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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.[1]

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 rela-
tion, they in fact do not mean the same thing. They
would be synonymous if they specified only this sym-
metric relation--i.e., here, the quantity of dis-
tance 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 neighbor-
hood, 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 occa-
sions) whose particular value is the salient issue;
whereas (b) makes all the reverse specifications--
ones which do not happen to conform with the exi-
gencies 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 differentiality 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 sym-
bolized 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 rela-
tions, 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 accompany-
ing 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 cháir (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   u   Ivana,
the pen (is)   'by': in-the-possession-of 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 sen-
tence

(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.
[x]Superman is Clark Kent.[2]

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 circum-
stances as an official search into the possible
causes of a known death.3
    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 rela-
tively less known and is to be temporally located--
as 'including'--with respect to the better known
point event, there is no simple apt lexical repre-
sentation, as seen in

> ^{x}Shāh Rūkh ruled Persia $\left\{\begin{array}{l}\text{around}\\ \text{through}\\ \text{before and after}\end{array}\right\}$
> Christ's crucifixion.

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

   (a)   only where a language has some, or simple,
         or simpler lexical means for the specifi-
         cation of an asymmetric relation R (of a
         complex situation) does it also have means
         for the specification of the inverse rela-
         tion 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 uni-
versal statement seems to apply is 'after'.[4]
ENGLISH, of course, has the presence of lexical
means, and equally simple such, for the specifica-
tion both of this relation and of its inverse in
the words after and before. ATSUGEWI for one, how-
ever, 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 com-
prise the terms of the relation; if they are dif-
ferent, 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 $\begin{cases} \text{her father in Iran was ill} \\ \text{*her father in Iran was dead.} \end{cases}$

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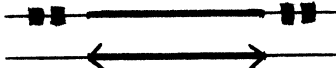
With the asymmetry of 'all-during' thus receiving a first demonstration, the second universal's holding for this relation would imply that while many languages may have a direct means for expressing the equivalent of

> 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^{-1} 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 contemporaneousness 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^{-1} such that it can express the equivalent of

*he slept while^{-1} he dreamt,[5]

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 asym-
metric inverse-pairs like those above as well as
others--including non-temporal ones--and then whe-
ther such bias is total or is proportional, invol-
ving 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 repre-
sent relations--the corresponding inverses--which
either are never or are not more simply expressed--
and which in most cases here can in fact be indica-
ted 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:

[1] 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.

(a)   (b)   (c)
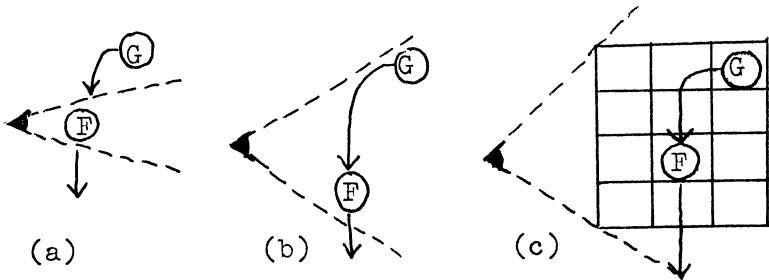
For, as illustrated in (a), if an observer (or con-
ceiver) has in sight (or mind) only the FIGURE
object, he can know only that the object exists, but
nothing of change of position. Even when, as in (b),
the observer sees both FIGURE and GROUND objects--
still without any reference-frame, however--he 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 obser-
ver 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.

[2] So semantically parallel are 'equational' sentences
to locative sentences that I would even propose
including in their underlying structures a deep pre-
position homologous with <u>at</u>, 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 <u>as</u>, 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   (interrogative) 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"

[3]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.

[4]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.

[5]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':

$$\text{he slept, } \left\{ \begin{array}{l} \text{and he dreamt the while} \\ \Rightarrow \text{ dreaming (the while)} \end{array} \right\} \text{.}$$