OBJECTIVITY WITHOUT OBJECTS: A PRIORIAN PROGRAM

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Abstract: The issues I explore in this paper are best introduced by the table with which it begins. The left-hand entry in each row gives expression to a kind objectivity; the right-hand entry affirms the existence of a special kind of object. When philosophers believe in any of the entities on the right, it is typically because they think them necessary to ground the facts on the left. By the same token, when philosophers deny any of the facts on the left, it is often because they cannot bring themselves to believe in the associated kind of object on the right. My project is to explore the extent to which it is possible to have the objectivity without the objects—for example, absolute motion without substantival space, objective predication without universals, objective synonymy without propositions, and objective modality without possible worlds. Each of these combinations would have been congenial to A.N. Prior.

1. The project
The issues I wish to explore may be introduced by the following table:

If two objects are moving relative to each other, at least one of them is moving absolutely.	There is such an entity as Absolute Space; an object may be moving relative to it even if it is not moving relative to anything else.
Two objects can have in common that both of them are red.	There are universals; if two objects are red, both of them exemplify the universal redness.
There is a fact of the matter whether two sentences are synonymous.	There are propositions; sentences are synonymous when then they express the same proposition.
It is possible that there are talking donkeys.	There is a possible world in which there are talking donkeys.
It is objectively true that $2 + 2 = 4$ and that there is no largest prime number.	There are such entities as numbers, eternally related to one another so as to make the truths of mathematics true.

The left-hand entry in each row gives expression to a kind objectivity; the right-hand entry affirms the existence of special kind of object. When philosophers believe in any of the entities on the right, it is typically because they think them necessary to ground the facts on the left. By the same token, when philosophers deny any of the facts on the left, it is often because they cannot bring themselves to believe in the associated kind of object on the right. My project is to explore the extent to which it is possible to have the

objectivity without the objects, and my partner in the project is A.N. Prior. Though Prior never articulated a general program of objectivity without objects, the program is congenial to his philosophical outlook, and he provided many of the means for its implementation.[1]

The "objectivity" of which I speak is opposed to different things in different cases. Sometimes it is opposed to relativity, as in the contention of Leibniz and Einstein that motion, size, and simultaneity are possessed only in relation to reference frames (row 1); sometimes it is opposed to conventionality, as in Wittgenstein's contention that mathematics is founded entirely on conventions (row 5); sometimes it is opposed to the denial of facts of the matter, as in Quine's contention that there is never a fact of the matter whether two sentences are synonymous (row 3). The several oppositions do not necessarily mean that objectivity is an ambiguous notion; it could instead be a conjunctive notion, different conjuncts of which are denied by different opponents.

The program I associate with Prior is not a nihilism that denies the existence of *all* objects; it denies the philosopher's special objects, but admits the existence of sticks, stones, and people. Another slogan for it might be "there are no objects but objects"— that is, no entities but ordinary individual things.

2. Substantival space and time.

Consider Newton's "bucket argument" for the existence of substantival space. Newton takes the concavity in the surface of the water once it has "caught up" with the bucket to indicate that the water is rotating, yet the water is not moving relative to the bucket or any other material object that exists in his thought experiment. He concludes that there must be an immaterial entity called Absolute Space, and that the water is moving relative to *it*. But note the possibility he overlooks: that the motion is *really* absolute, not being relative to anything, including space itself. If this possibility is genuine—absolute motion without Absolute Space—it would be a case of objectivity without objects.

Though Prior does not say much about space, he advocates a form of objectivity without objects in regard to time. He holds that there can be objective facts about the topological structure of time not grounded in time as an entity:

Instants as literal objects, or as cross-sections of a literal object, go along with the picture of 'time' as a literal object, a sort of snake which either eats its tail or doesn't, either has ends or doesn't, either is made of separate segments or isn't; and this picture I think we must drop. (1967, p. 189)

Prior sides with Leibniz—time reduces to events (and events in turn to things). The topological facts about time (as well as competing alternative topologies) can be expressed without appeal to time as an entity by using Prior's tense operators: the density of time as $Fp \rightarrow FFp$, the forwards infinity of time as $\sim F\sim p \rightarrow Fp$, the circularity of time as $(p \lor Pp) \rightarrow Fp$ (for any p however detailed and comprehensive), and so on (1967, chapter 4). These broadly modal facts are to be taken as primitive, just as the logical modalities are to be taken as primitive and not grounded in the existence of possible worlds and relations of accessibility among them.

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[1] My title has been used (so far as I know) twice before: in Götterbarn 1974 for a phenomenalist interpretation of Kant's transcendental object and in Hirsch (1999) 2011 for the very un-Priorian idea that ontological disputes are merely verbal.

I like to think of Prior as occupying the otherwise empty niche in the following matrix:[2]

	Substantival space and time (or spacetime) exists.	Space and time reduce to events or things.
Size, motion, simultaneity, etc., are absolute.	Newton	Prior
Such properties and relations are not absolute.	Einstein	Leibniz

3. Operators and ontology

The idea that we can sometimes do away with an *entity* by using a certain *operator* as a primitive is a motif in Prior's philosophy.[3] For instance, by saying 'it was the case 100 years ago that Prior is born' instead of 'Prior's birth lies 100 years in the past', we avoid ontological commitment to events.

The tradeoff here—ontology versus ideology—is highlighted by Sider (2011), who emphasizes that reducing ontology by expanding ideology has costs of its own. He expresses a liking for leaner ideology in some cases even if it means expanding ontology, noting that extra ideology brings added complexities and often fails to "carve the world at its joints." He affirms his preference for quantifying over past and future times to Prior's alternative of primitive tense operators, but he does not show in this or any other particular case that Prior makes the worse end of the trade. [4]

To offset any general bias anyone may have in favor of leaner ideology, we may note cases in which expanded ideology is clearly preferable to expanded ontology. Consider negation, taken by almost everyone to be a primitive sentential operator. One could avoid the need for this operator by positing a special entity or region called Neverland and replacing 'it is not the case that P' with 'it is the case that P in Neverland' (cf. Sider 241-42), but I doubt that anyone would regard that as an improvement.[5] Or consider the issues that divide sense-datum theorists of sensation from adverbial theorists. According to the former theorists, having a sensation of red is standing in the sensing relation to a special sensory entity, a red sense datum. Adverbial theorists avoid the sensory entity by bringing in a new piece of vocabulary, 'S senses redly'.[6] Who has the better theory? There are good grounds for favoring the adverbial theory: sense data are obstacles both to a direct realist theory of perception and to a physicalist theory of the mind

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[2] See Prior 2004 for an affirmation of absolute simultaneity in the face of relativity physics.

[3] "The programme of Platonism, which eliminates parts of speech by multiplying entities, can certainly be carried through, and so can any number of compromises between its most thoroughgoing form and the opposite position advocated here"—which, of course, is the elimination of entities by multiplying parts of speech (1971, p. 32).

[4] The arguments of Sider's chapter 11 (on time) are not arguments for Sider over Prior; they are arguments against their common enemy who says that ontological disputes in the philosophy of time are merely verbal.

[5] Incidentally, this maneuver requires not just the ontology of Neverland, but a piece of ideology of its own: 'it is the case in __ that …'.

[6] Prior often speaks of modal operators as adverbs. Would he regard 'redly' as a sentential operator, prefixable to 'S senses'? I don't know, but whether 'redly' is a sentential operator or not, it illustrates the idea of expanding ideology to reduce ontology.

As the example of sense data shows, there can be reasons besides parsimony for avoiding ontological commitments. Sense data are *entia non grata* for reasons that have nothing to do with parsimony.

As for any suggestion that Priorian operators do not carve at the joints: Prior would say there is no better example of carving reality at its joints than marking the three-way division among past, present, and future!

4. Universals

The fact that two objects *a* and *b* "have something in common" (as we say) is often put forth as a reason for saying there are universals—entities literally shared by the resembling objects. The positing of the shared entity is resisted by the philosophers Armstrong disparages as "ostrich nominalists," who say that what is true in '*a* and *b* both have the same property, redness' is just that *a* and *b* are both red—the predicative form 'x is F' needs no analysis in terms of properties as entities (1978, p. 16). Matters get trickier for the nominalist when he is asked to paraphrase '*a* and *b* have something in common,' in which the something is not specified. Here, it seems, we must say '∃F(Fa & Fb).' Are we not here quantifying over universals?

In Prior's view, the answer is *no* (1971, chapter 3). We are indeed quantifying *into* the position of a predicate, but we are not quantifying *over* any entity. On this point, Prior's views are at odds with Quinean orthodoxy. Quantifying into name position—passing from 'Tom is bald' to '∃x(x is bald)'—does indeed incur ontological commitment, but only because 'Tom is bald' already carries ontological commitment to an individual named by 'Tom'. 'Tom is bald' carries no ontological commitment to the property of baldness by Quine's own creed, since 'bald' is not a name;[7] therefore, Quine should admit that '∃F(Tom is F)' carries no such commitment, either.

In the next section, I defend Prior-style quantifiers against possible misgivings. In the remainder of this section, I give a reason for being ostrich nominalists if we can.[8] What I have in mind is the ancient Third Man Argument as reconstructed by Richard Sharvy (1986), an argument I choose because an analog of it applies to absolute space as well.

A theory of universals is in trouble if it involves commitment to the following "One over Many" principle, as Plato's theory arguably did:

If any xs are F, there is a Form φ such that each of the xs is F because (i) it exemplifies φ and (ii) φ is F.

With clause (ii) we incorporate Plato's Self-Predication assumption into the explanation of predicational facts and commonalities. That assumption may seem quaint at first sight, but it is not unreasonable. That the cookies in the jar are all star-shaped is not explained by their having been cut by a certain cookie-cutter unless we add that the cutter is itself star-shaped. Similarly, that several things are all red is not explained by their exemplifying redness unless we add that redness is itself red. Why should standing in the exemplification relation to a certain entity make things red if that entity is colorless?[9]

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[7] "That the houses and roses and sunsets are all of them red may be taken as ultimate and irreducible," involving no entity under the name of 'redness' (Quine 1953, p. 10).
[8] For three more reasons, see Van Cleve 1994.
[9] Here is more support for Self-Predication: Believers in universals believe (on phenomenological and not theoretical grounds) that Red is more like Orange than it is like Blue. Why should that be true unless Red is red, Orange orange, and Blue blue?

Now let us add to the One over Many assumption the plausible principle that the relation or operation expressed by 'because' is irreflexive—there are no cases of *p because p* or *p because p and something else*.[10] It follows that there must be an infinite hierarchy of Forms. This piece of chalk, that bit of snow, and whiteness are all white because they exemplify a further form, whiteness$_1$; the aforementioned items are all white because they exemplify yet another form, whiteness$_2$; and so on up. Whiteness could not be white in virtue of exemplifying *itself*, for the full explanation would be 'whiteness is white because (i) it exemplifies whiteness and (ii) whiteness is white', which is a case of *p because (among other things) p*.[11] It is hard to believe a theory that gives rise to such a profligate regress.

Some of the unattractive features of universals have counterparts for substantival space. A believer in substantival space typically analyzes spatial properties of material objects in terms of corresponding properties of Space: if an object is absolutely at rest, it is at rest in Space, which of course must itself be at rest; if an object is square, that is because it exactly occupies a region of Space that is square, and so on. Seemingly paradigmatic instances of the intrinsic, such as an object's shape, turn out really to be relational.

The consequence that an object's shape is extrinsic is explicitly embraced by McDaniel, who says an object's being square consists in its occupying a square region (2007). He thinks the alternative is to accept an unexplained necessary connection between object shape and region shape. Well, that is the alternative only if there are such things as regions!

McDaniel is in danger of generating a Third Man regress like the one we just discussed. The spatial parallel to the One over Many principle would be

  If any xs are square, there is a region R such that each of the xs is square because (i) it exactly occupies R and (ii) R is square.

That assumption gives rise to a regress of regions, regions for the regions to occupy, and so on.

The substantivalist could avoid the regress by denying that the spatial analog of the One over Many principle applies to regions themselves. A region has its shape *fundamentally*, not in virtue of its relation to any other entity. But if regions can have their shapes fundamentally, why can't ordinary material objects have their shapes fundamentally, without the mediation of Space?[12] That, it seems to me, is the core difficulty for positing Absolute Space.

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[10] Prior believed there is an asymmetric (and therefore irreflexive) 'p because q' relation, which may hold even between necessarily equivalent propositions. He cites with approval the passage in chapter 12 of the *Categories* where Aristotle says it is true that a man exists because a man exists, not conversely. Prior calls what is expressed by this 'because' "one-sided determination" (1955, pp. 288-90). (Thanks to John Fox for this reference.)

[11] See Sharvy for further details. If it is permissible to apply the One over Many principle to absolutely *all* the things that are F, we can generate not only infinite regress but outright contradiction. It is an exegetical challenge in reconstructing the Third Man Argument to find premises that generate an infinite regress without making the theory of Forms contradictory.

[12] *Fundamentally* does not imply *essentially*. The shape of an object could be fundamental (nonderivative), yet accidental.

In parallel fashion, a Platonist could avoid the Third Man regress by saying there is one white thing, the Form of whiteness, that is white fundamentally. But if Forms can be white fundamentally, why can't ordinary particulars be white fundamentally?

5. Non-nominal quantification

To defend ostrich nominalism, we need to be able to say that two things have something unspecified in common without affirming the existence of properties. To say that in turn, we need a way of quantifying into predicate position that carries no ontological commitment. Prior is a champion of such a quantifier—but is it really possible?

Quine is famous for arguing that quantification is legitimate only into positions occupied by names. Quantification into predicate position is therefore illegitimate—unless it is reconstrued as quantification into positions occupied by names, in which case it would commit us to properties or sets as the things named or quantified over (1986, pp. 66-68).

One of his arguments run thus (Hugly and Sayward, ch. 9):
 1. Variables are pronouns.
 2. Pronouns make sense only in positions available to names.
 3. Therefore, variables make sense only in positions available to names.

Hugly and Sayward point out that premise 2 is false: 'his' is a pronoun that does not take the place of a name. Even if we charitably restrict Quine's claim to pronouns effecting cross-reference, premise 2 remains false. They cite as a counterexample 'Bill predicted it would rain, and then Tom predicted it': here 'it' is in sentence position, not name position. Another counterexample (which I found when I Googled 'Is so a pronoun?') is 'It is broken and long has been so,' in which 'so' takes the place of an adjective.

Prior furnishes several examples of quantifying into non-nominal position in ordinary language, such as the quantification into adverb position that occurs in 'He did it somehow' (1971, chapter 3). Quantification into non-nominal position is legitimate at least as far as grammar goes.

But is it free of ontological commitment? Here are two arguments that the answer is yes, both of them of Priorian provenance:

 Argument 1
 1. The use of a quantifier commits one at most to entities of the kind referred to by the phrases its bound variable keep place for.[13]
 2. The phrases a non-nominal variable keeps place for do not refer to anything.
 3. Therefore, the use of non-nominal quantifiers carries no ontological commitments.[14]

 Argument 2
 1. Let (A) = 'Roses are red and sunsets are red' and (B) = '∃F(Roses are F & sunsets are F)'.
 2. Quine contends that (A) does not carry ontological commitment to properties, but (B) *does* carry ontological commitment to properties.
 3. If he were right in both contentions, (A) would not entail (B).
 4. But (A) does entail (B).

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[13] Prior notes that there are two senses in which expressions can stand for things. The individual variable 'x' stands for 'Peter' in the sense that it keeps a place for 'Peter', which in turn stands for a person in the sense that it refers to that person. The predicate variable 'φ' stands for a verb in the first sense, but verbs do not stand for anything at all in the second sense (1971, p. 35).

[14] The argument is phrased thus by Rayo and Yablo; the materials for it are all in chapter 3 of Prior 1971.

5. Therefore, one of Quine's contentions is false, and the likelier culprit is (B). Thus the quantifier '∃F' carries no ontological commitment.[15]

For two more arguments that non-nominal quantification carries no ontological commitment, see Rayo and Yablo.

Questions nonetheless remain about how Prior-style quantification is to be understood. The most serious challenge alleges (i) that Prior's quantifier must be understood as a substitutional quantifier, and (ii) that substitutional quantification is problematic. For example, van Inwagen argues along the following lines (2004, p. 124):

1. Quantification into non-nominal positions is meaningless unless (a) the non-nominal quantifiers are understood substitutionally or (b) they are understood as nominal quantifiers over properties as claimed by Quine.
2. Substitutional quantification is meaningless unless it is objectual quantification over linguistic objects, which are themselves abstract objects.
3. Therefore, non-nominal quantification is either meaningless or of no use in avoiding ontological commitment to abstract objects.

I have already repudiated alternative (b) above. How, then, would I respond to van Inwagen's allegations about substitutional quantification?

Substitutional quantification is sometimes explained along the following lines: '∃x(x is bald)' is true iff some substitution instance of 'x is bald', that is, some sentence that results from substituting a name or description for 'x' in 'x is bald', is true. Similarly, '∃F(Tom is F)' is true iff some sentence that results from substituting an adjective or predicative phrase for 'F' in 'Tom is F' is true. When explained that way, substitutional quantification looks for all the world like objectual quantification over linguistic entities (be they concrete or abstract). That prompts the objection that sometimes our existentially quantified pronouncements can be true in the absence of any relevant linguistic entities—a point that Prior himself makes (1971, pp. 35-36).

Proponents of substitutional quantification generally repudiate the idea that it is really objectual quantification over linguistic entities. In a brief discussion of the history of the topic, Orenstein notes that Ajdukiewicz criticized Kotarbinski, one of the early advocates of substitutional quantification, for characterizing it in this way (pp. 34-35). But how, then, is it to be understood? It is at this point that van Inwagen complains that its proponents never really tell us (1981).

But some of its proponents do. Christopher Hill (who uses substitutional quantification to give accounts of truth and reference) proposes that the universal and existential substitutional quantifiers can be explained by giving the rules of inference governing them—in particular, the rules by which they may be introduced and eliminated (2002, pp. 16-22). This is a procedure that logicians often regard as sufficient for explaining the meaning of a connective or other item of logical vocabulary. In the case of the existential or particular quantifier as used with propositional variables, the rules look like this (19-20):

Introduction: from (…T…) infer Σp(…p…), where T is a thought and (…T…) is the thought that comes from replacing all free occurrences of the propositional variable p in the open thought (… p…) with T.

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[15] I gave an argument like this in Van Cleve 1985, not then knowing of Prior's priority in 1971, p. 43.

Elimination: from the premises Σp(…p…) and If (…q…), then T, infer T, where T is a thought, q is a propositional variable, and (…q…) is the open thought that comes from replacing all free occurrences of the propositional variable p in the open thought (…p…) with free occurrences of q.[16]

If Hill is right, there should be no further problem about understanding substitutional quantification.[17]

In the space allotted to me, I cannot hope to settle whether substitutional quantification is legitimate. If it turns out to be irremediably problematic,, I think a partisan of non-nominal quantification should reject van Inwagen's opening assumption that substitutional quantification and objectual quantification are the only games in town. Prior himself evidently thought that non-nominal quantification is a *sui generis* third device for speaking indefinitely and generally (see 1971, 35-36).

6. Propositions

Propositions have been wanted as truth-bearers, as objects of the propositional attitudes, and as things meant by sentences. Prior denies the need for propositions in any of these three roles—without, of course, denying that many things are true, many things believed, and many things meant.

In Prior's view, 'Tom believes that p' should not be parsed as 'Tom believes [that p]', which looks like a relation between Tom and an entity denoted by a that-clause. Instead it should be parsed as 'Tom believes that [p]', in which what occurs within brackets is a sentence and what occurs outside brackets is a sentential operator, not a name together with a relational expression (1971, chapter 2). As a general rule, Prior holds that prefixing an operator to a sentence adds no new ontological commitments to those already carried by the sentence, and in particular no ontological commitment to propositions. We have again here the trade-off between ontology and operators.

As we can quantify into predicate place without incurring commitment to universals, so we can quantify into sentence place without incurring commitment to propositions—both are acceptable forms of non-nominal quantification, and neither carries ontological commitment. If Prior is right about that, we have a way of dealing with row 3 in the opening table: sentences S1 and S2 are synonymous only if $\exists p$(S1 means that p & S2 means that p), which can be true even if there are no proposition-like entities over which we are quantifying. What Prior says about the '$\exists p$' quantifier stands or falls with what he says about the '$\exists F$' quantifier, so if he can avoid commitment to properties, he can also avoid commitment to propositions.

While many believe in propositions because they they think them needed to ground objectivity about truth, belief, or meaning, Quine offers an interesting converse turn of mind. He rejects propositions precisely because he thinks that if they existed, they would generate matters of fact where he believes there are none. His argument, in brief, is this:

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[16] I omit three restrictions on existential elimination, as well as the form of existential introduction that applies to premises containing variables.

[17] A note of caution is required in view of Prior 1960, in which Prior introduces the contradiction-engendering connective 'tonk'. His stated purpose is to cast doubt on the doctrine that "there are inferences whose validity arises solely from the meanings of certain expressions occurring in them." But could a further moral be that we do not understand a symbol just in virtue of knowing introduction and elimination rules for it?

1. If there were such entities as propositions, they would induce objective relations of sameness of meaning: 'S1 means the same thing as S2' could be defined as '∃p(S1 means that p & S2 means that p)'.
2. There are no objective relations of sameness of meaning—translation is indeterminate.
3. Therefore, there are no such entities as propositions.

Stephen Leeds has pointed out that there must be something wrong with this argument, since a parallel argument from Quine's thesis of the inscrutability of reference would prove that there are no concrete individual things. "Indeterminacy of translation proves the nonexistence of states of affairs only if inscrutability of reference proves the nonexistence of rabbits" (1973, p. 502). The parallel argument would run thus:

1. If there were any concrete individual things, they would induce objective relations of sameness of reference: 'T1 refers to the same thing as T2' could be defined as '∃xs(T1 refers to xs & T2 refers to xs)'.
2. There are no objective relations of sameness of reference.
3. Therefore, there are no concrete individual things.

Evidently the first premise of each argument is false, whatever one thinks about the second.

The Leeds point seems quite apt, yet there also seems to be an instance of the argument pattern he criticizes whose first premise is not so questionable. I have in mind the following Leibnizian argument against Newtonian substantival space:

1. If there were such an entity as Absolute Space, there would be objective facts such as the following: x is moving absolutely; everything has doubled in size overnight; the entire material cosmos might have been shifted ten miles to the right, holding all matter-to-matter relations constant.
2. There are no such facts.
3. Therefore, there is no such entity as Absolute Space.

As I said in section 1, my own predilection is to accept facts of the sort denied by Leibniz in premise 2, deny the converse of premise 1, and join with Leibniz in affirming conclusion 3—that is the "objectivity without objects" program. But premise 1 of Leibniz's argument seems quite compelling to me. Why do I accept premise 1 as regards Space, but reject the corresponding premises in the arguments against propositions and individuals? Perhaps it is for this reason: although the sheer existence of propositions and individuals in addition to sentences and terms is not enough to generate determinate relations of expression and reference, it is in the very nature of Space to be a container for objects in such a way that if *it* exists and *they* exist, they must have determinate positions within it.

And yet just this thought is denied by partisans of "sophisticated substantivalism," perhaps the leading form of substantivalism on the market today. This view combines two tenets: (i) there are such entities as spacetime positions, and (ii) spacetime positions lack "primitive identity" (see Hoefer 1996 for defense and Russell 2014 for discussion). Tenet (ii) is supposed to let sophisticated substantivalists deny that a Leibniz shift of the matter in a given possible world generates a distinct possible world (a Leibniz shift being a reassignment of material contents and properties to spacetime points in a way that preserves all content-to-content relations, as in the imagined shift of the entire cosmos ten miles to the right). It was its alleged proliferation of possible worlds differing only by

Leibniz shifts that made Newtonian substantival space objectionable in the eyes of Leibniz, who took such distinct possible worlds to violate his principles of the Identity of Indiscernibles and Sufficient Reason. The new substantivalists maintain that substantival space by itself does not thus proliferate possibilities; it does so only in conjunction with the doctrine of primitive identity, a.k.a. haecceitism, which they deny.

   A test for whether you believe in primitive identity or haecceitism for the individuals in a given class is this: do you think it would it be possible for two individuals of the class to swap all their purely qualitative properties? Haecceitists says yes, anti-haecceitists say no. (Incidentally, Prior is a haecceitist—he thinks Caesar might have had all of Antony's qualitative properties and Antony all of Caesar's.)[18] If there could be total swaps of qualitative properties, then there could also be worlds just alike in their distribution of qualitative properties, but distinct for all that—differing only haecceitistically, as Lewis puts it, or by permutation of individuals (Lewis 1986, p. 221). Hoefer's brand of substantivalism denies that there are worlds differing only haecceitistically, and in a companion doctrine very much of a piece with this, it denies that there are worlds differing only in that all material properties have migrated uniformly to the right. Reassignments of material content to spacetime positions are merely different representations of the same world you had to start with.

   Anti-haecceitism is sometimes thought to imply the Identity of Indiscernibles, which is in turn often thought to be implausible, or at least a poor candidate for being a necessary truth. (The thought is that there could quite conceivably be two individuals just alike in all their qualitative properties, as in a Max Black universe.) For this reason, Hoefer takes pains to argue that anti-haecceitism does *not* imply the Identity of Indiscernibles. He thinks he can affirm the existence of individuals (be they ordinary individuals or spacetime points), deny that they have primitive identity, and maintain that there could nonetheless be two individuals exactly alike in their instantiation of qualitative properties.

   In Van Cleve 1985 I describe a view—the "new bundle theory"—that would yield the two key ingredients in the combination Hoefer desires. In the new bundle theory, the existence of an individual is said to consist in the instantiation of a certain cluster of properties, but individuals are not *identified with* clusters of properties. An appropriate language for the resulting ontology might consist of names of properties together with a mark for instantiation, such as an exclamation point. Thus '!(Red)' would mean that Red is instantiated, '!(Red, Round)' would mean that Red is coinstantiated with Round, and so on. It is possible in this scheme to have the same total package of properties instantiated more than once, which gives us a reasonable sense in which there could be a world containing two indiscernibles. Yet it does not follow that there would be a second world in which the two indiscernibles have switched places, for there are not two things to *be* switched—there is just one set of properties instantiated twice. Similarly, if there is a world in which one thing is red, round, and . . . and another thing is blue, square, and ___, it does not follow that there is a distinct world in which the two things have swapped all their properties. The whole truth about the world is exhausted in the statement that redness, roundness, and . . . are co-instantiated, as are blueness, squareness, and ___. The properties are instantiated, but not *by* anything.

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[18] See Prior (1960) 2003. He adds a twist of his own—that this possibililty concerning Caesar and Antony is a possibility only after both of them exist.

The view I have described shows that you can combine two of the features Hoefer wants: worlds containing indiscernibles are possible, yet at the same time, worlds differing only by property swaps among some of their individuals are not possible. He can thus be an anti-haecceitist without affiming the Identity of Indiscernibles. But so far as I can see, the *only* way one can rightfully secure this combination is by embracing the new bundle theory, which reduces all talk of individuals to talk of the instantiation of properties. In the substantivalism Hoefer defends, he explicitly does *not* reduce spatiotemporal positions to the properties instantiated at or by them. Instead, spacetime positions are substances in a traditional sense—"metaphysical hanger[s] for properties to rest on (or in)" (18). So it seems to me that the new substantivalism surrenders any basis for disallowing the possibility of haecceitistic differences and Leibniz shifts. You can abstract away from certain differences if you like, but you cannot deny them.

Let me give an example to reinforce the point. Two men can swap their hats, but not their smiles. Why the difference? Smiles are merely modes of the men (or their mouths), whereas the hats are independent entities. In the new bundle theory, things are modes of their properties, so property-swapping is impossible: constellations of properties cannot swap their things. If instead things were independent bearers of properties, thing swapping by properties (or equivalently, property swapping by things) would be possible. Similarly, in the new substantivalism, spacetime points are not modes, but substances, independent bearers of properties or loci for them. As such, they ought to be able to swap their properties; equally, it ought to be possible for each of them at once to pass its properties to a point ten miles to the east, generating thereby a new state of affairs. The denial of Leibniz shifts in the new substantivalism is unjustified.

I have discussed the new substantivalism about spacetime because illustrates the inverse of the combination I promote here. I advocate objectivity without objects; the new substantivalism (if tenable) would be a case of objects without objectivity.

7. Possible worlds

"It is possible that p iff there is a possible world in which it is true that p." Prior would accept that biconditional, but only if the right-hand side is merely a picturesque way of saying what the left-hand side says. Modal operators are primitive, and the left-hand side is fundamental, not needing any grounding in possible worlds as entities. In short, Prior is a *modalist* (Fine 1977, Forbes 1985). What he says about modal operators and possible worlds is on all fours with what he says about tense operators and moments of time.

Tradeoffs between ideology and ontology arise here as elsewhere in Prior's philosophy. Hazen cites the following as a sentence about worlds that apparently has no translation into a purely modal language:

$(w)\exists x(E(x,w) \& E(x,w^*))$.

That is, in every world there exists something that also exists in the actual world. In a language containing only boxes and diamonds as its modal operators, this cannot be said. But it *can* be said if it one adds an actuality operator, which has now become fairly standard:

$\Box\exists xAEx$.

See Forbes, 89ff., for further discussion of such matters.

I do not have much to add to the debate about modalism versus possible-worlds realism (whether the latter takes a reductionist form as in Plantinga or a primitivist form

as in Lewis). I wish here only to remark on a curious combination of views that seems to occur in Prior and some of his expositors.

     According to Fine, Prior's basic idea is that each possible world is a *world proposition*, defined thus (Fine, 119):

  Qp iff ◊p & (q)(q → □(p → q)).

A world proposition is possible, and it entails everything that is the case in its world. This is closely related to the idea that a world is a proposition that is both possible and maximal—it entails one member in each pair containing a proposition and its negation. Having defined world propositions, one may then go on to define other theses in possible worlds theory, such as

  A is true in some world =Df ∃p(Qp & □(p → A)).

To be true in a world is to be entailed by a world proposition.

     Prior says similar things in the course of absorbing the logic of earlier and later times into his tense logic. For instance,

  A world-state proposition [roughly, a conjunction of all the propositions true at an instant] . . .is simply an *index of an instant*; indeed, I would like to say that it *is* an instant, in the only sense in which 'instants' are not highly fictitious entities. (1967, 188-89)

     What I find puzzling in remarks like the foregoing by Prior and his expositors is that if taken literally, they imply that *worlds (and times) are a species of propositions*—that they are reducible to propositions in a mode of reduction that *identifies* each world or time with some proposition. That is indeed the approach taken by some world reducers, such as Plantinga (1972)—worlds are either sets of propositions or very large conjunctive propositions ("books"). But I do not believe it can or ought to be the approach of Prior, given that *propositions themselves have no place in his ontology*. They are reducible in a mode of reduction that does not identify them with any other entities (or set-theoretical constructs of entities), but instead paraphrases reference to them away. For example, to say the proposition that p is true and believed by Tom is just to say that p and Tom believes that p; reference to propositions is replaced by the use of sentential operators (1971, chapters 1 and 2). You cannot identify worlds with propositions unless you have propositions to identify them with.

     To bring out further the problematic aspect of Prior's combination, let me compare it with parallel instances in other philosophers. Consider Leibniz's reductive account of space. He begins by saying that an object has the same place it had previously iff it has the same relations to certain designated landmark objects—this is a handling of 'has the same place' in accordance with his relationism. He then goes on to say that space is the totality of places. *But he hasn't given us places for space to be composed of*. He has only given us a contextual definition of 'has the same place.' Or consider the Russell-Whitehead stratagem of identifying points with classes of nested volumes (or equivalence classes of such classes), this coming on the heels of giving a merely contextual definition of class membership in terms of satisfying propositional functions. You cannot get rid of classes at one level and identify certain entities with classes at another.[19]

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[19]Prior himself is keenly aware in some places that there cannot be literal identity with entities introduced only by contextual definition. If classes are introduced only by such formulae as 'x is a member of the class of φ-ers iff x φs', then the "identity" of the class of φ-ers with the class of ψ-ers cannot be the same strict sort of identity that is predicable of individuals ([1968] 1976, p. 191).

I do not know whether the identification of worlds and times with the propositions true uniquely "at" them is essential to any of Prior's projects. In his reconstruction of the logic of earlier and later times within tense logic (as carried out in [1968] 2003) and several other papers in Prior 2003), the variables *a*, *b*, and *c* function sometimes as terms (as in *Uab*, instant *a* is earlier than instant *b*), sometimes as formulas (as in $\Box(a \rightarrow p)$, it is necessarily true that if *a*, then *p*), and sometimes both ways in the same formula (as in *Ta(Fb),* it is true at *a* that it will be the case that *b*). According to Blackburn 2006, this "hybrid" feature of Prior's logic (using propositional symbols as "nominals") is essential to his program. Yet the tactic must come as a shock to those of Prior's readers who attach central importance to his distinction between naming and saying and his doctrine that what a sentence says cannot be named (Hugly and Sayward, chapter 1). I should like to learn from logicians who are students of Prior whether his hybrid logic can be carried out in such a way that none of his formulas are names and none of his names denote propositional entities. For example, might *Uab* be reconstrued with U as a dyadic operator rather than a relational predicate and *a* and *b* as formulas rather than terms? His treatment of *Ipq* in (1968) 1976 might serve as a model.

8. Conclusion

In this paper I have envisioned a philosophy that does without substantival space and time, properties, propositions, possible worlds, and numbers, yet all without sacrificing the truths these entities are enlisted to sustain. The paper has been a manifesto rather than a blueprint, but I hope it indicates directions in which others as well as I may make further advances.[20]

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[20] I have said nothing here about the mathematics row of the opening table. I think Prior might have found congenial the reduction of mathematical truth to modal truth, as sketched in Putnam 1967 and elaborated in Burgess and Rosen 1997.

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