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DID THE SLINGSHOTS HIT THE MARK?: REPLY TO MARCO RUFFINO

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Abstract: In §§1-2 I argue that Marco misidentifies my main objections to the Church and Gödel slingshot arguments and that his defense of these arguments does not overcome those objections. In §3 I discuss his criticisms of my theory of descriptions in relation to Church's argument.

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After my examination and rejection of the various slingshot arguments I conclude that their interest lies in “that they show the need for a more careful examination and elaboration of the main notions involved in them: denotation, meaning, sense, logical equivalence, predication, descriptions, etc.” (p. 153) This is part of what I try to do in my book by proposing a subject-predicate analysis of logical form, a new account of descriptions, an account of truth, falsity and truth-valuelessness, an account of facts, an account of senses, an account of distinct notions of logical equivalence, etc. My discussion of the slingshot arguments in Chapter 4 is designed to show how they delude us through a

number of problematic assumptions concerning these notions. They are like magic tricks that we are hard put to expose in spite of their implausible results¹. But Marco's claim that some of my considerations about descriptions, reference, etc. were designed *ad hoc* to block the arguments is mistaken². In what follows I will briefly reexamine the specific arguments that Marco discusses and defends against my objections.

1. CHURCH'S ARGUMENT

I give several formulations of Church's argument in my text and I shall refer to them by the numbering that I use there. I shall refer to Marco's formulation by his numbering (C1)-(C4). For ease of reference let me repeat Church's actual formulation (5)-(8):

(5) Sir Walter Scott is the author of *Waverley*.

¹ I think that this may also be Gödel's attitude, as suggested by the remarks I quote in p. 151 (see note 2 below). I mention at the end of note 16 (p. 159) that whereas Church accepts the conclusion of his argument it seems to me that Gödel does not and that he is merely suggesting an argument for Frege's conclusion.

² In his note 8 Marco quotes (part of) a passage in p. 151 where I say that it was a remark by Gödel (to the effect that there was something still not quite understood about the connection between Russell's theory of descriptions and Frege's conclusion) that led me to worry about Russell's theory of descriptions and to develop the account of descriptions presented in Chapter 3. Marco then claims that I make it "clear that the original motivation for formulating the hybrid theory was the attempt to avoid the conclusion of the slingshot". This is clearly a *non sequitur*, for even if I developed my theory in connection with my examination of Gödel's argument, it does not follow (and it is not true) that the theory was designed *ad hoc* to block the argument. In fact, neither in Chapter 3 nor in my *Synthese* paper do I even mention the slingshot as motivation for my theory – but I will come back to this issue later.

- (6) Sir Walter Scott is the man who wrote twenty-nine *Waverley* novels altogether.
- (7) The number, such that Sir Walter Scott is the man who wrote that many *Waverley* novels altogether, is twenty-nine.
- (8) The number of counties in Utah is twenty-nine.

Church intends this argument to show that (5) and (8) have the same denotation, and since he claims that (5) and (8) have very little in common aside for being true, we should be led to the general conclusion that *all* true sentences have the same denotation – see the quotation in p. 155 (note 3). As it is obvious from the two steps in the argument however, it is *not true* that (5) and (8) have very little in common, for the fact that *Waverley* consists of twenty-nine novels is used *essentially* in the passage from (5) to (6). So the initial step of the argument is already flawed by appealing to a particular fact peculiar to the example in question; and this is my first objection to it in p. 138. At the end of my discussion (p. 142) I claim that Church does not give us any clue as to how the argument could be generalized for *arbitrary* true sentences. If Marco thinks that it *can* be generalized, then I would like him to show how to go by a similar method from the sentence “Socrates is a philosopher” to the sentence “Copper oxide is green” – as I suggest in p. 142.

I also say in p. 138 that even if Church’s example does not establish the general conclusion, it would still be damaging to a theory which maintains that the denotation of sentences are *facts* – for what could be the common fact denoted by (5) and (8)? Since the development of such a theory is one of the major aims of my book, I go on to examine Church’s argument in detail.

The principle that supposedly licenses the move from (5) to (6) is Frege's principle (R) of substitutivity of reference³. In order for principle (R) to justify the move from (5) to (6) one must interpret these sentences as identities, which in my view is not the most natural interpretation. Here I appeal to my theory of descriptions that interprets (5) and (6) as predications and argue that even the move from (5P) to (6P) is not justified by (R). In fact, I discuss the whole argument (5P)-(8P) in p. 139 and try to show why it does not work. Clearly though, as I point out in pp. 138 and 140, this is not Church's interpretation of the argument and my main objections are directed to the identity interpretations (5I)-(8I) and (5*)-(8*) – and they apply equally to (C1)-(C4). In these identity interpretations the moves from (5) to (6) and from (7) to (8) are justified by Frege's principle. What I question in them is the move from (6) to (7).

Church claims that "if [(6)] is not synonymous with [(7)], is at least so nearly so as to ensure its having the same denotation" (1956, p. 25). My objection is that the burden of proof is on Church – and on those who would defend his argument – to make good on this claim. This requires three things. First, he has to tell us what is the appropriate notion of synonymy to which he is appealing. Second, he has to show that (6) and (7) are synonymous (or nearly so) in this sense. And third, he has to show how synonymy in this sense ensures sameness of denotation. It is quite remarkable that Church does not even *attempt* to do any of these things – and neither does Marco⁴. But I do. In fact, I

³ When I introduce this principle (p. 75) I suggest that it could be questioned, although I am not questioning it either in connection with these arguments or in general.

⁴ Marco says, referring to me, that "he is certainly right in complaining that Church's notion of synonymy remains unclear; but I do not think that a clarification of it would necessarily lead to a unique aboutness for each sentence." But the point is not about aboutness, but about what justifies Church's claim that (6) and (7) are (nearly) synonymous and have the same denotation.

consider two interpretations for the notion of synonymy and most of my discussion is concerned with this issue.

The first notion that I consider is what I call ‘communicative synonymy’, roughly characterized in p. 139 as saying that a sentence *S* is synonymous with a sentence *S'* if one can normally communicate by *S'* what one wants to communicate by *S*, and conversely. Although this is not very precise, one can reasonably claim that (6) and (7) are synonymous in this sense. In pp. 139-40 I claim that in this sense also a number of other pairs of sentences are synonymous, including the interpretations (6I) and (6P) of (6). The problem is that it is not at all clear that this is a sense of synonymy that ensures sameness of denotation. In fact, I think that it does not, but if this is the sense of synonymy to which Church is appealing, then the burden of proof is on him.

The second notion of synonymy that I consider is sameness of Fregean sense. This may be a more plausible interpretation because Church is working within a Fregean framework and is trying to justify Frege’s claim that sentences denote truth-values. I then go on to argue in detail that (6*) does not have the same Fregean sense as (7*) – and this applies, it seems to me, to all the identity interpretations such as (6I)-(7I) or (C2)-(C3). I will not repeat the argument in pp. 140-42 here, but I am surprised that Marco does not mention it, especially given his own Fregean orientation. At the end of this argument I make a remark that may have thrown Marco off track. I say:

What is Church talking about in (7)? Is he talking about the *number* of *Waverley* novels that Sir Walter Scott wrote, or is he talking about the *fact* that Sir Walter Scott wrote these novels? Or both, maybe? That’s why the commas, with (6) essentially within them. This clause is doing double duty; on the one hand it is helping to qualify the initial ‘the number’, and on the other hand it is appealing to that phrase *and* to the ‘twenty-nine’ in order to make a statement of its own. That’s why (6) and (7) seem to be saying nearly the same thing. (p. 142)

Marco claims that I am appealing to an absolute notion of aboutness, but I am just using colloquial English. If somebody produced such a contrived sentence as (7), it would be quite natural to wonder what they are trying to say, and this is what the question “What are you talking about?” means⁵.

In this connection I would also emphasize that nowhere in my book do I claim that there is an *absolute* notion of aboutness. On the contrary, from the very beginning of my discussion I emphasize that aboutness is relative to context, and that is the reason that I distinguish the various interpretations of the logical form of a sentence (see Chapter 1 pp. 61 ff.). The various Fregean readings that Marco brings up as an objection to me are precisely the readings to which I appeal in order to justify my analyses in various chapters of the book – and this is also clear from my *Synthese* paper on descriptions.

2. GÖDEL'S ARGUMENT

Gödel's argument is subtler than Church's and the problems are not so easy to detect. But I claim that there are plenty, and my main objections are not the one that Marco attributes to me⁶. Let me run through some of the steps in the argument, which for ease of reference I repeat in my formulation.

⁵ Marco says that my “first main objection is based on the claim that we can only consider two sentences as synonymous if it is clear what they are about.” But this is not what I say. Before the passage that I quoted above I say that “in order to make good a claim of synonymy, *in a sense of 'synonymy' from which one could infer sameness of denotation*, it must at least be clear what one is talking about in the various sentences.” The italicized qualification makes a big difference – as can be seen from my previous discussion of communicative synonymy.

⁶ He says that “Chateaubriand's second main point challenges the *apriority* of Gödel's principle B, which says that the sentences ‘ $F(a)$ ’ and ‘ $a=(\iota x)(F(x) \ \& \ x=a)$ ’ refer to the same thing. His point is that, despite appearances, the truth of this principle might depend on contingencies”.

(23) R

(24) Fa

(25) $a = \iota x(Fx \ \& \ x=a)$

(26) $a = \iota x(x=a \ \& \ b=b \ \& \ x=a)$

(27) $a=a \ \& \ b=b$

(28) $b = \iota x(a=a \ \& \ x=b \ \& \ x=b)$

(29) $b = \iota x(Gx \ \& \ x=b)$

(30) Gb

(31) S .

Consider the first step. What Gödel says is “every proposition “speaks about something,” *i.e.*, can be brought to the form $\varphi(a)$ ”. (See the quotation in p. 159, note 16.) This is not exactly what Marco calls ‘principle (A)’, but maybe that is what Gödel means. In any case, this is already quite problematic. If there are many different (“equivalent”) ways in which the sentence can be put in subject-predicate form, what guarantees that it makes no difference which one we take? For as Marco says:

If we say ‘John is one of Jesus’ twelve apostles’, what is the sentence *about*? Is it about John? Or Jesus? Or the number twelve? Or the concept *apostle*? Or the second-order property *being one of John’s properties*? (pp. 204-205)

So which one do we choose as the first step in Gödel’s argument? And what guarantees that they *all* have the same denotation? It is no use adding the word ‘equivalent’ unless one makes explicit what is the

appropriate sense of equivalence and how it ensures sameness of denotation. Again we are off on a bad start, and it seems clear to me that the burden of proof is on Gödel and on the defenders of his argument to provide answers to these questions. I discuss this issue in p. 149 and raise several questions about it, including the question of how to deal with a quantified sentence of the form ‘ $\forall xFx$ ’, for example. But I leave this problem aside for the same reason that I leave aside the problematic character of the first step of Church’s argument. For if one can show that a true sentence of the form ‘ Fa ’ has the same denotation as a true sentence of the form ‘ Gb ’, for arbitrary subjects and predicates, then this is enough to refute a theory according to which the denotation of sentences are facts. So let us consider the part of the argument that goes from (24) to (30) – or (G2) to (G10) minus (G6) in Marco’s formulation.

The main issue here – though not the only one⁷ – is what Marco calls ‘principle (B)’. Again, what Gödel actually says is that (24) and (25) “mean the same thing”. The problem is what justifies these claims. As I point out in p. 146, if Gödel claims that (24) and (25) have the same denotation on the grounds that they have the same meaning, then we have the same problem as with Church’s argument. What is the notion of meaning (or synonymy) in question and how does it guarantee sameness of denotation? If, on the other hand, ‘mean’ is being used in the sense of ‘denotes’, so that the claim is as in Marco’s (B) – or my (G1*) – then what justifies this claim? Either way the problem is not the *apriority* of (B) but its *truth* (see note 6 above). Why is it that no argument is offered, by anybody, for the truth of these principles?

I try to supply this lack and in pp. 149-50 I take a specific instance of Gödel’s principle going from

⁷ In pp. 152-53 I discuss a specific version of the argument going from the sentence “Quine is a philosopher” to the sentence “Nixon is a lawyer” and indicate the questions and doubts that one can raise about the various steps, including the transition (26)-(27)-(28).

- (36) Quine is a philosopher
 to
 (38) Quine = $\lambda x(x \text{ is a philosopher} \ \& \ x = \text{Quine})$,

to show why the transition seems so *persuasive*. I do this twice. First quickly, through the mid-step (37), and then in more detail through the mid-steps (39) and (40). Finally, in pp. 151-52 I go over the transition for a third time and raise objections to *all* the steps. I will not go through the whole argument again here, but I will discuss the specific issue that Marco raises concerning truth-valueless sentences.

Throughout my book I adopt the view – originating with Frege – that a sentence containing non-denoting terms is truth-valueless. In particular, I consider such identities as ‘Sherlock Holmes = Sherlock Holmes’ as being truth-valueless. This means that an alleged logical truth of this form such as ‘Quine = Quine’ depends for its truth on the contingency of the name ‘Quine’ denoting – or on the contingency of Quine’s existence. I think that for one who adopts the Fregean position this is the natural way to view these sentences. Marco points out that one can take other approaches and keep the alleged logical truths as truths (see his note 6). I agree, though it does not seem natural to me. Why not? Because I take a realist approach to truth and maintain that the truth of a sentence derives from reality being thus and so, and that if there is nothing in reality that is thus and so, then it does not make sense to talk about truth (or falsity). The identity ‘Quine = Quine’ is true because there is something in reality – namely, Quine – that is self-identical. But for the identity ‘Sherlock Holmes = Sherlock Holmes’ there is nothing in reality that is either self-identical or not self-identical. I take this to be Frege’s view when he argues that sentences containing non-referring parts are themselves without reference. Here is what he says in “On Sense and Reference” (pp. 32-3, my italics):

The sentence 'Odysseus was set ashore at Ithaca while sound asleep' obviously has a sense. But since it is doubtful whether the name 'Odysseus,' occurring therein, has reference, it is also doubtful whether the whole sentence has one. Yet it is certain, nevertheless, that anyone who seriously took the sentence to be true or false would ascribe to the name 'Odysseus' a reference, not merely a sense; for *it is of the reference of the name that the predicate is affirmed or denied. Whoever does not admit the name has reference can neither apply nor withhold the predicate.*

Of course Marco does not have to agree with me on this, especially since Frege also says that statements of the form ' $a=a$ ' are analytic⁸.

In any case, there are some consequences of Marco's position in relation to the principles that are used in Gödel's argument. Since Gödel's argument applies to all true sentences, suppose that we start the argument with the (allegedly) true sentence

(23') Sherlock Holmes = Sherlock Holmes.

Marco and I agree with Frege that there are several ways in which one can interpret this as a predication. Suppose that we use the natural interpretation in terms of the predicate for self-identity and obtain by (A)

(24') $[x=x](\text{Sherlock Holmes})$.

By principle (B) this now yields

(25') Sherlock Holmes = $\iota x(x=x \ \& \ x=\text{Sherlock Holmes})$.

Now according to Marco's formulation of principle (D) the description

$\iota x(x=x \ \& \ x=\text{Sherlock Holmes})$

⁸ I criticize Frege on this score in pp. 389-90.

“denote[s] the unique object that falls under $[x=x \ \& \ x=\text{Sherlock Holmes}]$ (if there is one)” (p. 203). Well, is there a unique object in this case? Which object is it? Consider the sentences:

- (i) Sherlock Holmes is the unique object denoted by ‘ $\iota x(x=x \ \& \ x=\text{Sherlock Holmes})$ ’.
- (ii) The denotation of ‘ $\iota x(x=x \ \& \ x=\text{Sherlock Holmes})$ ’ is Sherlock Holmes.
- (iii) There is a unique object denoted by ‘ $\iota x(x=x \ \& \ x=\text{Sherlock Holmes})$ ’.
- (iv) Sherlock Holmes is the unique object that falls under $[x=x \ \& \ x=\text{Sherlock Holmes}]$.

Are any of these sentences true according to Marco? What does ‘denote’ mean in these contexts?

3. DESCRIPTIONS

As I mentioned before, Marco raises some objections to the theory of descriptions in which I distinguish descriptive terms of the form ‘ ιxFx ’ – which behave as singular terms *à la* Frege – and descriptive predicates ‘ $[\iota xFx](x)$ ’ – which are predicates that have a certain relation to Russell’s analysis of descriptions⁹. He claims that my account “is somehow *ad hoc*, especially designed to avoid the conclusion of the [slingshot] argument, but not supported by independent intuitions, like Russell’s or Frege’s “pure” theories are” (p. 207). I thought that in Chapter 3 and in the *Synthese* paper I substantiated my claim that Frege’s intuitions and Russell’s intuitions are

⁹ ‘ $[\iota xFx](x)$ ’ should be read as ‘is the x such that Fx ’ and can be formulated in standard notation as ‘ $[Fx \ \& \ \forall y(Fy \rightarrow y=x)](x)$ ’.

actually intuitions for my theory, but evidently I did not convince Marco. Since he does not argue in detail for his conclusion, I will limit myself to the consideration of a specific point that he raises in connection with my analysis of Church's argument.

He says:

... it does not seem to be essential for the argument that the relevant descriptions occur as grammatical predicates, and we could perfectly well take the "mirror-image" of it so that the relevant descriptions all occur in the subject position, as in

(C1) The author of *Waverley* is Sir Walter Scott.

(C2') The man who wrote twenty-nine *Waverley* novels altogether is Sir Walter Scott.

... and so on

We can do this because all sentences here are identities. In this case we are back to the same slingshot, and the hybrid theory of descriptions would be of no help to block its conclusion. (p. 208)

There are several different issues here that are worth clearing up.

To begin with, as I already discussed at some length, my objections to the identity interpretations of Church's argument are not based on my theory of descriptions but on the transition from (6) to (7) – or from (C2') to (C3') (whatever that may be) in the present version.

Moreover, as I emphasize in my book and in the *Synthese* paper, in an identity statement *both* positions are *subject* positions, and since identity is symmetrical, one can turn the sentences around. As identity statements (C1) and (C1') have the forms

(C1) $[x=y](a, \iota xFx)$

(C1') $[x=y](\iota xFx, a)$.

The descriptions are singular terms and are subjects of the identity statement.

But let us consider (5) now, without Marco's underlining. What does it mean to say that Sir Walter Scott is the author of *Waverley*? According to Russell in "On Denoting" (which I quote in my book on p. 121, note 8):

The meaning of such propositions cannot be stated without the notion of identity, although they are not simply statements that Scott is identical with another term, the author of *Waverley* ... The shortest statement of 'Scott is the author of *Waverley*' seems to be 'Scott wrote *Waverley*; and it is always true of y that if y wrote *Waverley*, y is identical with Scott'.

This is *precisely* the predicative interpretation

(5P) [x is an author of *Waverley* & $\forall y$ (y is an author of *Waverley* \rightarrow $y = x$)](Sir Walter Scott).

This is Russell's intuition, which I share, but it is not his later analysis where he confuses things by placing an existential quantifier governing the variable ' x '. This is an issue that I discussed at length in my book and in the *Synthese* paper, but what I want to point out now is that even if we turn the sentence around I can still interpret it more naturally as a predication. Thus, consider:

(5') The author of *Waverley* is Sir Walter Scott.

This is a perfectly natural answer to the question

(5?) Who is the author of *Waverley*?

which Russell would also paraphrase as

(5?') Who wrote *Waverley*?

And perhaps one can even paraphrase it as

(5?'') Who authored *Waverley*?

which is a bit odd, but quite intelligible. What one is asking is who has the property of being the author of *Waverley* (or of having written *Waverley*), and the answer in (5') is that Sir Walter Scott does.

It seems to me much less natural to interpret this question as

(5?I) Who is identical to the author of *Waverley*?

A normal person's response to this question would probably be 'What do you mean?' And it should get even worse if one takes the question to be

(5?I') Who is identical to Sir Walter Scott?

and the answer

(5I') The author of *Waverley* is identical to Sir Walter Scott.

So although I agree that one *can* interpret (5) as an identity, I still maintain that the most natural interpretation of it is as a predication. This is Russell's basic intuition for descriptive predicates and it is one of the foundations of my theory of descriptions.

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