Prior

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Higher-order metaphysics

Prior: quantification into non-nominal positions is legitimate and not just a matter of nominal quantification over properties, or propositions, etc.

1. "Standing for"

> If we start from an open sentence such as 'x is red-haired' and ask what the variable 'x' stands for here, the answer depends on what we mean by 'stands for'. The variable may be said, in the first place, to stand for a name (or to keep a place for a name) in the sense that we obtain an ordinary closed sentence by replacing it by a name, i.e., by *any* genuine name of an individual object or person, say 'Peter'. The name 'Peter' itself 'stands for' a person, viz. the man Peter, in the sense of referring to or designating this man; and the variable 'x' may be said, in a secondary sense, to 'stand for' individual objects or persons such as Peter.
>
> If we now consider the open sentence 'Peter ϕ's Paul', it is equally easy to say what 'ϕ' … 'stands for' in the first sense—it keeps a place for any transitive verb, or any expression doing the job of a transitive verb …. The question what it 'stands for' in the second sense, i.e. what would be designated by an expression of the sort for which it keeps a place, is senseless, since the sort of expression for which it keeps a place is one which just hasn't the job of designating objects. (Prior, 1971, p. 35)

And so (Prior might say), in "$\exists X X a$", the variable X "stands for" predicates in the first sense, but it doesn't designate, or rather, range over, anything at all.

2. Atomics a guide to ontological commitment

> Quine would argue, I think, that the quantified forms $\forall x \phi x$ and $\exists x \phi x$ do not commit us to the existence of any other *sorts* of entities than do the corresponding singular forms ϕa, ϕb, etc., which follow from the former and entail the latter. Why, then, should he suppose that the quantified forms $\exists \phi \phi a$, $\exists \phi \exists x \phi x$, etc., commit us to the existence of sorts of entities to which we are not committed by the forms ϕa, ψa, $\exists x \phi x$ from which *they* follow? (p. 43)

Rayo and Yablo make a further argument in this vicinity:

> Suppose that "I hurt him somehow" were committed to entities beyond those presupposed by "I hurt him by treading on him," that is, me and him and (maybe) my foot. Then "I hurt him somehow" would not be trivially entailed by "I hurt him by treading on him"—because it is not a trivial matter whether these additional entities exist. "I hurt him somehow" *is*, however, trivially entailed by "I hurt him by treading on him." So there is no additional commitment. (Rayo and Yablo, 2001, p. 81)

3. Explanations of quantifiers

> Consider, for instance, the sentence 'For some x, x is red-haired'. The colloquial equivalent of this is 'Something is red-haired'. I do not think that any formal definition of 'something' is either necessary or possible, but certain observations can usefully be made about the truth-conditions of statements of this sort. 'Something is red-haired' is clearly true if any specification of it is true, meaning by a 'specification' of it any statement in which the indefinite 'something' is replaced by a specific name of an object or person, such as 'Peter', or by a demonstrative 'this' accompanied by an appropriate pointing gesture … I do not say that 'Something is red-haired' …is true *only* if there is some true sentence which specifies it, since its truth may be due to the red-hairedness of some object for which our language has no name or which no one is in a position to point to while saying '*This* is red-haired'. If we want to bring an 'only if' into it the best we can do, ultimately, is to say that 'For some x, x is red-haired' is true if and only if there is some red-haired object or person …
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> All this can be carried over, *mutatis mutandis*, into the discussion of quantifications over variables of other categories, and there isn't the least need to equate them with name-variables in order to see what is going on. 'For some ϕ, Peter ϕ's' is true if any specification of it is true, meaning by a 'specification' of it any statement in which ['ϕ's'] is replaced by some specific verb or equivalent expression, e.g. 'is red-haired'; and it is of course true if *and only if*, for some ϕ, Peter ϕ's. (Prior, pp. 35–6)

4. Idiomatic higher-order quantification

Prior points out natural language constructions naturally taken as higher-order quantifications:

"However he says things are, thus they are"

$$\forall P(\text{He says that } P \to P)$$

"I hurt him somehow"

$$\exists q\, q(H)(cd)$$

"He is something that I am not—kind"

$$\exists X(Xc \wedge {\sim} Xd)$$

> …no grammarian would count 'somehow' as anything but an adverb, functioning in 'I hurt him somehow' exactly as the adverbial phrase 'by treading on his toe' does in 'I hurt him by treading on his toe'. Once again, we might also say 'I hurt him in some way', and argue that by so speaking we are "ontologically committed" to the real existence of "ways"; but once again, there is no *need* to do it this way, or to accept this suggestion. (p. 37)

5. An argument for λ abstraction

Prior argues that certain general laws can't be stated without λ abstracts, such as:

$$\forall X \triangle X \to \triangle \lambda x(Fz \vee Gz)$$

"If every property $\triangle$s, then being-F-or-G $\triangle$s"

Objection: we can eliminate the λ abstract using Russell's theory of descriptions:

$$\exists Y \forall Z\Big(\Big(\forall x(Zx \leftrightarrow (Fx \vee Gx)) \leftrightarrow Z = Y\Big) \wedge \forall X(\triangle X \to \triangle Y)\Big)$$

"There is exactly one property, Y, that is had by an object iff that object is either F or G; and if every property $\triangle$s, then Y $\triangle$s"

Reply: this relies on properties being "extensional".

Rejoinder: we could state the law using modal operators:

$$\exists Y \forall Z \Big(\big(\Box \forall x \Box (Zx \leftrightarrow (Fx \vee Gx)) \leftrightarrow Z = Y \big) \wedge \forall X (\triangle X \rightarrow \triangle Y) \Big)$$

> "There is exactly one property, Y, that is had by an object, in any possible world, iff that object is either F or G; and if every property $\triangle$s, then Y $\triangle$s"

Objection: this requires modality.

Objection: this presupposes that properties are intensional.

Moral: whether we need λ to state such laws depends on what other concepts we're using, and on the individuation of properties and relations.

References

Prior, A. N. (1971). "Platonism and Quantification." In *Objects of Thought*, 31–47. Oxford: Oxford University Press.

Rayo, Agustín and Stephen Yablo (2001). "Nominalism through De-Nominalization." *Noûs* 35: 74–92.