A Note on Analysis and Circular Definitions

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I

An *analysis*—in its simplest form—is an assertion aiming to capture a certain intimate link between a given concept (the *analysandum*) and another, typically more precise and fully explicit concept (the *analysans*). For instance, the following are classical examples of analyses proposed for the geometric concept of a circle and the epistemic concept of knowledge, respectively:

(1) A circle is a locus of points in the same plane equidistant from some common point.
(2) Knowledge is justified true belief.

In some cases, even a whole theory may be regarded as a constituting an analysis. For example, Russell's celebrated theory of definite descriptions may be viewed as an analysis of that formal concept which in natural language can be expressed by means of the definite article.[1]

Analyses are also called *philosophical*, *real*, or simply *analyzing definitions*. This is appropriate, since analyses are implicitly assumed to fulfill the following *Definition Constraint*:

(DC) An analysis must obey the laws governing definitions, where the expression standing for the *analysans* is viewed as a *definiens* and the expression standing for the *analysandum* as a corresponding *definiendum*.[2]

Given the ordinary account of definitions, (DC) in turn implies the following *Substitutivity Principle*:

(SP) The expression standing for the *analysandum* and the one standing for the *analysans* are mutually substitutable, *salva veritate*.

For instance, (1) should ground our acceptance of the following definition:

(3) x is a circle $=_{df}$ x is a locus of points in the same plane equidistant from some common point.

By appealing to (SP), we should thus take any pair of sentences having the same form, respectively, as the *definiens* and the *definiendum* of (3) to be mutually substitutable *salva veritate*. For instance, if (in the appropriate context) the following is true:

(4) John is drawing a circle,

then so is the following:

(5) John is drawing a locus of points in the same plane equidistant from some common point.

Similarly, if we take Russell's theory of descriptions as an analysis of the concept expressed by the definite article, we should accept a definition along the following lines:

(6) The F is G $=_{df}$ There is exactly one F, and it is G.

Consequently, we should take any pair of sentences having the same form, respectively, as the *definiens* and the *definiendum* of (6) to be intersubstitutable *salva veritate*.

Unfortunately, as is well known, once the Substitutivity Principle (SP) is accepted, the road to the so-called *paradox of analysis* is open. Here is an example. Suppose the following are both true:

(7) John knows nothing about geometry.

(8) John knows that a circle is a circle.

Then, given definition (3), the Substitutivity Principle would entitle one to expect that the following be also true:

(9) John knows that a circle is a locus of points in the same plane equidistant from some common point.

Yet of course (9) contradicts (7). Similarly, in spite of definition (6), it might be true that

(10) John is attending to the thought that the president of the USA is a bright man,

without it being the the case that

(11) John is attending to the tought that there is exactly one president of the USA.

A popular reaction to the paradox of analysis is to restrict the Substitutivity Principle (SP) to non-intensional contexts. This, however, can only be part of the story, for such a reaction must come to terms with a more fundamental assumption underlying the acceptance of (SP) as well as of the Definition Constraint (DC). Let us call this the *Sameness View*:

(SV) Two sentences differing only because one contains a *definiens* (standing for an *analysans*) and the other the corresponding *definiendum* (standing for an *analysandum*) express the same proposition as long as the analysis in question is correct, for the *analysans* and the corresponding *analysandum* of a correct analysis are one and the same entity.[3]

For instance, the predicates of our first example—"x is a circle" and "x is a locus of points in the same plane equidistant from a common point"—would stand for the same geometric concept. Similarly, any sentences of the form "the F is G" and "there is exactly one F, and it is G" would stand for the same proposition.

Now, in light of the paradox of analysis, many a philosopher have proposed to abandon the Sameness View (SV).[4] Nevertheless one might insist that (SV) is compatible with the Substitutivity Principle (SP), provided only that the latter is suitably restricted to non-intensional contexts. Accordingly, one could insist that (SV) should find its place in a critical reconstruction of the theory of meaning that underlies much contemporary analytic philosophy. We intend to question this point of view by showing that (SV) is subject to a further difficulty, one which is quite independent of the paradox of analysis.

II

The difficulty we have in mind relates to the idea that various important ordinary concepts are circular, i.e., can be given a circular analysis. This view is becoming increasingly popular, especially under the impact of Gupta and Belnap's recent book *The Revision Theory of Truth* (1993). Gupta and Belnap suggest concepts such as predication, set membership, necessity, knowledge, temporal stage of an object, and, above all, truth, as candidates for a circular analysis. For example, according to Gupta and Belnap, a correct analysis of truth can be given, but this analysis is circular. This means that the following definitional schema

(TD) "A" is true $=_{\mathrm{df}} A$,

is perfectly legitimate, but may have circular instances. (Each instance of (TD) may be viewed as a "partial definition" of the truth predicate, the complete definition amounting to the totality of such instances.[5])

In fact, it bears emphasis that (TD) can be taken to underlie a correct analysis of truth *only if* the truth predicate is allowed to occur in the *definiens*. This can be immediately appreciated if we consider such instances of (TD) as, say,

(12) ""Snow is white" is true" is true $=_{\mathrm{df}}$ "Snow is white" is true.

One attractive feature of Gupta and Belnap's proposal is precisely that it affords a uniform treatment of all definitions which reduces to the standard account in the absence of circularity, but which also accounts for the possibility of circular definitions by distinguishing "innocuous" circular definitions (such as (12)) from "non-innocuous" ones. At worst, according to this method, a circular definition may give rise to "vacuous" (in a sense, meaningless) uses of a *definiendum*, but in many cases (as in (12)) it grants informative content to the *definiendum* in question in quite the same sense in which this can be done by means of a standard non-circular definition. Regarding truth, in particular, the attribution of informative content to innocuous circular definitions such as (12) can be illustrated by noting that in such cases the Gupta-Belnap theory grants the Tarskian biconditional

(TB) "*A*" is true if and only if *A*.

Clearly, in these cases (TB) permit us to move from sentences that contain the truth predicate to sentences that do not contain it.

Admitting non-innocuous circular definitions, however, collides with the Substitutivity Principle (SP). Consider for example a Simple Liar such as

(13) (13) is not true,

The corresponding instance of (TD) is:

(14) "(13) is not true" is true $=_{df}$ (13) is not true,

which in view of the identity

(15) (13) = "(13) is not true"

reduces to

(16) (13) is true $=_{df}$ (13) is not true.

If the Substitutivity Principle (SP) held, we could then move from the tautology

(17) (13) is true if and only if (13) is true

to the contradiction

(18) (13) is true if and only if (13) is not true.[6]

Hence, to the extent that we accept "circular analyses" of this kind, we should question the validity of (SP) in its full generality.

Note incidentally that (TD) can be viewed as a compact version of the infinitary definition

(TD') x is true $=_{\mathrm{df}}$ (x = "S_1" and S_1) or (x = "S_2" and S_2) or (x = "S_3" and S_3) or ...

where "S_1", "S_2", "S_3", ..., are all the sentences of the language in question.[7] (TD') shows better than (TD) that both the truth predicate and its corresponding *definiens*, according to the Gupta-Belnap proposal, can be viewed as a monadic predicate.

Now, if (TD), and hence (TD'), block the Substitutivity Principle (SP), it is problematic to view the *definiens* and the *definiendum* of (TD') as standing for the *same* concept. To the extent that (TD) and (TD') are the formal counterparts (required by the Definition Constraint (DC)) of a correct analysis of truth, as Gupta and Belnap propose, we are thus led to question once more the Sameness View (SV). However, this time we arrive at this result through a route that has nothing to do with the paradox of analysis and intensional contexts (or at least, we might say, with contexts that are traditionally regarded as intensional).

We can thus question (SV) from two quite different perspectives: the paradox of analysis on the one side, and circular analyses on the other. Our moral is that this provides further, stronger evidence for the need of theories of meaning and conceptual structure[8] centered around an explicit rejection of (SV).[9]

Notes

[1] See Moore 1944)

[2] As Anderson (1993: 209) puts it, "A formal, abbreviative or stipulative definition is not in itself an analysis—but is the formal counterpart thereof".

[3] The Sameness View seems to have been endorsed by Moore *inter alia* (see e.g. 1968: 664).

[4] See Ackerman (1986), Anderson (1993) and references therein, Castañeda (1980: 59), Orilia (forthcoming).

[5] Cf. Gupta and Belnap (1993: 197).

[6] Tarski (1956: 158) considers a similar argument (in a way that takes into account subtle considerations on quotation marks that we are ignoring here for simplicity's sake) and offers a diagnosis along these lines: the biconditional schema (TB) cannot be regarded as a partial definition of the truth predicate, because "true" inescaply appears in what

should be the *definiens*. Otherwise, Tarski presents the acceptable (by his standards) instances of (TB) as “partial definitions” of the truth predicate.

[7] Cf. Gupta and Belnap (1993: 133).

[8] Such as those foreshadowed, e.g., in Ackerman (1986), Anderson (1993), and Orilia (forthcoming).

[9] An early version of this paper was presented at the Second National Meeting of the Italian Society of Analytic Philosophy, Vercelli (Italy), September 1996. We are thankful to the audience for stimulating comments and discussion.

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