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## FIGURE AND GROUND IN COMPLEX SENTENCES

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FIGURE and GROUND

We begin by noticing a certain pair of cognitive-semantic categories. Their relevance shows up, in the first instance, in relation to a semantic event of motion or location, i.e., one considered to signify

one physical object moving or located with respect to another.

Here, each object is taken as bearing to the whole event a significant and distinct relation, respectively that of FIGURE and that of GROUND, by term. The following sentences can serve for immediate exemplification of these categories:

the pen lay on the table

the pen fell off the table;

in both, the pen specifies the object which functions as FIGURE, and the table the object which functions as GROUND. The terms have been taken from Gestalt psychology, but are here given the following particular characterization for use in linguistic semantics:

The FIGURE object is a moving or conceptually movable point whose path or site is conceived as a variable the particular value of which is the salient issue.

The GROUND object is a reference-point, having a stationary setting within a reference-frame, with respect to which the FIGURE's path or site receives characterization.<sup>1</sup>

While these categories are clearly assignable within a motion event where one object is moving and the other is stationary, they might there be thought to be merely a restatement of the fact of movement vs. locatedness rather than independent notions in their own right. The existence of these categories in semantics can be demonstrated, therefore, in a locational event where both objects are stationary. Thus, whereas one might expect two sentences like

- (a) the bike is near the house
- (b) the house is near the bike

to be synonymous on the grounds that they simply represent the two inverse forms of a symmetric relation, they in fact do not mean the same thing. They would be synonymous if they specified only this symmetric relation--i.e., here, the quantity of distance between two objects. But in addition to this (a) makes the non-symmetric specifications that, of the two objects, one (the house) has a set location within a framework (here, implicitly, the neighborhood, world, etc.) and is to be used as a reference-point by which to characterize the other object's (the bike's) location, understood as a variable (realistically so in this instance, since the bike will be in different locations on different occasions) whose particular value is the salient issue; whereas (b) makes all the reverse specifications--ones which do not happen to conform with the exigencies of the familiar world, and hence more clearly flag the sentence as different from (a). The non-synonymy of the two sentences is thus due to the differentiability with which their nominals specify the semantic functions of FIGURE and GROUND (realized at the surface, for the examples above, by the nominals' order), as can be indicated by parenthesized function markings abbreviatedly symbolized as 'F' and 'G':

- (a) the bike (F) is near the house (G)
- (b) the house (F) is near the bike (G).

Consideration here of some additional locative and locative-like situations will clarify further the semantic characteristics of the FIGURE and GROUND categories:

The subject matter of a locative question must be the FIGURE there and in the answer. This is shown here both for a symmetric relation, be next to, and for an 'inverse-pair' of asymmetric relations, be over/be under:

- (a) (Where's the light?)
  - The light (F) is next to the chair (G).
  - \*The chair (F) is next to the light (G).
  - The light (F) is over the chair (G).
  - \*The chair (F) is under the light (G).
- (b) (Where's the chair?)

\*The light (F) is next to the chair (G).  
The chair (F) is next to the light (G).

\*The light (F) is over the chair (G).  
The chair (F) is under the light (G).

The sentences marked as unacceptable are so because of having the wrong assignment of FIGURE and GROUND. Since these categories are indicated in ENGLISH both by order and by prosody, those assignments become righted--and the sentences acceptable--either with the reverse order of nominals (as in the accompanying partner sentences) or with a special intonation pattern, viz., emphatic stress on the first nominal and low stress and (almost 'under one's breath') tone on the rest:

Where's the light?

The chair (G) is next to it (F).

The latter sentence-type must be resorted to where there is lacking any surface verbal expression which would specify the relation for a FIGURE-first GROUND-second sentence. Thus, to the question 'where's the pen?', while RUSSIAN, for one, can answer in the preferred FIGURE-GROUND order:

pero  
the pen (is) 'by': in-the-possession-of Ivana,  
John

ENGLISH must resort to the specially-intoned reverse-order type of sentence:

John has the pen.

The same considerations which have applied in the preceding physical situations hold as well for homologous non-physical situations. Thus, the sentence

(a) she resembles him,

which might be thought to derive from something like

she is near him in appearance

or her appearance is near his appearance,

is not understood in the same sense as

(b) he resembles her

for all the reasons given above: that not merely quantity of resemblance is being specified, but, additionally, that one of the objects is taken as a reference-point and the other object is taken to

have a variability whose particular value is at issue. These additional understandings are brought into relief when, beside the above locative-like sentences, we place the motion-like sentence

(a) she grew to resemble him,

which would never be claimed to be equivalent to

(b) he grew to resemble her.

An 'equational' sentence, whose very name implies an assumption of its invertible equivalence, actually shows the same difference between its nominals as to variable vs. reference-point function as was seen above for the spatial sentences. This can be seen upon semantic inspection of an inverse-pair of sentences such as below in an example drawn from comicdom, where it is known that the 'real' identity of the man from Krypton is 'Superman' and his identity of disguise is 'Clark Kent'. It is thus appropriate to treat the former identity as a fixed reference point and the latter identity as displaced therefrom, and inappropriate to treat them in the reverse way, hence the difference in acceptability between the otherwise equivalent inverse sentences (with a superscript eks marking marginal acceptability)

Clark Kent is Superman.

<sup>x</sup>Superman is Clark Kent.<sup>2</sup>

So, far from any aptness in characterizing 'equational' sentences like the preceding on the model of mathematics, quite the reverse is the case. For, in the standard form of equations, like

$$y = 3x^2 + 1,$$

y, FIGURE-like, is considered a 'dependent variable' and appears alone on the left, while x, GROUND-like, is considered an 'independent variable', appears on the right, and is there grouped together with all operators and modifiers. This arrangement has no purely mathematical significance but rather derives from the same cognitive-semantic processes which determine the form of sentences like

The bike is to the left of the house

Clark Kent is really Superman in disguise.

### Complex Sentences

Now, what the categories FIGURE and GROUND

pertain to can be generalized from the relative location of objects in space to the relative location of events in time--spatio-temporal homologies such as are illustrated by the following sentence pairs:

the fly was located (at a point) along the  
branch  
the explosion took place (at a point) during  
the performance

flies were located all along the branch  
explosions took place all during the  
performance

this road goes (extends) for three miles/to  
the next town  
the performance went on (lasted) for three  
hours/until 11 o'clock.

Paralleling that given earlier for spatial objects, the categories can be given the following more precise characterization for temporal events:

The temporal site of the FIGURE event is considered as a variable whose particular value receives characterization with respect to a GROUND event, considered as a reference-point set in a temporal reference-frame (usually, the one-dimensional time-line).

'FIGURE' and 'GROUND,' applied to events, are very near, if not the same as, 'asserted' and 'presupposed,' and constitute a generalization of these notions because of their application to physical objects as well.

The applicability of the semantic categories to temporal structures can be seen in a complex sentence like

he exploded after he touched the button,  
which seems to assign a 'GROUND' interpretation to the button-touching event--setting it up as a fixed, known reference-point--and seems to assign a 'FIGURE' interpretation to the explosion event--establishing the location in time of this more salient occurrence with respect to the other. That such assignments have really taken place is perhaps demonstrated simply by noting that the inverse sentence

he touched the button before he exploded  
is different in meaning: to this speaker, in fact,

it sounds comical, acquiring a becoming seriousness only after the imagining of such special circumstances as an official search into the possible causes of a known death.<sup>3</sup>

Since either asymmetric relation in an 'inverse-pair' equally well specifies the same relational information, the advantage to a language in having lexification for both--as ENGLISH has in before/after--is precisely that either of the related events can be specified as functioning as the FIGURE. In any language, however, there are inverse-pairs for which simple means of expression exist for only one of the relations (and it may be deemed that the language's expressive range suffers for the lack of the other). Such is the case in ENGLISH, e.g. for the inverse-pair expressing 'temporal-inclusion' between a 'point event' and an 'extent event'. When it is the point event that is relatively less known and is to be temporally located--as 'included within'--with respect to the better known extent event, the relation has simple lexical representation, as in

Shāt Māt of Persia was assassinated during  
Caesar's reign,

whereas where it is the extent event that is relatively less known and is to be temporally located--as 'including'--with respect to the better known point event, there is no simple apt lexical representation, as seen in

<sup>x</sup>Shāh Rūkh ruled Persia { around  
through  
before and after }  
Christ's crucifixion.

While the above case is taken from ENGLISH, there is immediately noticeable across languages a bias perhaps within each inverse-pair for the same asymmetric relation. In fact, probably for every inverse-relation-pair, there holds one of two universal statements, an implicational one:

- (a) only where a language has some, or simple, or simpler lexical means for the specification of an asymmetric relation  $R$  (of a complex situation) does it also have means for the specification of the inverse relation  $R^{-1}$ ,

or an absolute one:



- (b) whereas a language may have lexical means for the specification of the asymmetric relation  $R$  (of a complex situation), it never has such for the inverse relation  $R^{-1}$ .

One example of a relation to which the first universal statement seems to apply is 'after'.<sup>4</sup> ENGLISH, of course, has the presence of lexical means, and equally simple such, for the specification both of this relation and of its inverse in the words after and before. ATSUGEWI for one, however, expresses the notion 'after' simply and directly with a verb suffix (akin in function to RUSSIAN's 'past gerundive' ending), as in

having-eaten, we left,

whereas it expresses the notion 'before' in a more complex and indirect way (by the addition of two independent words to the 'after' verb form), as in

still not having-left, we ate.

Universal (a), if it is true for 'after' vs. 'before', thus implies that a language may, like ENGLISH, have means for expressing 'before' equally simple as for 'after', or may, like ATSUGEWI, have less direct means for expressing 'before' than 'after', but that no language will have simpler and more direct means for expressing 'before' than 'after'.

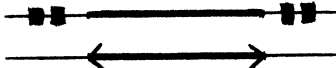
An example of a relation to which the second universal statement seems to apply is 'all-during', as expressed at the surface, e.g. in ENGLISH by all during, the whole time that, and while, etc. Since this relation may at first seem symmetric (aside from issues of FIGURE and GROUND), it first behooves us to show that it is not. This can be done by demonstrating a difference in the characteristics of the first and of the second events which may comprise the terms of the relation; if they are different, it follows that they cannot be reversed without changing the meaning in at least some cases. The sentences below reveal that for the second event in the relation, the extent of time occupied is necessarily bounded at both ends, for a second-position clause which specifies an inherently unbounded (at either end) event, such as the state of being dead, creates an unacceptable sentence:

she was studying in an American college the whole time that { her father in Iran was ill  
her father in Iran was dead.

On the other hand, the first event in the relation is not necessarily bounded at both ends, as is shown by putting into first-position the same clause specifying an inherently unbounded event and this time getting an acceptable sentence:

her father in Iran was dead the whole time that she was studying in an American college (but she didn't know it).

The difference between the first and second events as to the necessity of the temporal boundedness is schematized in the following diagram:



With the asymmetry of 'all-during' thus receiving a first demonstration, the second universal's holding for this relation would imply that while many languages may have a direct means for expressing the equivalent of

her father in Iran was dead while she was studying in an American college (but she didn't know it), none will have the means for expressing

\*she was studying in an American college while<sup>-1</sup> her father in Iran was dead.

For a second demonstration of the asymmetry of 'all-during', it is to be noticed of the two events comprising the terms of this relation that if the possibility of occurrence of one event is contingent on the occurrence of the other, it is only the former which can function as the relation's first term. For example, since the act of dreaming is contingent on the state of being asleep, a clause specifying the former can acceptably appear only in first-position in a sentence which specifies the occurrence, extensionality, and contemporaneity of the two events:

he dreamt while he slept;  
\*he slept while he dreamt.

The second universal's holding for this redemonstratedly asymmetric relation 'all-during' would

imply that no language has a lexical equivalent for while<sup>-1</sup> such that it can express the equivalent of \*he slept while<sup>-1</sup> he dreamt,<sup>5</sup>

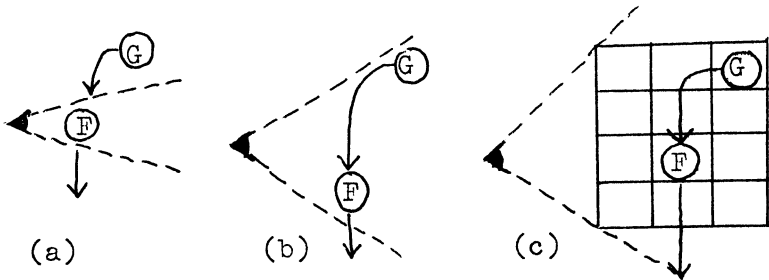
and indeed, in at least the several languages I have asked for such a form in, none exists.

It can be clear only after an extensive survey of languages whether there exists any universal bias towards one as against the other relation of asymmetric inverse-pairs like those above as well as others--including non-temporal ones--and then whether such bias is total or is proportional, involving relative simplicity of expression. But it is tentatively suggested that such a survey will reveal that sentences like the upper ones of the following pairs (merely an illustrative selection) represent the favored, or unmarked, relations of inverse-pairs, and that sentences like the lower ones represent relations--the corresponding inverses--which either are never or are not more simply expressed--and which in most cases here can in fact be indicated only by devised ENGLISH phrases:

- (a) she departed after his arrival (...after he arrived)  
he arrived before her departure
- (b) he had two affairs during his marriage (...while he was married)  
he was married through-a-period-containing two affairs of his
- (c) she rested until his arrival (...until he arrived)  
he arrived at-the-end-of her rest (-period)
- (d) we stayed home because of the rain (...because it was raining)  
it was raining to-the-point-of-occasioning our staying home
- (e) we went out despite the rain (...even though it was raining)  
it was raining in-futile-oppositiveness-to our going out.

## FOOTNOTES:

<sup>1</sup>One can see with the aid of the diagram below--schematizing as an example, a pen falling off a table--that for there to be any notion of the motion of an object (i.e. the FIGURE), there must also be present both a reference-point (the GROUND) and a reference-frame.



For, as illustrated in (a), if an observer (or conceiver) has in sight (or mind) only the FIGURE object, he can know only that the object exists, but nothing of change of position. Even when, as in (b), the observer sees both FIGURE and GROUND objects--still without any reference-frame, however--he can additionally know only that there is a change from the two objects' being together to their being apart, but could not know which object (or if both) moved nor whether there is any further motion once the two objects are apart, since there is no way to determine (change of) distance. Only when the observer sees both objects within a framework, as in (c), can he know which object is stationary, which object moves, by how much, and along what path. The notion of the motion of an object also crucially depends on the correlation of the spatial points of its path with points of the temporal continuum, but this will be taken up in detail in a subsequent study on space and time in language.

<sup>2</sup>So semantically parallel are 'equational' sentences to locative sentences that I would even propose including in their underlying structures a deep preposition homologous with at, as if one could say at the surface, e.g.

Clark Kent is at Superman.

There is in fact syntactic evidence for something of this sort in ENGLISH with the preposition as, at least for copula sentences where the second nominal

expresses the role or function of the first:

Jim is on the throne in the play ⇒  
the play has Jim on the throne (in it)

Jim is (as) the king in the play ⇒  
the play has Jim as the king (in it)

Some languages do have a pre-/postposition at the surface beside the 'predicate nominal' of a copula sentence, SAMOAN overtly so with its o preposition, as in

'o se atua ia  
"(as) a god he"  
'he was a god'

'o le agasala 'ea le tulafono  
"(as) the sin (interrogative) the law"  
'is the law sin?'

and JAPANESE, somewhat disguisedly, in its desu verb, in

kore wa pen desu  
"this (subject-marker) pen is"  
'this is a pen'

This latter in some of its paradigmatic forms clearly breaks up into a postpositional particle de plus the verb aru (otherwise the 'be-located' verb for inanimate objects); its coalesced form follows the only postpositionless nouns in JAPANESE. The particle coalesced in desu may be identified with the elsewhere-appearing postposition de, having instrumental 'with' meaning, making the whole JAPANESE copula construction with desu parallel to that of RUSSIAN where the 'predicate nominal' is in the instrumental case, as in

on byl doktorom (instr)  
"he was (as) a doctor"

<sup>3</sup>The form of the complex sentences cited here--i.e., consisting of a main and a dependent clause with subordinating conjunction--derives, as I will develop the matter in a subsequent paper, from a syntactically deeper structure of a different form. A sentence more closely reflecting the latter at the surface consists of two nominalized clauses, a relational verb, and a 'subordinating preposition', as in the following analogs of the cited sentences:

his exploding occurred after his touching the  
 button  
 his touching the button occurred before his  
 exploding,

a form homologous with that of a locative sentence.  
 The statements about FIGURE and GROUND in complex  
 sentences are unaffected by the difference.

<sup>4</sup>The remarks which follow about particular relations  
 exemplifying these universals are not based on a  
 survey of many languages but rather on a spot check,  
 and are accordingly to be considered heuristic,  
 pointing out a direction for investigation.

<sup>5</sup>Not to be confused with this apparently universally  
 lacking form is a form present in many languages,  
 including ENGLISH, which arises secondarily by a  
 derivational process dealt with in a later paper  
 under the term 'copy-clefting':

he slept, { and he dreamt the while }  
 ⇒ dreaming (the while) }