Pegasus Explained Away

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May 25, 2020

Abstract

The consequences of Quine's criterion of ontological commitment epitomized in his treatment of the term 'Pegasus' in "On What There Is" are evaluated in terms of Quine's own work, in particular in "The Variable" and "Variables Explained Away". There is a cost to maintaining this criterion with regard to the empirical consequences of some non-existent objects, given considerations prompted by Quine's holism. This cost can be reduced by adopting a noneist position according to which non-existent objects can be values of bound variables as well.

Among the criticisms of Quine's criterion for ontological commitment encapsulated in the slogan "to be is to be the value of a bound variable", the sharpest attacks come from Richard Routley [15], supported by Graham Priest [2], both of whom espouse a position inspired by Meinong and designated "noneism", according to which non-existent objects can be values of a bound variable as well. Routley bluntly accuses Quine of theft, of stealing important terminology from our domain of discourse with which we express basic facts about the world concerning non-existence [16, p. 151].

The criticisms by Routley and Priest appear primarily to be external to Quine, namely arguments to show that Quine's criterion is illegitimate. By contrast, this paper takes an internal approach and explores this criterion more broadly throughout Quine's wider corpus to investigate the consequences of this early slogan in the context of Quine's mature philosophy.

One of Quine's key assumptions appears to be that non-existent objects have a negligible impact on explanatory theories. The investigation presented here argues that non-existent objects do have practical consequences for existing objects, and any effort to explain them away have theoretical consequences that may not be acceptable when more than mere ontological parsimony is considered.

In his 1948 paper "On What There Is" [3], Quine is concerned with the issue of disagreement with other philosophers over what exists, particularly with philosophers who might think that using a name commits Quine to some form of being regarding the bearer of that name. So if Quine claims that Pegasus does not exist, such a philosopher might claim that by using the name 'Pegasus',

Quine has nonetheless invoked the being of Pegasus in some way, contrary to his intentions.

As a way of avoiding any such commitment, Quine turns to a strategy inspired by Russell's account of definite descriptions, whereby Quine can logically interpret his denial of Pegasus' existence using a predicate such as 'pegasizes' that enables Quine to assert that nothing pegasizes, and thereby he does not invoke the being of anything, except a predicate and possibly a universal [3, p. 8]. This prompts Quine to generalize his strategy into a criterion of ontological commitment: "To be assumed as an entity is, purely and simply, to be reckoned as the value of a variable" [3, p. 13], more specifically as the value of a bound variable in a theory where statements containing that bound variable are taken to be true.

Noneists disagree at precisely this point. According to noneism, non-existent objects can also be the value of bound variables. How many of the Seven Dwarves were shorter than Snow White? All of them. How many of them were bearded? Some of them. The answers to these questions can best be expressed with reference to objects that are taken as the values of bound variables. How many of these Seven Dwarves exist or existed at some time? None of them. Consequently, ontological commitment must involve more than mere acceptance of a theory invoking the value of a bound variable. Rather, an explicit assertion of existence seems to be required to express ontological commitment, by means of an existence predicate [14, 2].

1

My initial approach in investigating this disagreement between Quine and noneists is not to question whether Quine was justified in his criterion for ontological commitment. Rather, I begin by asking: What is it about variables and their binding for Quine that results in ontological commitment when used in a theory? To evaluate Quine's criterion, it seems that the elements of that criterion ought to be understood first. I begin with Quine's account of variables and the way in which they are bound.

Not surprisingly, a natural source to look for clarification of the nature of variables is Quine's article "The Variable". There he asserts at the start, "The variable *qua* variable, the variable *an und für sich* and *par excellence*, is the bindable objectual variable" [10, p. 272]. Quine makes two important distinctions relating to bound objectual variables.

The first distinction is between objectual variables and similar notions, namely schematic letters on the one hand, and bindable substitutional variables on the other hand. Schematic letters are used as placeholders for elements of a language in order to articulate the logical structure of statements, as in '$p \vee q$', where p and q are placeholders for logical clauses of arbitrary complexity. Schematic letters "are not bindable, they are not objectual, and they do not occur in sentences" [10, p. 272], whereas variables are and do.

Regarding bindable substitutional variables, Quine refers the reader to his

	bindable	**objectual**	**occur in sentences**
schematic letters	no	no	no
substitutional variables	yes	no	yes
objectual variables	yes	yes	yes

Table 1: Quine's distinction between objectual variables and similar devices

article "Reply to Professor Marcus", where he discusses Ruth Marcus' use of substitutional variables p and q in "If p is a tautology, and p eq q, then q is a tautology" [7, p. 178]. These bindable substitutional variables are of course bindable, and they can occur in sentences, but they are not objectual. The distinction that Quine makes here between substitutional and objectual uses of variables is a reflection of his philosophy of the logic for truth conditions of the logical quantifiers, in which he argues that a substitutional interpretation of the quantifiers requires that everything substituted for bound variables be named [12, pp. 88–89, 91–92]. Thus the consequence of the distinction that Quine is pressing here appears to be that objectual variables can range over what is not named.

This distinction between objectual variables and similar notions is summarized in Table 1.

The second distinction is between two different forces in the logical quantifiers that may be applied to objectual variables: quantitative force and binding force. Quine claims that "the quantitative force of the quantifier, the 'all' and 'some', is irrelevant to the distinctive work of the bound variable and irrelevant to its referential function" [10, p. 275]. What prompts Quine to make this distinction is that there is a more fundamental locution in English that appears to carry the main force of binding variables, namely 'such that' as in 'x such that Fx', which is a construction that Quine elsewhere calls "*term abstraction*" [11, p. 134]. Since "Other uses of the bound variable are readily represented as parasitic upon this use" [10, p. 276], since '$\exists(x)F(x)$' can be read 'Some thing x such that x is F', it seems that the binding of variables by quantifiers results from the term abstraction of the 'such that' locution rather than from their pure quantitative force. After all, one need not be a noneist to insist that the point of logical quantifiers is *quantification*, and that if the quantifiers have any existential impact, this must be demonstrated rather than assumed. Quine seems to concur here. The distinction that Quine makes between quantitative force and binding force in the quantifiers, summarized in Table 2, can be seen as the first step toward such a demonstration.

Quine pushes this distinction between quantitative and binding force further by claiming that these two forces can be separated by means of predicate functors. "Quantification can be thought of as application of a functor '$\exists$' or '$\forall$' to a predicate, and this functor is what carries the pure quantitative import, with no intrusion of variables" [10, p. 276]. Here Quine extracts the inherent quantitative force of the logical quantifiers by isolating this force as a pair of

force	locution
quantitative	'all' and 'some'
binding	'such that'

Table 2: Quine's distinction between the different forces in logical quantifiers

predicate functors, where these functors have no binding force on variables at all. To identify what remains of the logical quantifiers once this quantitative force is separated, I turn to a Quine's further development of predicate functor logic to clarify what those variables intrude.

In "Variables Explained Away", Quine shows how variables can be eliminated completely by applying a series of predicate functors. Despite the provocative title, Quine assures his readers that his intentions with regard to the elimination of variables are benign:

> The interest in carrying out the elimination is that the device of the variable thereby receives, in a sense, its full and explicit analysis. There is no thought of denying ourselves the continuing convenience of variables in practice. [6, p. 229]

As with case of logical quantifiers reinterpreted as predicate functors, where the functions of the quantifiers were separated and clarified to reveal the pure quantitative force inherent in the quantifiers, so with Quine's efforts to eliminate the variable, where the nature of the predicate functors that allow the variable to be eliminated will elucidate the functions of the variable. All of these functions will still be present in the resulting system, but will be distributed to separate functors. One of these functors will represent the binding force of the 'such that' construction.

Quine identifies six functors:

> *Derelativization:* (Der P)$x_1 \ldots x_{\text{n-1}}$ if and only if there is something x_{n} such that $Px_1 \ldots x_{\text{n}}$.
>
> *Major inversion:* (Inv P)$x_1 \ldots x_{\text{n}}$ if and only if $Px_{\text{n}}x_1 \ldots x_{\text{n-1}}$.
>
> *Minor inversion:* (inv P)$x_1 \ldots x_{\text{n}}$ if and only if $Px_1 \ldots x_{\text{n-2}}x_{\text{n}}x_{\text{n-1}}$.
>
> *Reflection:* (Ref P)$x_1 \ldots x_{\text{n-1}}$ if and only if $Px_1 \ldots x_{\text{n-1}}x_{\text{n-1}}$. [6, p. 231]
>
> *Negation:* (Neg P)$x_1 \ldots x_{\text{m}}$ if and only if not $(Px_1 \ldots x_{\text{m}})$.
>
> *Cartesian multiplication:* $(P \times Q)x_1 \ldots x_{\text{m}}y_1 \ldots y_{\text{n}}$ if and only if $Px_1 \ldots x_{\text{m}}$ and $Qy_1 \ldots y_{\text{n}}$. [6, p. 232]

Quine claims that these six functors "enable us to get rid of an existence prefix and its associated variable when what the prefix governs is constructed by 'not'

and 'and', as complexly as you please, from any number of predications' [6, p. 232]. Here I understand Quine's reference to the association of an existence prefix to a variable as the mere binding of a variable in a 'such that' construction, independent of any quantitative force, in accordance with Quine's distinction above.

These functors were promised to provide a "full and explicit analysis" of the variable. *Negation* and *Cartesian multiplication* manage negation and compound predication, while *Major inversion*, *Minor inversion*, and *Reflection* permit the maneuvering of an individual variable in a list of variables to a position at which *Derelativization* can remove the erstwhile variable. Since it is only by the application of this latter functor that the variable actually goes away, the *Derelativization* functor represents the binding force represented by the 'such that' locution.

Consider Quine's example from *Methods of Logic*:

> Tom used to work for the man who murdered the second husband of Tom's youngest sister [11, p. 133]

Quine claims that this sentence amounts to the following:

> Tom is (someone) x such that x used to work [for the man who murdered the second husband of x's youngest sister] [11, p. 134]

I understand here that Tom is an object that is asserted to be the value of the variable x. Suppose that additional variables are introduced for the sister, the husband, and the murderer. Suppose further that I apply a series of predicate functors. Successive applications of Quine's *Cartesian multiplication* functor can combine the various predicates 'used to work for', 'murderer of', 'second husband of', and 'youngest sister of' into a single compound predicate. Judicious application of the *Major inversion*, *Minor inversion*, and *Reflection* functors can maneuver x to the appropriate position where the *Derelativization* functor could be applied to eliminate x. The impact of the *Derelativization* functor is thus that Tom is being characterized in a certain way in relation to others, where those others are represented by the remaining variables that were not Derelativized, and this is fundamentally the binding force of the 'such that' locution.

At this point I pause to note that this impact of *Derelativization* for objects seems to be precisely what Meinong was articulating in his account of *Sosein*. The distinction between *Sein* and *Sosein* arises from the contrast between judging and assuming, respectively [1, p. 81]. If I merely assume someone x worked for the murderer of the second husband of x's younger sister, I have grasped only *Sosein*, namely a characterization of something in a certain way in relation to others. When I judge that Tom is that someone, when I identify the assumed object with an actual object, I grasp *Sein*. If it turns out that no one ever worked for the murder of the second husband of that one's youngest sister, then this someone who was assumed does not exist, and what I have grasped in my assumption turns out to be only *Nichtsein* rather than *Sein*, non-existence rather than existence. Yet as Meinong says, "None of this alters the fact that

the *Sosein* of an Object is not affected by its *Nichtsein*" [1, p. 82], since the assumed object is still characterized in a certain way, even if the object does not exist.

The ontological status of *Sosein* does not amount to subsistence, since Meinong explicitly uses the distinction between *Sein* and *Sosein*, between judging and assuming, to show the *inadmissibility* of "the conjecture that wherever existence is absent, it not only *can* be but *must* be replaced by subsistence" [1, p. 81]. Accordingly, rather than considering them grades of being, one might interpret *Sein*, *Nichtsein*, and *Sosein* as tags for logical objects, ways of classing those objects according to whether they exist, do not exist, or are merely categorized in some way, where the *Sein* and *Nichtsein* classes do not overlap, but both may overlap with the *Sosein* class.

In Quinean terms, the function of *Sosein* thus appears to consist in the mere binding of a variable to a predicate, which enables objects that are values of those variables to be characterized in a certain way. So I claim that the *Derelativization* functor might with some justice have been called *Soseinization*.

Returning to Quine and having clarified somewhat the nature of the binding of objectual variables, I note that bound variables alone do not yield ontological commitment for Quine. Rather, it is the pragmatics of accepting a scientific theory in which objects take the value of those bound variables that represents the key aspect of ontological commitment, not the logical structures through which those objects flow. As Quine says:

> Now how are we to adjudicate among rival ontologies? Certainly the answer is not provided by the semantical formula "To be is to be the value of a variable"; this formula serves rather, conversely, in testing the conformity of a given remark or doctrine to a prior ontological standard. [3, p. 15]
>
> Our acceptance of an ontology is, I think, similar in principle to our acceptance of a scientific theory, say a system of physics: we adopt, at least insofar as we are reasonable, the simplest conceptual scheme into which the disordered fragments of raw experience can be fitted and arranged. [3, p. 16]

The *commitment* in Quine's criterion of ontological commitment is the commitment to a scientific theory. This commitment implies a further commitment to whatever objects that scientific theory characterizes by means of the 'such that' construction that binds objects to variables. All the objects bound to that scientific theory collectively constitute an *ontology* for Quine.

In explaining away Pegasus by means of the predicate 'pegasizes', and likewise with other non-existent objects, Quine thus appears to be asserting that such objects have no proper role in fitting and arranging the disordered fragments of raw experience, at least in his judgement. So presumably, if Pegasus did have such a role, Quine would be obliged by his criterion to admit Pegasus into his ontology.

In Meinongian terms, the pragmatics in Quine's criterion of ontological commitment thus holds that mere *Sosein* is insufficient to establish existence, and with this Meinong and noneists can easily agree. Yet Quine's criterion appears to make the stronger claim that no object tagged with *Sosein* but without *Sein* will serve to fit and arrange the disordered fragments of raw experience, that non-existent objects have no explanatory role. If they did have an explanatory role, they should appear as values of the bound variables in an accepted theory that explains raw experience, but once they do, they would be subject to Quinean ontological commitment and therefore would be accepted as existing, which is unacceptable regarding non-existent objects. This stronger claim requires further investigation.

2

I will start again from a different perspective.

Earlier I noted Quine's characterization of his efforts to explain variables away, that they serve to provide a "full and explicit analysis" of the function of the variable. The same characterization might be applied to Quine's efforts to explain Pegasus away, namely that it provides a full and explicit analysis of the function of the non-existent object Pegasus. What do those efforts reveal about the function of non-existent objects in general?

In regard to the single predicate 'pegasizes', this does not reveal much at all, except possibly:

NE1 Objects are sometimes used where there is no existing referent for names of those objects.

Yet this is vacuous with regard to non-existent objects, and no special analysis was needed to understand that. Perhaps the analysis is not yet full and explicit.

Quine resorts to the device 'pegasizes' mainly as a way to illustrate how his strategy based on definite descriptions could be used to explain Pegasus away even "If the notion of Pegasus had been so obscure or so basic a one that no pat translation into a descriptive phrase had offered itself along familiar lines" [3, p. 7]. Yet there is such a descriptive phrase that Quine himself offers: "the winged horse that was captured by Bellerophon". This description provides a characterization in terms not only of qualities, but also in terms of relations to another object. Pegasus is not only a horse and a winged one, but also stands in a particular relation to Bellerophon, thereby distinguishing this winged horse from other winged horses, assuming that Bellerophon captured one and only one winged horse. Thus:

NE2 Objects are sometimes used to stand for complexes of qualities and relations where there is no existing referent for names of those objects.

However, non-existent objects are rarely conjured just to describe them. What about the relations to other objects that may form part of those descriptions?

Consider now Bellerophon. Does he need to be explained away as well? If one considers Bellerophon simply to be a character in myth, then it seems he might similarly be explained away, presumably with a description other than "he who captured Pegasus", which would be circular in this context. This description would likely reference other objects that themselves would need to be explained away. All of these objects would be interconnected in a network of relations. This suggests the unsurprising analysis:

NE3 Objects are sometimes used to tell stories that feature characters and other elements that do not correspond to existing objects.

Yet it may be that Greek mythological heroes like Bellerophon have their basis in actual culture heroes who did exist at one time, but whose lives and exploits were subsequently elaborated to mythic proportions. Here one might distinguish a mythic Bellerophon who gets explained away from a historical Bellerophon who does not. The stories told of the mythic Bellerophon and Pegasus would be kept distinct from the actual exploits of the historic Bellerophon.

A more interesting case would be one in which mythic stories are told of historic individuals, perhaps by themselves. Suppose the historic Bellerophon had claimed to have captured a flying horse near the Pirene fountain and that the name of this horse was 'Pegasus'. A contemporary skeptic hearing the claim might demand to see the horse, whereupon Bellorophon might claim that Pegasus subsequently escaped, taking with him the golden bridle that Athena had given Bellerophon. The skeptic might persist and initiate a search for any hoof marks around the Pirene fountain. Assuming that no hoof marks were found, presumably Bellerophon could explain away the lack of hoof prints by reference to mystic properties of flying horse's hooves or some other convenient excuse.

The point of this story within a story is that sometimes stories have practical consequences outside of those stories. In this case, the story prompted a search for hoof prints of a flying horse around a fountain. The search would presumably not have occurred had the story note been told and would have been a different sort of search had the story been told of a naiad in the fountain rather than a flying horse standing near the fountain. Beyond this hypothetical story in a story, I note that the fabled city of El Dorado and the Fountain of Youth prompted actual expeditions, which might not have occurred or might have been executed in different ways were it not for the particular stories that inspired them.

Other practical consequences include artistic representation of non-existent objects, such as the depiction of Pegasus in Greek pottery or sculpture or even in the logo of a film studio. Indeed, that some philosopher would write about explaining Pegasus away, thereby prompting other philosophers to write in response, these might also be considered practical consequences. More consequentially, one might consider any number of popular fictional characters that have prompted significant economic activity around them, from best-selling books to film adaptations to various bits of representational merchandise. This economic activity involving existing people and industries would not have occurred

or would not have occurred in the same way were it not for the nature of the particular fictional characters and their subsequent popularity. Thus:

NE4 Objects are sometimes used to focus activity in a direction where no existing object is present or is not yet present.

Nor is the impact of non-existent objects restricted to clearly fictional ones. Scientific hypotheses sometimes posit classes of objects to explain phenomena. Some of these objects are subsequently accepted as actually existing objects, and some of them are shown to be non-existent. The scientific method typically requires physical experimentation to evaluate them, if they cannot be argued away using thought experiments, and this physical experimentation will be designed to search for evidence related to the nature of the specific scientific posits. Such experiments would not have occurred or would have been designed differently had those posits been different, even if those posits ultimately were shown to involve non-existent objects.

The recent search for the Higgs boson is a case in point, requiring facilities costing several billion Euros. Suppose that nothing corresponding to the description of the Higgs boson had been found, or that the evidence for what has been identified as the Higgs boson is later interpreted as corresponding to something else. In that case, there would have been significant activity surrounding the search for something that did not exist. It would not matter if something else had been discovered in the process. A search for something is shaped by what is sought. A search for something else would take a different form and would have different practical consequences. Explaining the nature of a particular search seems to involve the object of the search in some way, whether that object exists or not. Thus:

NE5 Objects are sometimes used to explain activity surrounding a particular focus where there is no existing object.

Quine himself discusses such scientific posits, as well as the abstract entities of mathematics: "Epistemologically these are myths on the same footing with physical objects and gods, neither better nor worse except for differences in the degree to which they expedite our dealings with sense experiences" [4, p. 45]. Yet if scientific posits, physical objects, and gods are on the same footing epistemologically, then so must be Pegasus, if Pegasus expedites our dealings with sense experiences. The pragmatic issue for Quine must be how well such objects help to fit and arrange "the disordered fragments of raw experience", as quoted earlier.

Even with purely fictional objects, I have been arguing that non-existent objects have practical consequences, often quite far-ranging consequences. Objects are sometimes used to direct activity around them, whether the object exists or not. Quine has a logical mechanism for explaining them away, but what are the explanatory consequences once they are explained away? If nothing 'eldoradizes', then what does the explanation of the various expeditions seeking El Dorado look like, when so much activity seems to have been directed toward an

object that did not exist? Quine notes that "...the essential utility of variables is that they mark positions" [6, p. 230]. Without El Dorado as the value of a bound variable to mark the position around which this activity is directed, the resulting explanation of expeditions in search of El Dorado can only become structurally much more complex, if such explanations can be formulated at all.

For Quine it must be an empirical matter whether El Dorado, the Fountain of Youth, or Pegasus serve a sufficiently useful explanatory role in an optimally parsimonious theory. Yet parsimony is not the only virtue of a theory, so ontological parsimony must be balanced against explanatory power and other factors. That a theory without Pegasus achieves this balance is something that must be demonstrated not assumed. Unfortunately, the rhetoric in "On What There Is" seems long on assumption and short on demonstration.

3

I will start again from yet another perspective.

Quine has long argued for the indeterminacy of translation, the inscrutability of reference, and ontological relativity, all of which point in the same direction and which are all aspects of a single issue. Even within the same language, objects can be described and understood differently and still serve the same empirical role. Rabbits can alternatively be understood as rabbit-stages or undetached rabbit parts [5, pp. 51–54][8, pp. 30–35], and this is not merely a difference in words, but represents an ontological difference since the remaining theory of the world will need to be adjusted according to how those particular objects are understood.

Even where such an alternative translation does not easily come to mind, ontological relativity can be realized by means of a proxy function, "a function mapping the one universe into part or all of the other" [8, p. 55]. Thus given a particular cat Tabitha, a proxy function can map Tabitha to "the whole cosmos minus the cat" [13, p. 33]. With the whole cosmos similarly mapped, two equally adequate theories of the world will result, but with radically different ontologies.

In *Pursuit of Truth*, Quine describes objects in terms of structural nodes [13, pp. 24, 31, 33, 34] that ultimately are seen as ontologically neutral, given ontological relativity. Regarding a rabbit or rabbit-stage or undetached rabbit parts, "The stimulation remains as rabbity as ever, but the corresponding node or object goes neutral and is up for grabs" [13, p. 34].

Yet it is not merely rabbits and cats whose nodes go neutral. It seems that objects proposed in scientific hypotheses will also be subject to indeterminacy of translation, inscrutability of reference, and ontological relativity, particularly since they are even more remote from immediate sensory stimulus than are rabbits and cats. So there will be neutral nodes for these objects as well. In the hypothesis phase of scientific investigation, these nodes for hypothesized objects will be connected to other objects in a theory that seeks to explain sensory stimulation such as the measurements from scientific instruments. If supported by further experimentation, the theory may be accepted, prompting

ontological commitment to those objects, formerly hypothetical, now canonized as existing, but still aligned to neutral nodes, given ontological relativity.

This network of neutral nodes within a theory represents the ontological correlate of the empirical holism that Quine articulates starting in "Two Dogmas of Empiricism". There he suggests that "our statements about the external world face the tribunal of sense experience not individually but only as a corporate body" [4, p. 41]. If a single statement cannot be verified on its own, then no single statement in an explanatory theory can be revised on its own either. Thus revising one statement will require the revision of the other statements to a greater or lesser extent, where some statements such as mathematical ones are considered to be more central to this holistic system and are therefore less subject to revision than others at the periphery.

Neutral nodes reflected in these statements are likewise subject to this holism. The neutral nodes in the network each serve an explanatory role within the whole, such that if one node is reinterpreted or explained away, the interpretation of all the other nodes must be adjusted accordingly. Economies in the network might be realized by eliminating nodes that serve no explanatory role in that they have no impact on the network, or possibly by consolidating multiple nodes into one where there are explanatory redunancies. Likewise, it seems that inadequacies in the network might be realized by recognizing that there are gaps in the network such that the explanatory value of the entire network increases with the addition of a new node.

Suppose that I have certain rabbity stimulation in several of my senses, and so do other people in circumstances relevantly similar as those that occassioned my stimulation. To explain this, perhaps I perversely postulate "rabbithood projection forces" emanating from myself and from these other people that triangulate at a given spatiotemporal location where no existing object is located. These forces make it seem as though there is a rabbit where there is none. This postulation would thus economize on my commitment to rabbits in my ontology, but at the cost of obliging me to adjust my hypothesis to account for other evidence that may arise, such as certain indentations in my lawn and the disappearance of certain carrots. Eventually, my "rabbithood projection force" hypothesis may become so strained that it becomes clear to me that all of this stimulation is most economically explained by a node strategically placed in the network, a node that I will call a rabbit according to ancestral usage.

This example can also be run in the opposite direction. Suppose I already have a rabbit as a node in my network, and I want to explain it away. I might try to explain it away by introducing "rabbithood projection forces", as just described. Even if such attempts to explain the rabbit away succeed, the rest of the network will need to do more work to compensate for the missing rabbit, so I might ask myself: Where has the system gained any economy by explaining it away? Mere ontological parsimony may ultimately represent a false economy.

In the previous section, I argued that non-existent objects have practical consequences for existent objects. As quoted earlier, Quine acknowledges that gods are epistemologically on the same footing as mathematical abstractions and physical objects, and I extend the same courtesy to Pegasus, so the same

considerations that were afforded to a physical object like a rabbit in my explanatory network of nodes should be afforded to Pegasus. If I can gain economy in my network with the inclusion of a node for Pegasus, then I should add that node as easily as I added the node for the rabbit. The sensory stimulation for the Pegasus node will be far more indirect than it was for the rabbit node, represented mainly by various actions that people take in speaking about Pegasus and representing him, without me actually having any direct Pegasus stimulus, but perfectly respectable scientific abstractions need to take similar detours to reach actual sensory stimulus as well.

If Pegasus were accepted as a node in my network, represented by an object taken as a value of a bound variable in my theory, if I accept Quine's criterion of ontological commitment, I would be forced to accept the existence of Pegasus, even if I know Pegasus is merely fictional. This is clearly unacceptable, not merely to Quine. Thus it seems natural for Quine to want Pegasus to be purged from the network of nodes, but with Pegasus goes any explanatory value and economy that Pegasus brings to the network. For non-existent objects that provide exceptionally strong explanatory value, this absence might be unacceptable as well.

My countersuggestion is to accept that some neutral nodes are hollow, in that there is no existing object at such a node. Rather, the node serves to acknowledge the focus of activity around a point in the network, providing a mechanism to increase the explanatory economy of the entire network, where no existing object can be recognized at that node. This suggestion effectively revokes Quine's criterion of ontological commitment, since it allows all objects to serve as neutral nodes in an explanatory network, not merely objects to whose existence I am committed. All of these objects will merely have been tagged with *Sosein* by virtue of being described within the explanatory theory, using Meinong's terminology. However, the nodes need also to be tagged with *Sein* or *Sosein* to indicate whether a given node serves as an existing object or merely as a locus of activity without an existing object there. This is what noneists have been arguing.

In reference to the ontologies of philosophers who advocate the inclusion of unactualized possibles, Quine characterizes such a universe as "unlovely", offending "the aesthetic sense of us who have a taste for desert landscapes", a "slum", and "a breeding ground for disorderly elements" [3, p. 4]. Those who propose the clearing of non-metaphorical slums often forget that the occupants of those slums need to go somewhere else. Often physical slum clearers eventually also propose building housing projects where the problems of the slums get translated via social proxy functions to the new housing projects. Given his holism, Quine might have proposed a criterion according to which Pegasus and other non-existent objects might truly be explained away, namely when their elimination requires no adjustment of the explanatory network of nodes. If such an adjustment is required, then it seems that the objects represent more than nothing, though perhaps not actually something. However, at the point at which he formulated his criterion of ontological commitment, Quine appears merely to have assumed that no such adjustment would be required in the case of Pe-

gasus, or perhaps he underestimated the consequences that some non-existent objects can have, or perhaps he did not yet realize the kind of holist that he was becoming.

The problem for Quine and his taste for desert landscapes is the existence of humans, who have the unfortunate tendency to think of objects that do not exist, and this kind of thinking sometimes has significant practical consequences, as I have been arguing. Regarding the possible fat man in the doorway that Quine considers one of the disorderly elements in the slum, part of the responsibility for making this possible fat man ontologically problematic rests with Quine himself. Setting aside the universe of unactualized possibles that Quine was explicitly addressing, according to the line of argument developed here, the act of Quine merely thinking about using the possible fat man in the doorway as an example in his article "On What There Is" have consequences that require explanation, such as an explanation for certain of Quine's neurons behaving one way or the other. At this point, these consequences seem minimal, so perhaps the explanation could have been taken an adverbial form, namely that the neurons had been behaving 'possible-fat-man-in-the-doorway-ishly'. However, having given lectures and having written about the possible fat man in the doorway, Quine leaves a trace of him in print, thereby inducing others to think very hard about the possible fat man in the doorway, prompting some to write in response to Quine. If Quine had kept his mouth shut and his pen still, the explanatory impact of the possible fat man in the doorway might have been negligible, but he did not. Indeed, any number of fat men could be possible in any number of doorways without registering any impact at all, but once one of them is discussed in speech or writing, even in vague terms, that act and its consequences require some explanation, in which the possible fat man in the doorway will most naturally feature as a node around which this activity revolves.

This investigation has progressed through several stages:

1. An inquiry into the logical apparatus by which Quine explains Pegasus away noted a separation of the quantitative force of logical quantifiers from their binding force, the latter of which is contained in the locution 'such that'. I argued that this binding force is essentially the same as Meinong's *Sosein* designation, where Quine's criterion for ontological commitment appears to claim that no object with *Sosein* but not *Sein* can have any role in explaining experience.

2. Quine's interpretation of his efforts to explain variables away was applied in turn to his efforts to explain Pegasus away, to reveal the function of non-existent objects. This line of inquiry developed the argument that non-existent objects sometimes have very significant practical consequences beyond the bounds of mere fiction, and that these consequences require explanation.

3. These results were placed in the framework of Quine's image of neutral

nodes in an explanatory network, an image that emerges from his arguments for ontological relativity and his holism. This framework seems to require that if nodes that have practical consequences are removed from the network, then other nodes will need to absorb whatever work those nodes had been performing. If non-existent objects do have consequences sufficient to merit inclusion in an explanatory theory, then Quine's criterion of ontological commitment would require the commitment to the existence of non-existent objects. An alternative was suggested whereby these neutral nodes must further be tagged as either existing or not existing.

This investigation does not establish that Quine's criterion of ontological commitment is mistaken, but it does point out the costs of maintaining it come what may. Regarding some non-existent objects, the cost may be quite high. The practical consequences that non-existent objects have for existing objects put pressure on the network of neutral nodes associated with an explanatory theory. It may indeed be possible to explain non-existent objects away, but given Quine's holism, so may existing objects be explained away. In either case, the work done by objects that are explained away, whether existing or not, will need to be distributed elsewhere in the network of nodes. The pragmatic question is whether the resulting theory pays for its ontological parsimony with insupportable structural excesses.

If the practical consequences of non-existent objects are as significant as I have argued, then Quine's criterion of ontological commitment seems to force him into the dilemma of either accepting the existence of non-existent objects, possibly thereby ruining the good old word 'exist', or accepting an excessively cumbersome formulation of an explanatory theory from which non-existent objects have been expunged. The way out would be to accept that some objects exist and some do not, which is the noneist way. Once this is accepted, though, the rest of the Quinean system seems to adjust quite nicely, as expected under Quinean holism. One might thereby consider Quine's efforts to explain non-existent objects away analogously with his work on explaining variables away: It can be done, but there is no thought of denying ourselves the continuing convenience of non-existent objects in practice.

On balance, I am inclined to agree with Routley. Some things do not exist, like Pegasus, and it is not clear that they can simply be explained away without any consequences.

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