means of reification, or individuation, in space and in time. The precondition of effective reification is being able to distinguish, or identify, them. There is no object without its boundaries in space and time; there is “no entity without identity.”<sup>136</sup>

He takes as paradigmatically clear the situation in which a singular term functions simply by picking out an object. In that case, the truth or falsehood of the sentence as a whole depends only on what object is picked out, not on how it is picked out. It is unsurprising that Quine should wish to avoid reference to how an object is picked out. By his standards, whether two ways of picking out an object count as the same is vague, unclear, and context-relative—just the sort of issue that canonical notation should enable us to avoid.<sup>137</sup>

It is essential for a thing to be reified; otherwise, it can hardly be admitted into an extensionalist ontology. In that case, however, the question is whether we can find a single reified object in the Quinean holistic, underdetermined universe.

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<sup>136</sup> Decock, *Trading Ontology for Ideology: The Interplay of Logic, Set Theory and Semantics in Quine’s Philosophy*, 48; Quine, “Confessions of a Confirmed Extensionalist,” 332.

<sup>137</sup> Hylton, *Quine*, 290.

## 4 Ramification

### 4.1 The Transparency of Extensions

Quine is famous for his slogan that he could never really understand anything that could not be expressed in extensional language.<sup>138</sup> However, we should probably take this statement with a pinch of salt, so to say, because Quine seems to have it the other way round. His slogan itself, as Bar-Am puts it, is actually expressed in intensional language—English.<sup>139</sup> Extensionality is, according to Quine, a necessary condition for his “full understanding of a theory.”<sup>140</sup>

The question is what he could possibly mean by “full understanding,” given the three kinds of indeterminacy that we explained in the previous chapter. In this sense, I argue, extensionalism is paradoxical and self-refuting.

Extensionalists may complain about the unintelligibility of intensions as much as they want, but it would be extremely difficult—much more difficult than its inversion, and perhaps impossible—to explain how we can know extensions of terms without their conceptual mediators. Extensions themselves are in no way so readily distinguishable and individuated; and whatever similarity that we postulate between them is always based on some other criterion. As Peregrin points out, we understand the words of our language thanks to their inferential roles: “Thus, knowing extensions derives from knowing inferential roles, not vice versa.”<sup>141</sup>

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<sup>138</sup> Quine, “Confessions of a Confirmed Extensionalist,” 331.

<sup>139</sup> Bar-Am, “Extensionalism in Context,” 545.

<sup>140</sup> Quine, *From Stimulus to Science*, 90–91.

<sup>141</sup> Peregrin, *Philosophy of Logical Systems*, 121.

Identifying meaning of expressions with their extensions would lead to paradoxes that even Quine would have difficulty dispensing. It would be necessary for us to know the *whole* extension of a certain term—which is epistemologically problematic, and ontologically impossible because of the constant change of the referents. We are able to assign given properties to some individuals because they know the conditions under which they are members of that given set—obviously, we do not need to know the referents of an expression to understand it.<sup>142</sup>

This would also lead, for example, to the paradox that we would immediately know the truth value of any sentence that we understand, because it would be a part of its meaning—that might be desirable, but unfortunately, it is not the case. We saw this in Tichý's previously discussed example with the truth value of "It is raining."

Moreover, even sets are determined by our description of them. There are no sets "out there" for us to discover because they come to (arbitrary) "existence" the moment we describe them.<sup>143</sup> Even the observation that sets can be described by merely listing its members fails to explain the situation because there are sets which cannot be thus described.<sup>144</sup>

This does not only concern our understanding of concepts but also our ability to discuss them, name them, or to simply point to them. Thus, novelty, as Bar-Am states, is essentially impossible in an extensionalist framework. The only possible change or addition of meaning is the change of the whole language, and indeed, this is exactly how Quine explains this. Whenever a term changes its extension, the whole language is slightly (or drastically)

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<sup>142</sup> Vlasáková, "Nevyřešené slabiny extenzionalismu," 32.

<sup>143</sup> Vlasáková, 34.

<sup>144</sup> Vlasáková, 34.

reprogrammed. Still, the extensionalist is “unable to account for the move.”<sup>145</sup>

## 4.2 Meta-language and Translation

There is no way, according to Quine, to step out of our language, or conceptual scheme, and revise it from the outside. This was a point of disagreement between him and Carnap: For Quine, our immanence is insurmountable, and all the exits are sealed—or rather, we cannot even say that there is an “inside” and an “outside.”<sup>146</sup> Therefore, it seems peculiar at best that he argues for a completely different language than he is actually using—*while* arguing against it.

If there is no external point from which we can decide the suitability of a given language, and if this ideal language needs justification from the outside, this intensional metalanguage seems to be a part of the project. Moreover, if there is only one ideal logical form, expressible in classical predicate logic, and all other relevant language may be reducible to it while preserving the message, its meaning must have been understandable the whole time—otherwise we would not have been able to translate it satisfyingly. But perhaps I am misinterpreting Quine’s arguments and conclusions—and in that case, perhaps there is a reconciliatory solution to this enigma.

Still, the claim that one can never truly understand anything that was not reducible to extensional language is a valid point.<sup>147</sup> It follows that the intensional expression is either irrelevant for inference, and therefore, there is nothing to understand, in the strict sense of the word; or else some aspects of language relevant for

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<sup>145</sup> Bar-Am, “Extensionalism in Context,” 557.

<sup>146</sup> Leitgeb, Hannes and André Carus, “Rudolf Carnap,” *The Stanford Encyclopedia of Philosophy* (Summer 2021 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/sum2021/entries/carnap/>>.

<sup>147</sup> See Quine, “Confessions of a Confirmed Extensionalist,” 331.



inference were disregarded, and that constitutes a fallacy, regardless of the aversion we might feel towards the infamous intensional entities.

### **4.3 Extensionalism As Foundationalism**

In this thesis, I attempt to show that extensionalism is at odds with Quine's anti-foundationalism. I argue that there is a paradox, or an inconsistency, in Quine's philosophical method. Extensionalism is an external, foundationalist imposition on the scientific method, whereas according to naturalism, it is science and its results that should dictate the suitability of a given framework.

As Greimann says, the doctrine of extensionalism itself presupposes some foundationalist theses. Among them is, for example, the conviction that "there is a privileged sort of objects which are well-individuated on their own, namely, physical objects," which serve as "ground-elements." Another misconception is that those entities that are not thus individuated "are in need of individuation," the criteria of which are reduced to those of the extensional entities. The assumption that only the properly individuated kinds of objects may be posited is itself unjustified.<sup>148</sup>

### **4.4 Extensionalism As Reductionism**

As an empiricist and a physicalist, Quine takes pride in the postulated effortlessness of individuation of objects. Decock observes that it would not be completely misguided to be reminded of Descartes and his dualism: The similarity of extensionalism and

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<sup>148</sup> Dirk Greimann, "No Entity Without Identity?: A Reductionist Dogma?" *Grazer Philosophische Studien* 60, no. 1 (2000): 18–19.

the *res extensa* is simply striking.<sup>149</sup> After all, any part of the “extended substance” can easily be individuated using the Cartesian coordinates, as Decock says.<sup>150</sup>

Richard Rorty compared extensionalism to “a quite arbitrary straight-jacket in which to confine language.” The aim of this step was to eliminate ontological redundancy; but instead, there emerged “a ‘host of pseudo-problems about areas where the straight-jacket pinches.’”<sup>151</sup>

It would be truly convenient to have a fundamental, analytic language on which we could build our theories. However, this is exactly what Quine was criticizing as a second dogma: reductionism. Holism repudiates identity, and with it, individuation of even the most common, tangible objects. It is but a very non-Quinean “metaphysical article of faith,” a physicalist dogma: It is *the* Cartesian dream.

The interpretation of extensionalism as a predominantly ontological doctrine that I offered here is neither arbitrary nor particularly original. Shani explicitly claims that the strongest motivation behind extensionalism can be “traced back to the mechanistic legacy of the 17th century scientific revolution and [...] to the reduction of matter to a purely extensive substance—a *res extensa*.”<sup>152</sup> In this view, much like in the aspect of the foundationalist aspect discussed above, extensionalism presupposes the existence of some underlying reality, which is fundamentally non-intensional.<sup>153</sup> However, as we have seen, there is no such reality that Quine would like to posit.

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<sup>149</sup> Decock, *Trading Ontology for Ideology: The Interplay of Logic, Set Theory and Semantics in Quine's Philosophy*, 75.

<sup>150</sup> Decock, 97.

<sup>151</sup> Richard Rorty, “Empiricism, Extensionalism, and Reductionism,” in *Mind, Language, and Metaphilosophy: Early Philosophical Papers*, ed. James Tartaglia and Stephen Leach (Cambridge: Cambridge University Press, 2014), 96.

<sup>152</sup> Shani, “The Myth of Reductive Extensionalism,” 157.

<sup>153</sup> Shani, 158.

Extensionalism, therefore, must be quined.

## Conclusion

If two independent linguists—or indeed, any speakers or interpreters—had fundamentally different lexicons for the same set of empirical data, our first intuition would probably be that something had gone wrong, very wrong. Moreover, the claim that both their translations were fully successful would baffle us even more, and perhaps we would have the tendency to say: “But surely one of them must be less *adequate*.” Quine himself would probably be dissatisfied with this interpretation of his indeterminacy of reference because there is one important aspect that we have not mentioned yet.

The good news is that there is one important sense in which our lexicographer cannot be wrong. That is because the indeterminacy amounts to more than simple ignorance or lack of empirical input. The nature of reality is such that reference itself is not fully determined in some fundamental, metaphysical way—and I argue that the important conclusion is that perhaps *it need not be*. And perhaps it cannot be, according to Quine: Without the notion of synonymy, there is hardly any way to even formulate the problem of “incommensurable” lexicons.<sup>154</sup>

Quine’s dream about a universal extensional calculus is well-founded and not at all misguided. He is right to say that intensions have no clear-cut criteria of individuation; but he is wrong to think that physical objects do. The principle of extensionality is an important part of our language, and it is especially relevant for formalized and artificial languages. I merely argued that Quine’s demands on identity of abstract objects were exaggerated; and that in

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<sup>154</sup> Quine, “The Problem of Meaning in Linguistics,” 63.

fact, he was forced to give them up even for physical objects themselves.

The indeterminacy of reference ensures that no scientist is able to fix the reference of a term in terms of a few individual sentences. This applies to whole scientific theories: However rich they are, they can never be fully determined. As a result, not even physical objects have clear criteria of individuation, so extensionalism loses its sovereign power even in the realm of ordinary physical objects.

Similarly, we can see an analogy between extensionality (as individuation) and analyticity (as synonymy). I agree with Quine that they both rise and fall together, and if extensionality fails, we have no right to expect synonymy in intensional languages. If there is *no entity without identity*, there is no entity at all—not even rabbits, tables, numbers, or atoms.

To conclude, the aim of this thesis was not to show that extensionalism is misguided. The aim was to balance Quine's overly strict criteria of individuation for abstract objects with his more realistic indeterminacy of reference even for the most tangible, concrete objects in our everyday world.

Perhaps it is the question whether extensionalism is “right” or “wrong” that is misguided. Extensionality and intensionality are by no means contradictory or incompatible, and we should think about these notions as complementary aspects of one and the same reality. Perhaps the question whether extensionalism is right or wrong is also a bit “like asking how long the Nile really is, apart from parochial matters of miles or meters. Positivists were right in branding *such* metaphysics as meaningless.”<sup>155</sup>

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<sup>155</sup> Willard Van Orman Quine, “Structure and Nature,” *The Journal of Philosophy* 89, no. 1 (1992): 9. My italics.

Intensionalists must admit that meaning truly is opaque; but extensionalists must admit that so is reference. I attempted to interpret Quine's extensionalism as relative to the rest of his thought. The main problem, I argued, is Quine's prejudice towards intensionality, and the consequent "double standard" for the individuation of "extended" versus abstract entities. The criterion of individuation for physical objects, which Quine eventually adopts together with his physicalism, is a very strict one, and it is perhaps based, as Shani argues, on the "dogma" of extendedness, which stems from René Descartes' distinction between *res extensa* and *res cogitans*. As a result of this dogmatic dualism, intensions can be understood as identical with mental states or Platonic ideas. This is not helped by the fact that the expression "intensionality" is very close to "intentionality," which has unfortunate connotations for Quine and other naturalists, and that is why he refuses to be "entangled" in such an overflowing ontology.

As Bar-Am poetically concludes:

This is the core of Quine's confession: meanings are slippery creatures of the devil, threatening the consistency and purity of our extensional Garden of Eden, they poison the spotless deductive character of our extensional theories; we should extinguish their trace, then, for the sake of scientific cleanliness, for the sake of deductive transparency.<sup>156</sup>

But Frege is already there, tending to the Tree of Knowledge.<sup>157</sup>

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<sup>156</sup> Bar-Am, "Extensionalism in Context," 554–55.

<sup>157</sup> See Bar-Am, 554–55 for his original formulation.

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