

CHAPTER 16
INDEXICALITY

16.1. Just in the moment when the object seems to be caught in its immediateness, it dissolves in the total interchangeableness of every single in front of the abstractive power of the language, which then comes forth as the exclusive possible object of itself: it is the Spirit that reveals itself in the linguistic act just as the Word reveals himself in the Incarnation.

More or less (I quote by memory) this is Hegel's subduing opinion on indexicality. Of course I will face the matter from a much more trivial (but a little less metaphysic) viewpoint. In order to avoid superfluous distinctions, I assume that the language under scrutiny is free from any homonymy and any metaphoric use.

16.2. Indexicality is a very important but a rather neglected matter. I call "indexical" an expression adducing a piece of information which depends on the context, and I call "absolute" a non-indexical expression, that is an expression adducing a piece of information which does not depend on the context. So, for instance, "aborigine", "your", "here" are indexical expressions, "Papuan" "owned by Ronald Reagan", "spherical" are absolute expressions. "Papuan" is absolute because (roughly) it will always and anyhow mean an individual born in Polynesia, "aborigine" is indexical because it will mean a Papuan if the discourse concerns Polynesia, precisely as it will mean an Eskimo if the discourse concerns Greenland and so on (that is: "aborigine" adduces a piece of information which depends on its contingent utterance).

16.2.1. As far as I know, indexical expressions are present in every natural language. The reason is that the basic problem of any communication is to find an informational ground shared by speaker and interpreter; and undoubtedly the same context (in particular the same utterance), is often the most immediate common evidence.

16.2.2. Ellipses (omissions) too can have an indexical import. For instance
it is raining
is a doubly indexical expression; but while the when is adduced by the verbal tense (*is* entails *in the moment of the utterance*) the where is adduced by an omitted "here".

16.3. Indexical expressions are strictly related to variables and unknowns, since they too adduce a lack of information (henceforth: a blank). The reason why the indexical expressions we usually read do not communicate blanks, but plainly understandable pieces of information is that usually they are inserted in a context able to saturate (§15.3.1) the same blanks.

Two kinds of indexicality (the textual and the deictic ones) can then be immediately distinguished: in textual indexicality the contextual source saturating the blank is linguistic, in deictic indexicality it is extra-linguistic since it depends on some contingencies of the utterance (the speaker, the interlocutor, the moment, the place et cetera). For instance, in Tom's comment,

(16.i) Yesterday Bob dismissed all his grooms, and tomorrow they will apply to their trade-union seven indexical expressions occur ("yesterday", "his", "tomorrow", "they", "their" and the two verbal tenses). Yet I understand perfectly his message because all the seven blanks are saturated through the context. Three of them are promoted to absoluteness by a grammatical antecedent, then by a textual source of information (His of whom? Of Bob. They who? His grooms, therefore Bob's grooms. Their of whom? Of Bob's groom), and the remaining four are promoted to absoluteness by extra-textual (deictic) informational sources that is the knowledge of the moment Tom speaks (Yesterday when? The day before the day (16.i) is uttered et cetera).

For the sake of completeness (incidentally: in my lexicon, "sake of completeness" and "boring pedantry" denote the same attitude, the only difference is that the former refers to myself and friends, the latter to my opponents), then for the sake of completeness I note that the classification could be refined, for instance by distinguishing a chrononymic indexicality ("tomorrow" ...) from a toponymic indexicality ("here" ...) and so on.

16.3.1. Obviously an indexical expression appealing to an unattainable source of integrative information fails in its promotion to absoluteness. For instance while

(16.ii) we are sinking at 7°22'East, 42°38'North
is a sensible radio mayday,

(16.iii) we are sinking at 0908GMT, February the 14, 1978

would be an astonishing stupidity. In fact a radio broadcast does deictically provide the when, not the where, and as such the broadcasted text, as in (16.ii), must provide the unknown where; on the contrary in (16.iii) the when is both deictically and textually provided, but the where remains unknown.

16.4. I call

- “conversion” a fixation performed through the context;
- “effective (for an indexical expression)” a context iff it allows the conversion of such an indexical expression;
- “defective (for an indexical expression)” a context iff it is not effective for such an indexical expression.

For instance, if Tom tells me

(16.iv) He is an unforeseeable guy

when we are speaking of Hildegard von Bingen along a desert road, the context is defective (he who?); on the contrary if Tom utters (iv) when we are speaking of Bob or when Bob itself is hailing us from his magnificent coupé, the context is effective because the blank is deictically saturated (he who? the protagonist of our present attention, that is Bob).

16.5. The informational approach, thanks to its distinction between textual and deictic indexicality, shows that Quine’s claim (also Dowty, Wall, Peters, 1989 p. 68) according to which in ordinary languages variables are pronouns without any grammatical antecedent is highly reductive

Let me get it straight. Currently the anaphoric function is the function selecting the grammatical antecedent of an indexical expression. Yet, as soon as deictic indexicalities too are considered, no grammatical antecedent does exist, therefore the same notion of an antecedent must be widened, and the anaphoric function becomes the function selecting the integrative informational source through which the blank adduced by the indexical expression under scrutiny is saturated. A first example is the already mentioned

you are a cheat

(§15.7). Since the same “you” which acts as a variable (you who?) for those who are looking at the green baize singles out a specific gambler for those who are looking at the croupier, the source of the informational integration necessary to convert the pronoun, therefore its antecedent, is exactly the direction of his stare.

A second example. Both the

Bob presented me with a nice manual drill; in spite of its antiquity, this drill is still a very efficient tool

Tom tells me when we are walking far from any drill, and, two hours later, the

This drill would not bore even butter!

Tom himself tells the devil, when he is trying in vain to bore a thin wooden wall using the just mentioned very efficient tool, are indexical statements; in both of them the conversion of “this drill” is effective (no doubt about the drill Tom is speaking of). Yet while in the former case the source of information on whose basis the conversion has been performed is textual (Tom’s previous words describing Bob’s present) in the latter it is deictic (the damned tool Tom has in his hands); therefore the anaphoric function appeals to a non-linguistic (ostensive) antecedent.

The existence of non linguistic antecedents is a strong piece of evidence supporting the power of the informational approach. Anyway from now on I only deal with the textual indexicality, thus the formal exigency to have expressions as saturating sources is satisfied, and the use of “grammatical antecedents” to mean such sources is etymologically justified.

A pedantry. An antecedent can also be subsequent to and far from ‘its’ indexical expression. For instance the grammatical antecedent of the various “I” occurring in a long letter is its signature, then the last word.

16.5.1. Once the approach is well understood, translating syntactic formulations into semantic ones is an easy task. For instance saying that a free variable cannot be fixed through a substitutor where the same variable occurs free, is saying that an informational blank cannot be saturated through a piece of information affected by the same blank.

16.5.2. The attempt at formalizing the anaphoric function on mere syntactical criteria is utopia itself. In fact a minute example shows that the selection of the right antecedent may require semantic considerations, too. The syntactical structure of

(16.v) Yesterday Dan killed Ted, and today he has been arrested

is exactly the same of

(16.vi) Yesterday Dan killed Ted, and today he has been buried

nevertheless what we actually understand by reading (v) and (vi) is that Dan has been arrested and Ted has been buried; therefore, since the antecedent of “he” is the subject “Dan” in (v) and the complement “Ted” in (vi), it is impossible to formalize on mere syntactical data a conversion depending on *to be arrested* and *to be buried*.

I think that, in order to theorize the rules of conversion, linguists ought not to neglect the criterion of interpretative collaboration (the principle of charity), thus joining the syntactical and the semantic approach. Fortunately accomplishing this theorization is not necessary in order to prosecute my discourse, since the sentences of specific interest (the paradoxical and the para-paradoxical ones) are not affected by any doubt about the conversion of their variables. Anyhow, awaiting deeper considerations, we can agree that the right antecedent is the nearest available term, assuming that a term is available iff the resulting statement is not senseless (a corpse cannot be arrested).

16.6. Let me propose a detailed example which will be quite useful also in due course. I call

- “far” (symbolically “ F ”) a couple of towns x and y iff the distance d between them is more than 500 kilometres
- “far from y ” (“ F_y ”) a town x iff the respective couple is far
- “barbarous” (“ B ”) a town iff it is far from Athens (“ F_a ”)

- “peripheral” (“ P ”, provisionally) a town iff it is far from its capital.

Then the respective symbolic definitions are

$$(16.vii) \quad F(x,y) \leftrightarrow d_{x,y} > 500$$

$$(16.viii) \quad F_y(x) \leftrightarrow F(x,y) \leftrightarrow d_{x,y} > 500$$

$$(16.ix) \quad B(x) \leftrightarrow F_a(x) \leftrightarrow F(x,a) \leftrightarrow d_{x,a} > 500$$

and, provisionally,

$$(16.x) \quad P(x) \leftrightarrow d_{x, \beta(x)} > 500$$

(where β is the function from a town to its capital).

Under a k stating the position, the nationality and the rank of any town in object, all the above attributes are perfectly meaningful and the respective proposition are perfectly valuable. For instance Toledo is far from Lyon, barbarous and non-peripheral, Cadiz is non-far from Sevilla, barbarous and peripheral, Piraeus is far from Paris, non-barbarous and non-peripheral. In the above definitions replacing

$$F(x,y)$$

or

$$F_y(x)$$

with

$$(16.xi) \quad F(x)$$

would be a trivial error, for in (16.xi) the second free variable is missing: by definition “far” cannot be a closed predicate pertaining to single towns. In fact (16.vii) defines a closed predicate pertaining to couples of towns, just as (16.viii) defines an open predicate pertaining to single towns. Analogously (16.ix) defines a closed predicate pertaining to single towns and (16.x) defines an indexical predicate pertaining to single towns. The evident discrepancy opposing (16.viii) to (16.ix) and to (16.x) is that only in (16.viii) the fixation of x is insufficient to close the formula. Yet (here is **a fundamental passage**) a subtle yet crucial discrepancy opposes (16.ix) to (16.x), precisely because the former is absolute and the latter is indexical: while a town is or is not barbarous in function of its distance from a constant point (Athens), a town is or is not peripheral in function of its distance from a point which depends on the same town whose peripheralness is under scrutiny (the non-peripheralness of Toledo and the peripheralness of Cadiz depend on their distance from Madrid, the non-peripheralness of Reims depends on its distance from Paris, the peripheralness of Trieste depends on its distance from Rome et cetera). In other words, while *peripheral* is equivalent to *far from Madrid* if we are speaking of a Spanish town, it is equivalent to *far from Paris* if we are speaking of a French town, it is equivalent to *far from Rome* if we are speaking of an Italian town et cetera. In order to emphasize the essential role of β it is sufficient to realize that the annexation of Trieste to Slovenia would transform its previous peripheralness into a non-peripheralness without involving its barbarousness et cetera. The purpose of overcoming this indexicality by finding out a magic town Utopolis (b) such that

$$(16.xii) \quad P(x) \leftrightarrow F_b(x)$$

(i.e.: such that *peripheral* = *far from Utopolis*) would be a manifest absurdity, exactly like the purpose of finding out on the geoid a magic point whose co-ordinates are at the same time the coordinates of Madrid, of Paris, of Rome et cetera). Absolute and indexical predicates are congenitally incompatible because the formers (the latters) adduce an invariant (a variant) piece of information.

The highly deceiving factor in (16.x) is the omission of a free variable in the definiendum (here is the reason why I wrote “provisionally”). While such an omission is manifest in (16.xi) because without the second fixation we face a variant proposition, in (16.x), once x is fixed, the possibility of computing through β its *correlatum* $\beta(x)$ saturates the blank. In other words: (16.x) seems a correct definition because actually P pertains to single towns and whenever it is ascribed to a specific town, the blank affecting *peripheral* is automatically saturated through β . This notwithstanding such evidence does not at all mean that the second term is superfluous. Since all the above defined attributes depend on distances and *distance* is an intrinsically dyadic notion, they all depend on couples; *barbarous* concerns a single town and it is absolute because the second town is established once for all, *peripheral* concerns a single town but it is indexical because the second town varies in dependence of the first.

Therefore, correcting (16.x) is strictly necessary in order to achieve a right definition of *peripheral*. Such a correction can be carried out through two different ways, the pertinential and the variational ones:

- under the pertinential way we impose that *peripheral* is an absolute attribute, and then we must accept that it pertains to couples of towns

- under the variational way we impose that *peripheral* pertains to single towns, and then we must accept its indexicality.

What we cannot impose is that *peripheral* is an absolute attribute pertaining to single towns, because these two assumptions are logically incompatible. Symbolically,

- under the pertinential approach we must appeal to a notation like

$$(16.xiii) \quad P(x, \beta(x)) \leftrightarrow d_{x, \beta(x)} > 500$$

where “ P ”, representing an absolute attribute, does not need any index,

- under the variational approach we must appeal to a notation like

$$(16.xiv) \quad P_{\beta(x)}(x) \leftrightarrow d_{x, \beta(x)} > 500$$

where “ P ” is replaced with “ $P_{\beta(x)}$ ” just in order to witness formally the indexicality of the defined attribute.

Of course both (16.xiii) and (16.xiv) respect the formal necessity to present in the definiendum the “ $\beta(x)$ ” occurring in their common definiens. And actually, as soon as we put

$$(16.xv) \quad y = \beta(x)$$

we can immediately derive (16.xiii) from (16.vii) and (16.xiv) from (16.viii) by the substitution of identity (16.xv).

The general conclusion (meta-conclusion?) is that every attempt at operating formally on symbols ought to be preceded by an extremely careful critical analysis intended to reduce the risk of misleading notations. And the acritical omission of a free variable is probably the worst one. However the whole matter will be better probed in Chapter 17, thanks to the introduction of the reflexive variable.

16.6.1. If we, in analogy with the relation between “noun” and “pronoun”, agree to call “pro-adjectives” the indexical ones, “peripheral” (under the privileged variational approach) is a pro-adjective: exactly as “she” stands for “Ava”, “Eve”, “Jane” and so on according to the woman we are speaking of, “peripheral” stands for “far from Madrid”, “far from Paris”, “far from Rome” and so on according to the town we are speaking of.

16.6.2. The immediate recognition of indexical attributes may be difficult. For instance, while *infanticide* is absolute, *uxoricide* is indexical. In fact while in order to become an infanticide any infant is an adequate victim (the variable is quantified), in order to become an uxoricide the killer must join profit and pleasure, that is he must apply to **his own** wife.

16.7. The reason why (§5.9) I cannot accept the argument based on indexicality as evidence supporting the semantic pertinence of alethic attributes is then clear. Briefly. Since an indexical expression can be conceived as a variable standing for different absolute expressions in conformity with different specific contexts, different alethic values are not incompatible with a syntactical pertinence.

16.8. The predicates which the logical paradoxes are built on (“Richardian”, “non-self-applicable” et cetera) are indexical; realizing their indexicality is the first and crucial step to achieve the general solution. Yet since till now their indexicality, as far as I know, has not been recognized, speaking of a crypto-indexicality seems legitimate to me.

16.8.1. Extensionally, a set is indexical iff it is the extension of an indexical attribute; so, for instance, Russell’s set is indexical. Generally reasoning, statements about indexical attributes are immediately translatable into statements about indexical sets once the intensional approach is replaced by the extensional one.