

Gustav Bergmann on Ideal Languages*

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1 Bergmann and the Logical Positivists

Bergmann began his philosophical career as a logical positivist. He was influenced in his early career by Rudolf Carnap in the latter's own early career. Carnap was one of my own teachers in his later years.

For Bergmann, the logical positivists “were all either metaphysical materialists or phenomenologists” (*The Metaphysics of Logical Positivism* [MLP], ix). He rejected metaphysical materialism and, initially, adopted phenomenology. Later, he rejected phenomenology (which, together with materialism, he regarded as a “one-level world”) and came to regard himself as “a realist of the phenomenological variety,” which he described as a “two-level world of minds and bodies in which the former are capable of intending the latter as well as themselves and each other (*ibid.*).

Question: What is the difference, if any, between metaphysical mind-body dualism and Bergmann's “two-level world” of minds and bodies?

Question: Does Bergmann mean by a two-level world of mind and body only that the mental world is not reducible to the material and that otherwise there is only one world (with two levels)?

The principle goal of logical positivism (as stated in the 1929 “Manifesto” of the Vienna Circle) was unified science (*Einheitswissenschaft*), by which was meant:

1. a framework in which all knowledge of reality accessible to humanity could be represented

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2. without dividing it into separate unconnected special disciplines. Such a framework would be based on:
 - a. modern symbolic logic (“logistic”),
 - b. a total system of concepts, and
 - c. a reductive/constructive system (such as Carnap’s *Aufbau*) in which (i) every meaningful statement of science would be statable by “reduction” to a materially equivalent statement about the “given”, and in which (ii) every concept could be analyzed in terms of materially equivalent concepts about the “given”.

The logistic framework adopted by the positivists was higher-order predicate logic, and in particular one or another version of the theory of simple types.

Note: Bergmann accepted the idea of a framework in which all knowledge could be represented, but he came to reject the idea that such knowledge could be adequately represented in terms of a reductive/constructive system.

The principle method of logical positivism = *the* method of logical analysis (especially as developed by Frege and Russell) through the construction of a logically correct symbolic language.

Note: Throughout his career, Bergmann accepted this as the proper method of doing philosophy. For Bergmann this became the method of analysis (or explication) of philosophical uses of language by means of an ideal language — which, for Bergmann, was always the theory of simple types as a higher-order predicate logic, or some extension of that theory. Later he became committed to the more specific theory of homogeneous simple types — cf. *Phil. of Science*, 44 (1977), 492.

Cp. Bergmann: The ideal language method begins with “the construction of a formalism, the sort of scheme of which PM [Russell’s and Whitehead’s *Principia Mathematica*], supplemented by a sufficiency of descriptive constants, is the classical example. [Although] Not a language actually to be spoken, such a scheme is yet called an ideal language if it is supposed to contain, in principle, the correlates of anything one could have occasion to say.” (“Particularity and the New Nominalism”, *Meaning and Existence* [M&E], p. 91f).

Bergmann spoke of the comprehensive inclusiveness of an ideal language as its “completeness”. This is not deductive or semantic completeness. Rather, it is *an adequacy criterion*: to qualify as an ideal language an interpreted calculus “must, no matter how schematically, account for all areas of our experience.” (“Logical Positivism, Language, and the Reconstruction of Metaphysics”, *The Metaphysics of Logical Positivism* [MLP], p. 40).

A second adequacy condition Bergmann imposed on ideal language was that “it must permit, by means of ordinary discourse about it, the solution of all philosophical problems” (ibid.).

Cp. Bergmann: “I call an ‘ideal language’ a formally constructed linguistic schema that is complete, adequate, and ... an idealization of our natural language. It is complete if ‘everything’ can be said in it; it is adequate if, by informally discoursing about it in ordinary English, we can dissolve all philosophical puzzles.” (“A Note on Ontology”, [MLP], 238).

The dissolution of philosophical, and especially metaphysical, problems by means of ordinary discourse about an ideal language = *what* Bergmann meant by (1) “the right method in philosophy” (“Ineffability, Ontology, and Method”, *Logic and Reality* [L&R], 45) and (2) “the reconstruction of metaphysics” ([MLP], 238). That is:

“The right method in philosophy” = distinguishing “between the commonsensical and the philosophical uses of words, insisting that the latter all require commonsensical explication ” (“Ineffability, ...”, [L&R], 45).

For Bergmann, the “reconstruction of metaphysics” = the commonsensical explication by means of an ideal language of the philosophical uses of words and phrases of ordinary discourse — including especially statements about metaphysics and “the world’s categorial features” ([MLP], p. 41).

Cp: “philosophical discourse is ordinary discourse, explicating the philosophical problems by means of an ideal language” ([M&E], p.92).

Cp: “The proper way of exhibiting the structure of our world is to construct an ideal language in which to talk about it; for the structure of such a language is, in some sense, a picture of the structure of the world.” (“Two Criteria for an Ideal Language”, *The Linguistic Turn*, 132).

Note: In these explications, the syntax of the ideal language being used is “of paramount importance” (ibid.). What was also important was the distinction between the descriptive signs and the logical signs of an ideal language — a distinction that was intimately connected with the analytic-synthetic distinction (as applied to the sentences of an ideal language) (ibid.).

Note on logical positivism and the meaning of metaphysical statements: Part of what the logical positivists meant by logical analysis in terms of “a logically correct language” was that such a language would exclude the metaphysical statements of natural language — i.e., the metaphysical statements of natural language would have no translations in “a logically correct language”. This is so because, according to logical positivism, metaphysical statements are

neither true nor false, and in that sense are “cognitively meaningless”. (But they might have “emotive content”.)

Bergmann agrees that the philosophical uses of words and phrases of natural language are meaningless if taken literally. But still, they can be “explicated” in commonsensical terms, i.e., in ordinary natural language discourse, by means of statements about an ideal language.

Question: Is Bergmann’s view of metaphysics compatible with logical positivism’s view? In particular, does logical positivism preclude the possibility of “explicating” the metaphysical statements of ordinary language by the method of constructing ideal languages?

Cp. Carnap on the formal versus the material modes of speech in *Philosophy and Logical Syntax* (1935).

Question: How does Bergmann’s ideal language view of ordinary language statements about ontology and metaphysics compares with Carnap’s view on the distinction between internal and external questions regarding the construction of an artificial language as a way to talk about “new” kinds of entities (especially abstract entities)?

Internal questions = “questions of the existence of certain entities of the new kind within the framework” (of the artificial language) (“Empiricism, Semantics, and Ontology”, reprinted in *Meaning and Necessity*, p. 206).

External questions = “questions concerning the existence or reality of the system of entities as a whole” (ibid.).

Cp. Carnap: “The concept of reality occurring in these internal questions is an empirical, scientific, non-metaphysical concept” (ibid., 207).

Internal questions are different from external questions. “To be real in the scientific sense means to be an element of the system; hence this question cannot be meaningfully applied to the system itself” (ibid.).

E.g., “To accept the thing-world means nothing more than to accept a certain form of language, in other words to accept rules for forming statements and for testing, accepting, or rejecting them. ... But the thesis of the reality of the thing-world cannot be among these statements, because it cannot be formulated in the thing-language, or, it seems, in any other theoretical language.

“The decision of accepting the thing-language, although itself not of a cognitive nature, [is a practical decision and] will ... usually be influenced by theoretical knowledge” (ibid., 208).

“[I]t would be wrong to describe this situation by saying: ‘the fact of the efficiency of the thing language is confirming evidence for the reality of the thing world’; we should rather say instead: ‘This fact makes it advisable to accept the thing language’ ” (ibid.).

“We may speak ... of ‘the acceptance of the new entities’ ... but ...this phrase does not mean anything more than acceptance of the new frameworkAbove all, it must not be interpreted as referring to an assumption, belief, or assertion of ‘the reality of the entities’. ... An alleged statement of the reality of the system of entities is a pseudo-statement without cognitive content” (ibid., 214).

“[T]he Vienna Circle rejected both the thesis of the reality of the external world and the thesis of its irreality as pseudo-statements; the same was the case for both the thesis of the reality of universals ... and the nominalist thesis that they are not real It is therefore not correct to classify the members of the Vienna Circle as nominalists, as is sometimes done” (ibid., 215).

Carnap’s Principle of Tolerance: “Let us grant to those who work in any special field of investigation the freedom to use any form of expression which seems useful to them; the work in the field will sooner or later lead to the elimination of those forms which have no useful function. Let us be cautious in making assertions and critical in examining them, but tolerant in permitting linguistic forms” (ibid., 221).

Note: Carnap’s Logical Syntax = the general framework in which the Principle of Tolerance was to be applied — at least initially.

In addition to logical syntax (as the basis of a syntactical metalanguage), this framework included (as Alonzo Church has noted) a type-theoretic “logical/formal semantics” even stronger than Tarski’s original framework in “The concept of truth in formalized languages”. (Alonzo Church in IML, p. 65, calls this sort of semantics “syntax”.)

Note: Montague’s universal grammar was intended to serve much the same role as Carnap’s logical syntax of language. It contains both a “universal syntax” and a “universal semantics” (in the sense of a set-theoretic/model theory) — as well as a theory of translation that connects natural language with a disambiguated language (e.g. an “ideal” language) and different formal languages with one another.

Comparative Formal Ontology (CFO) assumes something like Montague’s universal grammar. (Cp. Cocchiarella, “Formal Ontology”, in *Handbook of Metaphysics and Ontology*.)

In CFO different “ideal languages” can be syntactically developed separately and then compared in their relative strengths and the way each resolves different problems in philosophy, etc.

Note: CFO goes beyond Bergmann’s ideal language program in that formal logico-mathematical methods that are not part of the “informal discourse” of ordinary language are essentially involved in the attempt to “dissolve” philosophical problems in this framework. Some aspects of the “philosophical uses of words” may require such methods for a fuller and more adequate analysis.

Note: Carnap later added “radical” (nonlogical) semantics and pragmatics to logical syntax.

Carnap: “[T]he task of philosophy is semiotical analysis; the problems of philosophy concern – not the ultimate nature of being but – the semiotical structure of the language of science, including the theoretical part of everyday language” (Intro. to Semantics, 250).

2 Bergmann on Ineffability, or the Doctrine of Showing — and who is unsaturated now?

The General Ineffability Thesis, according to Bergmann, is the claim that “what philosophers try to say is always ineffable” (“Ineffability, Ontology and Method”, [L&R], 55).

The idea of this thesis is based on Wittgenstein’s distinction in the *Tractatus* between what can be said and what can be shown (or what shows itself in an ideal language).

Cp: *Tractatus* 4.1212: “What can be shown, cannot be said.”

Cp. Bergmann: “Those who hold the general thesis held it, in part, because they thought logical form to be ‘ineffable’” ([L&R], 55).

Note: According to the *Tractatus*, logical form constitutes the structural relationship between language (or thought) and the world. But this “relationship” – logical form – is ineffable: it itself cannot be described in language but only shown or made manifest. This is what is known as The Doctrine of Showing (which has its roots in Frege’s notion unsaturatedness — *Ungesättlichkeit*). Cp: *Tractatus* 4.121:

“Propositions cannot represent logical form: it is mirrored in them.
What finds its reflection in language, language cannot represent.
What expresses itself in language, we cannot express by means of
language.

Propositions show the logical form of reality.
They display it.”

Note: One consequence of the doctrine of showing is that there can be no syntactical or semantical metalanguage in which one can literally talk about the structure of a language and how it represents the world.

Bergmann rejects the general ineffability thesis by replacing it with his ideal language method. Alternatively, he suggests, the ideal language could also be viewed as an explication of the general ineffability thesis.

Cp. Bergmann: “[O]ne may wish to offer the claim that all philosophical uses require commonsensical explications as the explication of the paradoxical philosophical proposition that what philosophers try to say is ‘ineffable’” (“Ineffability ...”, [L&R], 50).

Note: But there remains an important aspect of the general thesis that applies even to Bergmann’s method. This has to do with his distinction between “existence” and “subsistence”.

Cp. Bergmann: “‘Exist’ and ‘subsist’ are key words in ontology. Only the world’s form subsists.” (“*Generality and Existence*”, [L&R], 66).

Thus, instead of saying logical form is ineffable, Bergmann says that logical form does not “exist” but “subsists” (“Ineffability, Ontology and method”, [L&R], 56).

Cp. Bergmann: “the connectives (form₂) represent something which in some sense is presented to us. They represent an aspect of ... the world’s ‘form’” (ibid., 52). Yet, what they represent does not “exist” (the way “things” do) but “subsists”. So too, what the quantifiers represent does not “exist” but “subsists” ([L&R], 67).

What the connectives and the quantifiers represent is but one aspect of logical form — which Bergmann called “form₂” or “formal₂” (“Ineffability ...”, [L&R], 52). Another aspect, which also does not “exist”, but only “subsists”, and which Bergmann called “form₁”, consists of:

- (a) individuality,
- (b) universality, and
- (c) the nexus of exemplification.

This aspect of logical form is represented by “the shapes of the signs [of the ideal language] and ... the rules, based on the shapes and nothing else, by which they may be strung together into sentences” (ibid., 51).

Cp. Bergmann: “My calculus ... has two kinds of names or prospective names: lower-case letters (‘*a*’, ‘*b*’, ...) for individuals, upper-case letters (‘*G*’, ‘*H*’, ...) for characters. A sentence is a string consisting of one name of each kind” (ibid., 48f). E.g., $G(a)$, $H(a,b)$, etc.

That is, Bergmann’s ideal language “is a subject-predicate schema” that represents “a subject-predicate world or pattern” (“Some Reflections on Time”, [M&E], 227f).

“The individual and the character are represented by ‘labels’. Individuality and universality are represented by the shapes of these ‘labels,’ exemplification by two ‘labels’ being strung together into a sentence” (“Ineffability ...”, [L&R], 49).

According to Bergmann, “Any attempt at labeling the three additional constituents either leads to disaster or, at least, is futile” (ibid.). This futility,

Bergmann says, explicates what is meant in saying “Individuality, universality, and the nexus of exemplification are ineffable” (ibid., 50).

Bergmann calls the nexus of exemplification a “tie” (because it “ties” together an individual and a universal). It is not a relation (“thing”). Nevertheless, he insists that as a “tie”, exemplification is asymmetrical. By this, he meant, in part, that names for individuals can never occur in predicate positions.

But this does not mean that predicates, i.e., “names” or “labels” of properties and relations, cannot occur in subject positions. In fact, they can and do so occur, but only with respect to higher-order predicate expressions.

Note: Bergmann’s ideal language schema is not just the theory of simple types as a subject-predicate logic (as a opposed to a theory of membership), but the theory of homogeneous simple types. This is because, according to Bergmann, “there are no heterogeneous relations” (“Some Comments on Prof. Oaklander’s ‘Particulars, Positional Qualities, and Individuation’, *Phil. of Science* 44 (1977), p. 492).

Cp.: “there is no thing — one would have to write its name in IL [ideal language] with the superscript ‘((0),0)’, say ‘ $\mathcal{A}_1^{((0),0)}$ ’, [where 0 represents the level of individuals, (0) of properties of individuals, and ((0),0) the supposed level of relations between properties and individuals] — such that

$$\mathcal{A}_1^{((0),0)}(\mathcal{A}_2^{(0)}, \mathcal{A}_3^0)$$

would be well-formed in the IL. ... [O]ne may if one wishes call this negative feature of the world categorial” (ibid.).

Note: There is a third aspect of logical form, which Bergmann called, form_3 , that also subsists and that is the basis, for him, of the analytic-synthetic distinction.

Two expressions (of the ideal language) have the same form_3 if, and only if, the replacement of all descriptive constants in them by variables of the same type (and without “clash” of variables) results (by rewrite of variables if necessary) in two tokens of the same type. This is the sense in which “a sentence expresses a “formal” truth or falsehood (is analytic or contradictory) if and only if its truth or false depends only on its form_3 ” (“ineffability,...”, [L&R], 53). (This definition applies to formulas that do not contain Bergmann’s later pseudopredicate ‘M’ for ‘means that’. A sentence ‘ $\pi M\phi$ ’ is analytic if, and only if, “the predicate to the left of ‘M’ is formed by applying the quotation-operator to the sentence to the right of ‘M’” (“Intentionality”, [M&E], 32).)

3 Bergmann's on Individuals and the Particularity Thesis

By an “individual”, Bergmann means “an existent that is concrete” (“Some reflections on Time”, [M&E], 229). Initially, he also called individuals *particulars* (though later used ‘particular’ as a primitive name [*uds*, undefined descriptive sign] of an individual — *ibid.*).

In Russell’s ramified type theory (1910-13) individuals are the “objects” of lowest type (i.e., level 0). This is also so in Bergmann theory of homogeneous simple types. It was in Russell’s later “Philosophy of Logical Atomism” lectures that he called them particulars.

In his early work, Russell took ‘individual’ to be synonymous with ‘entity’ (of whatever kind), among which he included properties and relations and classes-as-ones (but not classes-as-many). In particular, an individual was any entity that could be a logical subject of a proposition, i.e., what that proposition was about. (Cp. [PoM], 43).

In [PM] (1910-13), Russell replaced his earlier use of ‘individual’ (i.e., the sense in which universals are “individuals”) by ‘object’, where individuals (concrete particulars) are now “objects” of lowest order/type, and universals are “objects” of different higher-order/types.

Digressive Note on Time:

Although particulars are in some sense concrete entities for Bergmann, he does not think we can impose spatio-temporal conditions on the notion of particularity.

Cp. Bergmann: “to introduce such relatively contingent features of our world as space and time into the analysis of a notion as fundamental as particularity ... is to my mind a categorial error” (*ibid.*, 104).

I disagree: In Tense Logic, where tense-operators are logical constants, we can distinguish the “contingent” features of time (such as whether time has a beginning, an end, or neither, or whether it is discrete or continuous, etc.) from the analytic features as determined by tense-logical truth. (Cf. Cocchiarella, “Quantification, Time, and Necessity”, *Philosophical Applications of Free Logic*, K. Lambert, ed., 1991, pp.242-256).

Note: Bergmann also argues that one who holds that time is “relative” (or relational) rather than absolute is committed to holding that there are no continuants and that individuals can “undergo no changes” (“Some Reflections on Time”, [M&E], 230f).

The argument is that a continuant, say, an apple, cannot be both green at one time and red at another later time — because, for the relativist, moments are not individuals and ‘red’ and ‘green’ are not relational (‘at-time t ’) predicates.

This argument collapses once we add tense operators to the ideal language; for there is no contradiction in an apple's *now* being red even though it *was* green.

End of digressive note.

According to Bergmann, particularity has both a syntactical and a nonsyntactical core.

The nonsyntactical core of particularity = *self*-containment — i.e., “the idea that there are entities which are, as it were, self-contained, though of course not in a causal way, and which cannot, upon any notion of analysis, be further analyzed” (“Particularity and the New Nominalism”, [M&E], 94).

The syntactical core of particularity = “*the* structure of the simple [subject-predicate] clause” (ibid.)

According to Bergmann, “[t]he syntactical core of the classical particularity thesis” (ibid. 95) is represented by the following three parts:

P₁ : The simple clause has a subject place and a predicate place.

P₂ : There are at least two kinds of terms.

P₃ : There are undefined constants which can in a well-formed sentence stand only in the subject place.

Cp. Bergmann: “**P₁** means that the schema of the simple clause is asymmetrical” (ibid., 95).

“If there were exactly two kinds of terms, one could, if one accepted **P₃**, call them subject signs and predicate signs respectively” (ibid.).

Note: “[T]he rejection of **P₂** entails ... the rejection of **P₃**” (ibid.,95). “It also entails N” (ibid.), “the syntactical core of what the new nominalists [Quine and Goodman] mean by their nominalism” (ibid., 94):

N : The ideal language contains only one type of (bindable) variable.

Note: The thesis N does represent the syntactical core of what Nelson Goodman means by nominalism:

Cp. Goodman: “Nominalism as I conceive it ... does not involve excluding abstract entities ... ; but requires only that whatever is admitted as an entity at all be construed as an individual. ... [where] to treat entities as individuals for a system is take them as values of the variables of lowest type in the system” (“A world of Individuals”, *The Problem of Universals*, 17).

Although this is not what Quine came to mean by nominalism, it does represent his position in “Steps Toward a Constructive Nominalism” (JSL 12, 1947, 105-122), a paper he wrote jointly with Goodman (in 1947).

Note: Quine emphatically accepts the thesis N even if it does not (fully) represent what he later meant by nominalism (because abstract objects, sets in particular, will then be values of the one type of variable as well).

Cp. Bergmann: “[The] Quine [of ML], unlike Russell, rejects the distinction between the two syntactical categories of subject signs and predicate signs [because he interprets predication as membership: $x \in y$]. ... The Quine of ML can thus accept \mathbf{P}_1 but rejects \mathbf{P}_2 , and that rejection entails N.”

This is an observation I have noted myself (in “Conceptual Realism versus Quine on Classes and Higher-Order Logic”, *Synthese* 90 (1992): 379-436).

For, according to Quine, the framework of higher-order predicate logic

“has the fault ... of diverting attention from the major cleavages between logic and set theory. It encourages us to see the general theory in which the hitherto schematic predicate letters are newly admitted into quantifiers and into other positions that we hitherto reserved to [the individual variables] ‘ x ’, ‘ y ’, etc.” (*Set Theory and its Logic*, 257).

Note that by “the other positions” that are reserved for individual variables, Quine means the subject or argument positions that predicates bring with them in their role as predicates.

Thus, Quine’s “claim is that

1. by allowing quantifiers to be affixed to predicate variables we are committed to
2. allowing predicate variables, and predicate expressions in general, to be nominalized and occur as abstract singular terms on a par with individual variables, and, furthermore,
3. that the objects (viz., classes) denoted by such abstract singular terms are the same entities that are the values of the bound predicate variables.” (Cocchiarella, op. cit., 398)

The above observation explains the connection between the thesis N (Goodman’s version of nominalism) and what Quine now means by nominalism — namely, that none of the values of the individual variables (the only type of variables admitted by Quine) are abstract entities.

In particular, Quine argues that if we were to adopt realism (as a theory of universals) as represented by higher-order predicate logic — and hence reject the thesis N, i.e., accept the view that there can be (at least) two types of variables — then (according to Quine):

1. predicate quantifiers can be given a referential (as opposed to a substitutional) interpretation only if predicates are (mis)construed as singular terms;

2. but then, assuming extensionality,
3. predicates, as singular terms, can only denote classes,
4. which must then also be the values of the predicate variables in predicate positions.
5. But then predication must be the same as membership, in which case,
6. we might as well replace predicate variables by individual variables — i.e., accept the thesis N — and take classes as values of those variable, thereby arriving at
7. a first-order theory of membership (i.e., a theory of classes, or sets), which
8. is a realist/platonist theory because it has abstract entities as values of its one type of variables.

Thus, by initially accepting realism in the form of a higher-order predicate logic — and thereby, initially, reject the thesis N — we arrive back at thesis N and Quine’s new version of “realism” (which he also calls Platonism): a realist theory is a first-order system (there are no others) in which abstract entities are taken as the values of the bound individual variables.

Cp. Cocchiarella: “In this way, nominalism as a theory of predication, and in particular as a theory that disallows predicate variables from having any entities (i.e., ‘universals’ in the traditional sense) as their values, becomes nominalism as a doctrine that forswears abstract entities as the values of the bound individual variables” (op. cit., p. 417).

Note: Regarding the steps of Quine’s argument as outlined above, Frege would reject (1), accept (2), accept (3) as applied to value-ranges, and reject (4)-(7). Russell would accept (1), reject (2) and (3), accept (4), and reject (5)-(7). Nelson Goodman, as I have noted, would reject (8) in so far as it applies to such ideal entities as qualia. For more on this and a detailed criticism of Quine’s argument, see Cocchiarella, op. cit.)

4 Ontological Commitment, or Existence versus “There-is”-ness:

Ontology, according to Bergmann, is not the study of what there is, but of what “exists” (in the philosophical use of the word).

Cp. Bergmann: “Ontology asks what ‘exists’. This use of ‘exist’ is philosophical” (“Ineffability, Method, and Ontology”, [L&R], 57).

Question: What’s the difference between what there is and what “exists”?

Cp. Bergmann: “Ontologists do not just either catalogue or classify what exists. Rather, they search for “simples.” These simples, and nothing else, they hold to “exist,” or to be the only existents” (ibid.).

“Ontology is a search for simples, i.e., for the kinds of things of which, in some sense of ‘consist’, all others consist. This idea controls the philosophical use of ‘exist’. To exist or to be an existent, therefore, is to be an (ontological) simple” (“Some Reflections on Time”, [M&E], 228).

Question: What is meant by ‘simple’?

Bergmann: “What is ‘simple’ is so simple indeed that, in speaking about it (directly), the best or the most one can do, put it any way you wish, is to name it, that is, attach a label to it” (“Ineffability, ...”, [L&R], 57f).

“*A thing is simple if and only if it is or (by the rules of interpretation of [the ideal language] L) could be named by a uds [undefined descriptive sign]*” (“Some Reflections on Time”, [M&E], 228).

Note: For Bergmann, there are only two kinds of undefined/primitive descriptive signs (“labels”, or uds, i.e., undefined descriptive sign):

- (1) signs/names/labels for individuals,
- (2) signs/names/labels for characters (universals), properties and relations.

Note: Although individuals are values of the individual variables, they are not the only such values; and although properties and relations are values of the predicate variables, they are not the only such values. In particular, by the comprehension principle of the theory of homogeneous simple types, every formula with n free variable, all of which are of the same type, say τ , represents a value of the (bound) n -place predicate variables of the next succeeding type, $(\tau + 1)$.

Note: In this sense, there are “universals” that do not “exist”.

Question: Isn’t it also true that there are individuals that do not “exist”?

(Bergmann does not answer this anywhere — that I know of.)

Bergmann on the phrase ‘there is/are’: “‘There are’ is a logical phrase and what is asserted [by its means] is that there is something which may or may not be an individual, of a certain kind, which may or may not be undefined. The gist of the matter, as I see it, is that these statements have no “ontological” significance. They are ordinary nonphilosophical statements of fact” (“Bodies, Minds, and Acts”, [MLP], 136).

Bergmann: “I do not believe that the ‘There is (exists)’ in the quantifier has much to do with the “existence” which traditional ontology tries to assert” (“A Note on Ontology”, [MLP], 242).

Note: Bergmann is aware that some philosophers — and Quine, in particular — identify existence (of whatever type) with being the value of a bound variable (of the type in question). He distinguishes in this regard two different theses belonging to two traditions of analytic philosophy.

O_1 : What there is or exists, in the sense in which ontology speaks of existence, is shown by the undefined descriptive constants of the ideal language.

O_2 : To exist, in the sense in which ontology speaks of existence, is to be the referent of what is in the range of a variable of the ideal language.

Bergmann: “ O_2 ... makes ... [the] so-called existential statements of the ideal language ... the correlates of classical ontology; for O_1 ontology belongs to ordinary discourse about the schema. Only the latter conception is consistent with what I believe to be the only consistent conception of the philosophical enterprise as a whole” (“Particularity and the New Nominalism”, [M&E], 93).

Note: Bergmann does not explain the “inconsistency” with the (Quinean) thesis O_2 , but does argue for an “advantage of his proposal”:

“consider a world whose ideal language contains undefined descriptive predicates of the first type only but which also contains and quantifies — say, for the sake of introducing mathematics — [quantifiable] variable of higher types. Unlike mine, Quine’s proposal [i.e., thesis O_2] makes no “ontological” distinction between such a world and one that contains, in addition, simple characters of the higher types. ... my proposal reconstructs what some non-positivistic philosophers may try to express when they insist that while, for example, colors exist, numbers ... merely subsist. ...I believe that my proposal represents a more adequate analysis of the traditional ontological meaning of ‘exists’” (“A Note on Ontology”, [MLP], 242).

Note: It is my view that as the complex-simple distinction is a pseudo-issue as applied to the properties and relations of both logical (Platonist) and natural realism.

In particular, what is posited in the comprehension principle of logical realism is not that there are complex properties and relations, but only that there are properties and relations that are logically related to one another in various ways. Also, a complex specification of a natural property or relation (or natural kind) in natural realism only amounts to a complex description of what is otherwise only a hypothesized universal.

5 λ HST* versus the theory of Homogeneous Simple Types

Note: Bergmann accept thesis \mathbf{P}_2 that there are at least two kinds of terms, namely,

1. names of individuals (subject-terms), which can occur only in subject positions, and
2. names/labels of properties and relations between individuals, i.e.,
3. predicate terms, which can occur in subject as well as predicate positions.

Bergmann believes that he is also committed to (n -place) predicate terms (or, given his elementarism, at least predicate variables) of different types — in particular, the higher-order predicate variables of the theory of homogeneous simple types. This is because of Russell’s paradox of predication.

Cp. Bergmann: The “difficulty” of predicates standing in both subject and predicate positions “can only be overcome by introducing further syntactical distinctions among the various ‘predicate’ signs and the variables that correspond to them. That is, ... Russell’s theory of types leads to an indefinite number of kinds of terms” (“Particularity and the new Nominalism”, [M&E], 96).

Cp.: “[t]ype theory [is] unavoidable if one accepts \mathbf{P}_2 ” (ibid., 97) — i.e. if one accepts \mathbf{P}_2 , the thesis that there are at least two kinds of (quantifiable) terms, viz., subject-terms and predicate terms, then one also accepts type theory.

Note: This is not correct. One can retain “the subject-predicate schema” of the ideal language — i.e., accept \mathbf{P}_2 — without resorting to the theory of types — i.e., without distinguishing between predicates of different types (other than their degree or ad-icity).

Option 1: Second-order predicate logic is based on the subject-predicate schema and quantifies with respect to both subject- and predicate positions.

Note: This option indicates that Bergmann is incorrect when he says (with Quine in mind):

“If he reintroduces \mathbf{P}_2 , sticks with O_2 [the view of ontology that to exist/be is to be the value of a (bound individual) variable], and continues to reject the theory of types, he limits himself in substance to the lower-functional calculus” (ibid., 103).

Note: Bergmann apparently means by \mathbf{P}_2 not just that there are (at least) subject- and predicate-terms (with respect to which one can quantify), but also that, as terms (or names, etc.) predicates also can be subject-terms of other predicates.

Note: But even accepting \mathbf{P}_2 in this sense does not commit us to type theory.

Option 2: one can extend standard second-order predicate logic to include nominalized predicates as (abstract) singular terms without generating Russell’s paradox — as I have done with λHST^* and HST_λ^* (and with λT^* as well).

Note: Bergmann recognizes that type theory “produces certain inelegancies” (ibid.).

Cp. Bergmann: “The theory of types is the cause of some inelegancies in the foundations of mathematics within PM [i.e., with type theory]. If one wishes to avoid these inelegancies and yet secure a schema of the same expressive power as PM, then one must reject \mathbf{P}_2 ”, the thesis that there are at least two types of terms (subject-terms and predicate-terms) (ibid., 102).

NOTE: This is also not correct, One can secure a schema of the same expressive power as the theory of simple type without rejecting \mathbf{P}_2 . Both λHST^* and HST_λ^* are based upon subject-predicate schema (and thereby accept \mathbf{P}_2), and both are equiconsistent with the theory of simple types.

Note: For Bergmann the only way to avoid the “inelegancies” of type theory is Quine’s alternative, which involves rejecting \mathbf{P}_2 and replacing the subject-predicate schema of the ideal language with a theory of membership.

Quine’s alternative: reject \mathbf{P}_2 and replace the subject-predicate schema of the ideal language with a first-order theory of membership (such as Quine’s systems NF and ML), where the subject- and predicate-positions are identified with the positions to the left and right, respectively, of ‘ \in ’.

Cp. Bergmann: Quine’s “great merit is to have discovered that if one wants to avoid them [i.e., the “mathematical inelegancies of type theory”] and yet construct a schema of the same expressive possibilities as PM, then one must reject not only the so-called higher types ..., but also, much more radically, \mathbf{P}_2 ” (ibid., 96).

As already noted, this claim is incorrect. Both λHST^* and HST_λ^* are based upon the subject-predicate schema, and therefore accept \mathbf{P}_2 , and both have the same expressive power as the theory of simple types.

Note: In λHST^* , only λ -abstracts that can be homogeneously stratified through a (metalinguistic) assignment of positive integers to the variables occurring in them are well-formed. The comprehension principle of λHST^* , viz.,

$$(\text{HSCP}_\lambda^*) \quad (\exists F) ([\lambda x_1 \dots x_n \phi(x_1, \dots, x_n)] = F),$$

posits only those properties and relations that are represented by a homogeneously stratified λ -abstract.

Note: By Leibniz’s law (LL*) and λ -conversion, this comprehension principle implies the more familiar, weaker form of comprehension,

$$(HSCP^*) \quad (\exists F)[F(x_1, \dots, x_n) \leftrightarrow \phi(x_1, \dots, x_n)]$$

but only where the whole biconditional is homogeneously stratified.

Proposal: Bergmann’s ideal language schema can be based on λHST^* , instead of the theory of homogeneous simple types.

A possible objection to the proposal: Even though λ -abstracts must be homogeneously stratified in λHST^* , this still leaves expressions such as

$$F(F), \quad [\lambda x \phi(x)]([\lambda x \phi(x)]), \quad [R(x, F) \wedge F(x)]$$

as well-formed in λHST^* . The first of these two formulas is not even stratified *simpliciter* and the third is only heterogeneously stratified and not homogeneously stratified.

But because Bergmann claims that all formulas that are not homogeneously stratified are not well-formed, this means that the subject-predicate schema of λHST^* does not represent Bergmann’s “subject-predicate world”.

Reply: Bergmann’s acceptance of type theory was (1) to preserve \mathbf{P}_2 — the thesis that there are at least two kinds of terms, subject-terms and predicate-terms — in the sense that predicate-terms can also be subject-terms of predicates, which is what λHST^* does; and (2) to avoid Russell’s paradox, which is what λHST^* also does.

Also, Bergmann’s requirement that type theory be homogeneously stratified was imposed (so far as I can tell) only to “explain” why the nexus of predication — which he called the “tie” of exemplification — does not represent a relation. In the theory of heterogeneous simple types, a higher-order formula representing predication is not only well-formed but is provable as well. That is, it is provable in heterogeneous type theory that there is just such a (higher-order, unequal-level) relation as predication.

But, in λHST^* , although

$$R(x, F)$$

is well-formed, the complex predicate (λ -abstract)

$$[\lambda x F F(x)]$$

is not well-formed (even when it abbreviates $[\lambda xy(\exists F)(y = F \wedge F(x))]$). In addition, and more to the point, it is provable in λHST^* that predication does not, indeed cannot, stand for a relation. That is,

$$\vdash_{\lambda HST^*} \neg(\exists R)(\forall F)(\forall x)[R(x, F) \leftrightarrow F(x)].$$

Note: This is one of the important differences between λHST^* and HST_λ^* . In HST_λ^* , λ -abstracts do not have to be homogeneously stratified to be well-formed; and the unrestricted comprehension principle,

$$(CP_\lambda^*) \quad (\exists F) ([\lambda x_1 \dots x_n \phi(x_1, \dots, x_n)] = F),$$

shows that in “the subject-predicate world” of HST_λ^* , predication does stand for a relation; that is,

$$\vdash_{HST_\lambda^*} (\exists R)(\forall F)(\forall x)[R(x, F) \leftrightarrow F(x)].$$

But Russell’s paradox is avoided in HST_λ^* because although predication is a relation, it is not therefore also an “object” or “thing” in the sense of being the value of a bound individual variable. In fact, it is provable in HST_λ^* that the relation of predication can have no “object” or “thing” correlated with it as a value of the individual variables:

$$\vdash_{HST_\lambda^*} \neg(\exists y) ([\lambda x F F(x)] = y).$$

Note: In the subject-predicate world of HST_λ^* , predicates stand for unsaturated concepts, whereas what their nominalization into abstract singular terms stand for are concept-correlates.

What Russell’s paradox shows is that in such a world, although predication stands for a relational concept, it nevertheless is a relational concept that can have no “object”-ive concept-correlate. Such a world corresponds to Frege’s — and to my conceptual realism — but it could not be, or in any sense correspond to, Bergmann’s world.

That is why the proposal regarding Bergmann’s ideal language schema is restricted to λHST^* , and cannot apply to HST_λ^* as well.

6 Extensionality versus Intentionality

Logical positivism was committed to the extensionality of a “logically correct language”. This led to problems in the analysis of the intensional verbs of natural language and analysis of intentionality (or, in general, of mental acts).

In accordance with his “realism of a phenomenological variety”, Bergmann insisted that an adequate analysis of intentionality (and of mind in general) must involve the introduction to the ideal language of a non-extensional sign, ‘M’ (read: ‘means’), and a quotation operator (applied to sentences of the language). This meant that Bergmann’s ideal language was a non-extensional language.

Note: The quotation operator applied to any sentence of the ideal language L resulted in a monadic first-order predicate (of type f). E.g., where $F(a)$ is a sentence of L , ‘ $F(a)$ ’ was a first-order predicate of L .

Bergmann called his primitive, logical sign ‘M’ a “pseudopredicate” (Intentionality”, *Meaning and Existence* [M&E], 29) — i.e., a sign belonging to a syntactic category not in standard (higher-order) predicate logic. The logical-grammar rule for ‘M’ was that it generated a sentence when applied to a first-order predicate and a sentence: $\pi M\varphi$. E.g.,

$$\text{‘}F(a)\text{’}MF(a),$$

was taken by definition to be analytically true, whereas

$$FMF(a)$$

and

$$\text{‘}G(b)\text{’}MF(a),$$

were taken, by definition, to be analytically false (ibid., 32).

Apparently, ‘ $\pi M\phi \wedge \pi M\psi$ ’ can be true, according to Bergmann, only if ϕ and ψ are literally the same expression. In other words, no two distinct sentences can be synonymous, i.e., have the same meaning. This would not seem to be a plausible solution of the problem of explicating synonymy.

The problem with Bergmann’s approach to intentionality is that it seems to confuse intentional logic, i.e., the logic of mental acts such as belief, knowledge, desire, imagination, thinking, etc. with a syntactic-semantic metalanguage approach such as Tarski’s definition of truth (or really satisfaction). Compare, e.g., the similarity between Tarski’s example of ‘Snow is white’ is true if, and only if, snow is white, and Bergmann’s related ‘Snow is white’ means that snow is white. (We treat the sentence ‘Snow is white’ as an abstract singular term to which the (two-place) predicate M can be applied by prefacing it with ‘that’.)

The difference is that with Tarski’s definition we have formal recursive definition that is based how each sentence is constructed from smaller linguistic parts. There is no parallel analysis with Bergmann’s ‘means’ predicate M, the logic of which can be given by separate stipulations, and none that deal with component parts of a sentence.

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