

A puzzle about de rebus beliefs

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George Boolos (1984, 1985) has extensively investigated *plural quantification*, as found in such locutions as the Geach-Kaplan sentence

There are critics who admire only one another,

and he found that their logic cannot be adequately formalized within the first-order predicate calculus. If we try to formalize the sentence by a paraphrase using individual variables that range over critics, or over sets or collections or fusions of critics, we misrepresent its logical structure. To represent plural quantification adequately requires the logical resources of the full second-order predicate calculus.¹

The thoughts expressed by plurally quantified statements can be objects of belief, consternation, wonder, puzzlement, and desire, just as other thoughts can, but, when we try to describe the propositions such sentences express, a curious puzzle arises. There is a *de dicto* reading of ‘Ralph believes there are critics who admire only one another’, according to which Ralph believes the proposition that is expressed by the Geach-Kaplan sentence; that reading is unproblematic. The puzzle comes when we turn to what we may call the *de rebus* reading, according to which there are some critics of whom Ralph believes that they admire only one another.²

The standard theory of propositions accounts for the distinction between *de dicto* or *notional*³ propositional attitude reports and *de re* or *relational* propositional attitude reports by proposing that the two kinds of reports describe two kinds of propositions. The *de dicto* reading of ‘Ralph believes someone is a spy’ attributes to Ralph the belief in an existential proposition that can be symbolized ‘ $\exists x$ x is a spy’. The *de re* reading avows that Ralph believes one of the *de re* or *singular* propositions in the range of the *propositional function* defined by the English open sentence ‘that he is a spy’; for some individual x , Ralph believes of x that he is a spy. Analogously, we may understand the *de rebus* reading of ‘Ralph believes there

¹ More precisely, the version of the full second-order predicate calculus in which there are only monadic second-order variables.

² There is a third reading, according to which there are some individuals of whom Ralph believes that they are critics who admire only one another. This reading will not engage our attention here.

³ The notional/relational distinction is due to W. V. Quine (1956).

are critics who admire only one another' as asserting that Ralph believes one of the *de rebus* or *plural* propositions that can be obtained by supplying some critics as argument to the propositional function described by the English open sentence 'that they admire only one another'; there are some individuals, the Xs, such that each of the Xs is a critic and such that Ralph believes of the Xs that they admire only one another. Exactly the same reasons that lead one to suppose that *de re* propositions are required to account for *de re* propositional attitude attributions lead to the conclusion that *de rebus* propositions are required to account for *de rebus* propositional attitude reports.

The propositional function that takes the Xs to the *de rebus* proposition that the Xs have a given property *P* (for example, that they admire only one another) is what Frege would have called a second-level function of type 2.⁴ The function is one-one: if the *de rebus* belief that the Xs have property *P* is one and the same belief as the *de rebus* belief that the Ys have property *P*, then every *X* is a *Y* and every *Y* is an *X*. But there can be no such function, as Frege learned the hard way. The thesis that the function taking a concept to its extension is a one-one second-level function of type 2 was Basic Law (Vb), the source of all Frege's woe.⁵

To repeat Russell's argument in our present context, let us focus our attention on the propositional function that takes the Xs to the *de rebus* proposition that the angel Zacharel is puzzled by the Xs. Note that one can be puzzled by some individuals without being puzzled by any particular individual among them. We are puzzled by the crows outside the window, flying in a pattern that reads 'Buy Windows 2000®', but we are not puzzled by any particular crow.

Say that a proposition *p* is *mischievous* if and only if there are some propositions, *p* not among them, such that *p* is the *de rebus* proposition

⁴ It is a function that takes a first-level concept as argument and yields an object as value; see Frege 1893 §23 and 1964: 76–78. That, within a Fregean ontological framework, propositions are to be regarded as objects can be seen just from the grammar. In the sentence 'Ralph believes that there are spies', the clause 'that there are spies', which names the proposition that is the object of Ralph's belief, is the direct object of a transitive verb.

⁵ See Frege 1903 appendix and 1964: 127–42. The converse of Basic Law (Vb), Basic Law (Va), the axiom of extensionality, didn't cause any problems for Frege, but it does cause problems for the standard theory of propositions. The principle that, if every *X* is a *Y* and every *Y* is an *X*, then the proposition that the Xs have *P* is identical to the proposition that the Ys have *P* is the analogue, for plural propositions, of the thesis that, for example, since Hesperus = Phosphorus, the singular proposition that Hesperus is seen in the evening is identical to the singular proposition that Phosphorus is seen in the evening, so that, presumably, anyone who believes the first believes the second. The oddity of this conclusion is a notorious difficulty for the standard view, but it's not our difficulty here.

that the angel Zacharel is puzzled by those propositions; that is, there are some propositions, the *Xs*, such that *p* isn't one of the *Xs* and such that *p* is the proposition concerning the *Xs* that Zacharel is puzzled by them. Certainly, there are mischievous propositions. If *Boris* is the proposition that Ralph met one and only one man on the beach and that man is a spy, and *Natasha* is the *de re* proposition regarding the man Ralph met on the beach that he is a spy, then the *de rebus* proposition that the angel Zacharel is puzzled by Boris and Natasha is mischievous.

Let *George* be the *de rebus* proposition, concerning the mischievous propositions, that the angel Zacharel is puzzled by them. Is George mischievous? If not, that is, if George isn't among the mischievous propositions, then there are some propositions – the mischievous propositions – George not among them, such that George is the *de rebus* proposition that the angel Zacharel is puzzled by those propositions. But this means that George is mischievous after all. Contradiction.

We conclude that George is mischievous. This means that there are some propositions – call them the *Muggles* – George not among them, such that George is the *de rebus* proposition that the angel Zacharel is puzzled by the Muggles. So George is both the *de rebus* proposition concerning the mischievous propositions that Zacharel is puzzled by them and the *de rebus* proposition concerning the Muggles that Zacharel is puzzled by them. This can only happen if the mischievous propositions and the Muggles are the same. So George is among the Muggles after all. Contradiction.

We conclude that there is something amiss in the standard theory of propositions.

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