

Axiomatic Functionalism: The Basic Notions of Hervey's Theory of Linguistic Semantics (I)

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I

The notion *linguistic sign* defined by Jan W. F. Mulder as “ $\{p^{i\dots n} R s^i\} \& \{s^i \check{R} p^{i\dots n}\}$ ”¹⁾ is both an extremely enlightening and a highly refined concept which applies readily to the phonological elements of a language and is able to satisfy the purposes of grammar.²⁾ However, in the case of semantics (i.e., linguistic semantics, not philosophical semantics), there arises the need for establishing a link between the linguistic sign and its meaning (i.e., information value³⁾), which is wholly determined by the fixed conventions of the language system to which the linguistic sign belongs. What is meant by “establishing a link between the linguistic sign and its meaning” is the filling of the gap, through the use of certain relations, between linguistic signs, which are within given languages, and their information value, which lies outside the given languages.

In order to bridge the gap between the linguistic sign (a linguistic element) and its information value (an extra-linguistic entity), in other words to describe the linguistic sign (or, to be more specific, any linguistic sign, be it a sentence⁴⁾ or a lexical item as a prime carrier of meaning) in relation to its information value, Sándor G. J. Hervey has evolved, within the framework of Axiomatic Functionalism, a theory of the linguistic sign which satisfies the purposes of semantics.⁵⁾ This theory is merely one of three complementary components of the theory of Axiomatic Functionalism as at present constituted, the other two being the signum-theory⁶⁾, which defines the ontological status of linguistic objects, and the systemology, which covers phonology⁷⁾ and grammar. It must be added here that although the systemology and the semantics are integrated through the signum-theory they are entirely independent of each other, the former describing a given language in terms of the internal deployment of its elements, while the latter describes the language in terms of its external deployment.

From the outset, it should be understood that Hervey's semantics (i.e., Axiomatic Functionalist Semantics) is essentially a "denotational sign-semantics"⁸⁾ and, in sum, "a theory for the description of the wholly fixed-conventional information values of linguistic signs (in their capacity of being paradigmatic⁹⁾ entities in grammar as well as fully-fledged signs)".¹⁰⁾

II

Hervey has developed his theory of linguistic semantics by introducing certain theoretical or descriptive notions which will be dealt with in this and the following sections.

(1a) *Utterance*¹⁾

A linguistic sign may be construed as a model established within a linguistic description to account for and apply to a set of speech facts that possess both form and meaning. There then inevitably arises the need also to establish within a linguistic description a model that accounts for and applies to a single speech fact possessing both form and meaning. The model so established is called an *utterance*. Every linguistic sign can then be viewed as a *class of utterances*, and an *utterance* can, in turn, be defined as "a member of a linguistic sign (as a class) such that it is a model for a single realisation (an actual communication) of that particular [linguistic] sign".

As will be clearly seen below, an advantage of regarding a linguistic sign as a class of utterances is that this view makes it possible to link a linguistic sign, through the notion *utterance*, to the individual denotata²⁾ referred to by utterances.

Further discussion of an *utterance*, together with an alternative definition to the one given above, will be found in [α-i] below.

(1b) *Class of Equivalent Utterances*³⁾

For a linguistic sign to be able to be treated as a class of utterances, it should be regarded as a *class of equivalent utterances*, "equivalent" in Hervey's sense here meaning "having the relation of belonging to the same linguistic sign".⁴⁾ A *class of equivalent utterances* can then be defined as "the set of all and only the utterances that are members of a given linguistic sign (as a class)": i.e., $S = \{U^{i\dots n}\} = U^i \cup U^j \cup \dots \cup U^n$, where S stands for "a linguistic sign" and U for "an utterance".

(2a) *Form*⁵⁾

Any *utterance* is a model for a single speech fact possessing both form and meaning, or in other words characterised by the simultaneous presence of a certain recognisable form (usually observable as a phonetic sound) and of a recognisable meaning (a piece of information) conveyed by that speech fact. There is therefore a need to distinguish two terms within the *utterance*: one accounting for the physically observable or acoustic aspect of a single speech fact and the other accounting for the information-bearing aspect embodied in the single speech fact in question. The first is called a *form* and the second a *reference*, which will be dealt with in (3a) below.

It must be noted here that a *form* qualifies as accounting for the acoustic aspect of a single speech fact for which an *utterance* is a model if and only if that speech fact has an information-bearing aspect as well. In other words, the *form* “accounts for the fact that an utterance is not mere substance, but substance necessarily linked with information-content”.⁶⁾ Thus in English the concrete acoustic event (i.e., phonetic form⁷⁾ [me] cannot be called a *form*, because such an event does not have an information-bearing aspect within the conventions of English, even though in Japanese it can be called a *form*, owing to its having an information-bearing aspect within the conventions of Japanese.

A *form* can then be defined as “an image⁸⁾ in its capacity of having the particular grammatically distinctive function⁹⁾ appropriate to a linguistic sign”: i.e., “ $i R s^i$ ”, where i stands for “an image” and s^i for “a particular grammatically distinctive function”. A grammatically distinctive function is the property by virtue of which entities have an information-bearing potential.¹⁰⁾

The *form* of an utterance is a token of an *expression*¹¹⁾ of the linguistic sign for the realisation of which the given utterance is a model. This means that a *form* is an intrinsic aspect of an *utterance*, just as an *expression* is an intrinsic aspect of a *linguistic sign*.¹²⁾ A *form* can then be alternatively defined as “a member of an *expression* (as a class) such that it is a model for a single realisation (in actual communication) of that expression”. An *expression* can now be regarded as a *class of forms*.

(2b) *Class of Equivalent Forms*¹³⁾

The relation of “equivalence” (i.e., the relation of “belonging to the same linguistic sign”) that exists between utterances also exists between the respective *forms* of those utterances. Thus the *forms* of all utterances that belong to the same linguistic sign constitute a *class of equivalent forms*, and this can be defined as “a class of forms whose members are all forms of members of one and the same class of equivalent utterances (i.e., a

[linguistic] sign)¹⁴⁾, or alternatively as “the set of all and only the *forms* that are members of a given *expression*”. The latter definition entitles an *expression* to be conceived of as a *class of equivalent forms*.

(2c) *Form Class*¹⁵⁾

Every *form* can be said to have a phonological form¹⁶⁾, this resulting directly from the fact that a *form* is a model for a single acoustic event having phonetic substance (which may be “zero”), which in turn is the realisation of a phonological form. There may be a situation where the *forms* of two or more utterances which are *ipso facto* distinct or non-identical have identical phonological form. In order to account for this situation, the notion *form class* is set up, which can be defined as “the set of all and only the utterances whose *forms* have *phonologically* equivalent images”: i.e., “ $\{i^{i...n} \text{ R } d_p\} \text{ R } \{s^{i...n}\}$ ”, where $\{i^{i...n} \text{ R } d_p\}$ stands for “a particular set of images in their capacity of having one and the same phonologically distinctive function¹⁷⁾ d_p ”, and $\{s^{i...n}\}$ for “a particular class of grammatically distinctive functions”.¹⁸⁾

For example, every utterance which has the phonological form /per/ in English belongs to the *form class* {“/per/”} regardless of whether it accounts for a realisation of the linguistic sign “pear” or of the linguistic sign “pair”, that is to say regardless of differences in grammatically distinctive function.

(3a) *Reference*¹⁹⁾

As has already been stated in (2a), a *reference* is a model for the information-bearing aspect of a single speech fact for which an *utterance* is a model, and it naturally implies a *form*. This means that a *reference* “accounts for the fact that an utterance is not just an information-content, but an information-content necessarily linked to a substance”.²⁰⁾ There exists, therefore, a relation of mutual implication between *form* and *reference*, the two (the former as a token of *expression*, the latter as a token of *content*²¹⁾) being the converse of each other in a manner analogous with the way *expression* and *content* are the converse of each other.²²⁾ A *reference* can then be defined as “a grammatically distinctive function in its capacity of being the particular grammatically distinctive function of a particular image”: i.e., “ $s^i \check{R} i$ ”.

The *reference* of an utterance, as has been stated above, is a token of the *content* of the linguistic sign for the realisation of which the given utterance is a model, which means that a *reference* is an intrinsic aspect of an *utterance*, just as a *content* is an intrinsic aspect

of a *linguistic sign*. Thus a *reference* can be defined alternatively as “a member of a *content* (as a class) such that it is a model for a single realisation (in actual communication) of that *content*”. A *content* can now be regarded as a *class of references*.

(3b) *Class of Equivalent References*²³⁾

The relation of “equivalence” that exists between utterances which are members of one and the same linguistic sign exists also between the respective *references* of the utterances and between the respective *forms* of the utterances.²⁴⁾ Thus the *references* of all utterances belonging to the same linguistic sign make up a *class of equivalent references*, and this can be defined as “a class of references whose members are all references of members of one and the same class of equivalent utterances (i.e., a [linguistic] sign)²⁵⁾, or alternatively as “the set of all and only the *references* that are members of a given *content*”. The latter definition entitles a *content* to be conceived of as a *class of equivalent references*.

(3c) *Reference Class*²⁶⁾

Every *reference* is a model for the information-bearing aspect of a single speech fact and carries information of which the ultimate substance lies in the outside world as an object, event, process, quality, relation, or circumstance, an entity either real or imaginary. It is possible to form a perceptual or conceptual judgement about the object, event, process, quality, etc. lying behind the *reference* of an utterance and thus to determine whether two or more *references* have identical or non-identical objects, events, processes, qualities, etc. lying behind them. There may be a situation in which the *references* of two or more distinct utterances have identical substance, that is to say a situation in which the respective *references* have, empirically speaking, the same item of information underlying them. In order to account for this situation, the notion *reference class* is set up, which can be defined as “the set of all and only the utterances whose respective *references* relate to the same denotatum²⁷⁾”.

For instance, all utterances which have one and the same concrete object “pear” underlying them belong to the *reference class* {“/per/” ... “/fruRt/” ... “/ðis/” ... etc.} regardless of their formal properties.

It must be noted here that *reference* and underlying object (quality, process, etc.) are two distinct notions, and that the former is not to be identified with the latter about which communication is intended.

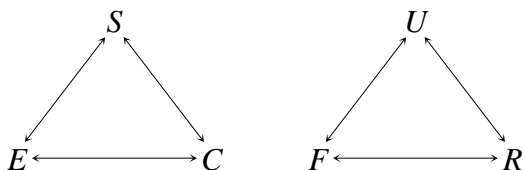
(4) *Form-Reference Class*²⁸⁾

In the light of what has been stated in (2c) and (3c) above, the notion *form-reference class* can be defined as “the set of all and only the utterances with phonologically equivalent images and with the same denotatum”, i.e., “the intersection of a given *form class* and a given *reference class*”.

For instance, the *form-reference class* to which a given utterance “/per/” belongs is the intersection of the *form class* of “/per/” and the *reference class* of “/per/”.

[α-i]

By induction from what has been stated in the above subsections, excluding (2c), (3c) and (4), the notion *utterance* can be given an alternative definition to the one in (1a) above: namely, “the conjunction of a unique *form* and a unique *reference*”, which mutually imply each other.²⁹⁾ In formulaic terms, *utterance* can be expressed as “ $i R s^i \& s^i \check{R} i$ ”. This is analogous with the way the notion *linguistic sign* is “the conjunction of a particular *expression* and a particular *content*, which mutually imply one another”.³⁰⁾ This analogy can be represented by the diagram below reproduced from Hervey:³¹⁾

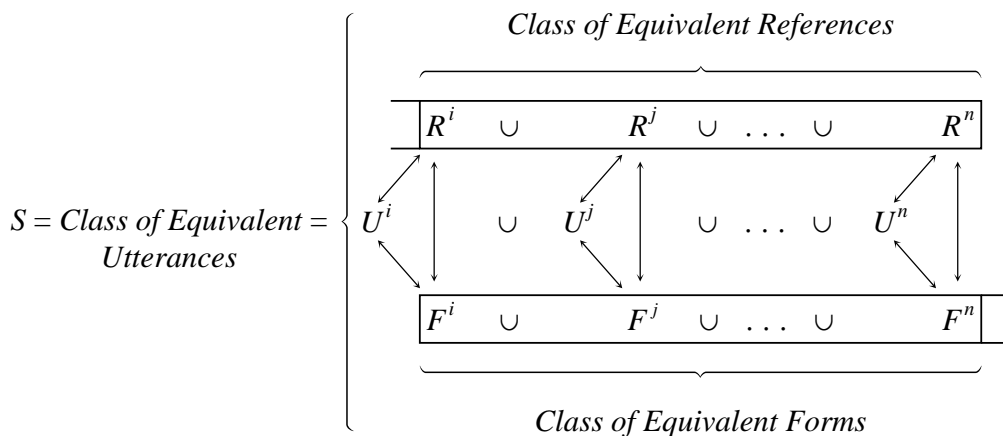


where S = linguistic sign, E = expression, C = content, U = utterance, F = form, and R = reference; and $U \in S$, $F \in E$, and $R \in C$. (The double-headed arrow stands for “equivalence” or “mutual implication”.)

[α-ii]

Following on from the notions *class of equivalent forms* and *class of equivalent references*, as set up in (2b) and (3b) above, the notion *linguistic sign* can now be re-defined as “the conjunction of a class of equivalent forms and the appropriate class of equivalent references, in such a way that every member of the class of equivalent forms is in relation with one and only one member of the class of equivalent references, thereby constituting a single utterance which is a member of the [linguistic] sign (i.e., class of

equivalent utterances) in question³²⁾: i.e., in formulaic terms $S = \{U^{i...n}\} = \{i^{i...n} R s^i\}$ & $\{s^i \check{R} i^{i...n}\}$. This can be represented by the following diagram reproduced with some alterations from Hervey:³³⁾



This definition of the linguistic sign given by Hervey is logically equivalent to Mulder's, with *expression* and *class of equivalent forms* on the one hand and *content* and *class of equivalent references* on the other being mutually equivalent, although, of course, the two definitions are not identical, owing to the fact that *utterance* is not found as a model in Mulder's part of the theory.

To be continued

NOTES

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All references to axioms and definitions in these notes and all associated references thought relevant are to be found in the abridged version of J. W. F. Mulder's "Postulates for Axiomatic Functionalism" given in S. Shimizu and M. A. L. Lamb, "Axiomatic Functionalism: Mulder's Theory of the Linguistic Sign", *Language, Culture and Communication*, 1, Keio University, 1985 (hereafter referred to as "Mulder's Theory of the Linguistic Sign") and in S. G. J. Hervey's "Postulates for Axiomatic Functionalist Semantics" in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980, pp. 203-11.

Definitions in quotation marks without any footnote reference are taken from the source specified in the footnote reference attached to the subtitle of the section in question.

Section I

- 1) See Axiom E, Def. 24. See also "Mulder's Theory of the Linguistic Sign", pp. 104-5.
- 2) See Axiom B, Defs. 2a^{3a} & 2a^{3e}.
- 3) See Axiom B, Def. 2.
- 4) See Axiom D, Def. 20 ("Sentence" for "signum with such features that it cannot be a feature (constituent, or other feature) of another signum" or for "signum such that it is a self-contained vehicle for conveying messages").
- 5) See especially S. G. J. Hervey, "Notions in the Manipulation of Non-Denotational Meaning in Speech", *La Linguistique*, 7, 1971; J. W. F. Mulder and S. G. J. Hervey, *Theory of the Linguistic Sign*, Janua Linguarum Series Minor, Mouton, The Hague, 1972 (hereafter referred to as *Theory of the Linguistic Sign*); S. G. J. Hervey, "Grammar and Semantics in Axiomatic Functionalist Linguistics", *Lingua*, 36, 1975; S. G. J. Hervey, "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionnelle*, Clermont-Ferrand, 1975; S. G. J. Hervey, *Axiomatic Semantics*, Scottish Academic Press, Edinburgh, 1979 (hereafter referred to as *Axiomatic Semantics*); J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980 (hereafter referred to as *The Strategy of Linguistics*).
- 6) See "Mulder's Theory of the Linguistic Sign", p. 117, n. 1. With reference to "signum", see Mulder's Def. 2a.
- 7) See Axiom B, Def. 3a.
- 8) See *Axiomatic Semantics*, p. xxi.
- 9) See Axiom B, Def. 7a.
- 10) See *Axiomatic Semantics*, p. xxvii.

Section II

- 1) See Axiom F, Def. 1a.
- 2) See Axiom F, Def. 4. See also (5a) in Section III.
- 3) See Axiom F, Def. 2.
- 4) See *Axiomatic Semantics*, p. 17.
- 5) See Axiom F, Defs. $1b^{1a}$ & $1b^{1b}$.
- 6) See *The Strategy of Linguistics*, p. 204 (Axiom F, Def. 1b).
- 7) See Axiom E, Def. 22a.
- 8) See Axiom E, Def. 22.
- 9) See Axiom B, Def. $7a^3$ and Axiom E, Def. 24a.
- 10) See *The Strategy of Linguistics*, p. 204 (Axiom F, Def. $1b^{2a}$).
- 11) See Axiom E, Def. 24a.
- 12) See *The Strategy of Linguistics*, p. 204 (Axiom F, Def. 1b).
- 13) See Axiom F, Def. 2a.
- 14) See *Axiomatic Semantics*, p. 17.
- 15) See Axiom F, Def. 3a.
- 16) See Axiom E, Def. 23.
- 17) See Axiom B, Def. $7a^3$ and Axiom E, Def. 24a.
- 18) See *The Strategy of Linguistics*, p. 205 (Axiom F, Def. 3a).
- 19) See Axiom F, Defs. $1b^{2a}$ & $1b^{2b}$.
- 20) See *The Strategy of Linguistics*, p. 204 (Axiom F, Def. 1b).
- 21) See Axiom E, Def. 24b.
- 22) See Axiom E, Def. 24.
- 23) See Axiom F, Def. 2b.
- 24) See (2b) in this section.
- 25) See *Axiomatic Semantics*, p. 17.
- 26) See Axiom F, Def. 3b.
- 27) See Axiom F, Def. 4.
- 28) See Axiom F, Def. 3c.
- 29) See Axiom F, Def. 1b.
- 30) See Axiom E, Def. 24.
- 31) See *The Strategy of Linguistics*, p. 205 (Axiom F, Def. $1b^{2b}$).
- 32) See *Axiomatic Semantics*, p. 17.
- 33) See *Axiomatic Semantics*, p. 18.

Bibliography

- Abraham, S. and Kiefer, F., *A Theory of Structural Semantics*, Janua Linguarum Series Minor, Mouton, The Hague, 1966.
- Bolinger, D., "The Atomization of Meaning", *Language*, 41, 1965.
- Gardiner, A. H., *The Theory of Speech and Language*, Clarendon Press, Oxford, 1932.
- Harré, R., *The Principles of Scientific Thinking*, Macmillan, London, 1970.
- Hervey, S. G. J., "Notions in the Manipulation of Non-Denotational Meaning in Speech", *La Linguistique*, 7, 1971.
- _____, "Grammar and Semantics in Axiomatic Functionalist Linguistics", *Lingua*, 36, 1, 1975; also in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionnelle*, Clermont-Ferrand, 1975.
- _____, *Axiomatic Semantics*, Scottish Academic Press, Edinburgh, 1979.
- _____, "An Axiomatic-Deductive Approach to Linguistics", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, "Postulates for Axiomatic Functionalist Semantics", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, "Denotation and Non-Denotation", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, *Semiotic Perspectives*, George Allen & Unwin, London, 1982.
- Katz, J. J. and Postal, P. M., *An Integrated Theory of Linguistic Descriptions*, M.I.T. Press, Cambridge, Mass., 1964.
- Mulder, J. W. F., "From Sound to Denotation", *Folia Linguistica*, 6, 1973; also in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, "Linguistic Theory, Linguistic Descriptions and the Speech Phenomena", *La Linguistique*, 11, 1975; also in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____, "Postulates for Axiomatic Functionalism", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____ and Hervey, S. G. J., "Index and Signum", *Semiotica*, 4, 1971; also in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.
- _____ and Hervey, S. G. J., *Theory of the Linguistic Sign*, Janua Linguarum Series

Minor, Mouton, The Hague, 1972.

_____ and Hervey, S. G. J., "Language as a System of Systems", *La Linguistique*, 11, 1975; also in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.

_____ and Hervey, S. G. J., *The Strategy of Linguistics*, Scottish Academic Press, Edinburgh, 1980.

Palmer, F. R., *Semantics: A New Outline*, C. U. P., Cambridge, 1976.

Prieto, L., *Messages et Signaux*, P. U. F., Paris, 1966.

Salomon, L. B., *Semantics and Common Sense*, Holt, Rinehart & Winston, New York, 1964.

Ullmann, S., *The Principles of Semantics*, Blackwell, Oxford, 1951, 2nd ed. 1957.

_____, *Précis de Sémantique Française*, Francke, Berne, 1952.

_____, *Semantics: An Introduction to the Science of Meaning*, Blackwell, Oxford, 1962.

_____, "Semantic Universals", in Greenberg, J. H., ed., *Universals of Language*, M. I. T. Press, Cambridge, Mass., 1966.

Weinreich, U., "On the Semantic Structure of Language", in Greenberg, J. H., ed., *Universals of Language*, M. I. T. Press, Cambridge, Mass., 1966.