

### III.—DISCUSSIONS.

#### HALL AND BERGMANN ON SEMANTICS.

Professors Everett W. Hall<sup>1</sup> and Gustav Bergmann<sup>2</sup> of the State University of Iowa have recently published papers discussing semantics as developed in a book of mine<sup>3</sup>. The following comments are intended to clarify some points which seem to me to have been misconstrued in these papers. These points concern the nature of pure semantics and, in particular, the problem of extra-linguistic reference.

##### 1.

By 'semantics' I understand (following Alfred Tarski and Charles Morris) the theory of the relations between expressions in a language and their designata, *i.e.*, the objects, properties, relations, etc., to which the expressions refer. Among the semantical rules for a constructed symbolic language system (dealt with in what I call "pure semantics") there may, *e.g.*, be a rule (1) stating that a certain sign, say the letter 'a', designates Chicago, and another rule (2) stating that a certain other sign, say the letter 'P', designates the property of being large. Other semantical rules will tell us how to interpret a sentence if we know the designata of the signs occurring in it. Thus, *e.g.*, we shall learn that the sentence 'P(a)' of our symbolic language system says that the object designated by the sign 'a' has the property designated by 'P'; hence, in view of the rules (1) and (2), 'P(a)' says that Chicago is large. It can then easily be shown that the concept of truth with respect to the symbolic language in question can be defined in (pure) semantics. In order to avoid some technical complexities, I will not give here the definition in its general form. It seems plausible that, if the definition is constructed in a suitable way, it will lead to the following result as a particular instance; the sentence 'P(a)' is true if and only if Chicago is large, that is to say, if the physical world we see around us is such that Chicago, that well-known complex physical thing consisting of houses, streets, etc., is large. So much is stated in (pure) semantics. However, the task of finding out whether or not Chicago is large, and thereby whether or not the sentence 'P(a)' is true, is not a task of semantics but of empirical science. Semantics has the task not of fact-finding but of interpreting language. Although limited to this task, semantics does and must refer to extra-linguistic entities, *e.g.*, physical objects, their properties and relations. This is clear from the examples mentioned; rule (1) refers on the one hand

<sup>1</sup> E. W. Hall, "The Extra-Linguistic Reference of Language, Part II: Designation of the Object-Language", *MIND*, vol. liii, 1944, No. 209, pp. 25-47.

<sup>2</sup> G. Bergmann, "Pure Semantics, Sentences, and Propositions", *ibid.*, No. 211, pp. 238-257.

<sup>3</sup> R. Carnap, *Introduction to Semantics*, 1942.

to a certain sign, but on the other to the thing Chicago, and it states a certain relation between the sign and the thing; analogously, rule (2) refers not only to a sign but also to a certain physical property, *viz.*, that of being large; and the semantical statement given above which states a truth-condition for the sentence 'P(a)' refers on the one hand to this sentence, hence to something within the language, but on the other hand to the state of affairs (or possible fact or what else you want to call it) of Chicago's being large, hence to something extra-linguistic.

In my book I have expounded in detail the nature of semantics as briefly outlined above. I have especially emphasized its distinction from syntax (Morris' "syntactics"); while the latter discipline deals only with relations among expressions in a language and thus with an entirely intra-linguistic subject-matter, it belongs to the essential characteristics of semantics that it refers not only to language but also to extra-linguistic matter. The book does not only state and emphasize this characteristic in abstract terms, but also illustrates it by a great number of examples of semantical rules for various language systems, such as the two rules given above, and of semantical statements concerning truth, as in the example above, and other semantical concepts.

## 2.

In view of these facts it will seem understandable that I felt some surprise—or should I rather say "amazement"?—when I saw that Professor Hall in the paper mentioned comes to the conclusion that (pure) semantics, as I construct it and apply it, does not and cannot refer to anything extra-linguistic, but deals only with relations between expressions in a language, and that all appearance to the contrary is merely due to some careless, misleading formulations of mine. This result is not stated as an incidental remark, but rather as the chief thesis in a lengthy discussion (*loc. cit.*, p. 25-36) of my book, reiterated again and again in various forms. I will give only a few examples of formulations in which Hall ascribes to me views which are just the opposite of my conception of semantics. (The italics and insertions in parentheses are Hall's; the insertions in square brackets are mine.) "Carnap means to rule out all consideration of the designation of zero-level expressions (*i.e.*, expressions in the object-language, like 'a' and 'P'] *i.e.*, of any expressions save the names of expressions" (p. 25 f.). "Pure semantics cannot say anything about the designation or truth of any expression at zero-level [like 'a', 'P', 'P(a)'], for to do so would involve an assertion (however general and abstract) about matter of fact as well as about language, and would therefore be descriptive. This conclusion (though explicitly mine) seems to be fairly drawn; that is, Carnap seems to accept it" (p. 27). "Designation is wholly a relation *within* [the language system] S, therefore within a language (semantical) system, therefore not a relation of language or linguistic

elements to extra-linguistic fact” (p. 27). “The key idea is that designation is to obtain between two expressions in a metalanguage. ... No extra-linguistic reference of language is considered” (p. 27, footnote 1). “Carnap ... means that pure semantics, in studying truth, is confined to propositions asserting the (truth-)equivalence of sentences at different levels” (p. 28). “He is saying not that we can predicate truth only when we know the relation of a zero-level sentence [like ‘P(a)’] to fact, but quite the opposite, that we can properly predicate truth on the basis of linguistic (semantical) rules alone” (p. 29); compare with this the following passage in my book (p. 33): “Thus we have found a truth-condition for [a certain symbolic sentence] in [the language system]  $S_3$  as determined by the [semantical] rules of  $S_3$ . But these rules do not suffice to determine the truth-value (*i.e.*, truth or falsity) of [that sentence]. In order to find this, we must know certain facts in addition to the rules. This would lead us outside of semantics into empirical science, in this case into geography.” Hall says further (p. 34): “I think he [Carnap] would simply admit that semantics cannot escape the linguacentric predicament. Semantics are arbitrarily or by conventional division of labour confined to language (in its designative aspects) as abstracted from all matter of fact, he might claim.”

Once Hall is convinced that I intend to restrict semantics to intra-linguistic matter and, in particular, the relation of designation to pairs of expressions, he proceeds to give a new and strange interpretation to those of my formulations which manifestly speak about extra-linguistic entities; he believes himself compelled to reject the natural, literal interpretation because this would violate my alleged principle of restriction. He says (p. 30): “Thus the designata of ‘*u*’ and ‘*p*’ might be thought to be extra-linguistic. . . . This, however, would clearly presuppose that expressions . . . [can designate] the same extra-linguistic entity, and is thus subject to the criticism of that assumption we noted above, namely that it violates Carnap’s restriction of designation to pairs of terms.” However, there are places where my references to objects, properties, and other extra-linguistic entities are so clear and explicit that not even artificial reinterpretation will do. In these extreme cases there is no other way left than suggesting a “correction” of my formulations. For instance, Hall quotes (p. 29, footnote 3) the following sentence from my book (p. 24): “The object designated by . . . has the property designated by - - -” (where technical names of signs stand at the place of the dots and dashes). One might think it difficult to maintain in view of this sentence that my semantics never refers to objects and properties. But not so for Hall; he simply assumes that I didn’t mean it. He says that the sentence quoted “is a little misleading. In place of ‘object’ ‘object-sign’ would be less misleading, and in place of ‘property’ ‘property-sign’.” Consequently, he translates the sentence quoted into “the object-sign has the predicate-sign attached to it”; and this, he thinks, is what I

actually meant. The same method is again applied later (p. 32). Hall quotes my heading (p. 128) "Procedures of the second kind: the elements of L-ranges are extra-linguistic". How is this compatible with the thesis that semantics never refers to anything extra-linguistic? Simple again; you have merely to assume that I meant by the term 'extra-linguistic' something intra-linguistic. Hall says: "Carnap's heading ...is misleading. Instead of 'are extra-linguistic' it should read 'are symbols whose designata are extra-linguistic' or 'are symbols of the zero-level'." Thus he has again proved his point that my semantical theory deals exclusively with expressions and never with objects or properties or anything outside of language. His argumentation is quite irrefutable. I recommend to all philologists this far-reaching method for ascertaining what an author actually means; if we were to apply it to his own statement (p. 39) "With Russell's solution of his problem I disagree wholeheartedly", we could readily establish that he actually meant to say that he agreed completely.

How is this profusion of thorough misunderstandings to be explained? I wish to emphasize first of all that they are certainly not due to careless reading or rash and dogmatic conclusions on Mr. Hall's side. On the contrary, the discussion in his paper is marked by careful and conscientious procedure. He says repeatedly that the interpretation at which he arrives is his impression, his feeling, his conclusion. He admits that he may be mistaken in this interpretation. Several times he considers alternative interpretations (the chief one of these is outlined on p. 26; I agree with him that this is not what I meant); and only after lengthy deliberation of reasons pro and con does he accept his interpretation.

As I see it, the explanation is to be found in the fact that Mr. Hall makes one initial mistake, slight in appearance but serious in its consequences. After this, all his derivations, careful though they are, lead him to more and more errors. Even the one original sin cannot be ascribed to carelessness; it consists in continuing the tradition of a certain confusion of which some of the best men in the field of logic have been guilty.

One of the fundamental distinctions which must be made when speaking about language is that between *using* an expression and *referring* to it. When I say: "Chicago is a large city", I am using the word 'Chicago'; I am referring not to this word but to the thing whose name is this word, *viz.*, the city of Chicago. On the other hand, if I wish to refer to the word 'Chicago', *e.g.*, in order to say that it consists of seven letters, I must use not the word 'Chicago' but a name for it. I may, *e.g.*, introduce 'c' as a name for the word 'Chicago'; then I can express the above assertion by means of the sentence: "c consists of seven letters". A simpler and more customary procedure for constructing a name for a linguistic expression consists in simply including the expression itself in quotation marks. Thus we may say: "'Chicago' consists of seven letters".

It does not matter which method for constructing a name for an expression we use; the essential point is that we use a name for the expression and not the expression itself whenever we intend to speak about the expression. If we do otherwise (*e.g.*, if we say: “Chicago consists of seven letters”), then the expression is used ambiguously, and many confusions are apt to arise. At the first blush, the distinction seems a minor matter and to urge it seems rather pedantic. However, it is in fact a very serious matter. Frege<sup>1</sup> first emphasized the necessity of the distinction; and recently Tarski,<sup>2</sup> Quine,<sup>3</sup> and I<sup>4</sup> have repeatedly called attention to the same point. It has been shown that the neglect of the distinction in the Introduction to *Principia Mathematica* has made many points obscure and ambiguous and in some cases has even caused serious confusion and errors. Certain later authors, who followed the example of Whitehead and Russell rather than that of Frege, have created still more confusions and errors.

The one fundamental mistake made by Hall is just the neglect of this distinction between using an expression and referring to it. Consider the semantical rule. “ ‘a’ designates Chicago”. The rule says that the relation of designation holds between two entities, which are specified in the rule. What are these two entities? We find in the rule at the first argument-place (*i.e.*, at the place preceding the relation-word ‘designates’) the name of a sign. (In the above formulation this name is built with the help of quotation marks; in my book, I use instead certain German letters which are introduced as technical names of signs; this difference is inessential, as mentioned before). Therefore, what is referred to in the first place is the sign whose name occurs, *viz.*, the first letter of the Roman lower case alphabet. At the second argument place (*i.e.*, following the word ‘designates’) we find the word ‘Chicago’. Therefore, what is referred to in the second place—and this is the decisive point—is the entity whose name occurs at the second place; this entity is not the word ‘Chicago’ but the physical thing Chicago. Thus we see that the rule as formulated above can be interpreted in only one way; it says that (in the symbolic language system in question) the first letter of the alphabet designates (that is, is used as name of) the thing Chicago. In addition to examples of rules of designation like the one above, I have given in my book a general description of the form of these rules (D12-B, p. 53); this description says that, as we have seen in the example above, the name of an expression stands at the first argument-place (*i.e.*, the place preceding the relation word

<sup>1</sup> G. Frege, *Grundgesetze*, vol. i, p. 4.

<sup>2</sup> A. Tarski *Introduction to Logic*, §18; see also the useful exercises \*4 and \*5 on p. 65.

<sup>3</sup> W. V. Quine, *Mathematical Logic*, § 4; see also the footnote on p. 283.

—Quine, “Whitehead and the Rise of Modern Logic” (in *The Philosophy of A. N. Whitehead*, ed. A. Schilpp, pp. 127-163), see pp. 142, 145, 151 f.

<sup>4</sup> Carnap, *Logical Syntax*, § 42. *Introduction to Semantics*, pp. 236 f.

‘designates’), and another expression (above the word ‘Chicago’) stands at the second argument place; and it says furthermore that the second expression is the translation into the metalanguage (here, English) of that expression whose name stands at the first place. (In our example, the word ‘Chicago’ is the English translation of the sign ‘a’.) To sum it up, the rule *uses* at the two argument-places a name of a sign and an expression; it *refers* to a sign and a thing. By confusing use of an expression with reference to an expression, Hall arrives at the erroneous belief that designation is a relation between two expressions. (Rules of designation of the form “‘Chicago’ designates Chicago” or “‘a’ designates a” seem to Mr. Hall still more puzzling. Rules of this form, it is true, do not convey much information; but the decisive point is that they too contain extra-linguistic reference. The first rule says that the word ‘Chicago’ designates the thing Chicago, and the second says that the sign ‘a’ designates the thing a.) Hall’s inference is just as fallacious as the following would be: “The sentence ‘Jack is older than Peter’ contains two names of persons; therefore this sentence speaks about names and not about persons”. It seems to me that all of Hall’s misinterpretations stem from the one basic mistake I have tried to indicate. This mistake clearly underlies the whole first part of his discussion (pp. 25-28). It is most explicitly formulated at the following two places. 1. Discussing my general description of rules of designation (D12-B), Hall says (p. 27, footnote 1) : “The key idea is that designation is to obtain between two expressions in a meta-language when the first is the name of an expression of which the second is a translation.... But what is named and translated is a linguistic expression. No extra-linguistic reference is considered.” 2. In my book I have sometimes used, instead of the formulation . “ ‘ P ’ designates the property of being large ” (e.g., p. 24), the shorter formulation “ ‘ P ’ designates large ” (§ 12); the latter formulation is more convenient, though admittedly not in accordance with customary English grammar. This shorter formulation does not involve any ambiguity because the use or non-use of quotation marks makes always clear whether we speak of the word ‘large’ or of the property large (*i.e.*, the proper of being large). Hall makes here the same mistake as before; he ignores the fact that, although ‘large’ is certainly a word, large cannot possibly be a word. He says (p. 28): “Carnap’s example is: ‘Gross’ in German designates the same entity as ‘P’ in his [language system] S<sub>3</sub>, *viz.*, large. But here large must be a word (in English) not a property of fact. For, ‘designates’ in “ ‘Gross’ designates large” and “ ‘P’ designates large” is defined by pairs of expressions (‘Gross’, large; ‘P’, large) the first members of which are names of expressions of which the second are translations, hence the designatum in each (large) is an expression. . . . So again we find that only names of expressions are allowed to designate, and they can only designate expressions.” Thus we see in both passages here quoted, how the

mistake which I have called the basic one leads to further errors, first to the conclusion that the designatum in the case in question is an expression while in fact it is an extra-linguistic entity, and then to the general conclusion that semantics does not make any reference at all to extra-linguistic matter. It could easily be shown that all the numerous other misunderstandings of my formulations and the independent errors in Hall's paper, of which a few have been quoted earlier, grow out of the same root.

## 3.

In the article mentioned above, Professor Bergmann discusses the nature and function of pure semantics as developed in my book. Some points in his discussion are interesting, other parts I find hard to understand. Unfortunately, his discussion also involves some serious misunderstandings and errors. Since they are similar to those of Hall discussed above, I can be brief here. Bergmann gives the following characterization of pure semantics, which seems to me, to say the least, very misleading: "Meta-languages of the kind... are called *semantical metalanguages*. Pure semantics is the study of such metalanguages formally considered" (p. 246). I should prefer to say that pure semantics is the study of object languages, not of metalanguages, and further, that it is not a formal study but a study of interpretation. I am not certain whether the passage quoted is merely an inadequate formulation or whether it shows an actual misunderstanding of the nature of pure semantics. The following points seem to make the latter alternative more likely.

Bergmann says: "The one domain of these predicates [the relational predicates of designation] consists of the names of the expressions of the object language, the other domain, of the metalinguistic names of the referents [designata] of those expressions" (p. 245). This seems to me a confusion between names and the entities named; in fact—as earlier explained in a discussion of the rule " 'a' designates Chicago"—the first domain contains expressions of the object language (*e.g.*, the sign 'a'), not their names, and the second domain contains the designata of those expressions (*e.g.*, the thing Chicago), not their names. On the basis of this misunderstanding, Bergmann arrives, in a way similar to Hall's, at the absurd conclusion "that pure semantics does not deal with the *extralinguistic* referents, the designata" (p. 248). A confusion of the same kind as that mentioned above is to be found in the following passage (p. 252) "In the statement:

(3) 'Fido is a dog' is true if and only if (Fido is a dog). Carnap refers to the quoted expression as a sentence, while the bracketed expression is called a proposition." In fact, presumably like most other logicians, I call the quoted expression a name of a sentence and the bracketed expression a sentence; in the book under discussion, I do not apply the term 'proposition' to sentences or to any

other expressions. Bergmann believes erroneously that my terms ‘proposition’, ‘individual’, and ‘designate’, “if they are to occur in pure semantics, do not refer to any extralinguistic referents” (p.252). The fact that my choice of these terms and the formulations in which I use them show clearly that I intend to refer to extralinguistic entities is explained away by Bergmann, just as by Hall, by the assumption that my formulations contain “a misleading terminology and certain ambiguities” (p. 238, similarly p. 252). This assumption, however, is merely the outcome of Bergmann’s misunderstanding, as the example of the term ‘proposition’ shows.

## 4.

My remarks on Hall’s and Bergmann’s papers may be summed up as follows.

(a) The two authors fail at some crucial points to make the necessary distinction between use and mention of an expression, in other words, between an expression and its name.

(b) Consequently, they interpret what I say about rules of designation as if the expressions used to these rules were expressions mentioned; thus they come to the erroneous conclusion that the designatum is always an expression.

(c) Consequently, they believe erroneously that pure semantics does not refer to extra-linguistic matter.

When I say that certain of my formulations of semantical statements and rules were intended to refer to extra-linguistic entities, I expect that Hall and Bergmann will concede this point, because it is generally agreed that an author is the final judge in a question as to what he meant to say. On the other hand, an author is not the final judge in a question as to what he did actually say, *i.e.*, whether he succeeded in formulating what he intended to say. (For instance, when Hall writes (p. 26, line 17) : “that A designates that matter of fact”, I wonder whether he did not actually mean to say: “that ‘A’ designates...”) Therefore, Hall and Bergmann have to decide whether they will agree with me when I say that the interpretation of my formulations as referring to extra-linguistic entities is the only correct one and that their interpretations are based on a confusion of use and mention of an expression. I have often found that for those who have acquired the habit of this confusion it is very hard even to recognize it. But I think that all those who are free of this confusion, in other words, those who distinguish clearly between an expression and its name, will agree with me on this point.<sup>1</sup>

<sup>1</sup> Just after having written my comments, I find that Ernest Nagel comes to a similar conclusion. In his review of Hall’s paper (*Journal of Symbolic Logic*, vol. ix, 1944, p. 46), he says: “This is an unfortunate misunderstanding of Carnap’s language, and in consequence the entire discussion of semantics suffers from a fundamental *ignoratio elenchi*.”

RUDOLF CARNAP.