Title
Semantic Structures in English and Atsugewi

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Semantic Structures in English and Atugewi

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Terminology Changes:

bathic morpheme → deep morpheme
vadic " surface "
translatory motion/location
directional path
autic event autonomous event
adactive " causing "
lead-to situation causing-event causation
adduct-to " instrument "
effective " agent "
adventive " undergoer situation
figuroid/groundoid meta-figure/meta-ground

Best parts of dissertation to read: pp. 1-79, 242-end
Also interesting: pp. 80-83, 209-241
Largely superseded by Talmy 1976a: pp. 84-208
(except for the portions dealing with Atsugewi: pp. 94-103 & 154-195)

Articles published since the dissertation:

Figure and Ground in complex sentences. In Working papers on language
universals No. 17. Stanford Univ., 1975 (a)

Copy-clefting (revised title: Relations between subordination and
coordination). Ibid. 1975 (b)


Semantic causative types. In Syntax and semantics v.6. Academic Press, 1976 (a)

Communicative aims and means. In Working papers on language universals No. 20.
Stanford Univ., 1976 (b)
to the memory of my father

Isaac

and with love to my mother

Esther

and my brother

Shel
My thanks

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Introduction

00. The Contents of this Paper

The general approach repeated throughout the theoretical portion of this paper (Part I and the Appendix to Part I) is to proceed from the semantic to the syntactic and from the language-general to the language-particular. Thus, in each segment of the theoretical portion (not always coterminous with a numbered section), the following are introduced in order:

--a putatively-universal, semantic 'situation-type' (a number of these are distinguished: see below);

--a putatively-universal underlying syntactic structure which specifies the semantic situation-type;

--and a number of derivational patterns which operate on the underlying syntactic structure to produce the surface structures typical (and some less typical) of particular languages.

Among the semantic situation-types treated are those in which, loosely put,

one object moves or is located with respect to another object (the 'translatory' situation, sections 1 - 3),
one object exerts force on another object
   (the 'adactive' situation, section 5.1),

one event causes another event
   (the 'causative' situation, section 5.2),

an entity effects an event
   (the 'effective' situation, section 5.3),

an event affects an entity
   (the 'adventive' situation, section 5.4),

one entity induces another to effect an event
   (the 'inducive' situation, section 5.5),

an object (or set of objects) moves or is located with respect to itself
   (the 'self-referencing translatory' situation, section 8),

one object (or set of objects) moves or is located with respect to itself while it moves or is located with respect to another object
   (the 'temporal' situation, section 9).

The particular languages treated -- vis-à-vis the derivational patterns which lead to their typical and less typical surface structures -- are, in Part I, English and Atsugewi (see below in section 0 for a note on this language) and, in the Appendix, English, Russian, and Spanish.
Among the additional issues discussed in the course of the exposition in Part I are:

-- the characteristics of the human mind's capacity to impose structure on experiential phenomena whereby they are rendered suitable for specification by language (beginning of section 5);

-- the multiple specification in a syntactic structure of a single component of a semantic situation (sections 3.3, 4.2);

-- the 'backgrounding' or 'foregrounding' of information and the differential efficiency with which various types of information are specified in the English vs. the Atsugewi sentence (section 4.1);

-- 'systems' of morphemes in a language which (approximately) exhaustively partition a semantic realm into non-overlapping areas (sections 3.1, 3.2, 3.3, 3.5, 5.21, 5.32);

-- a new account for 'instrument' and 'WITH-phrase' (sections 5.2, 5.3) involving: the semantic function of a component in its immediate situation and its 'transvalued' function in a more inclusive situation (section 5.21);

-- some reinterpretations of personal pronominal systems (section 3.5);

and in the Appendix to Part I:

-- universal 'motion/location structures', involving such primitive notions as a 'point or extent of space or time' (section 10.1);
-- the 'DIRECTIONAL-specifying satellite', a characteristic syntactic feature of Indo-European languages, here illustrated for English and Russian (section 10.2);

-- the derivational pattern most typical of Spanish, here set against those already treated for English and Atsugewi to form the basis for a crosslinguistic typology (section 10.3);

-- a systematic exposition of the various syntactic fates met by underlying 'FIGURE'- and 'GROUND'-specifying nominals in deriving to the surface (section 10.4);

-- a sketch of how more complex structures 'conflate' into simpler ones (section 10.5).

Part I may be considered of a piece with the Appendix in content, differing from it mainly in pace. In particular, Part I covers less ground with greater rigor while the Appendix covers more ground more casually. The dense, formal style of writing throughout, while it offers some obstacles, has been thought a more appropriate medium in which to introduce theoretical material. The difficulties inherent in presenting a novel coherent system -- e.g., the lack of any clear-cut entry point which does not itself depend on notions from elsewhere in the system -- may have rendered Part I with its Appendix hard to integrate on a single time through.

The non-theoretical portion of this paper (Parts II and III) presents Atsugewi forms and examples, fully analyzed in accordance with
the theoretical notions of the first portion of the paper. Perhaps not
the least value of the paper as a whole is the extent to which it
investigates Atsugewi, which, as a language exotically distant from
English, commends our studying it in its own right. For me, it has
also been a pleasure to offer an account of a language towards which, if
a linguist may be permitted, I have come to feel a great affection.
More significant for the main thesis of this paper, however, is the
fact that in comparing Atsugewi and English -- as different from each
other as two of the world's languages might be -- one discovers and can
characterize a core common to both.
0. A Note on Atsugewi

0.1 The Cultural Setting

Atsugewi is an American Indian language of the Hokan family (which also includes the Pomo and Yuman languages). The traditional homeland of the Atsugewi people is just north of Mount Lassen in northern California. Although the tribe was never large, apparently averaging some 300 people, its numbers have diminished. The number of those that can speak the language has dwindled irreversibly, so that today Atsugewi is spoken impeccably by perhaps only one person and well by no more than five -- none of them young.
0.2 A Sketch of the Surface Structure of the Sentential-Verb

In the derivation of an underlying structure, a constituent which has moved into adjunction with the verb will be termed a *satellite* to the verb; the verb together with all satellites which are present will be said to constitute the *verb-complex*. In English, the surface verb-complex typically consists of the verb alone or of the verb with one satellite (either affixal or independent).* In Atsugewi, by contrast, the surface verb-complex typically consists of the verb (always a bound root) and numerous satellites (always affixal). Typically, in fact, it contains representatives of all the criterial constituents of an underlying structure and can stand alone as a complete sentence in itself. This (polysynthetic) surface-structural entity may thus be appropriately termed the *sentential verb-complex* or, for short, the *sentential-verb*. Although in the course of Part I the syntactic processes by which several types of underlying structure derive into a surface sentential-verb will be detailed, it is perhaps helpful to provide at this point a brief sketch of the sentential-verb's structure.

The surface sentential-verb of Atsugewi is composed of over twenty position-slots. The position-slot occupied by the root has the approximately central most location. The position-slot immediately preceding that of the

*E.g., loosely, the adverbial constituent at the wrong time (better: not ... at the right time) lexicalizes into the satellite mis- of the verb-complex misfire, as in the engine misfired; and the adverbial constituent again from the beginning lexicalizes into the satellite over of the verb-complex start over, as in the record started over.
root is occupied by a member of one of four distinct systems of morphemes: the FIGURE-specifying, the GROUND-specifying, the FROM-clause-replacing, and the BY-clause-replacing prefixes. A train of position-slots immediately following the root is occupied by members of another system of morphemes: the DIRECTIONAL+GROUND-specifying suffixes. The centralmost, prefixal, and suffixal position-slots just indicated comprise the surface-structural core of the sentential-verb and the morphemes which occupy them for the most part represent the semantically most contentful components of the underlying structure.

Surrounding the core of the sentential-verb is an inner periphery of position-slots occupied by morphemes which specify notions of evidence, manner, aspect and the like, such as:

- V quickly (hurry up and V)
- V badly (mal-V)
- V a little
- V a lot
- un-V
- almost V
- still V
- repeatedly V
- V again, back (re-V)
- V awhile
- (stay awhile and V)
- finish V-ing
- go and V
- go V-ing along
- come V-ing along
- V in passing
- V in accompaniment
- V in conjunction with someone
- V for the benefit of someone
- have someone V

Surrounding the inner periphery, the outer periphery of position-slots is occupied by the inflectional morphemes, which specify mode, and person and number (for both subject and object). Any particular set of inflectional morphemes, taken as a whole, specifies a particular constellation of values for the above semantic categories, but there is virtually no one-one correspondence between any single morpheme and any single meaning-component.
With regard to surface-structural well-formedness, in any sentential-verb the core and the outer periphery must be represented, whereas the inner periphery is for the most part only optionally represented. Within the core, the root must be present; a prefix must also be present before most roots -- such roots are the only kind treated in this paper, -- but is impossible before the remaining roots; a suffix must be present after some roots, is optional after others, and is impossible after the rest. It is apparently possible only in principle and not in performance for all twenty-and-some position-slots of the sentential-verb to be filled.

In Part I of this paper, attention is given primarily to the semantic and syntactic underpinnings of the core of the sentential-verb, secondarily to those of the outer periphery, and not at all to those of the inner periphery.
Part I. Theory

1. The Translatory Situation

A situation which can be considered to consist of, or 'be partitioned into the components of', *

(1) one object moving or located with respect to another object will be termed a translatory situation and symbolized as \( s_T \).

The relations which the components of the situation thus partitioned bear to the whole situation will be termed and symbolized as in (2):

* A more rigorous treatment of the present terms and concepts is given at the beginning of section 5.
(2) the object which is considered as moving or located with respect to another object is (functions as)

the FIGURE, or 'F', of the translatory situation;

the object with respect to which a first object is considered as moving or located is (functions as)

the GROUND, or 'G', of the translatory situation;

the respect with which one object is considered as moving or located to another object is (functions as)

the DIRECTIONAL, or 'D', of the translatory situation;

the moving or located state which one object is considered to be in with respect to another object is (functions as)

the MOTIVE, or 'M', of the translatory situation.

In the same way that 'subject' is understood as a relational (not absolute) term naming the grammatical function performed in a sentence by a particular constituent of the sentence, so each of the terms in (2), e.g., 'FIGURE', is to be understood as a relational term naming the semantic function performed in a translatory situation by a particular component of the situation. Additionally in this paper, however, the term 'FIGURE', etc., will be used as a short-hand designation for 'the component which functions as the FIGURE (the FIGURE-functioning component)', etc.

A situation which, as above, has been partitioned into components (and is thereby rendered suitable, as seen next, for specification by an underlying syntactic structure), will be termed a semantic structure;
in the present instance the translatory semantic structure may be represented terminologically as in (3a) and symbolically as in (3b):

(3)
(a) translatory situation:
    \[ \text{FIGURE + MOTIVE + DIRECTIONAL + GROUND} \]
(b) \[ s_t: \]
    \[ F + M + D + G \]

It is now posited that a translatory situation is specified at the underlying level of all languages by a particular syntactic structure, to be termed the translatory structure and symbolized as 's_t'. Each constituent of the translatory structure specifies a particular component of the translatory situation and belongs to a particular grammatical category, as indicated in (4):

(4) the FIGURE-specifying constituent is a nominal, or 'N';
    the GROUND-specifying constituent is a nominal, or 'N';
    the DIRECTIONAL-specifying constituent is a prepositional, or 'P';
    the MOTIVE-specifying constituent is a verb, or 'V'.

We note that throughout this paper the grammar-categorial terms and symbols appearing in (4) are systematically used to label both simple and complex constituents; thus, 'verb/V' is used equally for a simple verb or a verb complex, 'prepositional/P' for a simple preposition or a prepositional complex, and 'nominal/N' for a simple noun or a noun phrase. In addition, 'prepositional/P' is intended to designate a grammatical category neutral to distinctions of position or
boundedness, hence to label equally a nominal's 'preposition', 'postposition', 'prefix', or 'suffix'. The transatory structure can be represented in its general form as in (5), where the semantic component specified by each syntactic constituent (and the semantic situation specified by the whole syntactic structure) is indicated in parentheses:

(5)  

\[ S_t (s_t) \]

\[ N (F) \quad V (M) \quad P (D) \quad N (G) \]

A transatory structure, of which (5) represents the general form, becomes particularized when particular expressions are attached to its constituent categorial nodes. It is assumed that, of these latter, the V node must and can only dominate either of two particular verbs -- henceforth to be represented as \textit{MOVE} and \textit{BE}_L (a mnemonic for 'be-located') -- which specify the two motive states of the transatory situation, so that the already partly particularized transatory structure can be represented as in (6):

(6)  

\[ S_t (s_t) \]

\[ N (F) \quad V (M) \quad P (D) \quad N (G) \]

\{ \text{BE}_L \}

\{ \text{MOVE} \}
When fully particularized, a transulatory structure becomes proper input to a derivation leading to a surface sentence. Before discussing certain typical particularizations and derivations of the S, in English and Atsugewi, however, the following terms and concepts are introduced:

The term *vadic* (adapted from the Latin word for 'shallows') will be applied to a morpheme which (in a first approximation to be refined later) has an associated meaning, has associated syntactic characteristics, and appears at the surface -- hence has an associated phonologic shape. Such a morpheme first appears either at the unerlying level, or is introduced at a mid-derivational level, e.g., by insertion onto an adjunction of other morphemes.

The term *bathic* (adapted from the Greek word for 'depths') will be applied to a morpheme which has an associated meaning, has associated syntactic characteristics, and appears only at underlying and middle levels, never at the surface -- hence has no associated phonologic shape. Such a morpheme disappears at a mid-derivational level, e.g., by participating in an adjunction onto which a vadic morpheme is inserted. The existence, meanings, and syntactic characteristics of bathic morphemes -- just as those of underlying structures -- are inferred from the meanings and syntactic characteristics of vadic morphemes and surface structures; they are then in turn posited, in order to account most systematically for the latter.

Although a particular morpheme can be designated by any arbitrary symbol, a vadic morpheme is most conveniently designated by reference to its associated phonologic shape (and additionally to its associated meaning where there are homophonous forms) and a bathic morpheme,
since it has no associated shape, by reference to its associated meaning. In this paper, accordingly, a vadic morpheme will be represented either by its phonologic shape or its normal spelling -- written in lower case letters -- with subscripts to distinguish homophonous forms, and a bathic morpheme will be represented by a (sometimes devised) English word -- written in small caps -- which is suggestive of its meaning.

The term open will be applied to any set of expressions of a particular grammatical category in a language where the membership of the set is indefinitely extendable by recursive grammatical processes. Thus, e.g., the set of vadic noun phrases in English is open because new noun phrases can be formed without limit by nominalization processes.

The term closed will be applied to any set of expressions of a particular grammatical category in a language where the membership of the set cannot be extended by recursive grammatical processes but, at most, only by new coinages, borrowings, and the like. Thus, e.g., the set of vadic simple nouns in English is closed.
2. The Translatory Situation in English: the Mm Verb

Providing thereby the basis for a point-by-point comparison with Atsugewi in the following section, we now characterize one of the transulatory structure's most typical patterns of particularization and derivation in languages of general familiarity such as English:

(7)

1. -- The expression attached to the first N node of the $S_r$ and specifying the FIGURE of the $s_r$ does not become affected by any subsequent transformations but rather, through the course of derivation, remains at its original location as a distinct element in its original form. Since its form is the same as that in which it is to appear at the surface, this expression as it first appears in the underlying structure is already vadic. The expression is, furthermore, a noun phrase, one drawn from the open set of vadic noun phrases.

2. -- The expression attached to the second N node of the $S_r$ and specifying the GROUND of the $s_r$ has all the characteristics of the FIGURE-specifying expression. That is, it is a vadic noun phrase drawn from the open set of vadic noun phrases which remains throughout the course of derivation at its original location as a distinct element in its original form.

3. -- The expression attached to the P node of the $S_r$ and specifying the DIRECTIONAL of the $s_r$ is in general a complex construction of bathic morphemes which undergoes an elaborate derivation. Construction, morphemes, and derivation will be extensively gone into in later writings but are not further treated in this paper, except for a sketch in the
Appendix. For our present purposes, it is sufficiently detailed to note (1) that the DIRECTIONAL-specifying expression is constructed from closed sets of bathic morphemes, (2) that the expression, through the course of its internal derivation, remains at its original location as a distinct element of the surrounding structure, (3) that its derivation leads to the appearance at the surface of a vadic preposition (in the case of English), and (4) that the set of vadic prepositions is closed.

4. -- The expression attached to the V node of the $S_I$ and specifying the MOTIVE of the $s_I$ must, as in all languages, be either of the two bathic verbs $MOVE$ and $BE_x$, which together constitute a closed set. While the attached MOTIVE-specifying verb stays in place, there moves into adjunction with it an expression which arises from an underlying source external to the $S_I$, and onto this adjunction is then lexically-inserted a vadic verb. While the external source and the moving expression will be gone into extensively in later writings and sketchily in section 9 and the Appendix of this paper, we will, for the illustrations to follow, consider only a simplified form of the moving expression and treat this an as adverb, or 'ADV', which specifies a semantic component of $MANNER$, or 'm'.

To illustrate a translatory structure which becomes particularized and derived in the just-described manner typical of languages like English, we consider first a location example from English. In this example, the MOTIVE of the $s_I$ is specified in the underlying $S_I$ by the bathic verb $BE_x$, the DIRECTIONAL by a bathic prepositional complex
which is here for simplicity represented only as \textit{IN}, and the FIGURE and GROUND by the vadic noun phrases \textit{the bottle} and \textit{the cove}, respectively. The MANNER-specifying expression moving in from an external source is here represented by the bathic adverb \textit{AFLOAT}. The underlying S, thus particularized and its subsequent derivation are indicated in phrase-marker form in (8).
(8)

(a)

\[ S_t (s_t) \]

\[ N (F) \quad V (M) \quad P (D) \quad N (G) \]

\[ \text{the bottle} \quad \text{BE} \quad \text{IN} \quad \text{the cove} \quad \text{AFLOAT} \]

(b) \implies

\[ S_t (s_t) \]

\[ N (F) \quad V (Mm) \quad P (D) \quad N (G) \]

\[ V (M) \quad \text{ADV} (m) \]

\[ \text{BE} \quad \text{AFLOAT} \quad \text{IN} \quad \text{the cove} \]

(c) \implies

\[ S_t (s_t) \]

\[ N (F) \quad V (Mm) \quad P (D) \quad N (G) \]

\[ \text{the bottle} \quad \text{float}_t \quad \text{IN} \quad \text{the cove} \]

i.e., (with tense and aspect)

(d) the bottle was floating in the cove
(9) Comments on the derivation in (8):

1. -- In (8a), the adverb *AFLOAT* is simply shown off to one side of the $S_1$ since no account has yet been given of its proper syntactic status and relationships.

2. -- In (8b), the MANNER-specifying adverb *AFLOAT* has moved into Chomsky-adjunction with the MOTIVE-specifying verb *BE* under a new $V$ node marked for specifying the combination of components $MOTIVE + MANNER$, or 'Mm'. Onto the adjunction, the insertion of the vadic verb *float* (marked with the subscript '_l' as a mnemonic for the $BE$ underlying it) is indicated.

   -- The internal derivation of the DIRECTIONAL prepositional complex, here represented by *IN*, into the vadic preposition *in* is indicated.

3. -- In (8c), the insertion and the derivation indicated in (8b) have taken place.

   * ***

In a motion example from English which we now consider, the MOTIVE of the $S_1$ is specified in the underlying $S_1$ by the batic verb *MOVE*, the DIRECTIONAL by a batic prepositional complex here represented simply as *INTO*, and the FIGURE, GROUND, and MANNER by the same expressions as in (8). The underlying $S_1$ thus particularized and its subsequent derivation, which proceeds as for (8), are indicated in (10).
\[(10)\]

(a) \[ \begin{array}{c}
S_{t} (s_{t}) \\
N (F) \quad V (M) \quad P (D) \quad N (G) \\
\text{the bottle} \quad \text{MOVE} \quad \text{INTO} \quad \text{the cove} \quad \text{AFLOAT}
\end{array} \]

(b) \[ \begin{array}{c}
S_{t} (s_{t}) \\
N (F) \quad V (Mm) \quad P (D) \quad N (G) \\
\text{the bottle} \quad \underline{\text{float}}_{M} \quad \underline{\text{even}} \quad \text{INTO} \quad \text{the cove}
\end{array} \]

(c) \[ \begin{array}{c}
S_{t} (s_{t}) \\
N (F) \quad V (Mm) \quad P (D) \quad N (G) \\
\text{the bottle} \quad \underline{\text{float}}_{M} \quad \underline{\text{into}} \quad \text{the cove}
\end{array} \]

i.e., (with tense)

(d) the bottle floated into the cove
3. The Translatory Situation in Atsugewi: the FM Verb (-Root)

3.1 The FM Root Subderivation

In one of the most typical patterns of particularization and derivation for a translatory structure in Atsugewi, the FIGURE-specifying nominal does not, as in English, remain at its original location as a distinct element in its original form, and the MOTIVE-specifying verb does not, as in English, become adjoined by a MANNER-specifying adverb from outside the ST. Rather, the FIGURAL nominal and its N node move into Chomsky-adjunction with the MOTIVE verb and its V node under a new V node which specifies the combination of components FIGURE + MOTIVE, or 'FM', and onto each particular such adjunction is lexically-inserted a vadic morpheme which is keyed (i.e., marked as corresponding) to it. The inserted morpheme remains at the locus of the adjunctional V node through succeeding derivational steps to appear at the surface as the root of the sentential-verb. A root arising in this fashion will be termed a FIGURE+MOTIVE-specifying root or, abbreviatedly, an FM root. The sequence of transformations which leads to an FM root will be termed the FM root subderivation. The set of all FM roots is closed.

It can be seen from this description of the FM root subderivation that an underlying FIGURE-specifying nominal does not survive to the surface, as in English, and hence is batic, not vadic. It can be further seen that since those FIGURE-specifying nominals which must be posited to exist at the underlying level are precisely those which lead to the closed set of existing FM roots, they are simple nouns
themselves constituting a closed set and not, as in English, nominalization-formed phrases drawn from the open set. Thus, while the FIGURE-specifying nominal in an underlying S, of English has been characterized as a vadic noun phrase, that of Atsugewi must be characterized as a bathic simple noun.

To illustrate the FM root subderivation, we turn for an example first to English, which, though atypically for it, does have several 'FM verbs' which arise by derivational processes homologous with those leading to the Atsugewi FM root. In the underlying translatory structure for this example, the FIGURE-specifying expression is a bathic noun -- here represented by the form RAIN -- which has the nominal meaning 'rain' and which, in adjunction with MOVE, keys in an insertion by the vadic 'FM verb' rain. The particularized underlying structure and its derivation are represented in phrase-marker form in (11):
(11)

(a) \[ S_t (s_t) \]

\[ \begin{array}{c}
N (F) \quad V (M) \quad P (D) \quad N (G) \\
RAIN \quad MOVE \quad into \quad the \ bedroom
\end{array} \]

(b) \[ S_t (s_t) \]

\[ \begin{array}{c}
N \quad V (FM) \quad P (D) \quad N (G) \\
\begin{array}{c}
N (F) \quad V (M) \\
RAIN \quad MOVE \quad into \quad the \ bedroom
\end{array}
\end{array} \]

(c) \[ S_t (s_t) \]

\[ \begin{array}{c}
N \quad V (FM) \quad P (D) \quad N (G) \\
it \quad rain \quad into \quad the \ bedroom
\end{array} \]

i.e., (with tense)

(d) it rained into the bedroom
(12) Comments on the derivation in (11):

1. -- In (11a), the DIRECTIONAL expression is for simplicity already given in the vadic form into which it is ultimately to derive.

2. -- In (11b), the FIGURAL noun RAIN and its N node have moved into Chomsky-adjunction with the MOTIVE verb MOVE and its V node under a new V node marked for specifying the combination of components FIGURE + MOTIVE or FM. Although the sidedness of the adjoining expression is immaterial in the present derivation, it is shown on the left, closest to its original location. For the phrase-marker representation of an adjunction, the diagrammatic convention is employed here, as already in (8) and (10), of depending the moving node by a slant line and the non-moving node by a vertical line from the new node; the former is of a grammatical category distinct from, while the latter has bequeathed its grammatical category to, the new node.

   -- Onto the adjunction, the insertion of the 'FM verb' RAIN is indicated. The diagrammatic convention is employed here, as already in (8) and (10), of indicating lexical-insertion by a horizontal brace. The vacancy left in the subject position by the moving FIGURAL noun is indicated.

3. -- In (11c), the lexical-insertion has taken place.

   -- The vacancy in the subject position has been transformationally filled by the expletive formative it.

* * *
The 'prose effect' of stages (a), (b), and (c) of the derivation in (11) can be suggestively rendered in a particular quasi-surface-sentence style in English as in (13):

(13)

(a) rain moved into the bedroom (cf., 'the rain came into the bedroom')
(b) (it) rain-moved into the bedroom
(c) it rained into the bedroom

The derived verbal meaning of the lexically-inserted 'FM verb' itself can correspondingly be represented in three equivalent formulations:

(14) rain: (a) 'for rain to move'
(b) 'for (it) to rain-move'
(c) 'for it to rain'

We now return to Atsugewi for an example of the FM root subderivation. In this example, the bathic FIGURAL noun -- here represented by the form \( \text{DIRT} \) -- has the meaning 'dirt-like material' and, in conjunction with \( \text{MOVE} \), keys in an insertion by the vadic FM root \(-\text{qput}-\). *The subderivation is represented in phrase-marker form in (15):

*In the Atsugewi forms to be cited in this paper, the only phonologic symbols requiring clarification are:

c representing a morphophoneme whose phonetic realization ranges between \([\epsilon]\) and \([\check{\epsilon}]\) (also employed to represent this range in
broad-phonetic transcription);
:
representing a morphophoneme phonetically realized as the length
and lowering of an adjacent vowel;
representing a morphophoneme phonetically realized as the glottalization of all contiguously following consonants; and a representing a morphophoneme phonetically realized either as [a] or as zero in accordance with phonologic rules not gone into here.

(15)

(a)

```
S_T (s_T)
   /  \
\ N (F) \ V (M) \ P (D) \ N (G) \\
\ DIRT \ MOVE \ INTO \ LIQUID
```

(b) $\Rightarrow$

```
S_T (s_T)
   /  \
\ V (FM) \ P (D) \ N (G) \\
\ N (F) \ V (M) \\
\ DIRT \ MOVE \ INTO \ LIQUID
```

(c) $\Rightarrow$

```
S_T (s_T)
   /  \
\ V (FM) \ P (D) \ N (G) \\
\-qput-\ INTO \ LIQUID`
(16) Comments on the FM root subderivation in (15):

1. -- In (15a), the batic expressions given as specifying the DIRECTIONAL and the GROUND are not involved in the present subderivation; they will be treated in the next section.

2. -- In (15b), all those adjunction-pertaining operations which were commented on in the preceding English example have taken place.
   -- The lexical insertion onto the adjunction is indicated.
   -- No indication of a vacated subject position is given here as was for English (see next).

3. -- In (15c), the lexical-insertion has taken place.
   -- Atsugewi does not require the introduction of an expletive formative to fill the subject position vacated by the FIGURAL noun as does English.
   -- A viable surface-structure does not yet result at this stage, as did for the English example, because the FM subderivation represented here produces only the root of the sentential-verb.

* * *

Using the form Dirt to represent the meaning 'dirt-like material', the prose effect of each of the derivational stages indicated in (15) can be suggestively rendered in English surface-sentence style as in (17):

(17)

(a) Dirt moved into liquid
(b) (it) Dirt-moving into liquid
(c) (it) Dirted into liquid
The derived verbal meaning of the lexically-inserted FM root itself can correspondingly be represented in three equivalent formulations:

(18) -qput-: (a) 'for Dirt to move'
(b) 'for (it) to Dirt-move'
(c) 'for (it) to Dirt'

To afford at this point a more concrete notion of the typical Atsugewi FM root, several such -- among those presented here and in Part III -- are listed in (19). For each instance, there is given the following: (1) the underlying, FIGURE-specifying bathic noun -- represented in small caps both by a suggestive English word and, in parentheses, by a suggestive form which an Atsugewi linguist might employ, (2) the underlying nominal meaning of the FIGURAL noun, (3) the vadic FM root, in its morphophonemic shape, which is keyed in by the FIGURAL noun, and (4) the derived verbal meaning of the root, formulated in the style of (18a):

(19)

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRT (QPUT)</td>
<td>'dirt-like material'</td>
<td>'for dirt-like material to move/be-located'</td>
</tr>
<tr>
<td>-qput-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIMPNESS (SWAL)</td>
<td>'limp (not stiff/resilient) material'</td>
<td>'for limp (not stiff/resilient) material to move/be-located'</td>
</tr>
<tr>
<td>-swal-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICKINESS (STAQ)</td>
<td>'runny, &quot;icky&quot; material'</td>
<td>'for runny, &quot;icky&quot; material to move/be-located'</td>
</tr>
<tr>
<td>-staq-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANE (t)</td>
<td>'a planar object'</td>
<td>'for a planar object to move/be-located'</td>
</tr>
<tr>
<td>-t-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The term *system* is now applied to any closed set of bathic or vadic morphemes where the morphemes specify largely non-overlapping semantic areas and these areas, taken together, fairly completely constitute a particular semantic realm. In other terms it can be said that a system of n members fairly exhaustively partitions a particular semantic realm into n largely non-overlapping semantic areas.¹

Atsugewi has several such systems, as will be shown later. Of present relevance is the fact that a certain subset of the FIGURE-specifying bathic nouns in Atsugewi, and the subset of vadic FM roots which the nouns key in, are each systems.

The largely non-overlapping semantic areas specified by the members of the bathic noun system are rather inclusive, characterizable, e.g., as 'an inanimate object', 'an animate object', 'contained material', 'a set of objects'. This system of a dozen or so members fairly exhaustively partitions into the same number of areas the whole semantic realm of 'objects and materials'.

Correspondingly, the dozen or so members of the vadic FM root system non-overlappingly specify such inclusive semantic-areas as 'for an inanimate object to move/be-located', etc., and, taken together, fairly exhaustively partition the whole semantic realm of 'moving or located objects and materials'. The roots of this system can be seen to be quite comparable to the perhaps more familiar 'classificatory verbs' of Navaho.

The remainder of Atsugewi's FIGURAL nouns and corresponding FM roots -- some several score, including those listed in (19) -- are not part of any system. The semantic areas which the roots specify lie
within the semantic realm of 'moving/located objects/materials' but are not contiguous and, as compared with those specified by the systematic roots, are not so inclusive and are in some cases quite idiosyncratic.

Thus, beside a first tier of few systematic roots which provide realm-spanning broad specifications, as suggested by the diagram in (20a), Atsugewi has a second tier of many non-systematic roots which provide realm-dotting narrow specifications, as suggested by the diagram in (20b).

(20)  
(a) ________ (b) ________
3.2 The DG Suffix Subderivation

In Atsugewi, the DIRECTIONAL- and GROUND-specifying expressions in an underlying $S_T$ do not, as in English, remain at their original locations as distinct elements, and the latter expression does not, as in English, remain in its original form. Rather, by a transformational process to be termed conjunction, the expressions, with the categorial nodes to which they are attached, move into a relation of mutual adjunction with each other under a new node of distinct grammatical category. Specifically, the DIRECTIONAL prepositional with its P node and the GROUND nominal with its N node cojoin under a new adverbial, or 'ADV', node which specifies the combination of components DIRECTIONAL + GROUND, or 'DG'. Onto each particular such conjunction is then lexically-inserted a vadic morpheme or morpheme-string which is keyed to it. A vadic form thus inserted will be termed a DIRECTIONAL+GROUND-specifying adverb (-string) or, abbreviatedly, a DG adverb (-string). The DG adverb (-string) and its ADV node now move into a right-sided Chomsky-adjunction with the previously-formed FM root and its V node under a new V node which may be taken as specifying the whole of the transitory situation itself, or $s_T$, since under it are now represented all the components FIGURE, MOTIVE, DIRECTIONAL, and GROUND. The DG adverb (-string) remains at its adjoined location through succeeding derivational steps to appear at the surface immediately after the root as a suffix or suffix-train which will be termed the DIRECTIONAL+GROUND-specifying suffix (-train) or, abbreviatedly, the DG suffix (-train). The DG adverb has thus become a suffixal satellite to the root in the
verb-complex dominated by the latest-formed V node. The sequence of transformations which leads to a DG suffix (-train) will be termed the **DG suffix subderivation**. The set of all DG suffixes is closed.

While Atsugewi's underlying DIRECTIONAL-specifying prepositionals are like those of English: i.e., complex constructions of closed sets of bathic morphemes, it can be seen from the description of the DG suffix subderivation that the underlying GROUND-specifying nominals are not like those of English: i.e., vadic noun phrases drawn from the open set, but rather are like Atsugewi's underlying FIGURE-specifying nominals: i.e., bathic simple nouns which, taken together, constitute a closed set.

One additional feature of the closed set of DG suffixes in Atsugewi is that it constitutes a system. The several score members of this system approximately exhaustively partition into as many areas the whole semantic realm of 'DIRECTIONAL-paths oriented with respect to GROUND-objects'. So well-formed and exhaustive is the partitioning of this semantic realm that, for any actual translatory situation, the particular DIRECTIONAL-path and GROUND-object nearly always lie clearly within the semantic area specified by one or another DG suffix.

To illustrate the DG suffix subderivation, we turn for an example first to English, which, though atypically for it, does have several 'DG satellites' which arise by derivational processes homologous with those leading to the Atsugewi DG suffix. Thus, an underlying translatory structure wherein the bathic DIRECTIONAL prepositional -- here represented simply as **TO** -- has the meaning 'to' and the bathic GROUND noun -- here represented as **HOME** -- has the meaning 'home' derives into a surface
structure containing the vadic 'DG satellite' $home$. The derivation, in phrase-marker form, is represented for a particular example in (21):

(21)

(a)

$$S_t (s_t)$$

$$N (F) \quad V (Mm) \quad P (D) \quad N (G)$$

he drove TO his HOME

(b) $\Rightarrow$

$$S_t (s_t)$$

$$N (F) \quad V (Mm) \quad ADV (DG)$$

he drove TO his HOME $\underbrace{\text{home}}$

(c) $\Rightarrow$

$$S_t (s_t)$$

$$N (F) \quad V (Mm) \quad ADV (DG)$$

he drove $\underbrace{\text{home}}$

(d) (continued on following page)
(d) \[ \rightarrow \]

\[ S_T (s_I) \]

\[ N (F) \quad V (MmDG) \]

\[ V (Mm) \quad ADV (DG) \]

he \quad drove \quad home

i.e., he drove home
(22) Comments on the derivation in (21):

1. -- The structure in (21a) is actually an 'effective' structure where he is the 'AGENT', but is here for simplicity treated as an 'autic' structure (see section 5).

   -- In (21a), there has already taken place that transformational process typical of English whereby an external MANNER adverbial -- in this case, one specifying the piloting of a vehicle -- moves into adjunction with the MOTIVE verb -- here, MOVE -- and keys in the insertion of a MOTIVE+MANNER verb -- here, drive.

2. -- In (21b), the DIRECTIONAL prepositional with its P node and the GROUND nominal with its N node have cojoined under a new ADV node marked for specifying the combination of components DIRECTIONAL + GROUND, or 'DG'.

   -- For the phrase-marker representation of a cojunction, the diagrammatic convention is here employed of depending both cojoined nodes from the new node by slant lines.

   -- The lexical-insertion onto the cojunction is indicated.

3. -- In (21c), the insertion has taken place.

4. -- In (21d), the DG adverb and its ADV node have Chomsky-adjointed to the right of the Mm verb and its V node under a new V node -- marked for specifying the combination of components 'MmDG' -- which now dominates the just-enlarged verb-complex. Thus, in this verb-complex, the DG adverb has become a postposed free-word satellite to the Mm verb in homology with the Atsugewi case where the DG adverb becomes a suffixal satellite to the FM root.

   ***
For an Atsugewi example of the DG suffix subderivation, we take the underlying translatory structure previously seen in (15a):

\[
S, (s,)
\]

\[
\begin{array}{c}
N \ (F) \\
\text{DIRT}
\end{array} \quad \begin{array}{c}
V \ (M) \\
\text{MOVE}
\end{array} \quad \begin{array}{c}
P \ (D) \\
\text{INTO}_L
\end{array} \quad \begin{array}{c}
N \ (G) \\
\text{LIQUID}
\end{array}
\]

wherein the bathic DIRECTIONAL prepositional is represented as INTO_L and means 'to a point amidst (liquid)' and the bathic GROUND noun is represented as LIQUID and means 'liquid'. After the FM root subderivation, already shown in (15), the DG suffix subderivation ensues, leading to the appearance of the DG suffix -iát as represented in (23):
(23)

(a) \[ \rightarrow \rightarrow \]

\[ \text{ST} (s_T) \]

\[ \text{V (FM)} \quad \text{P (D)} \quad \text{N (G)} \]

\[ \text{-qput-} \quad \text{INTOL} \quad \text{LIQUID} \]

(b) \[ \rightarrow \]

\[ \text{ST} (s_T) \]

\[ \text{V (FM)} \quad \text{ADV (DG)} \]

\[ \text{P (D)} \quad \text{N (G)} \]

\[ \text{-qput-} \quad \text{INTOL} \text{LIQUID} \quad \text{-ict} \]

(c) \[ \rightarrow \]

\[ \text{ST} (s_T) \]

\[ \text{V (FM)} \quad \text{ADV (DG)} \]

\[ \text{-qput-} \quad \text{-ict} \]

(d) \[ \rightarrow \]

\[ \text{ST} (s_T) \]

\[ \text{V (s_T)} \]

\[ \text{V (FM)} \quad \text{ADV (DG)} \]

\[ \text{-qput-} \quad \text{-ict} \]
(24) Comments on the DG suffix subderivation in (23):

The stages in this derivation are the same as those for the English example in (21). The comments in (22) also apply here, except that:

1. -- In (23a), it is the FM root subderivation which has already taken place rather than the 'Mm verb subderivation' of the English example.

2. -- In (23d), the new V node formed by the adjunction of the DG adverb with the FM root could have been marked -- paralleling the 'MmDG' of the English example -- for specifying the combination of components 'FMDG', but since this latter makes up the whole of the transulatory situation itself, the V has been marked with 'sT'.

-- A grammatical surface structure is not yet present at this stage, there being still two more subderivations necessary.

***

In the same style in which the prose effect of (23a) was previously rendered in English as

(25a) (it) Dirted into liquid,

the structure in (23c) can be rendered -- using the devised word aliquid for the DG adverb -i'ot -- as

(25b) (it) Dirted aliquid,

and the structure in (23d) can be rendered -- using a hyphen to suggest the affixal boundedness of the surface Atsugewi morphemes -- as
(25c) (it) Dirted-aliq uid.

To afford a more concrete notion of the Atsugewi DG suffix system, we now present in (26) a portion of that system -- in particular, those DG suffixes which specify such DIRECTIONAL-paths and GROUND-objects as English would specify by using the preposition into plus a noun phrase. The morphophonemic forms of the suffixes appear on the left and their meanings on the right (some of the DG suffixes are obligatorily followed by either of -im, 'thither', and -ik', 'hither'; the rest cannot be so followed).

(26)

-ict
'into a liquid'

-cis
'into a fire'

-isp -u -im/-ik-

'into an aggregate'
[e.g., bushes, a crowd, a rib-cage]

-wam
'down into a gravitic-container'
[e.g., a basket, a cupped hand, a pocket, a depression in the ground, a lake basin]

-wamm
'horizontally into an areal-enclosure'
[e.g., a corral, a field, the area occupied by a pool of water]

-ipsnu -im/-ik-

'(horizontally) into a volumar-enclosure'
[e.g., a house, an oven, a crevice, a deer's stomach]

(continued on following page)
-tip -u -im/-ik.

'down into a (large) volumar-enclosure in the ground'
[e.g., a cellar, a pit for trapping deer]

-ikn -im/-ik.

'over-the-rim into a volumar-enclosure'
[e.g., a gopher-hole, a mouth]

-iks' -im/-ik.

'into a corner'
[e.g., the linear-corner formed by a wall and the floor,
the point-corner formed by two walls and the floor]

-ìc

'down onto-the-surface-of/into-the-substance-of the ground'

-cis' -im/-ik.

'down onto-the-upper-surface-of/into-the-substance-of
a solid (resting on the ground)'
[e.g., the top of a tree stump]

-iks

'horizontally onto-the-lateral-surface-of/into-the-substance-of
a solid (resting on the ground)'
[e.g., the side of a tree trunk]
3.3 The F Prefix Subderivation

In order to account for the meaning and form of certain surface structures in Atsugewi and, as will be seen later, in English as well, it is necessary to assume that a component of a semantic situation can be multiply specified -- i.e., concurrently specified by more than one expression -- in an underlying syntactic structure, and hence necessary to build in as a formal property of the latter that a constituent of it can be multiply particularized -- i.e., concurrently contain more than one expression (where each is attached to its own node and the nodes are of the same grammatical category). The constraint is imposed that, for any multiply particularized constituent, the concurrent expressions must participate in distinct subderivations such that they come to appear (whether or not incorporated in lexically-inserted morphemes) at distinct locations within the surface structure. We will introduce later a diagrammatic convention for representing a multiply particularized constituent and for marking each of the concurrent expressions therein for the particular subderivation in which it is to participate.

Of present relevance is the existence in Atsugewi, in addition to the bathic FIGURE-specifying nouns of the FM root subderivation, of a wholly distinct set of bathic nouns which can also specify the FIGURE, where a member from the former set and a member from the latter set can both appear, concurrently specifying the same FIGURE, in a single underlying structure. Here, the subderivation which ensues for the root-destined bathic noun is the same as described in section 3.1, while that for the new bathic noun is as follows:
The bathic morpheme keys in the insertion of a corresponding vadic morpheme which, together with its N node, then moves into daughter-adjunction to the left of the already-formed sτ-specifying V node, where it remains to appear at the surface as an immediate prefix to the root. A prefix arising thus will be termed a FIGURE-specifying prefix or, abbreviatedly, an F prefix, and the sequence of transformations which leads to it, the F prefix subderivation.

The bathic nouns which participate in the F prefix subderivation and the F prefixes to which they lead each constitute a closed set of some two dozen forms. Each closed set is, moreover, a system which partitions a portion of the semantic realm of 'objects, materials, and energies (e.g., heat, light)' into some two dozen semantic areas, these being wholly distinct from those specified by the bathic nouns (systematic or otherwise) of the FM root subderivation.

A sentential-verb with a FIGURE+MOTIVE-specifying root and a FIGURE-specifying prefix can thus be seen to contain two concurrent, but independent, specifications of the single FIGURAL component of the translatory situation to which the sentential-verb as a whole refers. The F prefix system may also occur in sentential-verbs with roots of the other derivational types treated in this paper. Except when appearing with a MOTIVE+DIRECTIONAL+GROUND-specifying root (section 6), in which case a prefix of this system contributes, within the sentential verb, the sole specification of the FIGURE, the same conditions of concurrent, independent specification as expressed above obtain.

To illustrate the F prefix subderivation we take the same underlying structure as was used in the previous Atsugewi examples, but now
containing an additional FIGURE-specifying bathic noun. This bathic
noun -- here represented as *FREEBOD Y* -- specifies the FIGURE as 'an
object or material which is in free-fall or free-flight' and leads to
the F prefix *uh*-

The field-elicited sentential-verb on which the present example
is based can be alternatively interpreted as containing not the F prefix
given here, but an *FC* prefix (explained in sect. 5.2) of the same
phonologic shape:

*uh-* 'from gravity/the FIGURE's own weight acting on
the FIGURE'

The latter is in fact the preferable interpretation since FM roots
inserted onto underlying *MOVE*, rather than underlying *BE* _L_, do not
generally take an F prefix. However, the former interpretation is used
here in order to facilitate the present step-by-step exposition of the
Atsugewi sentential-verb. More suitable examples of sentential-verbs
with an F prefix will be found throughout Part III. The F prefix
subderivation, then, is presented in (27):
(27)

(a) \[ S_T (s_T) \]
\[ (F) N_P: FREEBODY \]
\[ N_R: DIRT \]
\[ \rightarrow MOVE \]
\[ \rightarrow INTO_L \]
\[ \rightarrow LIQUID \]

(b) \[ S_T (s_T) \]
\[ N_P (F) \]
\[ FREEBODY \]
\[ uh- \]
\[ V (s_T) \]
\[ V (FM) \]
\[ adv (DG) \]
\[ -qput- \]
\[ -ict \]

(c) \[ S_T (s_T) \]
\[ V (s_T) \]
\[ N_P (F) \]
\[ V (FM) \]
\[ adv (DG) \]
\[ uh- \]
\[ -qput- \]
\[ -ict \]
(28) Comments on the F prefix subderivation in (27):

1. -- A diagrammatic representation of multiple specification which is in certain respects more consonant with usual phrase-marker conventions might appear as in (i):

(i)

Rejecting this as too cumbersome, we instead represent multiple specification as in (27a), where a single constituent-line is drawn and the concurrent expressions appear to the right of their nodes connected by a colon. The subderivation in which each expression is to participate is indicated by a subscript to its categorial node:

\[ R \] for a subderivation leading to the root, and
\[ P \] for a subderivation leading to a prefix.

2. -- In (27b), the FM root and DG suffix subderivations have taken place.

-- The lexical-insertion onto the bathic noun of the F prefix subderivation is indicated.

3. -- In (27c), the lexical-insertion has taken place, and the inserted morpheme has daughter-joined to the left of the \( s_T \)-specifying V, thus
becoming the second satellite to the FM root. The $s_T$-specifying $V$ -- the node of the growing verb-complex -- at this stage dominates the core of the still-to-be-completed sentential-verb.

***

The prose-effect of the last stage, (27c), of the subderivation can be rendered in English as

(it) freebody-dirted-aliiquid

No indication of other members of the $F$ prefix system is given here, because a fairly thorough listing of their forms and meanings is given in section 12 of Part II.
3.4 The G Prefix Subderivation

Of the bathic nouns treated in the preceding section, where they were discussed as specifying the FIGURE of an \( s_T \), a subset -- those dozen or so which specify 'objects' (rather than 'materials' or 'energies') -- can also specify the GROUND of an \( s_T \). When performing this specificatory function, a bathic noun of the subset appears in an underlying structure in the GROUND-specifying constituent (concurrently with the other expressions there). With the bathic noun thus located, there ensues the same sequence of transformations as constitutes the F prefix subderivation: the bathic morpheme keys in the same vadic morpheme as before, and this morpheme moves into a left-sided daughter-adjunction to appear at the surface as an immediate prefix to the root. A prefix arising in this way will be termed a GROUND-specifying prefix or, abbreviatedly, a G prefix, and the sequence of transformations leading to it will now be termed the G prefix subderivation. The bathic nouns leading to the G prefixes and the G prefixes themselves are each, of course, closed sets, and also constitute systems partitioning the semantic realm of 'objects' into some dozen areas.

The one difference between the FIGURE-specifying prefix system and the GROUND-specifying prefix system is that the latter may appear only in sentential-verbs with an 'MDG' or 'FMDG' root (see sections 6 and 7). A sentential-verb with a G prefix and either of these roots thus contains two concurrent, independent specifications of the GROUND of the translatory situation to which the sentential-verb as a whole refers. Although it is semantically plausible that such a sentential-verb could
contain both a specification of the GROUND with a G prefix and a specification of the FIGURE with an F prefix, such a circumstance is syntactically disallowed, since both prefix types occupy the same surface position-slot. Thus, either one or the other prefix type (if not an FC or BC prefix, described in sections 5.2 and 5.3) must appear in the position-slot with a corresponding specificatory emphasis on one or another component of the referred-to translatory situation.

The G prefix subderivation is not illustrated here since it is so similar to the F prefix subderivation shown in (27). The G prefixes themselves are indicated in section 12 of Part II and exemplary sentential-verbs containing them appear throughout Part III.
3.5 The Inflectional Subderivation

By way of introduction to the presentation of certain aspects of the Atsugewi inflectional system, some theoretical issues are first discussed.

We theorize that for each language there is a particular closed set of bathic noun phrases which constitutes a system that exhaustively partitions the whole semantic realm of objects into 'personal' categories and which keys in the lexical-insertion of the vadic personal-pronominal forms of that language. E.g., for English, something like the five bathic noun phrases in (29) may well underlie the vadic pronouns in (30) (I is written with a lower case letter to indicate that it is vadic):

(29) (a) the ENTITY SPEAKING
(b) the ENTITY SPOKEN TO
(c) the MALE ENTITY SPOKEN ABOUT
(d) the FEMALE ENTITY SPOKEN ABOUT
(e) the THING SPOKEN ABOUT

(30) (a) i
(b) you
(c) he
(d) she
(e) it

(To represent the head noun of the bathic NP's in (29a-d), the term ENTITY, with its non-restrictive suggestion of sentience and selfhood, has been chosen over PERSON since in stories, fanciful speech, and the like the object to be specified is not restricted to humanhood.)

In some semantic cases, e.g., where the 'AGENT of an effective situation' (to be discussed in section 5.3) is to be specified, a personal bathic expression containing the term ENTITY -- e.g., any of the expressions in (29a-d) -- is deemed sufficient for such specification
as it stands. In other semantic cases, e.g., where the FIGURE of a
translatory situation is to be specified, such an expression must, we
theorize further, appear together with an additional bathic noun like
BODY in a larger noun phrase, this last now being deemed sufficient for
the specification required. Thus, e.g., the personal expression in
(29a) would in the latter case appear in an expanded noun phrase
something like

\[(31) \quad \text{the BODY of the ENTITY SPEAKING.}\]

Lexical insertion for such an expanded noun phrase proceeds in two
stages: first, the vadic pronoun which is keyed to the simple personal
expression is inserted, as indicated in (32a), resulting in an expression
of mixed bathic and vadic forms, as shown in (32b); then, a second vadic
pronoun is inserted onto the mixed expression, as indicated in (32c),
and this pronoun constitutes the form finally appearing at the surface,
as shown in (32d). The second pronoun is marked with the subscript \(B_i\)
as a mnemonic for the morpheme BODY underlying it.

\[(32) \quad \begin{align*}
(a) \quad \text{the BODY of the ENTITY SPEAKING} \\
(b) \quad \text{the BODY of } i \\
(c) \quad \text{the BODY of } B_i i \\
(d) \quad i \_B
\end{align*}\]

In a semantic case similar to the preceding, where the 'EXPERIENCER
of an emotive situation' (not discussed in this paper) is to be
specified, a personal expression like (29a) might be posited to appear
obligatorily together with an additional bathic noun representable as MIND or FEELINGS in an expanded noun phrase something like

\[(33) \quad \text{the MIND of the ENTITY SPEAKING}\]

which would then be deemed sufficient for the specification required. For English, a two-stage lexical-insertion onto such an expression would then give the vadic pronoun $M^i$.

The rationale for positing such distinct bathic noun phrases as those in (29a), (31), and (33) is to be able to represent at the underlying level such intuitively-evident semantic distinctions as between the 'I' of

\[(34) \quad \text{I fell down, or I weigh 150 lbs.},\]

which specifies my body and hence is presumably an instance of the $B^i$ form deriving from (31), and the 'I' of

\[(35) \quad \text{I am angry, or I like her},\]

which specifies my mind or feelings and hence is presumably an instance of the $M^i$ form deriving from (33). It is noteworthy that apparently for all languages there are no distinctions in surface pronominal form corresponding to such distinctions in underlying form as in (29a), (31), and (33) or to such distinctions in specification as in (34) and (35). Thus, there is, e.g., no phonological distinction in English between $B^i$ and $M^i$.

A few remarks are now in order on the two-stage insertional process -- whereby a vadic form is inserted onto an expression already
containing an inserted vadic form -- which was illustrated in (32) for the bathic personal system and which will appear several more times in the succeeding exposition for other areas of syntax. First, it is to be noted that in some areas of syntax, such as that of the personal system, the later-inserted vadic form is always phonologically identical to the earlier (e.g., the $\_z$ of (32d) is identical to the $\_z$ of (32b)), whereas in other areas, the later form sometimes differs from the earlier. Secondly, it is an important observation that for still other areas of syntax, it is only the later-inserted vadic form which ever appears at the surface, the earlier form never so doing. Assuming that for such areas there are good syntactic reasons (not discussed here) for considering the earlier form vadic rather than bathic, it thus becomes necessary to extend the previous notion of 'vadic' to comprehend such non-appearing forms. A non-appearing vadic form, like a bathic form, requires special representation; accordingly the convention will henceforth be employed of placing a line over a (devised) form written in lower-case letters.

In Atsugewi, the bathic personal system consists of ten or so members which distinguish such characteristics in the objects to be specified as person (first, second, third), number (singular, dual, plural), and grouping (inclusive, exclusive). E.g., three particular members of the system may be represented by the bathic noun phrases in (36):

(36) \( \begin{align*} 
& (a) \quad \text{the ENTITY SPEAKING} \\
& (b) \quad \text{the ENTITY SPOKEN TO} \\
& (c_1) \quad \text{the ENTITY (-IES)} \\
& (c_2) \quad \text{the THING(-S)} \\
& \{ \text{SPOKEN ABOUT} \end{align*} \)
The category (36c) is here shown in two parts out of semantic and underlying-structural considerations: e.g., if (36c) is to specify the FIGURE of a translatory situation, the expression in (36c₁) will have to appear together with the batic noun BODY (-IES) in an expanded noun phrase, while the expression in (36c₂) will appear as is; or, if (36c) is to specify the AGENT of an effective situation, only (36c₁) and not (36c₂) can be used. Conversely, the two parts of (36c) are here shown as a single category out of surface-formal considerations: no portion of the Atsugewi surface pronominal system overtly marks distinctions as to entityhood (or number or, for that matter, gender) among 'SPOKEN ABOUT' or, as they will henceforth be designated, third-personal objects.

Now, it is a requirement in Atsugewi that the FIGURE of an s₇ -- aside from whatever other batic expressions may concurrently be specifying it in the underlying translatory structure -- must be specified as to its personal characteristics by a member of the batic personal system. This member of the system, attached to its N node in the underlying FIGURAL constituent, then undergoes the following inflectional subderivation:

(37)

1. -- Onto the FIGURE-specifying personal batic expression is lexically-inserted a vadic form by the one- [in the case of (36c₂)] or two- [in all other cases] stage process. In either case, the vadic form is still non-surface-appearing.
2. -- The vadic form becomes marked for functioning as grammatical subject.
3. -- At the same time as (1), onto the bathic expression specifying the MODE component of the $s_T$ (not previously discussed) is lexically-inserted a non-surface-appearing vadic form.

4. -- The marked personal vadic form and the modal vadic form cojoin.

5. -- Onto this conjunction of non-surface-appearing vadic forms is lexically-inserted the particular set of surface-appearing vadic morphemes which is keyed to it.

6. -- The member morphemes of the inserted set move to the appropriate inflectional position-slots which make up the outer periphery of the surface sentential-verb.

To illustrate the inflectional subderivation we take the same underlying structure as was used in the previous Atsugewi examples, but which now contains an additional constituent, labeled 'MODAL' and specifying the MODE component — symbolized as 'u' — of the $s_T$, and contains additionally within its FIGURAL constituent an expression of the personal system. For this example, the expression attached to the MODAL node is chosen as FACTUAL and the personal expression as the THING (-S) SPOKEN ABOUT [(36c$_2^1$)], abbreviated indicated as 'T-S-A'. This particular choice of expression ultimately leads to the vadic inflectional affix-set 'u' - a, as shown in (38):
(38)

(a) 

\[
\begin{array}{c}
S_T (s_T) \\
\text{(F) } N_I: \text{T-S-A} \\
\text{Np: FREEBODY} \\
N_R: \text{DIRT} \\
\end{array}
\]

\[
\begin{array}{c}
\text{MOVE} \\
\text{INTO_L} \\
\text{LIQUID} \\
\text{FACTUAL} \\
\end{array}
\]

(b) \Rightarrow

\[
\begin{array}{c}
S_T (s_T) \\
\text{N_I (F)} \\
\text{T-S-A} \\
\bar{x} \text{ (subj)} \\
\text{uh-} \\
\text{-qput-} \\
\text{-ict} \\
\end{array}
\]

(c) \Rightarrow 

\[
\begin{array}{c}
S_T (s_T) \\
V (s_T) \text{ INFLECTION (F}_\mu) \\
\text{...} \\
N_I (F) \text{ MODAL (}_\mu) \\
\bar{x} \text{ (subj)} \\
\bar{y} \\
\text{-w- -a} \\
\end{array}
\]

(d) \Rightarrow

\[
\begin{array}{c}
S_T (s_T) \\
V (s_T) \text{ INFLECTION (F}_\mu) \\
\text{...} \\
\text{-w- -a} \\
\end{array}
\]

(e) \Rightarrow

\[
\begin{array}{c}
S_T (s_T) \\
V (s_T) \text{ IN-} \\
\text{-FLEC-} \\
N_I (F) \\
V (FM) \\
ADV (DG) \\
\text{-TION (F}_\mu) \\
\text{-a} \\
\end{array}
\]
(39) Comments on the inflectional subderivation in (38):

1. -- In (38a), the N node dominating the personal expression is
given the subscript '₁' to indicate that the expression is to
participate in the inflectional subderivation.

2. -- In (38b), the previously treated subderivations have all taken
place.
   -- The lexical-insertions onto the personal and modal expressions
   by non-surface-appearing vadic forms, represented as 'ᵦ' and 'ᵦ', are
   indicated.
   -- The FIGURAL vadic form is marked for functioning as grammatical
   subject.

3. -- In (38c), the lexical-insertions have taken place.
   -- The nodes dominating the personal and modal vadic forms have
   cojoined under a new node labelled INFLECTION.
   -- The lexical-insertion onto the conjunction by the surface-
   appearing vadic morpheme-set keyed to it is indicated.

4. -- In (38d), the lexical insertion has taken place.

5. -- In (38e), the INFLECTION node has moved into daughter-adjunction
   with the s₁-specifying V node.
   -- The member morphemes of the morpheme-set dominated by the
   INFLECTION node have moved to their respective affixal positions.
   -- The subnodes which make up the single, but discontinuous,
   INFLECTION node are connected to the V node by wavy lines.

***
The inflectional subderivation completes the series of subderi-
vations which a translatory structure must undergo. By moving into it
as a satellite, the INFLECTION node has rendered the verb-complex
fully grown so that the s_T-specifying V node now finally dominates a
complete surface sentential-verb.

We now consider the sentential-verb just derived in (38) purely
from the surface level, synthesizing its phonologic shape and meaning
from those of its component morphemes, in order to introduce the format
in which sentential-verbs will be presented throughout Part III:

Indicating the morphophonemic shape of a vadic morpheme on the
left and the meaning on the right, the presently-discussed surface
sentential-verb contains in its centralmost position-slot the FIGURE+ MOVE-specifying root

-qput- 'for dirt-like material to move',
in its first-suffixal position-slot the DIRECTIONAL+GROUND-specifying suffix

-ic't 'into liquid',
in its first-prefixal position-slot the FIGURE-specifying prefix

uh- 'an object or material which is in free-
fall or free-flight'

and in the position-slots of the outer-periphery the inflectional
affix-set

'- w- -a 'third-person [FIGURE, subject], factual
[MODE]'
With its component vadic morphemes arrayed in their proper surface-structural adjacent sequencing, the sentential-verb appears as

/' - w- uh- qput -i^t -a/'

The sentential-verb in this morphophonemic surface-structural form then passes through the phonological component (which in Atsugewi is quite elaborate and, as can be seen in many of the examples of Part III, often produces phonetic sequences disguisingly divergent from their morphophonemic precursors), coming out with the specifications for its actual pronunciation, which can be represented in broad phonetic transcription in the present case as

[woq^putf^cta]

Taking together the meanings of the vadic morphemes, the full, specific meaning of the whole sentential-verb, or what will be termed its literal translation, can be represented as:

'dirt-like material, which was material in free-fall, (and which was the thing spoken about), (in fact) moved into liquid'

In the style introduced previously for rendering the effect of an Atsugewi surface sentential-verb by a devised English construction patterned after, and suggestive of, the sentential-verb, the present example may be represented (using it for 'third-person [FIGURE]' and enclosing this form in parentheses to indicate the lack of any simple correspondence to a particular morpheme) by what will be termed its
rendered translation as:

'(it)-freebody-dirted-liquid'

Finally, we note that a speaker of both languages will often translate an Atsugewi sentential-verb by an English sentence which contains words of very specific reference not implied by the sentential-verb. Such specific reference depicts a specific situation to which the sentential-verb may, however, be used to refer. Any English sentence of this sort will be termed a *casual translation*, and one such for the present Atsugewi example might be:

'the ashes from the fire fell into the soup'

In concluding this section, we give an instance of the appropriate use in Atsugewi of an expanded noun phrase like the *body of the entity speaking*: an underlying structure which contains in its *figural constituent* this personal expression concurrently with the N_p *freebody* and the N_r *linear-object*, and contains in its *motive constituent* *move*, in its *directional constituent* *along*, and in its *ground constituent* a *surface*, and which has a *manner constituent* containing the adverb *axially*, derives into a perfectly acceptable surface sentential-verb for which the literal translation may be represented as

'a linear-object, which was an object in free-fall or free-flight, and which was the body of the entity speaking, moved axially along a surface'

and for which one casual translation can be 'I slid (lengthwise) along the ice'.
3.6 External Expressions

Thus far it has been seen that FIGURE and GROUND must be specified in an underlying translatory structure in English -- except for the examples cited as atypical for this language -- by open-set vadic noun phrases which survive to the surface as expressions external to the verb-complex, whereas in Atsugewi they need only be specified by closed-set bathic nouns which derive to the surface incorporated within the verb-complex (i.e., the sentential-verb). Since, in the latter case, the memberships of the closed sets -- although large -- are fixed, it is clear that the Atsugewi sentential-verb is ultimately limited in the distinctional delicacy with which it can specify the infinitude of (real, conceived, etc.) circumstances. However, there does additionally exist in Atsugewi the option that, of the FIGURE and GROUND, each -- aside from whatever bathic nouns are already specifying it -- may be concurrently specified by an open-set vadic noun phrase which, homologously with English, survives to the surface as an expression external to the sentential-verb.

To illustrate the subderivation which leads to an external NP, we turn first to the atypical examples of English. Taking first an example parallel to that in (11), we allow the FIGURE to be specified not only by the bathic noun RAIN, which participates in a subderivation leading to the 'FM verb' rain, but concurrently by the vadic noun phrase polluted water, as in (40):
(40)

(a) 

\[ S_T (s_T) \]

\[ N_E: \text{polluted water} \]
\[ N_R: \text{RAIN} \]

\[ V (M) \]
\[ P (D) \]
\[ N (G) \]

\[ \text{MOVE into the reservoir} \]

(b) \[ \Rightarrow \]

\[ S_T (s_T) \]

\[ N_E (F) \]
\[ N_R (F) \]
\[ V (FM) \]
\[ V (M) \]

\[ \text{RAIN MOVE} \]

\[ \text{polluted water rain into the reservoir} \]

(c) \[ \Rightarrow \]

\[ S_T (s_T) \]

\[ N_E (F) \]
\[ V (FM) \]
\[ P (D) \]
\[ N (G) \]

\[ \text{polluted water rain into the reservoir} \]

i.e., (with tense)

polluted water rained into the reservoir
(41) Comments on the derivation in (40):

1. -- In (40a), the first FIGURAL N has been marked with the subscript 'E' to indicate that it is to become an external expression.
   -- The second FIGURAL N has been marked with the subscript 'R' to indicate that it participates in a subderivation homologous with Atsugewi's root-forming subderivation.

2. -- In (40b) and (40c) are repeated the derivational stages shown in (11b) and (11c).

3. -- In (40c), since an external expression now fills the subject position, there is no vacancy for an expletive form (it) to fill, as in (11c).

   ***

Taking next the English example in (21), we allow the GROUND to be specified not only by the bathic noun phrase (his) HOME, but concurrently by the vadic noun phrase his cottage in the suburbs. The DIRECTIONAL is correlativey specified here not only by the bathic construction represented as TO, but concurrently by the vadic preposition to. The two bathic expressions still participate in the subderivation leading to the 'DG satellite' home, as in (21), while the vadic expressions remain external to the verb complex, as indicated in (42):
(42)

(a)

\[ S_T (s_T) \]

\[ \begin{array}{c}
N (F) \\
V (Mm) \\
(D) P_E:to \\
PS:TO
\end{array} \]

\[ \begin{array}{c}
he \\
drove
\end{array} \]

\[ \begin{array}{c}
(G) N_E:his
cottage in
the suburbs
\end{array} \]

\[ N_S:his
HOME \]

(b) \[ \Rightarrow \Rightarrow \]

\[ S_T (s_T) \]

\[ \begin{array}{c}
N (F) \\
V (MmDG) \\
P_E (D) \\
N_E (G)
\end{array} \]

\[ \begin{array}{c}
he \\
drove \\
home
\end{array} \]

\[ \begin{array}{c}
to
\end{array} \]

\[ \begin{array}{c}
his
cottage in
the
suburbs
\end{array} \]

i.e.,

he drove home to his cottage in the suburbs
(43) Comments on the derivation in (42):

1. -- In (42a), the lower of the concurrent P and N nodes have been marked with the subscript 's' to indicate that they participate in a subderivation homologous with Atugewi's DG suffix-forming subderivation.

2. -- In (42b), there have taken place the derivational steps indicated in (b) through (d) of (21).

***

To illustrate for Atugewi the subderivation leading to external expressions, we take the underlying structure derived in (38) but now amplified as follows:

-- the FIGURE, which was last specified by three concurrent bathic nouns, is now additionally specified by the Atugewi vadic noun phrase equivalent of the root;

-- the GROUND, which was last specified only by the bathic noun LIQUID, is now additionally specified by the Atugewi vadic noun phrase equivalent of the creek;

-- and, correlative with the additional GROUND specification, the DIRECTIONAL, which was last specified only by the bathic construction represented as INTO, is now additionally specified by the Atugewi vadic prepositional approximately equivalent to English to.

In the derivation of this amplified underlying structure, all the bathic expressions still participate in the subderivations previously described as appropriate to them, thus leading to the formation of the sentential-verb, while the vadic expressions remain external to that
sentential-verb. For clarity in the presentation of the derivation of this underlying structure -- the final development of our running example -- lexical-insertions are not carried out but only indicated; thus, all underlying bathic forms and all transformationally-produced adjunctions and conjunctions can be clearly seen at every stage, as presented in (44):

(44)

(a)

\[
S_T (s_T)
\]

\[
(F) N_E: \text{the soot} \quad V \quad (M) \quad (D) P_E: \text{to} \quad (G) N_E: \text{the creek}
\]

\[
N_I: \text{T-S-A} \quad P_S: \text{INTO}_L \quad N_S: \text{LIQUID}
\]

\[
N_P: \text{FREEBODY} \quad \text{MOVE}
\]

\[
N_R: \text{DIRT}
\]

(b) \implies

\[
S_T (s_T)
\]

\[
(F) N_E: \text{the soot} \quad V \quad (FM) \quad (D) P_E: \text{to} \quad (G) N_E: \text{the creek}
\]

\[
N_F: \text{T-S-A} \quad P_S: \text{INTO}_L \quad N_S: \text{LIQUID}
\]

\[
N_P: \text{FREEBODY}
\]

\[
N_R (F) \quad V \quad (M)
\]

\[
\text{DIRT} \quad \text{MOVE}
\]

\[
-\text{qput-}
\]
(45) Comments on the derivation in (44):

1. -- In (44a), the MODE-specifying constituent is omitted for simplicity.

2. -- In (44b), there has taken place the FM root subderivation first shown in (15).

3. -- In (44c), there has additionally taken place the DG suffix subderivation first shown in (23).

4. -- In (44d), there has additionally taken place the F prefix subderivation first shown in (27).

5. -- In (44e), there has additionally taken place the inflectional subderivation first shown in (38). For suggestiveness, the \( N_1 \) and MODAL nodes are here shown without having been put through their proper cojunctival and insertional steps; accordingly, of course, they are not to be interpreted as immediately dominating the vadic inflectional morphemes shown under them.

6. -- Also in (44e), the vadic expressions, which have been unaffected by the preceding subderivations, have remained to appear externally to the sentential-verb, and are now given in their actual Atsugewi forms.

* * *

The vadic morphemes of the surface structure in (44e) are shown alone, in morphophonemic form, in (46):
(46) \[\text{niqap } 'w-\text{uh- qput -i}t^a \text{ cumi:y -i?}/\]

Word-order in Atsugewi, though extremely free, has certain preferential tendencies; independent noun phrases are optionally, though preferentially, preceded by the marker \(c\). The somewhat preferable form of the sentence in (46) is as follows:

(47) \[ 'w-\text{uh- qput -i}t^a c \text{ niqap c cumi:y -i?}/\]

In broad phonetic transcription, this sentence can be represented as in (48):

(48) \[\text{\{woq\'}puti}^a_t^a \text{ c naqap c cum-e-yi?}].\]

The literal translation of the surface structure in (44e) can be represented as:

'dirt-like material, which was material in free-fall, (and which was the thing spoken about), and which was the soot, moved into liquid, which was the creek.'

The rendered translation can be represented as:

'soot (it)-freebody-dirted-aliquid creek-to'.

And a casual translation might simply be:

'the soot fell into the creek'.

Though it will not be applied rigorously in this paper, we introduce the notion of a dual-category node, to be represented by the
notational convention 'C₁/C₂'. Such a node is asserted to be of one grammatical category as a constituent dominated by a higher node and of another grammatical category as a dominator of its own constituents. Of immediate relevance is the fact that in the structure in (44e) the sentential-verb node functions grammatically as a verb beside the external prepositional and pair of nominals under the highest S_T node, whereas it functions grammatically as a sentence over the root and satellites. Using the new notational convention for a dual-category node, the structure in (44e) can thus be represented as in (49):

(49) 

```
  S_T (S_T)  
  /        \  
 N_E (F)   V/S (S_T) P_E (D) N_E (G)  
  \        /  
 INFLEC- Np (F) V (FM) ADV (DG) -TION (F_u)
```

Similarly, a sentential structure functioning as a nominal, as happens twice in (50) (a sentence type to be encountered later):

(50) the aerial('s) coming down off the roof resulted from the branch('s) falling on it

can be represented, using the new notation, as in (51):

(51) 

```
  S  
  / \  
 N/S (S_T) V P N/S (S_A)
```

One advantage of the dual-category node written in 'slash-category' notation over, say, two distinct categorial nodes written one under the other is that, for the former, a parenthesized semantic marking need be given only once and clearly indicates that, though there are two grammatical functions, only one semantic component or situation is being specified.
4. Theoretical Notes on the Sentence in English and Atsugewi

4.1 Efficiency and Groundedness of Information

We now undertake to compare an English sentence and an Atsugewi sentence as to the efficiency or redundancy and the 'foregroundedness' or 'backgroundedness' with which their informational content is typically presented.

To bring the comparison into greater relief, we consider sentences which specify a situation much more complex than an $s_T$, in fact which contain the specifications for no fewer than seven objects with distinct semantic functions in the situation: specifications not only for the FIGURE and GROUND, as already discussed, but also for the INSTRUMENT and AGENT, to be discussed below, as well as for the 'BENEFECTEE', the 'CO-DOER', and the 'AGITANT'. In Atsugewi, as it happens, these seven objects and their functions -- whether or not they are concurrently specified by external expressions -- must be specified within the sentential-verb. In the latter, we note just to provide a little detail, the FIGURE-, GROUND-, and INSTRUMENT-functioning objects are specified as to their semantically more-contentful characteristics, whereas the otherwise-functioning objects are specified at most as to their 'personal' characteristics or, in some cases, merely as to their presence in the situation.

Now, if it is necessary for a speaker to specify the seven objects, with their functions, in some detail -- such as can be accomplished by external expressions-- the English sentence, lacking a sentential-verb,
proves the more efficient instrument than the Atsugewi sentence. The latter, in addition to doing what English does with external expressions, must redundantly re-specify the objects and their functions in its sentential-verb. For example, an English sentence would simply contain seven external NPs and function-indicators (either positional or prepositional) as in (52):

\[(52) \text{the girl} \quad \text{had} \quad \text{the boy, together with his friend,}\]
\[
\text{AGITANT} \quad \text{AGENT} \quad \text{CO-DOER}
\]
\[
\text{shove the ashes into the lake with their feet}\]
\[
\text{FIGURE} \quad \text{GROUND} \quad \text{INSTRUMENT}
\]
\[
\text{for her father,}\]
\[
\text{BENEFACTEE}
\]

while the informationally-equivalent Atsugewi sentence must contain not only the equivalents of the English NPs and function-indications, as represented in (53):

\[(53) \text{girl-AGITANT, boy, his friend-togetherwith, ashes,}\]
\[
\text{lake-to, their feet-with, her father-for,}\]

but also a sentential-verb which redundantly re-specifies the objects (as to certain of their characteristics) and their functions, as represented in rendered translation in (54):

\[(54) \text{she-footly-dirted-aliquid-for [someone]-togetherwith}\]
\[
\text{[someone]-had-him.}\]
On the other hand, if it is sufficient for a speaker merely to specify the presence in a situation of certain functional relations involving objects, together with certain minimal characteristics of those objects, an Atsugewi sentence containing solely a sentential-verb proves the more efficient instrument than the English sentence. The latter, in order to specify the presence of the functional relations at all, has no recourse but to contain entire external NPs, thereby over-specifying the characteristics of the objects.

In this second circumstance, the object specifications in the Atsugewi sentential-verb differ from those in the external NPs of English along the additional dimension of groundedness. We will claim that for the most part information about a component of a situation is foregrounded, or called attention to, when specified by an overt external vadic expression and is backgrounded, or not called attention to, when specified by an incorporated bathic expression. For example, information about the MANNER component is foregrounded in the adverbial by plane in the sentence

(55) he went to New York by plane,

whereas it is backgrounded in the verb fly (< GO-BY-PLANE) in the sentence

(56) he flew to New York.

Thus, in the circumstance where an Atsugewi sentence contains only a sentential-verb and the most closely equivalent English sentence must contain external NPs, information about objects is nicely backgrounded
in the former but necessarily foregrounded in the latter; if having the option to background is considered an advantage, Atsugewi clearly has the advantage over English. For an example, if the Atsugewi sentential-verb derived in (38), here shown in rendered translation:

\[(57) \quad \text{(it)-freebody-dirted-liquid,}\]

is compared with the English sentence which is most closely equivalent to it in information-content (and is at the same time colloquial):

\[(58) \quad \text{the dirt fell into the water,}\]

it can be seen that information about the FIGURE and GROUND is backgrounded in the former in the root and suffix whereas it is foregrounded in the latter in the subject NP and the prepositional-object NP. The English sentence which is most closely equivalent to the Atsugewi sentential-verb in backgroundedness:

\[(59) \quad \text{it fell in}\]

is, however, inferior to it in information-content, for the sentential-verb additionally specifies that the 'it' is a dirty one and the entrance is a liquid one.
4.2 A Principle of Multiple Specification

We now adduce a certain principle relating to multiple specification:

(60) expressions which concurrently specify a particular component of a situation are each independently accountable to that component for their appropriateness and not to each other;

in other words, their appropriateness depends on language-situation relations, not on intra-language relations.

One possible relation between concurrent nominal expressions: that the vadic NP always specifies a particular instance of a generic category specified by the bathic N, may at first seem to hold, but can on closer inspection be seen not to. Thus, in the previously-used example

(61) he drove home to his cottage in the suburbs,

the external NP, *his cottage in the suburbs* -- or any NP which might appropriately stand in its place -- may seem to specify a particular instance of a generic category specified by the bathic noun *home* (here incorporated in the adverbial satellite *home*). That no such membership-relation from vadic NP to bathic N holds can be seen in a sentence like

(62) he walked home to his hotel room,

it being clear that a hotel room is not always an instance of a home (for that matter it can be seen that no membership-relation holds in
the reverse direction either, since a home is not always an instance of a hotel room). Since the satellite and NP of the sentence in (62) are appropriate only if the GROUND object is in fact both a home and a hotel room, it is clear from this example that, as per the principle in (60), the only relevant relation is between the expressions and the situational (actual) object in reference: that the appropriateness of the former is solely dependent on the correctness with which they each, independently, specify the latter.

Similarly for the Atsugewi example derived in (44), here shown in rendered translation:

(63) soot (it)-freebody-dirted-aliquest creek-to,

the GROUND object must be both a liquid and a creek for the presence of -aliquest and creek each to be appropriate. If in fact the GROUND object is a frozen creek, the suffix -aliquest would be inappropriate and the sentence in (63), as a whole, would be unacceptable as a specifier of the situation as a whole. The fact that a creek is not always a liquid, as when it is frozen, again points out the absence of any member-relation from a vadic NP to a concurrent bathic N.

Another possible relation between concurrent nominal expressions: that a particular vadic NP inherently requires pairing with a particular bathic N in a form of grammatical agreement, must also be ruled out. Thus, in Atsugewi, the choice of a particular external FIGURE-specifying NP does not automatically determine the sentential-verb's FM root (which incorporates a bathic FIGURE-specifying N). We can illustrate this fact with the homologous case in Navaho. Here, an external
FIGURAL NP meaning 'the rug' can correctly appear with the classificatory verb which specifies the FIGURE as 'a flexible planar object' if the FIGURAL object is a rug spread out. But the same NP can also correctly appear with the verb which specifies the FIGURE as 'a linear object' if the FIGURAL object is a rug rolled up. *

*In those cases in a language where, e.g., a particular vadic NP does inherently require pairing with a particular vadic verb, this is not interpreted as a matter of multiple specification to be represented in the underlying structure. Rather, this is in fact interpreted as a matter of grammatical agreement to be handled in the course of derivation, e.g., by moving a copy of the NP or component of the NP -- not an independent bathic N -- into adjunction with the underlying verb, this adjunction to key in the appropriate vadic verb.

It may be non-rigorously noted here that in the English verb phrase the verb and a pronoun are in agreement with the situational gender, but with the grammatical person, of the subject nominal. Thus, in (i):

(i) my father's only child is cutting himself/herself

the reflexive pronoun is masculine or feminine in agreement with the actual gender of the situational entity specified by the subject nominal, whereas the auxiliary and pronoun are third personal in agreement with the overt (grammatical) person of the subject nominal, despite the fact that this latter can only be specifying the first-person 'ENTITY SPEAKING'. Because of the requirement for agreement with grammatical person, the sentence in (ii) is unacceptable:

(ii) *my father's only child am cutting myself

(although contrast this requirement against the older English 'our Father, which art in heaven,...').

It can be further deduced from the principle in (60) that if a sentence seems odd because it contains several elements which apparently clash in their specifications of a single situational object,
the problem does not lie in any broken intra-sentential co-occurrence relations among the elements but rather in that there exists no familiar object with all the characteristics concurrently specified for it -- and that if one did exist, the sentence would no longer seem odd. For example, if the verb bend may be taken to have incorporated in it a bathic noun which specifies the FIGURE [actually, the 'FIGUROID' -- see section 8] as a 'rigid object', then, we claim, the sentence

(64) the handkerchief bent in two

seems odd not because of any broken co-occurrence relation between handkerchief and (the bathic noun incorporated in) bend but because usually no object has simultaneously the characteristics of 'a handkerchief' and 'a rigid object'. If a handkerchief is first dipped in liquid nitrogen, however, there results an object which indeed has both characteristics and, if predicated of this object, the sentence in (64) no longer seems odd.

NB Although the Part I material after this section continues the comparison of English and Atsugewi and introduces concepts subsequently used in the Appendix, it is rough reading and does not as quickly lead to an overview of this work's theoretical stance as does the Appendix. The reader is therefore urged at this point to skip immediately to the Appendix (page 242) and return later to the remainder of Part I (i.e., pages 80 to 241).
5. Situation-Types

Calling by the term *phenomenation* all that the human mind can experience, whether through apprehending, conceiving, feeling, or the like, we address ourselves here to that additional (meta-) capacity of the mind to impose a structure on phenomenation whereby it is rendered suitable for specification by language. One characteristic of this capacity is to delimit off from the rest of phenomenation a portion -- to be termed a *situation* (although *event* will be used synonymously hereafter) -- which is suitable for specification by the whole of an underlying structure, i.e., ultimately, by a sentence of language. Another characteristic is to partition a situation into *components* suitable for specification by the constituents of an underlying structure. A further characteristic is to assign among the components of a partitioning the attributions of being either thing-like or relational.* A thing-like component, or *element* -- which may comprehend an object, an entity, an energy, an idea, etc., or, as will be seen below, a situation itself -- is suitable for specification by a nominal. A relational component, or *relation* -- by an additional characteristic which it has been found explanatory to assume -- is itself further partitioned into two components, loosely characterizable as its 'character' and its 'direction' (this latter is relevant to 'ranking', brought up next), these being suitable for specification by a verb and a prepositional. A further characteristic is to assign among the

---

*It seems likely that in some cases a situation may be rendered suitable for linguistic specification under several different partitionings such that, under one of these, a particular item of the situation might be contained in a thing-like component while, under another of these, it might be contained in a relational component.*
elements of a partitioning a ranking as to relative salience, suitable for specification by the ordering of the nominal constituents in an underlying structure. A portion of phenomenon which has thus been delimited, partitioned, sub-assigned as to attribute, and sub-assigned as to ranking will, when considered as to the particularities of these operations, be termed a situation-type and will, when considered thereby rendered suitable for specification by an underlying structure which is articulated, labeled, and ordered, be termed a semantic structure.

It is assumed in the above that some situations will contain upon partitioning an element which is itself a situation capable of its own partitioning, etc. (and accordingly suitable for specification by an embedded underlying structure). A situation will be called simplex if none of its elements is itself a situation and complex if at least one is. A simplex situation (e.g., the translatory) which is delimited off by itself -- i.e., not an element of a complex situation -- and is thus entertained in consideration only insofar as it takes place in and of itself without relation to any other element (such as another simplex situation or an entity) will be called autic (were its current English usages not in conflict, 'automatic' would be the aptest term, being defined in one classical Greek lexicon as '(of events) happening of themselves: without cause, accidental').

There is some evidence for the following suggestion: that, whether simplex or complex, all situations, at least of certain types, are most suitably partitioned at the first-heirarchical level into three components:
two ranked elements and a relation from the one to the other.

and thence immediately into four components (by partitioning the relation in two) loosely characterizable as:

(66) a more-salient element, a relation-character,
     a relation-direction, a less-salient element.

*The suggestion continues that such situations are accordingly specified by underlying structures with four constituents of the grammatical categories

(i) nominal, verb, prepositional, nominal,

and that all distinctions among such sentence-types as

(ii) NP V intr Prep NP
    NP V tr NP
    NP V intr
    etc.,

including the distinction between transitive and intransitive, are relatively superficial consequences of highly systematizable derivations -- mostly involving conflation, i.e., deletions, lexicalizations of adjunctions, and the like (see the Appendix) -- applied to the underlying structures. Thus, this suggestion rejects the usual notion that a situation is to be partitioned first into subject and predicate -- or, correspondingly, that an S is to be rewritten first as NP + VP -- and sees this notion as based primarily on what is contained in common by such post-conflational sentence-types as (ii).

The four components in (66), in relation to a whole situation, perform semantic functions which will be termed and symbolized as in (67):
(67) FIGURID, RELATOR, DIRECTOR, GROUNDID
φ ρ δ γ

Just as the functions which the components of a translatory situation perform are to be understood as particular cases -- which have been given their own symbols and terms, viz. FIGURE, MOTIVE, DIRECTIONAL, GROUND -- of the general functions in (67), so, too, are the functions performed by the components of the other situation-types to be treated in this paper (specifically, in this section and section 9). However, for simplicity in the treatment of these latter, the particular cases of the general RELATOR and DIRECTOR functions will not (except for the 'adactive situation' discussed next) be given their own terms and symbols but will instead be referred to by the general ones. Contrariwise, since the notion of relative salience is not clearly worked out in this paper, the corresponding notion of the general FIGURID and GROUNDID functions -- together with the use of their terms and symbols -- will be largely dispensed with; hence, what might be considered particular cases of these general functions will be given their own terms and symbols -- or, alternatively, the particular components involved will be identified as to their type rather than their function (e.g., where a translatory situation might be considered to function as the FIGURID of a complex situation, the corresponding node will be marked for specifying 's_T', not 'φ').
5.1 The Adactive Situation

Having previously presented one type of simplex situation, i.e., the transitory, we now introduce a new type, such that one of the former together with one of the latter make up the element-components of the complex 'causative' situation discussed later:

A simplex situation which can be considered to consist of

(68) one object exerting force on, through contact with -- i.e., acting on -- another object

will be termed an *adactive situation* and symbolized as 'S_A'. The two element-components of the adactive situation will, as for the transitory situation, be termed the *figure* and the *ground*. The remaining two components will, for simplicity, be termed the *act* component and the *on* component and symbolized as 'A' and 'O'. The adactive situation as a semantic structure can thus be represented in symbolic form as in (69):

(69) \[ S_A: \]
\[ F + A + O + G \]

The syntactic structure which may be posited as specifying the adactive situation at the underlying level of all languages will be termed the *adactive structure* and symbolized as 'S_A'. Its A- and O-specifying constituents are posited to be always particularized, respectively, by the batic verb to be represented here as *act* and the batic prepositional to be represented here as *on*. The already partly particularized underlying adactive structure can thus be represented
as in (70):

(70)

```
   S_A
  /   \
 N(F) V(A) P(O) N(G)
 |     |
 ACT   ON
```

As previously, the 'manner' in which force is exerted in an $S_A$ may be assumed to be specified by an expression which arises from an underlying source external to the $S_A$ and moves into adjunction with the ACT verb, there to key in an insertion by a vadic verb, as in the case of

(71) a 'FIGURE' pushing (Am) ON (O) a 'GROUND'.

Additionally here, the 'manner' in which the combined 'A+O' relation takes place may be specified, for example by the combined 'M+D' relation of a translatory situation. In this case the MOTIVE-specifying verb moves into adjunction with ACT and the DIRECTIONAL-specifying prepositional with ON, as indicated for a particular choice of MOTIVE and DIRECTIONAL in (72):

(72) a 'FIGURE ACT-MOVE (A/M) ON-ONTO (O/D) a 'GROUND';

moreover, the adjoining MOTIVE-specifying verb may have already been adjoined by its own MANNER-specifying expression, as in the case of

(73) a 'FIGURE' hurtling (A/Mm) onto (O/D) a 'GROUND'.

5.2 The Causative Situation

5.21 The Simple Causative Situation

A complex situation which can be considered to consist of

(74) a translatory event resulting, thorough the mechanics
of object-interaction, from an adactive event

(where, accordingly, the FIGURE of the former is the
same object as the GROUND of the latter)

will be termed a (simple) causative situation and symbolized as 's_c'.
The translatory event will be said to follow from or result from,
or to be the immediate result of, the adactive event. Correlatively,
the adactive event will be said to lead to or cause, or to be the
immediate cause of, the translatory event. The two element-components
in (74) may be considered to function, respectively, as the FIGURID
and GROUNDID of the causative situation, as indicated below in (75).
In the rest of the discussion, however, they will be identified only
as to type, i.e., as the 's_T' and the 's_A' components. These two
components together with the RELATOR and DIRECTOR components make up
the whole of the causative situation.

The syntactic structure which may be posited as specifying the
causative situation at the underlying level of all languages will be
termed the causative structure and symbolized as 'S_c'. Its RELATOR-
and DIRECTOR-specifying constituents are posited to be always particu-
larized respectively by the bathic verb which we here represent as
FOLLOW (although RESULT might be an equally suggestive choice) and by the bathic prepositional here represented as FROM. The already partly particularized underlying causative structure can thus be represented as in (75):

\[
(75) \quad \text{SC (SC)}
\]

\[
\text{N (φ)} \quad \text{V (ρ)} \quad \text{P (δ)} \quad \text{N (γ)}
\]

\[
\text{ST (ST)} \quad \text{FOLLOW} \quad \text{FROM} \quad \text{SA (SA)}
\]

The element-components of the simplex situations which are contained in the complex situation may now be considered as to the semantic functions they perform in relation to the whole of the latter. We make the following functional 'transvaluations':

\[
(76) \quad \text{the FIGURE of the transitory situation (FT) will be considered the FIGURE of the causative situation (FC)*,}
\]

\[
\text{the GROUND of the transitory situation (GT), will be considered the GROUND of the causative situation (GC),}
\]

\[
\text{the FIGURE of the adactive situation (FA) will be considered the INSTRUMENT, to be symbolized as 'I', of the causative situation (IC).}
\]

In addition, as per the proviso in (74):

\[
*\text{A more precise statement of this transvaluation is: the element which functions as the FIGURE of the transitory situation will be considered to function as the FIGURE of the causative situation (similar statements can be made for the other transvaluations).}
\]
(77) the GROUND of the adactive situation \((G_A)\) is the same object as the FIGURE of the translatory situation \((F_T)\).

In (78), we now more fully represent the causative structure, using slash-category notation and giving indications of the functional transvaluations:
5.2.11 The 'FOLLOW-FROM' Derivation

When fully particularized, the underlying causative structure has the option of undergoing a perhaps universal derivation -- to be termed the FOLLOW-FROM derivation -- whereby the embedded translatory structure becomes the main clause and the embedded adactive structure becomes the head of the dependent clause of the derived causative structure. This derivation, together with the ancillary derivational steps necessary to it in this language, is illustrated for English in (79):

(79)

(a)

\[
S_C (s_C) \quad \begin{array}{c}
N/S_T (s_T) \\
V (\rho) \\
P (\delta) \\
N/S_A (s_A)
\end{array}
\]

\[
\begin{array}{c}
\text{FOLLOW} \\
\text{FROM}
\end{array}
\]

\[
\begin{array}{c}
N (F) \\
V (Mm) \\
P (D) \\
N (G)
\end{array}
\]

\[
\text{the soot fall into the creek}
\]

\[
\begin{array}{c}
N (I) \\
V (A/Mm) \\
P (O/D) \\
N (F)
\end{array}
\]

\[
\text{the wind blow on the soot}
\]

(b) $\Rightarrow$

\[
S_C (s_C) \quad \begin{array}{c}
S_T_C (s_Tp) \\
ADS (\delta s_A) [FC]
\end{array}
\]

\[
\begin{array}{c}
N/S_T (s_T) \\
V (\rho) \\
P (\delta) \\
N/S_A (s_A)
\end{array}
\]

\[
\begin{array}{c}
N (F) \\
V (Mm) \\
P (D) \\
N (G)
\end{array}
\]

\[
\text{the soot fall into the creek}
\]

\[
\begin{array}{c}
N (I) \\
V (A/Mm) \\
P (O/D) \\
N (F)
\end{array}
\]

\[
\text{FROM the wind blow on the soot}
\]
(c) \[\Rightarrow \Rightarrow\]

\[S_C (s_C)\]

\[S_{TC} (s_{TP})\]

\[N (F) \quad V (\rho Mm) \quad P (D) \quad N (G)\]

\[V (\rho) \quad V (Mm)\]

\[\text{the soot follow fall into the creek}\]

\[\text{from the wind blow on the soot}\]

\[ADS (\delta s_A) [PC]\]

\[P (\delta) \quad N/S_A (s_A)\]

\[N (I) \quad V (A/Mm) \quad P (O/D) \quad N (F)\]

\[\text{from}\]

\[\text{on the soot}\]

---

(d) \[\Rightarrow\]

\[S_C (s_C)\]

\[S_{TC} (s_{TP})\]

\[N (F) \quad V (\rho Mm) \quad P (D) \quad N (G)\]

\[\text{the soot}\]

\[\text{fall}\]

\[\text{into the creek}\]

\[\text{from the wind}\]

\[\text{blow}\]

\[\text{on the soot}\]

\[ADS (\delta s_A) [PC]\]

\[P (\delta) \quad N/S_A (s_A)\]

\[N (I) \quad V (A/Mm) \quad P (O/D) \quad N (F)\]

---

i.e., (with tense, gerundivization, and pronominalization),

(e) \[\Rightarrow\] the soot fell into the creek from the wind('s) blowing on it
(80) Comments on the derivation in (79):

1. -- In (79a) appears the fully particularized underlying causative structure.

   -- The semantic components marked in parentheses are already indicated here with the functional values they have in relation to the whole causative situation.

   -- Note that this structure need not undergo the derivation shown, but may appear at the surface after undergoing only gerundivization and vadic insertion onto FOLLOW and FROM, as in (i):

   (i) the soot('s) falling into the creek followed/resulted from the wind('s) blowing on the soot

2. -- In (79b), there have taken place two transformations whereby the quadripartite structure in (79a) has been converted into a structure with a main clause and a dependent clause. The main clause has formed by the conjunction of the translatory N node (N/S_P) and the RELATOR V node and is dominated by a new node. Because this new node contains in its constituency both a translatory structure and a RELATOR verb which specifies causation, it will be termed a caused translatory structure and symbolized 'S_{T_C}', as shown. The combination of components specified by the new main clause is 'translatory-situation + RELATOR', which is here symbolically indicated as 'S_{T_R}'.

   -- The dependent clause has formed by the conjunction of the DIRECTOR P node and the adactive N node (N/S_A) and is dominated by a new node. In deference to the grammatical relation borne by the dependent clause to the main clause, the new node will be termed the
\emph{adsentence} and symbolized 'ADS', as shown. The combination of components specified by the new dependent clause is 'DIRECTOR + adactive-situation', which is here symbolically indicated as 'δs_A'. The particular type of dependent clause which the ADS node dominates here will henceforth be referred to by a name derived from the particular DIRECTOR it contains: it will be termed the \textit{FROM-}clause, to be symbolized in italics as 'FC', as shown in brackets.

3. -- In (79c), the $S_T$ embedded in the $S_T_C$ has undergone a series of steps whereby it raises into the higher structure. In particular, the non-$V$ constituents of the $S_T$ come to stand as direct constituents of the $S_T_C$ and the $V$ of the $S_T$ is 'reverse Chomsky-adjoined' to the $V$ of the $S_T_C$ -- i.e., though it is the former which raises to the latter, it is the latter which is adjoined to the former. The $V$ node formed by the adjunction specifies the combination of components 'RELATOR + MOTIVE + MANNER', here symbolically indicated as 'δMm'.

-- Onto this adjunction, the lexical-insertion of the vadic verb \textit{fall} -- to be termed a \textit{caused verb} -- is indicated. In English (and, as will be seen next, also in Atsugewi), the vadic caused verb thus inserted is always phonologically identical to the vadic autic verb in the expression inserted onto. The caused verb is here marked with the subscript 'f' as a mnemonic for the RELATOR verb \textit{FOLLOW} which underlies it.

-- The universal bathic DIRECTOR \textit{FROM} may in English be lexically-inserted onto by several vadic expressions such as \textit{as a result of} or \textit{from}; in the present example, insertion of the latter expression is
chosen and indicated.

4. -- In (79d), the lexical insertions indicated in (79c) have taken place.

5. -- In (79e) is given the surface sentence which results as final output from the derivation. Tense has been added, the adactive structure embedded in the FROM-clause has been gerundivized, and the second appearance of the soot has been pronominalized to it.

* * *

The prose effect of four of the derivational stages shown in (79) can be rendered as in (81):

(81)

(a) it, that the soot fell (MOVEd) into the creek,
      FOLLOWed FROM
      it, that the wind blew on (ACTed ON) the soot

(b) the soot FOLLOWed-to-fall into the creek
      FROM it, that the wind blew on the soot

(d) the soot fell into the creek
      from it, that the wind blew on the soot

(e) the soot fell into the creek
      from the wind('s) blowing on the soot.
It may be noted here (and will be explicated in later writings) that under certain conditions the lexical verb of the $S_A$ embedded, e.g., in a FROM-clause may either delete or (to oversimplify) move to and replace the lexical verb of the main clause (this latter by a transformational process of very wide application in English), the FROM-clause reducing thereby to a phrase or, further, to zero. These conditions hold in the present example, so that (79e) may further derive into (79f, g, and h) with greater or lesser colloquialness (sentences homologous with, but more acceptable than, (79 f and g) do exist):

(79) (f) the soot fell into the creek from the wind

(g) the soot blew into the creek from the wind

(h) the soot blew into the creek

In Atsugewi, the whole underlying causative structure undergoes a derivation whereby it becomes a single surface sentential-verb (unless, of course, the underlying structure has been opted to include concurrent vadic expressions which come to appear externally to the sentential-verb). The derivation of the $S_T$ embedded in the causative structure proceeds much as for the $S_T$ alone, as explicated in earlier sections. The derivation of the embedded $S_A$, however, is quite distinct from that of the Atsugewi $S_T$, and its particularization and derivation are quite distinct from those in English.

In the Atsugewi underlying $S_A$, as embedded in a causative structure, then, the INSTRUMENT component is specified by a member of a closed set
of bathic nouns. The A and O components are specified either by \textit{ACT} and \textit{ON} alone, or by these adjoined by bathic morphemes of closed sets, moved in from sources external to the adactive structure. Under the limitations on allowable combinations of bathic morphemes, there are in all some three dozen possible underlying adactive structures. Each such possible adactive structure keys in the lexical-insertion of a particular vadic morpheme, to be termed an \( s_A \)-specifying morpheme.

Thus, it can be seen that in this portion of Atsugewi grammar a single morpheme comes to replace a whole sentential structure. The whole set of some three dozen \( s_A \)-specifying morphemes is, of course, closed and, moreover, constitutes a system, virtually exhaustively partitioning the whole semantic realm of adactive situations.

Now, an \( s_A \)-specifying morpheme is the type of vadic form (first discussed in the context of inflectional forms in section 3.5) which does not actually appear at the surface; rather, it always appears as part of a larger expression onto which is in turn inserted an actually-appearing vadic form. In the present case, by the transformation which forms a dependent clause within a causative structure, an \( s_A \)-specifying morpheme comes to stand in conjunction with the DIRECTOR-specifying bathic preposition \textit{FROM} under an ADS node, and it is onto this conjunction that an actually-appearing vadic morpheme is inserted. Since the dependent clause dominated by the ADS node has previously been termed the 'FROM-clause', this secondly inserted morpheme will be termed a \textit{FROM-clause-replacing morpheme} or, abbreviated, an \textit{FC morpheme}, where the capital letters are in italics to indicate that they do not represent semantically-functioning components. The whole closed set of
some three dozen referentially- (if fewer phonologically-) distinct FC morphemes naturally -- derived as they are -- constitutes a system, partitioning the whole semantic realm of causal adactive situations. After insertion, an FC morpheme together with the ADS node to which it is attached moves into the sentential-verb to the left of the root morpheme-plus-node, daughter- adjoining there with the dominating V node, and remains to appear at the surface as an immediate-prefix to the root. Thus located, an FC morpheme will now be termed a FROM-clause-replacing prefix or, abbreviatedly, an 'FC prefix'. For purposes of cross-reference, we note that our 'FC prefix' is generally known in the Hokan literature by the term 'instrumental prefix'.

An FC prefix can appear not only in a causative sentential-verb which contains an FM root, as will be illustrated next, but also in one which contains a root of any of the derivational types described in this paper (as well as of several additional types). In any such sentential-verb, we note again, it is semantically plausible, but syntactically disallowed, for an FC prefix to appear together with either an F prefix or a G prefix.

As a note on derivationally-related morphemes (in the sense that breed is related to brood), it is to be observed that of the many FC prefixes with the same phonological shapes as F or G prefixes, a number do indeed specify as the INSTRUMENT objects similar to those specified as the FIGURE or GROUND by the latter prefixes. However, the FC prefix system and the F prefix system (of which the G prefix system is a subset) each contain forms not contained by the other. A fairly thorough listing of the FC prefixes and their meanings is given in section 11 of
Part II, and so no list is given here. Numerous examples of sentential-verbs containing \( Fc \) prefixes appear throughout Part III.

In (82), we now indicate in phrase-marker form the derivation of an underlying causative structure into a surface sentential-verb (plus, in this example, external vadic expressions). The derivational stages have been lettered so as to correspond to those of the preceding English example in (79).

(82)

\[
\begin{align*}
(a) & \quad S_c (s_c) \\
& \quad N/S_T (s_T) \quad V (\rho) \quad P (\delta) \quad N/S_A (s_A) \\
& \quad \text{FOLLOW} \quad \text{FROM} \\
& \quad \text{(F) } N_E: \text{soot} \quad V (M) (D) \quad P_E: \text{to} \quad \text{(G) } N_E: \text{creek} \\
& \quad N_I: T-S-A \quad P_S: \text{INTO}_{L} \quad N_S: \text{LIQUID} \\
& \quad N_R: \text{DIRT} \quad \text{MOVE} \\
& \quad \text{WIND} \quad \text{ACT} \quad \text{ON} \quad '\text{FIGURE}' \\
& \quad \text{ca-} \\
(a') & \quad S_c (s_c) \\
& \quad N/S_T (s_T) \quad V (\rho) \quad P (\delta) \quad N/S_A (s_A) \\
& \quad \text{FOLLOW} \quad \text{FROM} \\
& \quad \text{(F) } N_E: \text{soot} \quad V (s_T) \quad P_E (D) \quad N_E (G) \\
& \quad N_I: T-S-A \\
& \quad V (FM) \quad \text{ADV (DG)} \\
& \quad \text{-qput-} \quad \text{-ict} \quad \text{ca-}
\end{align*}
\]
(83) Comments on the derivation in (82):

1. -- In (82a) appears the fully particularized underlying causative structure from which the derivation proceeds. The embedded $S_T$ here is the same as that presented in (44) with the exception that in the multiple specification of the FIGURAL constituent there is not included any bathic noun (which in (44) was 'NP: FREEBODY') which would participate in the $F$ prefix subderivation. Under the embedded $S_A$, the INSTRUMENT component is specified by the bathic noun $WIND$, a member of a closed set. The $A$ and $O$ components are specified by $ACT$ and $ON$ alone.

   -- Indication is made of the lexical-insertion onto the whole adactive structure of the $s_A$-specifying morpheme $\overline{\text{ad}}$, here written with a line over it to indicate that it is a non-surface-appearing vadic morpheme.

1'. -- In (82a'), the $S_T$ has undergone two of the subderivations (the root-forming and the suffix-forming ones) characteristic of it. The inflectional subderivation might also have been carried out at this point but is delayed till later so that the whole derivation of the causative structure will more closely parallel that of the later-described 'effective structure', for which the inflectional subderivation must be delayed.

   -- The lexical-insertion of the $s_A$-specifying morpheme has taken place.

2. -- In (82b), there has taken place the same transformation previously described for English at this stage, resulting in the formation of a
main clause and a dependent clause under the $S_C$.

3. -- In (82c), a raising of the $S_T$ up into the $S_{T_C}$ in which it was embedded has taken place in a manner similar to that previously described for English at this stage. The special circumstance should be noted, however, that as the $V$ of the $S_T$ raises to the $V$ of the $S_{T_C}$, the latter in turn lowers so as to Chomsky-adjoint with the FM-specifying $V$ node. The new $V$ node created by the adjunction is marked for specifying the combination of components '$p$FM'.

   -- Onto this adjunction of the RELATOR verb *FOLLOW* and the FM root $qput-$, the insertion of the 'caused' FM root $f$-$qput-$ is indicated. This latter form is here, as in the English example, marked with the subscript '$f$' as a mnemonic for the *FOLLOW* underlying it. We note that its phonologic shape is, as for English, always identical to that of the vadic autic root underlying it.

   -- Onto the conjunction of the DIRECTOR preposition *FROM* and the non-surface-appearing $s_A$-specifying morpheme $aA-$, the lexical-insertion of the surface-appearing $FC$ morpheme $aa-$ is indicated. This latter form is marked with the italic subscript '$F$' as a mnemonic for the *FROM* underlying it.

4. -- In (82d), the lexical-insertions indicated in (82c) have taken place.

5. -- In (82e), the inflectional subderivation has finally been carried out and the inflections are indicated by wavy lines under the $V$ node.

   -- The *FC* morpheme '$Fca$', together with the ADS node to which it is attached, has moved into daughter-adjunction with the $V$ node
which dominates the sentential-verb, wherein it now occupies the position-slot immediately prefixal to the root, and is accordingly to be called an '\( PC \) prefix'.

-- The sentential-verb \( V \) node now dominates constituents which in combination specify all the semantic components of a causative situation, and is accordingly now itself marked for specifying \( s_c \).

-- The previous \( S_T \) node which dominated the 'caused transitory structure', now that it has under it the ADS node, has itself become a causative structure and is accordingly labeled \( S_c \) and marked for specifying \( s_c \).

-- The external vadic expressions are now given in their Atsugewi forms.

-- The original \( S_c \) node has been left and is shown dominating by a dashed line another ADS node. As it happens, the FROM-clause in Atsugewi is as capable as any other constituent represented in the sentential-verb of concurrent appearance as an external expression. Although the vadic elements which might make up such an expression were, for simplicity, not included at the underlying level of the present example, the possible presence of such an expression is indicated here.

***

Taking by itself the sentential-verb in (82d), we now present it morphophonemically and phonetically in (84a and b):

(84) (a) \(/ 'w-\text{ca-}qput-\text{-ict}^-a/\)

(b) \( \Rightarrow [\text{cwaq}^{h}\text{putičta}] \)
This sentential-verb can be translated (disregarding the external expressions of (84a)) in the three previously-described manners as in (85):

(85) (a) literal translation:
'dirt-like material (which was the thing spoken about) moved into liquid from the wind blowing on it',

(b) rendered translation:
'(it)-windly-dirted-liquid',

(c) a casual translation:
'the dirt blew into the water'.

5.212 The 'LEAD-TO' and 'ADDUCT-TO' Derivations

Concentrating on English, we now briefly discuss a second and a third derivation which an underlying causative structure can undergo, both distinct from the FOLLOW-FROM derivation just discussed. The second is presented only for the sake of a fuller exposition; the third will play a role in the treatment later of the 'effective structure'.

All three derivations are considered meaning-preserving of the underlying causative structure to which they apply, at least in that the sentences to which they lead all specify the same partitioned and attribute-assigned situation. However, the sentences seem to bring into relief different ones of the relations among the situation's element-components (of the first- and lower-hierarchical levels). If the first derivation discussed leads to a sentence which may be thought to bring into relief the relation of the transatory event to the adactive event -- hence, to highlight the transatory event and its undergoing of a causative effect -- then the second derivation leads to a sentence which brings into relief the relation of the adactive event to the transatory event -- hence, highlights the adactive event and its exerting of a causative effect.

By the second derivation's operation, an underlying causative structure first undergoes a transformation which may be simply taken to invert the embedded $S_T$ and $S_A$ and to change the RELATOR and DIRECTOR morphemes to their 'inverses', suggestively representable as $LEAD$ and $TO$. *
In this and other derivations it is assumed that the $S_T$ and $S_A$ continue to specify, respectively, the FIGURID and GROUNDID through all transformational movements, as indicated in (i), much as the nominal constituents of a transitory structure retain their original specifications of FIGURE and GROUND through all movements, as in the sentence-pairs in (ii) [the derivations for these are touched on in the Appendix]:

(i) $S_T (\phi) \text{ FOLLOW FROM } S_A (\gamma)$
$S_A (\gamma) \text{ LEAD TO } S_T (\phi)$

(ii) the blood (F) drained from his veins (G)
his veins (G) drained of their blood (F)
water (F) slowly filled [into] the tub (G)
the tub (G) slowly filled with water (F)
dust (F) accumulated over the ledger (G)
the ledger (G) accumulated dust (F)
a piece (F) is missing from the puzzle (G)
the puzzle (G) is missing a piece (F)

Because we feel that expressions like the upper ones of the pairs in (i) and (ii) are somehow more basic than expressions like the lower ones, we have chosen to derive the latter from the former transformationally and account for any differences in relief and highlight as arising from surface configurations.

An alternative to this approach via derivation to account for differences in relief and highlight is to assume that the 'causational' situation (i.e., the particular portion of phenomenon under discussion), after its reduction to two elements and a relation between them, can have its elements ranked in either of the two possible ways and have its relation directed correspondingly, thereby being rendered into either of two distinct situation-types. The one situation-type, wherein the $S_T$ is ranked as more salient than the $S_A$ and hence considered to function as FIGURID to the latter's GROUNDID, can be characterized as in (iii) [the same as in (74)]; the other situation-type, wherein the $S_T$ and $S_A$ have the reverse rankings and functions, can be characterized as in (iv):
(iii) A transitory event results, through the mechanics of object-interaction, from an adactive event

(iv) An adactive event results, through the mechanics of object-interaction, in a transitory event.

These two distinct situation-types are accordingly to be specified by two distinct underlying structures, as indicated in (v) and (vi):

(v)

\[ S_{c1} \]

\[ \begin{array}{c}
N (\phi) \\
V (\varphi) \\
S_T (s_T) \\
\text{RESULT} \\
FROM \\
S_A (s_A)
\end{array} \]

(vi)

\[ S_{c2} \]

\[ \begin{array}{c}
N (\phi) \\
V (\varphi) \\
S_A (s_A) \\
\text{RESULT} \\
TO \\
S_T (s_T)
\end{array} \]

(Notice that in (v) and (vi) we have illustrated how, as a relation's 'direction' -- i.e., the DIRECTOR -- changes, its 'character' -- i.e., the RELATOR -- can remain constant, as specified by the bathic verb RESULT, whereas in (i) and in the body of this section we have the RELATOR change in correspondence, as specified by the bathic verbs FOLLOW and LEAD.

We prefer to consider, however, that this 'LEAD-TO transformation', as it will be termed, deletes the original RELATOR verb FOLLOW, preposes a copy of the S_A before the S_T, and introduces between these two structures the new RELATOR verb LEAD and the new DIRECTOR prepositional TO (for simplicity, the practice is followed here and henceforth of applying the same terms and symbols [i.e., 'RELATOR', 'DIRECTOR', 'p', and 's']
to a derivative relation as to a relation which is a component of a situation). A subsequent transformation will then delete the original FROM and $S_A$. This transformational process is indicated in 'prose effect' form in (86):

$$\begin{align*}
(86) \quad & S_T \text{ follows FROM } S_A \\
\implies & S_A \text{ leads TO } S_T \text{ (FROM } S_A) \\
\implies & \emptyset
\end{align*}$$

This transformational process together with the remainder of the derivation -- the whole to be termed the LEAD-TO derivation -- is now exemplified in prose-effect form for English in (87):
(87)  

(a) it, that the aerial came down (off the roof) 

FOLLOWed FROM

it, that the wind blew on the aerial

[the aerial's coming down followed/resulted from 
the wind's blowing on it]

[[the aerial came down from the wind's blowing on it]]

(b) $$\Rightarrow$$ it, that the wind blew on the aerial

LED TO

it, that the aerial came down

[the wind's blowing on it led to/resulted in 
the aerial's coming down]

(c) $$\Rightarrow$$ it, that the wind blew on the aerial, 

LED the aerial TO coming down

[the wind's blowing on it \{led the aerial to coming down \} 
\{caused the aerial to come down\}]

(d) $$\Rightarrow$$ it, that the wind blew on the aerial 

LED-TO-coming the aerial down 

\(_{brought}\)

(e) $$\Rightarrow$$ it, that the wind blew on the aerial, \(_{brought}\) the aerial down

[the wind's blowing on it \(_{brought}\) the aerial down]
(88) Comments on the derivation in (87):

1. -- In (87a) is the particularized underlying causative structure.
   -- That portion of the embedded $S_T$ which is in parentheses and
   contains the specifications for DIRECTIONAL and GROUND will for the sake
   of clarity be omitted in the succeeding derivational stages.
   -- At each of the derivational stages (except (87d)) there is given
   in brackets a surface sentence which results by minor transformations
   from the deep expression of that stage. Here in (87a) is given the
   surface sentence which results from the underlying structure simply by
   gerundivization, pronominalization, and vadic insertion onto the
   bathic RELATOR and DIRECTOR morphemes.
   -- In double brackets is additionally given here the surface sentence
   which results from the underlying structure by the originally-discussed
   causative derivation.

2. -- In (87b), the LEAD-TO transformation and its associated deletion
   transformation have taken place.

3. -- The structures in (87c) and (87d) actually represent the results
   of following alternate derivational routes from the structure in (87b).
   Some translatory verbs do not permit onto themselves the kind of
   insertion which takes place in (87d), so that the structure in which
   such a verb appears, if it is to derive past (87b), can only go to
   (87c). Since our main interest lies in the (87d) route, we have enclosed
   the (87c) route in parentheses.
   -- In (87c), then, the FIGURAL subject of the embedded translatory
   structure has been raised into an object relation with the RELATOR verb.
4. -- In (87d), the $S_T$ embedded in the (transformed) $S_c$ has raised into the higher structure. In particular, the V of the $S_T$ (come) has raised into adjunction with the V and P of the $S_c$ (LEAD TO) under a new V node, and the other constituents of the $S_T$ have come to stand as direct constituents of the $S_c$, the FIGURAL constituent (the aerial) becoming the direct object of the new V node.

-- The lexical-insertion onto the adjunction by a new vadric verb is indicated. This verb is marked with the subscript 'i' as a mnemonic for the RELATOR verb LEAD underlying it. It is to be noted that, unlike a verb inserted onto an expression with FOLLOW, the verb inserted here is in English often phonologically distinct from the autic verb underlying it.

5. -- In (87e), the lexical-insertion has taken place.

***

The third derivation which applies to an underlying causative structure leads to a sentence which may be thought to bring into relief the relation of the FIGURE of the adactive event to the translatory event. This relation, it can be seen, is between elements of two different hierarchical levels of partitioning and is hence not to be understood as a component of the causative situation (which was characterized as in (74) in the first place precisely because we understand causation as a relation between two events, not between an object and an event). In particular, the relation may be defined as

(89a) 'be the FIGURE of an adactive event which leads to (causes)',
for which a later-required generalization is

\[(89b) \quad \text{'be the FIGURE (-like) element of an adactive (-like) event which leads immediately or mediately to'.}\]

The expressions in (89) will henceforth be abbreviatedly represented by the coinage

\[(90) \quad \text{'adduct to'},\]

so that the FIGURE of an adactive event can be said to adduct to the translatory event. The relation will accordingly be called adductive and the FIGURE (-like element) may be said to function as the adductor of the relation.

By the operation of the third derivation, an underlying causative structure first undergoes a transformation which deletes the original RELATOR verb FOLLOW, preposes a copy of the ADDUCTOR expression -- in particular here: the FIGURAL expression of the adactive structure -- and introduces between them a new RELATOR verb, to be represented as ADDUCT, and the new DIRECTOR preposition TO. This 'ADDUCT-TO transformation', as it will be termed, also changes the original DIRECTOR preposition from FROM into a form to be represented as WITHBY. In English, this new DIRECTOR preposition usually undergoes lexical-insertion by either with or by, the choice dependent on circumstances not gone into here. The operation of the transformation may thus be represented as in (91) (where, in the first line, the constituency of the S_A is written out within brackets with the functional elements already transvalued):

\[
\text{(91) \quad \text{'adduct to (FIGURE) \ WITHBY (FIGURAL) \ by (with) \ the \ RELATOR verbs \ FOLLOW \ and \ the \ new \ RELATOR \ verb \ TO.'}}\]
(91) \( S_T \) follows from \( S_A \) [the 'INSTRUMENT' acts on the 'FIGURE']
\[ \implies \text{the 'INSTRUMENT' ADDUCTs TO } S_T \text{ WITHBY } S_A \]

This transformation together with the remainder of the derivation --
the whole to be termed the ADDUCT-TO derivation -- is now exemplified
for English in (92), where it is applied to the same underlying causative
structure as in (87):

(92)

(a) it, that the aerial came down,
    FOLLOWed FROM it, that the wind blew on the aerial

(b) \[ \implies \text{the wind ADDUCTed TO it, that the aerial came down,} \]
    \[ \text{WITHBY it, that the wind blew on the aerial} \]

(c) \[ \implies \text{the wind ADDUCTed the aerial TO coming down} \]
    \[ \text{WITHBY it, that the wind blew on the aerial} \]
    \[ \text{\{the wind \{*adducted the aerial to coming down\} \}} \]
    \[ \text{\{caused the aerial to come down} \]
    \[ \text{\{made the aerial come down} \]
    \[ \text{\{with its blowing on it} \]

(d) \[ \implies \text{the wind ADDUCTed-TO-coming the aerial down} \]
    \[ \text{\{brought} \]
    \[ \text{WITHBY it, that the wind blew on the aerial} \]
    \[ \text{with} \]

(e) \[ \implies \text{the wind } a_brought \text{ the aerial down} \]
    \[ \text{with it, that the wind blew on the aerial} \]
    \[ \text{[the wind } a_brought \text{ the aerial down with its blowing on it} \]}
(93) Comments on the derivation in (92):

1. -- The derivational stages shown in (92) parallel those shown in (87). As in (87), the stages represented in (c) and (d) derive by alternate routes from the stage represented in (b).

2. -- In (92d), the vadic verb bring, whose insertion onto the adjunction containing ADDUCT is indicated, is marked with the subscript 'a' as a mnemonic for ADDUCT.

   -- The particular lexical insert onto WITHBY is chosen to be and indicated as with.

3. -- In (92e), the lexical insertions have taken place.

   -- Within brackets is given the surface sentence which results by gerundivization of the embedded adactive structure and pronominalization of both its nominals.

   ***

   It may be noted here that, as for (79h), the lexical verb of the
   SA embedded in the WITHBY clause may under certain conditions move to
   and replace the lexical verb of the main clause, the former clause
   reducing to zero in the process. Thus, in the present example, (92e) may further derive into (92f):

   (92f) the wind a blew the aerial down
5.22 The Serial Causative Situation

A set of n simplex events for which it can be considered that

(94) each event except one is the immediate cause of one
other event

(and, accordingly, each event except the one is adactive,
the one being translatory)

will be termed an n-member series. The member events of a series are
of course to be understood as ordered from first to nth (the trans-
latory event), in accordance with the directionality of the causative
relation. A complex situation which can be considered to consist of

(95) an n-member series and the causative relations between
the members

will be termed an n-member serial causative situation (or various
abridgements thereof). The limiting case of this, the 'two-member
serial causative situation', is of course now to be understood as an
alternate term for last section's 'simple causative situation'.

There are two main ways to regard the partitioning of an n-member
serial causative situation to be organized:

(96) (a) on a single hierarchical level consisting of many components
(b) on n-1 hierarchical levels where each is a simple causative
situation

There are two corresponding ways to set up an underlying syntactic
structure which specifies the situation. A serial causative situation
containing (to take a particular case) three ordered events specified by the simplex structures

\[ S_{T3} \quad S_{A2} \quad S_{A1} \]

can itself be specified by a serial causative structure

\[ S_C \]

as in (97a) or by two simple causative structures

\[ S_{C2} \quad S_{C1} \]

syntactically related as in (97b):

(97a)

(97b)
[In (97b), the original definition for a simple causative structure has to be generalized for $S_{c_1}$, which has for its left embedding an adactive rather than a translatory structure (the generalization necessitated by the right embedding of $S_{c_2}$ will be brought up below.)] The prose-effects for (97a and b) may be respectively rendered as in (98a and b):

(98) (a) $S_{T_3}$ FOLLOWs FROM $S_{A_2}$ FOLLOWs FROM $S_{A_1}$

(b) $S_{T_3}$ FOLLOWs FROM $S_{A_2}$ which FOLLOWs FROM $S_{A_1}$

Although we tend to regard the (b) alternatives of (96), (97), and (98) as the more correct analysis, the conceptual simplicity of the (a) alternatives will often occasion their employment in the succeeding exposition.

The manner of derivation of an n-member causative structure as represented, then, in (98a), will be to cyclically perform the derivation for a 2-member causative structure, starting at the right and shifting one member to the left after each pass of the cycle. Since with each such pass the successively new rightmost constituent becomes an ever more complex structure, the definition of a two-member causative structure must here be further generalized so that its rightmost embedding can be more complex than an adactive structure. To illustrate a particularized three-member serial causative structure and the acceptable surface sentences to which it might lead, we present the prose effect derivation in (99):
(99)

(a) it, that the aerial came down,

FOLLOWed FROM

it, that the branches came down onto the aerial,

FOLLOWed FROM

it, that the wind blew on the branches

(b) $\Rightarrow$ it, that the aerial came down,

FOLLOWed FROM

it, that

i. the branches $f$ came down onto the aerial from the wind blowing on them

ii. the branches $f$, blew down onto the aerial

iii. the wind blowing on them brought the branches down onto the aerial

iv. the wind $a$, brought the branches down onto the aerial with its blowing on them

v. the wind $a^+$ blew the branches down onto the aerial

(c) $\Rightarrow$ the aerial $f$ came down from

i. *the branches $f$, coming down onto it from the wind blowing on them

ii. $^0$the branches $f^+$ blowing down onto it

iii. $^x$the wind blowing on them bringing the branches down onto it

iv. $^x$the wind $a^+$ bringing the branches down onto it with its blowing on them

v. $^0$the wind $a^+$ blowing the branches down onto it
(100) Comments on the derivation in (99):

1. -- In (99a) is the particularized underlying structure with an embedded three-member series consisting, from first to last (i.e., from the bottom up), of an adactive structure, an adactive structure, and a translatory structure.

2. -- In (99b), the first two embedded structures with intervening relation, considered together as a two-member causative structure, have undergone several of the derivation types discussed for such a structure in the preceding section. Thus, there appear in a column the surface sentences which result by application of

   i. the FOLLOW-FROM derivation
   ii. the FOLLOW-FROM derivation with movement of the adactive verb *(b*low) and deletion of the dependent clause
   iii. the LEAD-TO derivation
   iv. the ADDUCT-TO derivation
   v. the ADDUCT-TO derivation with movement of the adactive verb *(b*low) and deletion of the dependent clause.

3. -- In (99c), the embedded translatory structure and the embedded just-derived structures, with intervening relation, now in turn considered together as a two-member causative structure, have undergone the FOLLOW-FROM derivation for such a structure. This two-member causative structure is of the generalized sort noted in the text in that its rightmost embedding is not now an adactive structure but itself a two-member causative structure. Permitting such a generalization does
not ensure that an acceptable surface sentence will result. The
conditions for an acceptable result are not looked into here, but we
do indicate that, of the five resulting dependent clauses (whose heads
are given in a column), the first is unacceptable, as marked with an
asterisk, the second is acceptable, as marked with an 'O' (a mnemonic
for 'ok'), the next two seem marginally acceptable, as marked with an
'X', and the last is acceptable.

***

While only the results of applying the FOLLOW-FROM derivation to (99b)
have been given in (99c), we may note that at least one acceptable
sentence results from applying the LEAD-TO derivation, as in (99c'):

(99c') the wind\textsubscript{a} blowing the branches down onto the aerial
\textsubscript{1}brought it down.
5.23 The Causative Situation with Volition

It is a consequence of our understanding of an autic translatory situation that the FIGURE of such a situation can as appropriately be a part (or, indeed, the whole) of the body of an entity (such as a human) as any other object considered capable of uncaused motion or location. Thus, a sentence like

(101) the boy's arm swung into the aerial

is taken to specify such a situation and to be underlain simply by a translatory structure.

In a situation where it is further understood, however, that

(102) a translatory event whose FIGURE is a body-part of an entity with the faculty of will

is a voluntary act on the part of that entity,

the semantic component of volition-exertion is perhaps best analyzed out as a prior causal event and best syntactically specified by a special type of adactive structure which may be termed the volitional structure and symbolized as '$S_{AV}$'. The $S_{AV}$ may be taken as a normal adactive structure which is already particularized, as indicated in (103):

(103) $S_{AV}$: the ENTITY's WILL (F) ACTs ON the ENTITY's BODYPART

or, as will henceforth be assumed, as a special adactive-like structure something like that in (104):
(104) \( S_{AV} \): the ENTITY (W) WILLs ON the ENTITY's BODYPART,

where the component specified by the first constituent is now interpreted to perform a new semantic function, that of the \textit{willer}, to be symbolized as 'W'. The transitory event characterized in (102) must be specified by a transitory structure whose FIGURAL constituent is already particularized and which is thus also of a special type -- to be symbolized as \( S_{TB} \) (the 'B' a menomic for 'BODYPART') -- as indicated in (105):

(105) \( S_{TB} \): the ENTITY's BODYPART (F) + 'MOTIVE' + 'DIRECTIONAL' + 'GROUND'.

The situation characterized in (102) has thus been analyzed as a special type of causative situation -- to be termed a \textit{causative situation with volition} -- which can be syntactically specified as in (106):

(106) \( S_{TB} \) \textit{FOLLOWS FROM} \( S_{AV} \).

This \textit{causative structure with volition} appears, when written out in full, as in (107):

(107) it, that the ENTITY's BODYPART (F) + 'MOTIVE' + 'DIRECTIONAL' + 'GROUND',

\textit{FOLLOWS FROM}

it, that the ENTITY (W) WILLs ON the ENTITY's BODYPART,

where all occurrences of \textit{ENTITY} and of \textit{BODYPART} are of course co-referential and will, in general, appear in multiple specification with concurrent vaditic expressions.
In accordance with the preceding analyses, if the event referred to by (101), the illustrative sentence beginning this section, is additionally understood as a voluntary act, it will be specified by a causative structure with volition as in (108):

(108) it, that the boy's arm swung into the aerial,

FOLLOWed FROM

it, that the boy WILLED ON the boy's arm.

(We note that a structure such as (108), unlike the usual kind of causative structure, is not yet capable, as it stands, of derivation into a surface sentence, since a certain obligatorily concomitant structure (the 'intentional'), to be introduced in the next section, is not yet present here.) Conversely, if an event such as that referred to by (101) -- i.e., a transulatory event with an entity's body-part as FIGURE -- is not understood as a volitional act -- whether it is considered to be autic or caused by a non-volitional event (such as an involuntary muscle spasm or a gust of wind) -- it cannot be syntactically specified by a causative structure with volition.

We now enter into some additional considerations concerning the analysis and syntactic representation of volition. Although the results of scientific investigation seem to indicate that volition, when present, is only one link in a chain of neurological events leading to the motion of a body-part (the partly-determined chain including, e.g., the excitation by the volitional centers in the brain of the motor centers, the excitation by the motor centers of the innervations to a body-part, and the stimulation by the innervations of
muscular contractions in the body-part), nevertheless the exigencies of
semantic organization in natural language seem to indicate that a
volitional event be analyzed as the sole, and hence immediately, prior
causal event to an event with an entity's body-part as FIGURE. It
seems further indicated for natural language that a volitional event,
when present, can immediately cause only an event with a body-part
of the willing entity as FIGURE and not an event with some other kind
of FIGURE, so that if an event of the latter sort is present in, say,
a three-member serial causative situation with volition, it must be
understood to have been caused in turn by an event of the former sort.
(In an event of the former sort, incidentally, the 'body-part' -- i.e.,
the specificand of BODYPART in an $S_T^B$ -- is assumed able to be not
only an actual part of a body or a whole body, but also, for the re-
quirements of imaginative speech and the like, such things as 'tele-
kinetic force beams'.) To represent syntactically these semantic-
analytic indications, the constraint is therefore imposed

(109) that in a (two- or higher-member) serial causative structure
only one $S_{Av}$ may appear,
that it be the earliest (i.e., most deeply embedded or rightmost)
simplex structure therein, and
that it be immediately followed by an $S_{TB}$. 
5.3 The Effective Situation

5.31 Effective Structures in General and in English

A complex situation which can be considered to consist of

(110) an entity with the faculty of intention
    intending the occurrence of a translatory event

will be termed an intentional situation and symbolized as 's_i'. The
entity of the situation will be said to perform the semantic function
of INTENDER, to be symbolized as 'I'. Such a situation will be
specified at the underlying level by a syntactic structure to be termed
the intentional structure and symbolized as 'S_i', as represented in (111):

(111)  S_i : the ENTITY (I) INTENDs (TO) S_T,

where the bathic noun ENTITY specifies the INTENDER component, the
bathic verb INTEND specifies the RELATOR component, and the bathic
prepositional TO -- here given in parentheses so that the structure will
be more suggestive of the surface usage of the verb intend, which lacks
a preposition -- specifies the DIRECTOR component.

We will not here be concerned with the intentional situation by
itself but only as it participates as a component in a still larger
situation:

A complex situation which can be considered to consist of

(112) an intentional situation being present with a (simple)
    causative situation with volition
    where the entity and the translatory event are the same in both
will be termed a \textit{(simple or first-order) effective situation} and symbolized as 's_e'. The characterization in (112), it can be seen, can be equivalently interpreted to state that

(113) \hspace{1em} \text{in an } s_e, \text{ a single entity both intends and adducts to}
\hspace{1em} \text{(here: is the willer of an } s_{A_V} \text{ which causes)}
\hspace{1em} \text{a single transitory event (here: an } s_{T_B}).

In our treatment of the effective situation, we will not deal with the relation of the intentional situation to the whole causative situation, but rather with the relation of the former to just the transitory event of the latter, with which it will be said to be \textit{in association}. The \( s_e \) will be specified at the underlying level by a syntactic structure to be termed the \textit{(simple or first-order) effective structure} and symbolized as 'S_e', as represented in (114):

(114) \hspace{1em} S_e : \langle S_i \rangle \text{ FOLLOWs FROM } S_{A_V},

where the association of the \( S_i \) with the \( S_{T_B} \) is indicated by angle brackets connecting the two.

It will be recalled from section 5.23 that a causative structure with volition cannot by itself derive into a surface sentence, but must in fact occur with an intentional structure in an \( S_e \), as in (114). The rationale for this tack of distinguishing the notions of 'volition' and 'intention' and of analyzing these out as separate events to be specified by structures with a co-occurrence constraint will become clearer in the subsequent treatment of higher-order effective structures.
Granting for the present the existence of a rationale, however, the
simple effective structure in (114) is now ready for derivation, the
initial two steps of which are indicated in (115):

(115)

(a) \[ S_i \]
    \[ S_{TB} \text{ follows from } S_{AV} \]

(b) \[ \Rightarrow \] the ENTITY (I) INTENDs (TO) \[ S_{TB} \]
    \[ \text{the ENTITY (W) ADDUCTs TO } S_{TB} \text{ WITHBY } S_{AV} \]

(c) \[ \Rightarrow \] the ENTITY (A) EFFECTs (TO) \[ S_{TB} \text{ BY } S_{AV} \]
    \[ \Rightarrow \emptyset \]
(116) Comments on the derivational steps in (115):

1. -- In (115a) is the first-order effective structure. The intentional structure therein is for clarity not written out in full.

2. -- In (115b), the ADDUCT-TO transformation has applied to the causative structure. The intentional structure is now written out in full, and has come to be in association with the new main clause of the transformed causative structure.

3. -- In (115c), a new transformation, to be termed the EFFECT-(TO) transformation, has taken place. By its operation, the association of two distinct strings contained within the input structure is replaced by a single string in the output structure. In particular, the transformation works the following four changes on the associated strings:

   -- i. The two occurrences in the input of the bathic noun ENTITY are replaced in the output by a single occurrence. By the characterization of the effective situation in (112), both input occurrences of ENTITY specify the same element and, of course, the output occurrence also specifies the element. However, whereas this element functions as the INTENDER component (I) of the intentional situation, and as the WILLER component (W) of the causative situation with volition, in relation to the whole effective situation it will be considered to perform a new function, that of AGENT, to be symbolized as 'A', as indicated in parentheses in the output structure.

   -- ii. The two bathic verbs INTEND and ADDUCT in the input are replaced in the output by a single new bathic verb represented as EFFECT.
Whereas the input verbs respectively specify the RELATOR component of the intentional and the causative situations, the output verb specifies the RELATOR component of the whole effective situation.

-- iii. The two occurrences in the input of the DIRECTOR-specifying bathic preposition TO are replaced in the output by a single occurrence. The preposition is given in parentheses after EFFECT for the same reason this has been done after INTEND.

-- iv. The two occurrences in the input of the embedded structure 'S₄₆' are replaced in the output by a single occurrence. By the characterization of the effective situation in (112), both input occurrences of 'S₄₆' specify the same translatory event and, of course, the output occurrence also specifies it.

-- Still in (115c), the EFFECT-(TO) transformation has worked one more change: the bathic prepositional WITHBY is replaced by a new bathic prepositional represented as BY, which in English usually keys in the lexical-insertion of the vadic preposition by.

***

In (115c), then, appears the structure which arises in the derivation of the underlying effective structure after the application of the EFFECT-(TO) transformation; of this structure, the main clause will be termed the effected translatory structure and the dependent clause will be termed the BY-clause. In the subsequent discussion of higher-order effective structures, the derivation begun in (115) will be seen to apply cyclically; for the first pass of this cycle, which is
necessarily on a first-order effective structure as in (115a), the one-time stipulation is made that the derivationally-produced BY-clause containing the $S_{AV}$ be obligatorily deleted, as indicated in parentheses in (115c).
In (117) we now illustrate for English the particularization and full derivation -- to be termed the \textit{EFFECT-(TO) derivation} -- of an underlying effective structure:

(117)

(a) \begin{align*}
\text{the boy INTENDED} \ (\text{TO}) \text{ it, that the boy's arm swung into the aerial} \\
\langle \ \text{it, that the boy's arm swung into the aerial} \ \\ 
\ \ \ \ \ \text{FOLLOWed FROM} \\
\ \ \ \ \ \ \ \ \ \ \ \text{it, that the boy WILLED ON the boy's arm} \\
\end{align*}

(b) \begin{align*}
\Rightarrow \text{the boy INTENDED} \ (\text{TO}) \text{ it, that the boy's arm swung into the aerial} \\
\Rightarrow \text{the boy ADDUCTed TO it, that the boy's arm swung into the aerial} \\
\ \ \ \ \ \text{WITHBY it, that the boy WILLED ON the boy's arm} \\
\end{align*}

(c) \begin{align*}
\Rightarrow \text{the boy EFFECTed} \ (\text{TO}) \text{ it, that the boy's arm swung into the aerial} \\
\Rightarrow \text{(BY it, that the boy WILLED ON the boy's arm)} \\
\Rightarrow \emptyset \\
\end{align*}

(d) \begin{align*}
\Rightarrow \text{the boy EFFECTed the boy's arm (TO) swinging into the aerial} \\
\Rightarrow \text{[the boy made his arm swing into the aerial]} \\
\end{align*}

(e) \begin{align*}
\Rightarrow \text{the boy \underline{EFFECTed-(TO)--swinging} the boy's arm into the aerial} \\
\Rightarrow \text{[the boy \underline{\text{e}swung} the boy's arm into the aerial]} \\
\end{align*}

(f) \begin{align*}
\Rightarrow \text{the boy \underline{\text{e}swung} the boy's arm into the aerial} \\
\Rightarrow \text{[the boy \underline{\text{e}swung} his arm into the aerial]} \\
\end{align*}
(118) Comments on the derivation in (117):

1. -- In (117a) is the particularized effective structure with the intentional structure here written out in full.

2. -- In (117b), the ADDUCT-TO transformation has taken place and the intentional structure has come to be in association with the main clause of this transformation's output structure.

3. -- In (117c), the EFFECT-(TO) transformation has taken place.
   -- The BY-clause containing the volitional structure is obligatorily deleted, so that the remainder of the derivation involves only the effected translatory structure.

4. -- [For this and the following comment, compare the comments in (88 -3,4) and the analogous steps in the LEAD-TO derivation (87c,d)].
   -- The structures in (117d & e) represent the results of following alternate derivational routes from the structure in (117c).
   -- In (117d), the FIGURAL subject (the boy's arm) of the embedded translatory structure has been raised into an object-relation with the RELATOR verb (EFFECT).
   -- In brackets is given a surface sentence which results if this structure simply undergoes pronominalization and vadic insertion onto the RELATOR and DIRECTOR morphemes.

5. -- In (117e), the $S_T$ embedded in the (transformed) $S_e$ has raised into the higher structure. In particular, the V of the $S_T$ (swing) has raised into adjunction with the V and P of the $S_e$ (EFFECT (TO)) under a new V node, and the other constituents of the $S_T$ have come to stand
as direct constituents of the $S_e$, the FIGURAL constituent (the boy's arm) becoming the direct object of the new V node.

-- The lexical-insertion onto the adjunction by a new vadic verb is indicated. This verb is marked with the subscript 'e' as a mnemonic for the RELATOR verb EFFECT underlying it. In the present case, the phonological shape of the inserted vadic verb is the same as that of the vadic verb underlying it.

6. -- In (117f), the lexical insertion has taken place.

-- In brackets is given the surface sentence which results from this structure after pronominalization.

***

Thus we finally have here the surface sentence -- i.e.,

(119) the boy e swung his arm into the aerial --

which showed its first promise of emerging in (108) of the preceding section.

We now proceed to the general expanded form of the effective situation, i.e., to a complex situation which can be considered to consist of

(120) one or more intentional situations being present with

a serial causative situation with volition,

where there is an intentional situation

in association with the first event after the volitional,

and thereafter, in order,

with any number of succeeding events.
Such a situation will be syntactically specified by a serial causative structure with volition wherein an $S_i$ is in association with the first simplex structure after the volitional, and thereafter, in order, with each succeeding simplex structure which specifies an event considered intentional, as represented in (121):

$$(121) \quad (S_i) \quad (S_i) \quad S_i \quad S_i \quad S_i$$

$\langle S_T \rangle$ follows from $\langle S_A \rangle$ follows from $\langle S_{A_B} \rangle$ follows from $S_{A_V}$

Any simplex structure with which an $S_i$ does not appear in association is understood to specify an event not considered intentional -- whether considered simply consequential, accidental, or the like. At this point, the only generalization which needs to be made in the characterizations of situations and structures presented thus far is that wherever the term 'translatory' (or the symbol 'T') has appeared the term 'adative' (or the symbol 'A') is now equally applicable.

The simplest case of the expanded effective situation contains three simplex events of which only one is in association with an intentional situation, as syntactically represented in (122):

$$(122) \quad S_i \quad S_i \quad S_i$$

$S_T$ follows from $\langle S_{A_B} \rangle$ follows from $S_{A_V}$

(although the 'n' in the term 'nth-order effective structure' will be intended to indicate the number of $S_i$'s which are associatively present, (122), with its additional simplex structure, could, I suppose, be referred to as the 'one-and-a-halfth-order effective structure'). It can be seen that the right-hand portion of (122) constitutes a simple
effective structure, and the $S_T$ of (122) taken together with this right-hand portion constitutes a simple causative structure. The derivation of the whole complex structure of (122) will in fact recognize these two substructures, therefore consisting of an EFFECT-(TO) derivation on the right and, shifting leftwards, a causative (i.e., a FOLLOW-FROM, LEAD-TO, or ADDUCT-TO) derivation. One may compare in this regard the cyclic derivation of the serial causative structure presented in section 5.22. For illustration, we now present the derivation in (123).
(123)

(a) it, that the aerial came down,

FOLLOWed FROM

the boy INTENDeD (TO) it, that the boy's ----  
<  
it, that the boy's arm swung into the aerial,

FOLLOWed FROM

it, that the boy WILLEd ON the boy's arm

(b) $\implies$ it, that the aerial came down

FOLLOWed FROM

it, that the boy $e$ swung the boy's arm into the aerial

(c) $\implies$ the aerial $f$ came down

FROM it, that the boy $e$ swung the boy's arm into the aerial

[the aerial $f$ came down from the boy's $e$ swinging his arm into it]

(d) $\implies$ the boy ADDUCTed TO it, that the aerial came down,

WITHBY it, that the boy $e$ swung the boy's arm into the aerial

(e) $\implies$ the boy ADDUCTed-TO-coming the aerial down,

WITHBY it, that the boy $e$ swung the boy's arm into the aerial

(f) $\implies$ the boy $a$ brought the aerial down

WITHBY it, that the boy $e$ swung the boy's arm into the aerial

[the boy $a$ brought the aerial down with his $e$ swinging his arm into it]

or [the boy $a$ brought the aerial down by (his) $e$ swinging his arm into it]
(124) Comments on the derivation in (123):

1. -- In (123a) appears the particularized underlying structure of the form (122), containing as embeddings, from first to last (i.e., from the bottom up), a volitional structure, an adactive structure in association with an intentional structure, and a translatory structure.

2. -- In (123b), the first two embedded structures, the intervening relation, and the associated structure -- considered together as a simple effective structure -- have undergone the EFFECT-(TO) derivation. It may be noted that the output of this derivation, obligatorily lacking a BY-clause, consists of a single clause: the effected adactive structure.

   -- The whole structure in (123b) is now considered a two-member causative structure (as previously generalized, since its rightmost embedding is now not an adactive structure but, of course, an effected adactive structure).

3. -- The structures in (123c & d) represent the results of applying alternate causative derivations to the causative structure in (123b). In (123c), the FOLLOW-FROM derivation has been applied.

   -- In brackets is given the surface sentence which results by the additional application of vadic insertion onto FROM, gerundivization of the effected adactive structure, and pronominalization.

4. -- In (123d), the ADDUCT-TO transformation has been applied to the causative structure in (123b). Notice that for its application, the generalization in (89b) of the adductive relation has been called for.
5. -- In (123e), there has taken place that transformational alternative of the ADDUCT-TO derivation [see (92d)] whereby the embedded $S_T$ raises into the higher structure. In this process, the $V$ of the $S_T$ ($œme$) raises into adjunction with ADDUCT TO, the adjunction keying in the insertion of a vadic verb marked with the subscript '$_a$' ($abraʒ$).

6. -- In (123f), the lexical-insertion has taken place.

   -- In brackets are the surface sentences which result by the additional application of vadic insertion onto WITHBY -- in one case by with and in the other by $by$ -- of gerundivization of the effected adactive structure, and of pronominalization.

   * * *

The second bracketed sentence in (123f) is of course to be interpreted in that reading whereby the event specified by the main clause is understood as simply consequential, accidental, or the like, but not as intentional (an interpretation for which the derivation is presented next). Thus we would claim that the bracketed sentences in (123c & f) are basically synonymous, specifying the intentionality of the arm's motion and the causedness but accidentalness of the aerial's motion, as per the formulation in (122).

   We now proceed to the next-simplest case of the expanded effective situation, namely, one containing three simplex events of which two are in association with an intentional situation, as syntactically represented in (125):
(125) \[ S_i \text{ follows from } S_{TB} \text{ follows from } S_{AV} \]

this now meriting the term *second-order effective structure*. The manner of derivation of such a structure will be to cyclically perform the EFFECT-(TO) derivation starting at the right and then shifting to the left. Since, after such a shift, the rightmost structure is no longer simply an \( S_{AV} \), the first-order effective structure must now be generalized so that its rightmost embedding can be more complex than a volitional structure. For illustration, we now present the derivation appearing in (126):
(126)

(a)  the boy INTENDeď (TO) it, that ---
    < it, that the aerial came down, >
    FOLLOWed FROM
    the boy INTENDeď (TO) it, that -----------------
    < it, that the boy's arm swung into the aerial, >
    FOLLOWed FROM
    it, that the boy WILLed ON the boy's arm

(b) ➞ the boy INTENDeď (TO) it, that ---
    < it, that the aerial came down, >
    FOLLOWed FROM
    it, that the boy e swung the boy's arm into the aerial

(c) ➞ the boy INTENDeď (TO) it, that the aerial come down,
    the boy ADDUCTed TO it, that the aerial come down,
    WITHBY it, that the boy e swung the boy's arm into the aerial

(d) ➞ the boy EFFECTed (TO) it, that the aerial came down
    BY it, that the boy e swung the boy's arm into the aerial

(e) ➞ the boy EFFECTed-(TO)-coming the aerial down
    e brought
    BY it, that the boy e swung the boy's arm into the aerial

(f) ➞ the boy e brought the aerial down
    BY it, that the boy e swung the boy's arm into the aerial
    [the boy e brought the aerial down by (his) e swinging
     his arm into it]
(127) Comments on the derivation in (126):

1. -- In (126a) appears the particularized underlying structure of the form (125), containing as embeddings, from first to last (i.e., from the bottom up), a volitional structure, an adactive structure in association with an intentional structure, and a transulatory structure in association with an intentional structure.

2. -- In (126b), the first two embedded structures, the intervening relation, and the associated structure -- considered together as a simple effective structure -- have undergone the EFFECT-(TO) derivation.
   -- The whole structure in (126b) is now considered a new simple effective structure, one whose rightmost embedding is -- as per the generalization described above -- a structure more complex than an $S_{AV}$ (it is, in fact, an effected adactive structure). This new effective structure now undergoes the second cyclic application of the EFFECT-(TO) derivation, as shown step-by-step in the remainder of (126).

3. -- In (126c), the ADDUCT-TO transformation has taken place.

4. -- In (126d), the EFFECT-(TO) transformation has taken place. The BY-clause which is produced, since it does not contain simply an $S_{AV}$, cannot now be deleted.

5. -- In (126e), there has taken place that transformational alternative of the EFFECT-(TO) derivation [see (117e)] whereby the embedded $S_T$ raises into the $S_e$. In this process, the V of the $S_T$ (come) raises into adjunction with EFFECT (TO), the adjunction keying in the insertion of a vadic verb marked with the subscript 'e' (bring). Note that in
this case the inserted verb is phonologically distinct from the
vadic verb underlying it.

6. -- In (126f), the lexical-insertion has taken place.
    -- In brackets is the surface sentence which results by the additional
    application of vadic insertion onto BY, gerundivization of the effected
    adactive structure, and pronominalization.

    * * *

The bracketed sentence in (126f) is of course to be interpreted in
that reading whereby the event specified by the main clause is understood
as intentional rather than as simply consequential, accidental, or
the like.

With regard to the whole issue of the intentionality or non-
intentionality of surface clauses -- as, e.g., in the main clause of
three sentences derived above and again presented in (128):

(128)

(a) the aerial c came down from the boy e swinging his arm into it
(b) the boy a brought the aerial down by e swinging his arm into it
(c) the boy e brought the aerial down by e swinging his arm into it

it is simultaneously a consequence of our syntactic rules and a principle
for semantically interpreting surface-structures that:

*In this formulation passives and other such permutations must be
excluded from consideration.
(129) (a) a noun phrase specifying an AGENT
    that has (EFFECTed and hence) INTENDED an event
    must appear as the surface subject
    of the clause specifying that event [(128c)],
    while a noun phrase without such a specification
    may or may not so appear [(128b & a)]

and, conversely, that

(129) (b) a noun phrase not appearing as the surface subject
    of a clause specifying an event
    cannot specify an AGENT
    that has (EFFECTed and hence) INTENDED the event [(128a)],
    while a noun phrase appearing as such a subject
    may or may not have such a specification [(128c & b)].

We now introduce an important, perhaps universal, meaning-preserving transformation which introduces a bathic prepositional, to be represented as WITH, before the FIGURAL expression of an effected simplex structure, the combination of the prepositional and expression to be termed the WITH-phrase.* In English, the WITH-phrase usually then moves to the end of the structure, and the WITH usually keys in the insertion of the vadic preposition with. By the operation of the 'WITH-introducing transformation', as it will be called, the effected

*This transformation has been tailored to fit the present discussion; it is actually a particular case of a more general process involving 'extraposition' and the introduction of an 'extraposition particle', as discussed in the Appendix.
translatory structure in (130a) is converted to the structure in (130b):

(130)

(a) the boy swung his arm into the aerial
(b) $\Rightarrow$ the boy swung into the aerial with his arm

The transformation may likewise operate on the effected adactive structure in the BY-clause of a second-order effective structure, thus, e.g., converting (131a) to (131b):

(131)

(a) the boy brought the aerial down by swinging his arm into it
(b) $\Rightarrow$ the boy brought the aerial down by swinging into it with his arm

Since in a structure like (131a) the expression *his arm* -- although it functions as the FIGURE in its original simplex adactive situation -- comes to function as the INSTRUMENT in relation to the whole effective situation by the principles of 'transvaluation' discussed in (76), we notice that in a structure like (131b) it is precisely this INSTRUMENT-specifying expression which winds up in the WITH-phrase.

We now additionally introduce an obligatory deletion transformation: if, in an underlying second-order effective structure, the adactive structure has no specific expressions (such as *swing* and *into*) moved into adjunction with its bathic *ACT* and *ON* morphemes, then, in a derived structure which has undergone WITH-introduction, the transformation obligatorily deletes all of the BY-clause except the WITH-phrase. Thus, if in (126a) the adactive structure had less-specifiedly been
(132) ... 

it, that the boy's arm ACTed ON the aerial ... 

the whole effective structure would first have derived into (133a) [the less-specified analog of (131a)], then, after the WITH-introducing transformation, into (133b) [the less-specified analog of (131b)], and finally, after the new deletion transformation, into (133c): 

(133) 

(a) the boy ≤brought the aerial down by ≤ACTing his arm ON it* 
(b) the boy ≤brought the aerial down by ≤ACTing ON it with his arm ∅ 
(c) the boy ≤brought the aerial down with his arm. 

Thus, by the above account, we have claimed that any independent instrumental (i.e., WITH-) phrase in a surface sentence arises by reduction from a BY-clause with a certain generic (i.e., less-specified) meaning. The rationale for introducing ACT and ON in the first place was to have linguistic forms to represent the genericness of this meaning.

*In this structure, ≤ACT (NP) ON (NP), in taking a direct object, departs from surface usage; to regain the suggestiveness lost thereby, one may think in terms of ≤apply (NP) to (NP), as if the dependent clause were now to be written 

...by ≤APPLYING his arm TO it.
We now proceed to the consideration of a third-order effective situation, as syntactically represented in (134):

\[(134) \quad \langle S_T \rangle \text{FOLLOWS FROM} \langle S_A \rangle \text{FOLLOWS FROM} \langle S_A \rangle \text{FOLLOWS FROM} S_{AV}.\]

We now pass immediately to the presentation of the particularization and derivation of a structure of this kind in (135).
(a) the boy INTENDED (TO) it, that...
   \[ \text{it, that the aerial came down} \]
   FOLLOWed FROM
   the boy INTENDED (TO) it, that ........
   \[ \text{it, that the stick swung into the aerial} \]
   FOLLOWed FROM
   it, that the boy WILLED on the boy's hand

(b) $\Rightarrow$ the boy INTENDED (TO) it, that...
   \[ \text{it, that the aerial came down} \]
   FOLLOWed FROM
   the boy INTENDED (TO) it, that........
   \[ \text{it, that the stick swung into the aerial} \]
   FOLLOWed FROM
   it, that the boy Acted the boy's hand ON the stick

(c) $\Rightarrow$ the boy INTENDED (TO) it, that...
   \[ \text{it, that the aerial came down} \]
   FOLLOWed FROM
   it, that the boy Acted the stick into the aerial
   BY it, that the boy Acted the boy's hand ON the stick
   $\Rightarrow$ BY it, that the boy Acted on the stick WITH the
   boy's hand
   $\Rightarrow$ WITH the boy's hand
(d) \[\Rightarrow\] the boy brought the aerial down

BY it, that the boy swung the stick into the aerial
WITH the boy's hand

[the boy brought the aerial down by (his) swinging
the stick into it with his hand]
(136) Comments on the derivation in (135):

1. -- In (135a) appears the particularized third-order effective structure containing as embeddings from first to last (i.e., from the bottom up) an $S_{AV}$, an $S_A$, whose ACT and ON morphemes are not adjoined by specific expressions -- in association with an $S_i$, an $S_A$ in association with an $S_i$, and an $S_T$ in association with an $S_i$.

2. -- In (135b), the EFFECT-(TO) derivation, in its first cyclic pass, has operated on the first (lowest) threesome of embeddings with intervening relation in (135a) -- together constituting a simple effective structure -- producing the derived first-order effective structure (which, lacking a BY-clause, is simply an effected adactive structure):

   (i) (it, that) the boy $e$ ACTed the boy's hand ON the stick.

3. -- In (135c), the EFFECT-(TO) derivation, in its second cyclic pass, has operated on the new lowest threesome of embeddings with intervening relation in (135b), producing the derived second-order effective structure:

   (ii) (it, that) the boy $e$ swung the stick into the aerial

       BY it, that the boy $e$ ACTed the boy's hand ON the stick.

   -- The WITH-introducing transformation then additionally operates on the effected adactive structure in (ii), producing the new BY-clause:

   (iii) ... BY it, that the boy $e$ ACTed ON the stick WITH the boy's hand.
-- The obligatory deletion transformation then operates on (iii) to leave only the WITH-phrase

(iv) ... WITH the boy's hand,

so that the lowest structure in (135c) has now become:

(v) (it, that) the boy swung the stick into the aerial
    WITH the boy's hand

4. -- In (135d), the EFFECT-(TO) derivation, in its third and final cyclic pass, has operated on the remaining threesome of embeddings with intervening relation which constitutes (135c), producing the derived third-order effective structure shown.

-- In brackets is given the surface sentence which results from this structure by the additional application of lexical insertion onto BY and WITH, gerundivization of the second-order effective structure embedded in the new BY-clause, and pronominalization.

* * *

Due to a surface constraint which disallows two WITH-phrases in a single clause* it may be noted that in (135d) the WITH-introducing transformation -- which has already applied once to give WITH the boy's hand --

*More correctly, the constraint disallows two WITH-, or certain other, phrases only where both key in the insertion of with; note the following sentence-pairs:

(i) a. he wrote the document \{0_{with}\} red ink
   b. he wrote the document \{0_{in} \} red ink with a quill
(ii) a. he drank the milk \{\text{with} \} \text{a straw}

\{\text{through}\}

b. he drank the milk \{\text{*with} \} \text{a straw with the left side of his mouth}

cannot now apply to the effected adactive structure in the BY-clause to give

(135e) *the boy \text{brought the aerial down}

by \text{swinging into it with the stick with his hand.}

We now introduce a further obligatory deletion transformation: if, in an underlying second- or third-order effective structure, the $S_A B$ not only has its \textit{ACT} and \textit{ON} morphemes unadjointed by specific expressions, but also has its \textit{BODYPART} morpheme unaccompanied by a concurrent specific expression (such as \textit{hand}), then, in a derived structure which has undergone the deletion of all of its BY-clause except the \textit{WITH}-phrase, the new transformation now obligatorily deletes the \textit{WITH}-phrase, too. Thus, if in (135a) the $S_A B$ had less-specified been

(137a) ... it, that a \textit{BODYPART} of the boy \textit{ACTed ON} the stick ...

then the whole effective structure would first have derived into (137d) [the less-specified analog of (135d)] and then, after the new deletion transformation, into (137e):
(137)

(d) the boy brought the aerial down
    by swinging the stick into it with a BODYPART of his

(e) the boy brought the aerial down
    by swinging the stick into it

In the above way, we can account for those effective surface sentences in which there appears no explicit expression specifying a body-part of the AGENT despite the necessity that an event involving such a body-part be assumed as a component of the total situation.

Now that the sentence in (137e) no longer has its earlier WITH-phrase, the effected adactive structure in the BY-clause is itself free to undergo the WITH-introducing transformation without the output getting blocked by the surface constraint noted earlier; there thus results

(137f) the boy brought the aerial down
    by swinging into it with the stick

And further, of course, if in (135a) the $S_A$ had less-specifiedly been

(138a) ... it, that the stick ACTed ON the aerial ...

then the whole effective structure would first have derived into (138f) [the less-specified analog of (137f)] and then, after the transformation which deletes all of the BY-clause except the WITH-phrase, into (138g):
(138)

(f) the boy e brought the aerial down by e ACTing ON it with the stick

(g) the boy e brought the aerial down with the stick

Now, just as the $S_{AB}$ in a third-order effective structure can be of the minimally-specific sort (to wit: a BODYPART of the 'AGENT' ACTs ON the 'FIGURE [of the following event]') which leaves no trace at the surface, so in general, in an nth-order effective structure, the $S_{AB}$ and any number of the subsequent $S_A$'s up to and including the last before the $S_T$ can be of such a sort. Although we do not here go into their underlying form and manner of subsequent deletion, we note that if all the $S_A$'s are of the requisite minimally-specific sort, the resulting surface sentence will lack the whole of any explicit BY-clause. Thus, e.g., a situation where in fact a boy uses his hands to swing a bat to propel a ball to bring an aerial down is, with its causal events only minimally specified, referred to simply by the effected translatory structure

(139) the boy e brought the aerial down.

In conclusion, we remark on the characteristic of higher-order effective structures (as can be seen by reviewing the derivations above for the second- and third-order) that in the finally-resulting surface-structure, the main clause produced by the last cyclic pass of the EFFECT-(TO) derivation is always simply an effected translatory structure and can in fact be the same particular such structure no
matter how many cyclic passes have preceded, whereas it is in the BY-
clause produced by the last cyclic pass of the EFFECT-(TO) derivation
that there show up the results of all the earlier cyclic passes
together with the effects produced by any introductional- or deletional-
transformations (such as those just discussed) which may have taken
place.
5.32 Effective Structures in Atsugewi

With the preceding sections having served both as theoretical development and as exemplification for English, we now turn to Atsugewi. In this language, a whole underlying higher-order effective structure undergoes a derivation whereby it becomes a single surface sentential-verb (disregarding, of course, the optional inclusion of external expressions). In particular in this derivation, the main clause produced by the last cyclic pass of the EFFECT-(TO) derivation -- which, as was noted, is always an effected translatory structure -- is represented by all of the sentential-verb except for the position-slot immediately prefixal to the root, while the BY-clause produced by the last cyclic pass -- which, as was noted, contains the product of all the earlier cyclic passes -- is represented by but a single morpheme which occupies that prefixal position-slot. Accordingly, for clarity in the following exposition of the Atsugewi derivation, we will first present the last cyclic pass of the EFFECT-(TO) derivation, together with the post-cyclic inflectional subderivation, thereby obtaining a sentential-verb complete but for the first-prefix, and then go back to present the earlier cyclic passes, thereby obtaining a first-prefix.

We commence immediately, then, with the last cyclic pass of the EFFECT-(TO) derivation, as represented in phrase-marker form in (140). The steps in the derivation may be compared with those in the derivations previously presented in (82) and in (126).
(140)

(a)

$S_{en}$ ($s_{en}$)

$N$ ($s_i$ $s_T$)

$V$ ($\rho$)

$P$ ($\delta$)

$N$ ($s_{en-1}$)

$S_{en-1}$

$(s_i) S_n$ $S_T$ ($s_T$)

(F) $N_E$: soot

$N_1$: T-S-A

$N_R$: DIRT

(V) ($M$)

(D) $P_E$: to

($G$) $N_E$: creek

($P_S$: INTO)

($N_S$: LIQUID)

$\Delta$

(a') $\Rightarrow$

$S_{en}$ ($s_{en}$)

$N$ ($s_i$ $s_T$)

$V$ ($\rho$)

$P$ ($\delta$)

$N$ ($s_{en-1}$)

$S_{en-1}$

$(s_i) S_n$ $S_T$ ($s_T$)

(F) $N_E$: soot

$N_1$: T-S-A

$V$ ($s_T$)

$P_E$: (D)

$N_E$: (G)

$V$ ($FM$)

ADV ($DG$)

to
creek

-qput-

-ict
(141) Comments on the derivation in (140):

1. -- In (140a) [which is comparable to (82a) and to (126b)] is given the nth-order effective structure, here symbolized as 'Se_n', as it appears after all but the last cyclic application of the EFFECT-(TO) derivation. As its rightmost embedding, there is indicated the 'n-minus-one'-order effective structure, here symbolized as 'Se_{n-1}', which has arisen from all the earlier cyclic applications, the details of which will be discussed later. As its leftmost embedding, there is shown the association of the translatory structure, 'S_T', with the nth intentional structure, 'S_{i_n}'.

-- This S_T is, it may be noticed, identical to the S_T in (82a).

-- The S_{i_n}'s constituents, for clarity not shown in (140a), may be taken to be as in (i):

(i)

\[
S_{i_n} \quad \frac{\text{(A) } N_E \text{: the boy \quad V (p) \quad P (s) \quad N (s_T)}}{N_1 \text{: E-S-A \quad INTEND \quad (TO) \quad S_T}}
\]

where 'E-S-A' is an abbreviation for the ENTITY (-IES) SPOKEN ABOUT [(36c_1)] and the S_T is the same as that shown in (140a).

11. -- In (140a') [which is comparable to (82a')] the S_T has undergone all of the subderivations pertinent to it except for the inflectional, so that it is now identical to the S_T in (82a').

-- The whole structure then undergoes the ADDUCT-TO transformation,
which is not shown, thereby turning into a structure with a composite main clause (of two associated strings) and a dependent clause [which is comparable to (126c)].

2. -- In (140b) [which is comparable to (82b) and (126d)], the EFFECT-(TO) transformation has taken place. By its operation, the composite main clause of the input has been converted into a singulary main clause constituting an effected transatory structure, here symbolized as 'S_T_e'. The dependent clause of the input has become a BY-clause, here symbolized as 'BC', which is considered to function grammatically as an adsentence, 'ADS', in relation to the main clause.

3. -- In (140c) [which is comparable to (82c) and to (126e)], there has taken place that transformational alternative (Atsugewi, like English, does have the other option of using a vadical verb, equivalent to make or cause, which takes a complement) whereby the S_T raises up into the S_T_e in which it was embedded. In particular, the V (s_T) of the S_T raises to the V (ρ) and P (δ) of the S_T_e -- a new node, 'V (ρδs_T)', being formed in the process -- and the non-V constituents of the S_T come to stand as direct constituents of the S_T_e -- the N (F) becoming the direct object of the new V (ρδs_T). The special circumstance should be noted that as the V (s_T) of the S_T raises to the V (ρ) and P (δ) of the S_T_e, the latter two in turn lower so as to Chomsky-adjoin with the V (FM) -- a new node, 'V (ρδFM)', being formed in the process.

-- Onto this adjunction of the V (ρ) EFFECT, the P (δ) (TO), and the V (FM) -qput-, the insertion of the 'effected FM root' e-qput- is indicated.
On the basis of all the examples collected thus far in field-work, it must be noted as an apparent characteristic of Atsugewi that an effected root -- such as e-qput- -- is always of the same phonological shape as the corresponding active root -- in this case, -qput-, on the pattern of English swing/swing rather than that of English bring/come. As to meaning, just as we gave in (18) three equivalent formulations for the derived verbal meaning of -qput-, as a representative active FM root, so now in (ii) we give the corresponding triad of formulations for e-qput-, as a representative effected FM root:

(ii) e-qput-  
(a) '[for an entity (A)] to e-move Dirt'
(b) '[for an entity (A)] to e-Dirt-move'
(c) '[for an entity (A)] to e-Dirt'

4. -- In (140d) [which is comparable to (82d) and (126f)], the lexical-insertion has taken place.

***

We have interrupted the derivation in (140) at the stage shown in (d) in order to pay particular attention to the inflectional subderivation next to take place. In Atsugewi, the AGENT of an effective situation must be specified as to its 'personal' characteristics by a member of the batic personal system. This member must contain the term ENTITY, and so can be, e.g., any of the batic noun phrases of (36) except (36c2). The batic noun phrase, earmarked for participation in the inflectional subderivation for the sentential-verb, appears in the underlying structure attached to the AGENT constituent and in optional concurrence with a vadic noun phrase earmarked for external appearance, as is the case in
the phrase-markers of (140). It is to be noted that no additional noun phrases can be concurrently attached. That is to say, in contrast with the other element-components we have discussed, which can be specified in the underlying structure and thence in the sentential-verb as to their semantically more-contentful characteristics -- e.g., the FIGURE as to being 'dirt-like material', the GROUND as to being 'a liquid', and the INSTRUMENT as to being 'wind' -- the AGENT can be specified in the sentential-verb solely as to its 'personal' characteristics. There then ensues the following inflectional derivation [which is comparable to (37)]:

(142) 1. Onto the AGENT-specifying and onto the FIGURE-specifying personal bathic expressions are inserted non-surface-appearing vadic form.

2. The insert for the former becomes marked for functioning as grammatical subject, and the insert for the latter, for functioning as grammatical object.

3. At the same time as "1", a non-surface-appearing vadic form is inserted onto the bathic expression specifying the MODE component.

4. All three vadic forms cojoin.

5.Onto this conjunction of non-surface-appearing vadic forms is inserted the particular set of surface-appearing vadic morphemes which is keyed to it.

6. The member morphemes of the inserted set move to the appropriate
inflectional position-slots which make up the outer periphery of
the surface sentential-verb.

Taking the structure in (140d) -- in which the AGENT is specified as
the ENTITY SPOKEN ABOUT, abbreviated 'E-S-A', and the FIGURE as the
THING SPOKEN ABOUT, abbreviated 'T-S-A' -- and adding in the bathic
expression FACTUAL to specify the MODE component, the inflectional
derivation proceeds as in (140d1 - d3):
(140) [cont.]

(d₁) ➞

\[
S_{Te} \\
(\text{A}) \quad N_E: \text{boy} \quad V (\rho \delta S_T) \quad \text{MODAL} (\mu) \quad (\text{F}) \quad N_E: \text{soot} \quad P_E (D) \quad N_E (G) \\
N_I: E-S-A \quad \overline{x} (\text{subj}) \quad \text{FACTUAL} \quad \frac{\overline{y}}{\overline{z}} (\text{obj})
\]

(d₂) ➞

\[
S_{Te} \\
N_E (A) \quad V (\rho \delta S_T) \quad \text{INFECTION} (AF\mu) \quad N_E (F) \quad P_E (D) \quad N_E (G) \\
N_I (A) \quad \text{MODAL} (\mu) \quad N_I (F) \\
\overline{x} (\text{subj}) \quad \overline{y} \quad \overline{z} (\text{obj})
\]

(d₃) ➞

\[
S_{Te} \\
N_E (A) \quad V (\rho \delta S_T) \quad \text{INFECTION} (AF\mu) \quad N_E (F) \quad P_E (D) \quad N_E (G) \\
\overline{x} (\text{subj}) \quad \overline{y} \quad \overline{z} (\text{obj})
\]
(143) Comments on the inflectional subderivation in (140d₁ – d₃):

1. -- In (140d₁), the non-surface-appearing vadid forms, represented as 'ᵩ', 'ᵦ', and 'ᵢ', have been respectively inserted onto the inflection-participating expressions specifying the AGENT, the MODE, and the FIGURE components.
   -- 'ᵩ' has been marked for subject and 'ᵢ' for object.

2. -- In (140d₂), the insertions have taken place. The inserts with the nodes to which they are attached have moved into a conjunction under the new node 'INFLECTION'.
   -- The insertion onto the conjunction of the appropriate surface-appearing morpheme-set is indicated.

3. -- In (140d₃), the insertion has taken place.
   
   ***

Finally, in completing the inflectional subderivation, the INFLECTION node of (140d₃) moves into daughter-adjunction with the V node, breaking up into its requisite discontinuous form, as shown in (140e) [which is comparable to (82e)]:

...
It may have been noticed that the inflectional affix-set appearing in the autic sentential-verb of (82e), namely \( 'w-\alpha \), is homophonous with that appearing now in the effective sentential-verb of (140e). It is, in fact, a characteristic of the Atsugewi inflectional system that those affix-sets which specify as subject a FIGURE of a particular personal category are, one-for-one, formally identical to those which specify as subject an AGENT of the same personal category and as object a third-personal FIGURE. As another instance of this characteristic, the autic inflectional affix-set

\[ s- 'w-\alpha \]

which specifies that

the BODY of the ENTITY SPEAKING (F)

FACTUALLY [MOVED],

is formally identical to the effective inflectional affix-set

\[ s- 'w-\alpha \]

which specifies that

the ENTITY SPEAKING (A)

FACTUALLY [MOVED]

\[ \{ \text{the BODY (-IES) of the ENTITY (-IES)} \} \text{ SPOKEN ABOUT (F).} \]

\[ \{ \text{the THING (-S)} \} \]

Those effective inflectional affix-sets which specify as object a non-third-personal FIGURE have no correspondents among the autic affix-sets.
and hence are unambiguously identifiable. Thus, e.g., the inflectional
affix-set

w- m- -is -ahk

can only be interpreted as effective and as specifying that
the ENTITY SPEAKING (A)
FACTUALLY [eMOVED]
the BODY of the ENTITY SPOKEN TO (F).

Having thus presented the later portion of the Atsugewi derivation
for an nth-order effective structure, we now turn to the earlier portion.
In section 5.211 was introduced the Atsugewi system of some three dozen
particularized adactive structures. Generalizing the account which
was there given, it can be stated that in any underlying n-member
causative structure, the next-to-last member must be, and (with one
exception) no other member can be, a 'systematic $S_A$', as indicated by
the arrow in (143):

(143) \[ [S_T \text{ FOLLOW}] \text{ FROM } S_A \text{ ...} \]

(that portion of the structure within brackets gives rise to all but
the first-prefix of the causative surface sentential-verb). Now, with
one $S_A$ added and one small subset of $S_A$'s subtracted, precisely the
particularized $S_A$'s of this system appear in the same manner also in an
underlying nth-order effective structure: the next-to-last member
must be, and (with one exception) no other member can be, a systematic
$S_A$. In this latter usage, the systematic $S_A$'s fall into two classes on
the basis of the particular order of effective structure in which they may appear. A systematic $S_A$ of the first class may appear only in a second-order effective structure, as indicated by the arrow in (144):

(144) \[ \langle S_{i2} \rangle \text{ FOLLOW} \] FROM \[ \langle S_{i1} \rangle \text{ FOLLOW FROM } S_{AB} \]

(the bracketed portion of the structure, which gives rise to all but the first-prefix of the effective surface sentential-verb, has had its derivation described just preceding). Such an $S_A$ is thus an $S_{AB}$ and specifies as INSTRUMENT a particular body-part of an entity. In the effective context of (144), of course, the body-part is volitionally-directed and the entity is the AGENT. A systematic $S_A$ of the second class can appear only in a third- or higher-order effective structure, as indicated by the arrow in (145):

(145) \[ \langle S_{in} \rangle \text{ FOLLOW} \] FROM \[ \langle S_{in-1} \rangle \text{ FOLLOW FROM } ... \langle S_{i1} \rangle \text{ FOLLOW FROM } S_{AV} \]

Such an $S_A$, it is clear, specifies as INSTRUMENT a particular object other than a volitionally-directed body-part of the AGENT. The $S_{AB}$ in (145), not being a systematic $S_A$ (with one exception), specifies only a minimally-specific body-part -- as represented by the simple batic noun BODYPART -- of the AGENT. That systematic $S_A$ which, it was noted above, must be added to the system of $S_A$'s can appear only in effective structures (it falls in the first class), and not in causative structures. The small subset of $S_A$'s which, it was noted, must be subtracted can appear only in causative structures, not effective structures.
With the systematic $S_A$'s thus located, the unbracketed portions of (143), (144), and (145) undergo derivations which ultimately yield a vadic morpheme in the first-prefixal position of the surface sentential-verb. In the case of (143), the derivation contains a two-stage insertional process and yields a 'FROM-clause replacing prefix', or '$FC$ prefix', as already discussed in section 5.311; in the case of (144) and (145), the derivation contains a three-stage insertional process and yields a 'BY-clause replacing prefix', or '$BC$ prefix', as discussed below. In both cases, the derivation begins with the insertion discussed in section 5.211: onto the embedded systematic $S_A$ -- as generically representable by

the 'INSTRUMENT' ACT ON the 'FIGURE' --

is inserted the appropriate '$s_A$-specifying morpheme' -- as generically representable by 'x'.

In (146), then, we now present in schematic form for the generic instance the derivation which the unbracketed portion of (143) undergoes (as already presented in (82) in phrase-marker form for a specific instance):
\[(146)\]

(a) \( \ldots \text{FROM } S_A : \) \( \underbrace{\text{the 'INSTRUMENT' ACT ON the 'FIGURE'} \over \dddot{x}} \) 

(b) \( \Rightarrow \ldots \text{FROM } S_A : \) \( \dddot{x} \) 

(c) \( \Rightarrow \) \( \text{ADS } [PC] \) 

\[ P(\delta) \quad N/S^n_A \]

\( \text{FROM } \over \dddot{x} \)

\( \quad P^x \)

(d) \( \Rightarrow \) \( \text{ADS } [PC] \)

\[ P^x \]
(147) Comments on the derivation in (146):

1. -- In (146a), the insertion onto the systematic $S_A$ of the $s_A$-specifying morpheme 'x' is indicated. Since this latter is a non-surface-appearing vadic morpheme, it is written with a line over it.

2. -- In (146b), the insertion has taken place.

3. -- In (146c), there has taken place that transformation which operates on a causative structure to produce a dependent clause (the FROM-clause) consisting of the conjuction of the DIRECTOR $FROM$ and the embedded $S_A$.

   -- Onto the conjuction is indicated the insertion of the surface-appearing vadic FROM-clause replacing morpheme $^p x$ -- marked with the subscript $^p$ as a mnemonic for the FROM underlying it.

4. -- In (146d), the insertion has taken place.

5. -- [not shown] The dependent clause node with its insert moves to first-prefixal position within the sentential-verb, where the insert appears as the $PC$ prefix.

   * * *

In a parallel fashion, we now present in (148) the derivation which the unbracketed portions of (144) and (145) undergo:
(143)

(a) \( S_i : \) the 'INTENDER' INTEND (TO) \( S_A \)
    
    ... FROM \( S_A : \) the 'INSTRUMENT' ACT ON the 'FIGURE'\( \hat{x} \)
    
(b) \( S_i : \) the 'INTENDER' INTEND (TO) \( S_A \)
    
    \[ \Rightarrow \ldots \text{FROM } S_A : \hat{x} \rightarrow \hat{x} \text{ FOLLOW FROM } \ldots \]
    
(c) \[ \Rightarrow \Rightarrow \]
    
    ... FROM \( S_e : \) the 'AGENT' EFFECT (TO) \( S_A : \hat{x} \rightarrow e^x \)
    
(d) \[ \Rightarrow \ldots \text{FROM } S_e : e^x \]

(e) \[ \Rightarrow \rightarrow \] \( \ldots \rightarrow \) \( \text{ADS } [BC] \)
    
    \[ \rightarrow \]
    
    $P(\hat{s})$ \[ \rightarrow \]
    
    \[ \text{BY } e^x \]
    
(f) \[ \Rightarrow \rightarrow \] \( \text{ADS } [BC] \)
    
    \[ \rightarrow \]
    
    $\text{ADS } [BC] \rightarrow e^x$
(149) Comments on the derivation in (148):

1. -- In (148a), the insertion onto the systematic $S_A$ of the $s_A$-specifying morpheme 'x' is indicated. The latter, as a non-surface-appearing vadic morpheme, is written with a line over it.

2. -- In (148b), the insertion has taken place.

3. -- In (148c), there have taken place the ADDUCT-TO and the EFFECT-(TO) transformations, giving rise to the effective structure, $S_e$, as shown.
   -- Onto the $S_e$, the insertion of a second non-surface-appearing vadic morpheme, 'e$\bar{x}$', is indicated. This latter will be termed an $s_e$-specifying morpheme. It is marked with the subscript 'e' as a mnemonic for the EFFECT underlying it.

4. -- In (148d), the insertion has taken place.

5. -- In (148e), the last cyclic pass of the EFFECT-(TO) derivation has taken place, producing a dependent clause (the BY-clause) consisting of the conjunction of the DIRECTOR $BY$ and the embedded $S_e$.
   -- Onto the conjunction is indicated the insertion of a surface-appearing vadic morpheme, 'y$\bar{x}$', marked with the subscript 'y' as a mnemonic for the BY underlying it. This third insert will be termed the BY-clause replacing morpheme.

6. -- In (148f), the insertion has taken place.

7. -- [not shown] The dependent clause node with its insert moves to first-prefixal position within the sentential-verb, where the insert appears as the $BC$ prefix.

* * *
It can be seen from the derivations in (146) and (148) that corresponding to the system of $s_A$-specifying morphemes, which partitions the whole semantic realm of adactive situations, is the system of $s_e$-specifying morphemes, which partitions the whole semantic realm of effective situations. And corresponding to the system of $FC$ prefixes, which partitions the semantic realm specified by FROM-clauses, is the system of $BC$ prefixes, which partitions the semantic realm specified by BY-clauses.

In consequence of the already noted slight difference in membership between the system of $S_A$'s used in causative structures and that used in effective structures, the system of $FC$ prefixes has one small subset of members with no correspondents in the system of $BC$ prefixes, and the latter has one member with no correspondent in the former. Of the some two and a half dozen $FC$ and $BC$ prefixes which do correspond to each other (i.e., which are based on the same underlying systematic $S_A$) all but one pair have the same phonological shape.

Turning now to specific representative examples, we consider first that systematic $S_A$ which may be represented in underlying form as

\[(150) \quad S_{AB} : \text{an ENTITY's FOOT ACT ON the 'FIGURE'},\]

where the bathic noun \textit{FOOT} means 'foot/feet, leg/legs, etc.', and which keys in the insertion of the $s_A$-specifying morpheme 'ma-'. With these specific forms plugged into the derivation in (146) in place of the generic ones, stage (146b) appears as in (151b):

\[(151b) \Rightarrow S_{AB} : \{ \text{ma-} \} \]
and stage (146d) as in (151d):

\[
(151d) \quad \Rightarrow \quad \text{ADS} [FC]
\]

With the \( FC \) morpheme \( f\text{ma-} \) thus the product of derivation, its derived meaning may be represented as

\[
(152) \quad '\text{from an entity's foot/feet acting on the FIGURE}'.
\]

With this morpheme moved into the first-prefix position of a sentential-verb otherwise identical to that in (82e), there results the causative sentential-verb

\[
(153) \quad '/w- f\text{ma- } f\text{qput } i\text{ct } a/ \Rightarrow [m\hat{a}\cdot q\hat{p}u\hat{t}i\hat{c}\hat{t}a]
\]

which may be casually translated as

\[
(154) \quad '\text{the dirt fell into the creek from somebody's foot brushing against it}',
\]

Now, for use in an effective structure, the same specific systematic \( S_A \) in (150) must be recognized as a member of the first class, so that when it is plugged into the derivation in (148), stage (148a) has the specific form of (155a):

\[
(155a) \quad S_{i1} : \text{the 'INTENDER' INTEND (TO) } S_{AB} \quad \ldots \quad S_{AB} : \text{the ENTITY's FOOT ACT ON the 'FIGURE'} \quad \text{ma-} \quad \text{FOLLOW FROM } S_{AV}
\]
Stages (148e) and (148d) now appear as in (155c) and (155d):

(155)

(c) \[ \text{... FROM } S_e : \text{ the 'AGENT' EFFECT (TO) } S_{AB} : \}{ \overline{m}_a^m \overline{e}_a^m } \]

(d) \[ \text{... FROM } S_e : \}{ \overline{e}_a^m } \]

With the \( s_e \)-specifying morpheme \( '_{e}ma' \) thus the product of derivation up to this stage, its derived meaning may be represented more analytically as in (156a) or more synthetically as in (156b):

(156)

(a) 'the AGENT effects (to) it, that his foot/feet act on the FIGURE'

(b) 'the AGENT acts on the FIGURE with his foot/feet'

Continuing the derivation, the stage in (148f) now appears as in (155f):

(155f)

\[ \Rightarrow \]

\[ \text{ADS } [BC] \]

\[ \overline{B}_a^m \]

and the derived meaning of this lastly inserted \( BC \) morpheme \( '_{B}ma' \) may be represented as

(157a) 'by the AGENT's acting on the FIGURE with his foot/feet',

or simply as

(157b) 'with his (the AGENT's) foot/feet'
(compare the derived meaning of the corresponding PC morpheme 'panya-' in (152)). With this morpheme moved into the first-prefix position of the almost-complete sentential-verb shown at stage (e) of the derivation in (140), there finally results a complete effective surface sentential-verb, as shown in (140f):
(158) Comments on (140f):

1. -- Because a RC prefix is now in the sentential-verb, the dominating V node is marked for specifying the whole of the higher-order effective situation -- 'seₙ' -- changed from what was marked for it in (140e); for the same reason, the Sₚₑ node of (140e) is here changed to Sₑₙ.

   -- Although with the presence of 'ₚma-' in particular, the sentential-verb in (140f) is necessarily a second-order effective structure, the index 'ₙ' has been retained in keeping with the generality of the rest of the derivation in (140).

   -- The ADS node attached by a dashed line to the highest Sₑₙ is included in the phrase-marker to show the possible inclusion in a larger sentence of an external BY-clause, such as English might have, concurrently with the BY-clause replacing prefix already in the sentential-verb.

   * * *

Taken by itself, the sentential-verb in (140f) is shown morphophonemically and phonetically in (159)

(159) /'w-ₚma- eqput -ičt -a/ \[ma=q\'putičta].

This sentential-verb can be represented in literal translation as

(160a) 'the entity spoken about moved the dirt-like material (which was the thing spoken about)

   into the liquid by acting on it with his foot/feet',

in rendered translation (using 'he' for third-personal AGENT) as
(160b)  (he)-footly-dirted-liquid-(it)

and in one casual translation as

(160c)  'he kicked the dirt into the creek'.

All the prefixes listed below in section 11.1 of Part II, i.e., those which specify as INSTRUMENT a particular body-part of an entity, behave like 'pma-' and 'Pma-' above. In their BC prefix usage, these prefixes all belong to, and in fact make up the whole of, the first class. One of these prefixes is that exceptional form which was already noted as restricted to appearing solely in effective structures, hence having only BC prefix usage and lacking FC prefix usage:

(161)  Pci-     'by the AGENT's acting on the FIGURE with his hand (-s) working manipulatively'

For our next specific representative example, we now consider that systematic S_A whose underlying form may be represented somewhat simplified as

(162)  S_A :  a LINEAR-OBJECT SWING INTO the 'FIGURE'

and which keys in the insertion of the s_A-specifying morpheme 'uh-'. (not to be confused with the F prefix of the same phonologic shape used in section 3.3). With these specific forms plugged into the derivation in (146), stages (146b & d) appear as in (163b & d):

$$\begin{align*}
\text{(163b)} & \quad \Rightarrow \quad S_A : \left\{ \begin{array}{c} \text{uh-} \\
\text{ADS [FC]} \\
\text{Fuh-} \end{array} \right. \\
\text{(163d)} & \quad \\text{(163d)}
\end{align*}$$
The derived meaning of the FC morpheme 'ँह-' may be represented as

(164) 'from a linear-object swinging into the FIGURE'.

With this morpheme as a prefix in a sentential-verb otherwise like that in (153), there results the causative sentential-verb

(165) /- w-ँह-'qput -iːt -a/ → [woqʰputɪčta],

which may be casually translated as

(166) 'the dirt fell into the creek from a hanging branch swinging into it'.

Now, for use in an effective structure, the same specific systematic $S_A$ in (162) must be recognized as a member of the second class, so that when it is plugged into the derivation in (148), stage (148a) has the specific form of (167a):

(167a) $S_{i_{n-1}} :$ the 'INTENDER' INTEND (TO) $S_A$

... FROM $S_A :$ a linear-object swing into the 'FIGURE'

$\overbrace{uh-}^{S_{i_1}}$

FOLLOW FROM .... $S_{AB}$ FOLLOW FROM $S_{AV}$.

Stages (148c & d) now appear as in (167c & d):

(167)

(c) ... FROM $S_e :$ the 'AGENT' EFFECT (TO) $S_A :$ $\overbrace{uh-}^{\text{by } S_{AB_e}}$ $\overbrace{euh-}$

(d) $\overrightarrow{...}$ FROM $S_e :$ $\overbrace{eh-}$
The derived meaning of the \( s_e \)-specifying morpheme '\( \text{euh-} \)' may be represented more analytically as in (168a) or more synthetically as in (168b):

(168)

(a) 'the AGENT effects (to) it,

that a linear object swings into the FIGURE...

by effecting (to) it,

that a body-part of his acts on the (linear-object)'

(b) 'the AGENT \( e \) swings a linear-object into the FIGURE ....

with a body-part of his'

Continuing the derivation, the stage in (148f) now appears as in (167f):

(167f) \( \Rightarrow \)

\[
\begin{array}{c}
\text{ADS} [BC] \\
\xrightarrow{\text{uh-}} \\
\end{array}
\]

and the derived meaning of this lastly inserted \( BC \) morpheme '\( \text{uh-} \)' may be represented as

(169) 'by the AGENT's swinging a linear-object into the FIGURE ....

with a body-part of his'

(compare the derived meaning of the corresponding \( FC \) morpheme '\( \text{uh-} \)' in (164)). With this morpheme moved into the first-prefix position of a sentential-verb otherwise identical to that in (159), there results the nth-order effective sentential-verb
\[(170) \quad /\ 'w-\ _B\uh-\_qput\ -i\_t\ -a/ \implies [\'woq\_\_puti\_\_ta],\]

which may be literally translated as

\[\text{(171a)} \quad \text{the entity spoken about moved the dirt-like material} \]
\[\quad \text{(which was the thing spoken about) into the liquid} \]
\[\quad \text{by swinging a linear-object into it ...} \]
\[\quad \text{with a body-part of his',} \]

and casually translated as

\[\text{(171b)} \quad \text{he battered the dirt into the creek with a branch'.} \]

All of the prefixes listed below in section 11.2 of Part II, i.e., those which specify as INSTRUMENT a particular geometric object in a particular form of motion, behave like \'\_uh-\' and \'\_uh-\' above. In their \_bc prefix usage, these prefixes all belong to the second class.

We now state and elaborate on the semantic-specificational circumstance which necessitates the previously-given syntactic constraint that a systematic \_sa can appear in an underlying serial structure only as the next-to-last member:

\[\text{(172) in a situation involving a causal series of events, only that} \]
\[\text{adactive event immediately causing the final transitory} \]
\[\text{event and (with one exception) none of the earlier adactive} \]
\[\text{events can be specified by a prefix in a sentential-verb} \]
\[\text{referring to the situation.} \]

Thus, e.g., in an effective situation wherein dirt-like material moves into liquid from a linear-object swinging into it, like that referred
to by the sentential-verb in (170), only the action on the dirt-like material of the linear-object can be specified by the prefix -- in this case 'char-' -- and not the action on the linear-object by the preceding instrumental object nor any earlier action by a prior instrumental object, even though Atsugewi has prefixes which specify the action of just such instrumental objects (e.g., of the particular body-part involved, as 'pma-', '...feet'; 'pici-', '...hands'). That is to say, an effective sentential-verb like (170) but with, e.g., 'pma-' in place of 'char-' could not refer to a situation wherein dirt-like material moves into liquid from a linear-object swinging into it from an entity's feet acting on the linear-object (but only to one wherein the feet act on the dirt-like material directly, as with (159)).

Now, it is in the functioning of the two prefixes listed below in section 11.3, i.e., those which specify as INSTRUMENT a collusive object, that the expection to the principle stated in (172) occurs. To explain the matter, we first introduce the second-class systematic $S_A$

(173) $S_A$ : an OBJECT SAILS INTO (into COLLISION with) the 'FIGURE',

which keys in the insertion of the $S_A$-specifying morpheme 'uh$^7$-', (marked with a prime to distinguish it from the 'uh-' discussed just preceding) and the first-class systematic $S_A$

(174) $S_{AB}$ : an ENTITY's MOUTH, working EGRESSIVELY, ACTs ON the 'FIGURE',

which keys in the insertion of 'p$\overline{h}u$-', and which, in syntactic circumstances parallel to those in which 'ma-' derives into 'pma-', becomes the $BC$ prefix
(175) $b_{phu}$ - 'by the AGENT's acting on the FIGURE
   with his mouth working egressively'

(which would appear, e.g., in an effective sentential-verb casually
translatable as

'he spat the dirt (that was in his mouth) into the creek').

An nth-order effective situation in which

(176) the last adactive event (before the translatory) contains the
collisive action of a free-flying object and

the first (non-volitional) adactive event does not contain
the egressive action of the AGENT's mouth

will be specified by a structure in which the last $S_A$ is (173) -- this
keying in the insertion of $\overline{uh}^T$ -- and the $S_{AB}$ is of the minimally-
specific sort, as indicated in (177), where the parenthesized insertion
is to be disregarded:

(177) \[
\left\langle S_{1n} \right\rangle \text{ FOLLOW} \quad \text{FROM} \quad \left\langle S_{A_{uh}} \right\rangle \text{ FOLLOW FROM} \quad \ldots \quad \left\langle S_{AB} \right\rangle \text{ FOLLOW FROM} \quad S_{AV} \text{ (} b_{phu} \text{)}
\]

The unbracketed portion of this structure will then derive into the $BC$
prefix

(178) $b_{uh}$ - 'by the AGENT's propelling an object into (into
   collision with) the FIGURE
   .... with a body-part* of his',
where the term 'body-part' is asterisked to indicate that it cannot apply to the AGENT's mouth. Insofar as the situation in (176) stands as described, the principle in (172) still holds: no prefix other than 'Bu'-' may appear in the sentential-verb even though there exist prefixes which perfectly specify known prior adactive events of the situation, e.g., where the free-flying object is set in motion by the AGENT's kicking it [Bma-] or by the AGENT's poking into it with a stick [Bcu-] which he manipulates with his hands [Bci-]. If, however, the situation's first adactive event does contain the egressive action of the AGENT's mouth, it will be specified by a structure in which the last $S_A$ is (173) -- this keying in the insertion of 'u'--' -- and the $S_A$ is (174) -- this keying in the insertion of 'pHu-' -- as indicated in (177) with the parenthesized insertion now accepted. The unbracketed portion of the structure will then derive into the exceptional BC prefix (179) $BpHu'$-'by the AGENT's propelling an object into
(onto collision with) the FIGURE
... with his mouth working egressively'.

Thus, e.g., a situation in which an AGENT has made some dirt fall into a creek by spitting a stone into it will be referred to by a sentential-verb containing the prefix 'BpHu'-' rather than 'Bu'-'.

Of the prefixes listed below in section 11.4, i.e., those which specify as INSTRUMENT a substance or an energy, several constitute that exceptional subset which was already noted as restricted to appearing solely in causative structures. One of these, e.g., is the earlier-discussed 'ca-' which has only an BC prefix form:
(180) \( \text{\textit{pca-}} \) 'from the wind's blowing on the FIGURE',
as appears in the causative sentential-verb in (82), and lacks a
corresponding \( \text{\textit{BC}} \) prefix form such as might appear in an effective
sentential-verb.

The remaining prefixes in section 11.4 have both \( \text{\textit{FC}} \) and \( \text{\textit{BC}} \) forms --
behaving like \( \text{\textit{puh-}} \) and \( \text{\textit{buh-}} \) above -- the \( \text{\textit{BC}} \) forms being of the
second class. One of these remaining prefixes is that exception
mentioned earlier for which the \( \text{\textit{FC}} \) and the \( \text{\textit{BC}} \) forms are of different
phonological shapes. Specifically, from the systematic \( \text{\textit{S}}_{\text{A}} \)

(181) \( \text{\textit{S}}_{\text{A}} : \text{HEAT ACT ON the 'FIGURE'} \)
derive the \( \text{\textit{FC}} \) prefix

(182) \( \text{\textit{pmiw-}} \) 'from heat/fire acting on the FIGURE'

and the \( \text{\textit{BC}} \) prefix

(183) \( \text{\textit{bmu-}} \) 'by the AGENT's acting on the FIGURE with heat/fire

.... with a body-part of his'.

All of the prefixes listed below in sections 11.1 to 11.4 are
for simplicity given only with their \( \text{\textit{FC}} \) shape and meaning since, with
all the preceding descriptions, their \( \text{\textit{BC}} \) shape and meaning (if existent)
are readily derivable.

In addition to all of the above, Atsugewi has two special systematic
\( \text{\textit{S}}_{\text{A}} \)'s which may be said to specify, respectively, the minimally-specific
\( \text{\textit{S}}_{\text{AB}} \) and the minimally-specific \( \text{\textit{S}}_{\text{A}} \). The first special systematic \( \text{\textit{S}}_{\text{A}} \)
specifies as INSTRUMENT simply an entity's body-part:
(184) \( S_{A/B} \): an ENTITY's BODYPART ACT ON the 'FIGURE'

and leads to the \( FC \) prefix and \( BC \) prefix (for the latter of which the \( S_A \) is to be reckoned as of the first class):

(185) \( \Phi \)- 'from an entity's body-part acting on the FIGURE'

\( \Phi \)- 'by the AGENT's acting on the FIGURE

with a body-part of his'.

These prefixes are used where the particular body-part is either i) unknown or ii) known but irrelevant, e.g., in a sentential-verb specifying a situation in which a twig snaps off a branch from a person's brushing past it i) with an unknown part of his body or ii) with a known but irrelevant part of his body, e.g., the legs (in which case the sentential-verb could, if it were considered relevant enough, contain \( \alpha \)- instead of \( \Pi \)-). (These same prefixes are also used for a particular body-part which is both known and relevant, but not specified by any other prefixes, e.g., for the head, shoulder, etc.).

The second special systematic \( S_A \) specifies as INSTRUMENT any object (including an entity's body-part), substance, force, etc.:

(186) \( S_{A(B)} \): SOMETHING ACT ON the 'FIGURE'

and leads to the \( FC \) prefix and \( BC \) prefix (for the latter of which the \( S_A \) may be reckoned as of either the first or second class):

(187) \( \Phi^1- / \Phi^a- \) 'from something acting on the FIGURE'

\( \Phi^1- / \Phi^a- \) 'by the AGENT's acting on the FIGURE with something

(... with a body-part of his)'
As a further option in Atsugewi, a sentential-verb deriving from an nth-order effective structure in which all of the \( S_A \)'s are of the minimally-specific sort need not contain one of the preceding special prefixes but may, like English, lack the whole of any explicit BY-clause (-replacing morpheme). In such a case the sentential-verb, which for the roots considered in this paper must contain a prefix, will contain an appropriate \( F \) or \( G \) prefix.
5.33 A Comparison of Effective Structures in English and Atsugewi

In concluding our whole discussion of the causative and effective situation-types, we contrast English and Atsugewi as to the differences each shows between its causative and effective surface structures -- for the one language in the multi-worded sentence and for the other in the polymorphemic sentential-verb.

For English, the main differences in surface form between a causative sentence and an effective sentence -- as, e.g., between

(188) the aerial came off the roof from a branch swinging into it

and

(189) the boy brought the aerial off the roof by (his) swinging a branch into it --

are now characterized as to

(190) 1. number of constituents

2. order of constituents

3. phonological shape of constituents:

1. Each clause (i.e., the main and the dependent) of a causative sentence has four expressions serving in distinct functional capacities:
(191)

FUNCTION in the MAIN CLAUSE of (188) in the DEPENDENT CLAUSE of (188)

FIGURE the aerial a branch

MOTIVE/ACT came swinging

DIRECTIONAL/ON off into

GROUND the roof it [i.e., the aerial]

By contrast, each clause of an effective sentence has at least five expressions serving in distinct functional capacities, the criterially additional one being

(192)

FUNCTION in the MAIN CLAUSE of (189) in the DEPENDENT CLAUSE of (189)

AGENT the boy (his) [i.e., the boy's]

[This is considered criterial because effective sentences -- e.g., that in (189) -- do not all have independent expressions, such as make or cause, specifying the RELATOR or DIRECTOR].

(Of course, each of the four clause types has options for the deletion of certain underlying constituents. E.g., the BY-clause may remain solely with its FIGURAL expression, as in

the boy brought the aerial off the roof with a branch.)

2. The FIGURAL expression occupies the subject position in each clause of a causative sentence whereas it occupies the object position in each clause of an effective sentence:
FIGURAL expressions as SUBJECT
in the CLAUSES of (188)

the aerial (fcame)
a branch (swinging)

FIGURAL expressions as OBJECT
in the CLAUSES of (189)

(ebrought) the aerial
(eswinging) a branch

(Of course, this generalization does not hold where there have taken
place such optional transformations as passivization or WITH-introduction,
as in

the boy ebrought the aerial off the roof
by eswinging into it with a branch.)

3a. The verb in either clause of a causative sentence often differs in
phonological shape from its analog in the same clause of an effective
sentence, as, e.g., fcome vs. ebbring in the main clause of (188) vs.
(189).

3b. The dependent clause's DIRECTOR expression in a causative sentence
differs in phonological shape from that in an effective sentence, viz.,
from or its equivalent (such as as a result of) vs. by. (Furthermore,
the latter DIRECTOR expression may be deleted, along with other material,
in the derivation which leads to a WITH-phrase appearing alone, while
the former may not.)

In Atsugewi, there are for the most part no differences in surface
form between a causative and an effective sentential-verb -- as, e.g.,
between
(194) /'- w- ꞌma- ꞌqput -i ꞌct -a/ ≃ [maꞌqput ꞌi ꞌcta]

'the dirt-like material ꞌmoved into the liquid
from an entity's foot/feet acting on it'

and

(195) /'- w- ꞌma- ꞌqput -i ꞌct -a/ ≃ [maꞌqput ꞌi ꞌcta]

'the entity spoken about ꞌmoved the dirt-like material
into the liquid
by his ꞌacting on it with his foot/feet'.

The reasons for this lack of formal difference are brought together in
the following three points, parallel to the points above for the presence
of difference in English:

1. Within the sentential-verb there are usually no differences in the
number of surface morphemes such as might reflect the number of functions
represented and hence indicate whether the sentential-verb is causative
or effective. This is because:

   a. For the main clause, an inflectional affix-set usually has a
single form whether or not it specifies that criterial functional term,
i.e., the AGENT, whose additional presence distinguishes effective from
causative. Thus, the affix-set in (194), containing no specification
of AGENT:

     ' - w- ꞌa 'third-person [FIGURE, subject] factual [MODE]'

is identical to the affix-set in (195), containing such specification:
- w- \textsuperscript{a} 'third-person [AGENT, subject],
  third-person [FIGURE, object], factual [MODE]'.

b. In specifying the dependent clause, a prefix usually has a single form whether it is \textit{BC} or \textit{FC}, i.e., regardless of the fact that an AGENT is specified in the one and not the other. Thus, there is no way to know from looking at the \textit{ma}- of (194) that a four-term dependent clause is being specified and from the \textit{ma}- of (195) that a more-than-four-term dependent clause, including the AGENT, is being specified.

2. Within the sentential-verb there are no differences in the order of constituents such as might indicate whether it is causative or effective. This is because homologous underlying expressions wind up at the same surface locations -- e.g., the bathic FIGURAL noun of either a causative or effective underlying structure is represented for both cases in the surface root.

3. Within the sentential-verb there are for the most part no differences in the phonological shape of morphemes such as might distinguish causative from effective. This is because:

   a. As a constituent of the main clause, the root morpheme always has a single shape whether it is caused or effected. Thus, the caused root of (194):

   \texttt{f-qput-} 'for dirt-like material to move'

   is phonologically identical to the effected root of (195):
e-qput- 'for an AGENT) to move dirt-like material'.

(This phonological identity is like that of English fswing/eswing as opposed to English fcome/ebring.)

b. The prefix usually has a single shape whether it replaces the FROM-clause or the BY-clause.

In fact, the only indices by which an Atsugewi sentential-verb can be distinguished as to type are:

1. An affix-set which specifies as object a non-third-personal FIGURE. Such an affix-set, which only appears in effective sentential-verbs, has no phonologically identical analog in causative sentential-verbs.

2. The phonologically-distinct prefix pair 'pmiw/-mu:-'.

3. The BC prefix 'ci-' which has no FC correspondent.

4. The FC prefixes, such as 'ca-', which have no BC correspondents.
5.4 The Adventive Situation

A complex situation which (in the simplest case, the only one treated here) can be considered to consist of

(196) a transitory event (adversely) affecting an entity

will be termed an adventive situation (from the Latin word for 'befall') and symbolized as 's_a'. The entity in (196) will be said to function as the ADVENTEE, symbolized 'A', of the situation. The syntactic structure which may be posited as specifying the adventive situation at the underlying level of all languages will be termed the adventive structure and symbolized as 'S_a'. Its RELATOR- and DIRECTOR- specifying constituents are posited to be always particularized, respectively, by the batic verb here to be represented as (MIS-)HAPPEN (although BEFALL might be an equally suggestive choice) and by the batic preposition TO. The already partly particularized underlying adventive structure can thus be represented as in (197) [compare the underlying causative structure in (75)]:

(197)

One constraint on (197) is apparently necessary: that the ENTITY which functions as ADVENTEE must also appear in some capacity somewhere within the S_T.
When fully particularized, an underlying $S_a$ may undergo either of two derivations, both of which, if not universal, are apparently at least of wide occurrence in the world's languages. By the one derivation, which may be taken as parallel to the FOLLOW-FROM derivation for an $S_c$, the resulting surface sentence has represented in its main clause the underlying $S_T$ and in a prepositional or case expression the underlying 'ADVENTEE'. Such a sentence seems to highlight the exerting of an adventive effect by the translatory event. By the other derivation, which may be taken as parallel to the LEAD-TO derivation for an $S_c$, the resulting surface sentence has represented in its subject nominal the underlying 'ADVENTEE' and in its predicate the underlying $S_T$. Such a sentence seems to highlight the undergoing of an adventive effect by the 'ADVENTEE'.

Thus, considering an instance for English where in the underlying $S_a$ the embedded $S_T$ is chosen to be particularized as

the knee of the ENTITY SPEAKING [my knee] slipped out of joint

and the ADVENTEE-specifying N is chosen to be further particularized as

the ENTITY SPEAKING,

the first derivation proceeds as shown in prose-effect form in (198) [Compare the prose-effect FOLLOW-FROM derivation in (81)]:

(198)

(a) it, that my knee slipped out of joint, (MIS-)HAPPENed TO me
(b) my knee (MIS-)HAPPENed-to-slip out of joint TO me

\[ \text{\textsubscript{h}slipped} \]

(c) my knee \text{\textsubscript{h}slipped out of joint on me}
Although for English an adventive sentence arising by the first derivation --
in which the DIRECTOR TO has keyed in the insertion of on so that the
'ADVENTEE' appears in a prepositional phrase -- is not common and then
only of varying acceptability, for other languages, like Latin, Russian,
and German, such a sentence -- in which to keys in dative so that the
'ADVENTEE' appears in a case form (the so-called 'dative of interest') --
is very common and regularly acceptable. (For English, a subsequent
deletion of the on+'ADVENTEE' phrase often renders more acceptable an
adventive sentence arising by the first derivation).

In the second derivation, a fully particularized underlying Sₐ
first undergoes a transformation (similar to the LEAD-TO transformation
for an Sₜ) which deletes the original RELATOR verb (MIS-)HAPPEN,
preposits a copy of the N (Â) before the Sₜ, and introduces between these
two a new RELATOR verb, here to be represented by SUSTAIN (chosen for
its suggestive sense of 'undergo'), and the new DIRECTOR FROM, here
enclosed within parentheses (the better to suggest the surface usage of
sustain, which takes no preposition). A subsequent transformation will
then delete the original DIRECTOR and ADVENTEE constituents. This
transformational process is indicated in (199) [compare the LEAD-TO
transformation in (86)]:

(199)  Sₜ  (MIS-)HAPPEn TO  N (Â)
       ────────────────────────────────
       N (Â) SUSTAINs (FROM) Sₜ (TO N (Â))
       =  ∅

Thus, considering an instance for English where in the underlying Sₐ
the embedded Sₜ is
the sweater of the ENTITY SPEAKING caught on a nail

and the ADVENTEE-specifying N is

the ENTITY SPEAKING

the second derivation proceeds as in (200) [compare the LEAD-TO derivation in (87)]:

(200)

(a) it, that my sweater caught on a nail, (MIS-)HAPPENed TO me

(b) \rightarrow I \text{ SUSTAINed (FROM) } it, that my sweater caught on a nail (TO me) \rightarrow \emptyset

(c) \rightarrow I \text{ SUSTAINed-(FROM)-catching my sweater on a nail } \underline{s} \text{ caught }

(d) \rightarrow I \underline{s} \text{ caught my sweater on a nail. }

In English, the particular $S_T$ embedded in an $S_a$ determines the differential acceptability of the sentences resulting from the first and second derivations. Compare in this regard the adventive sentences in (201):
(a1) 0my arm broke on me when I fell
(2) 0I broke my arm when I fell

(b1) 0my knee slipped out of joint on me during the race
(2) *I slipped my knee out of joint during the race

(c1) *my sweater caught on a nail on me
(2) 0I caught my sweater on a nail

(d1) *my pen got-lost in the park on me
(2) 0I lost my pen in the park

(e1) *a wart developed in my ear on me
(2) 0I developed a wart in my ear.

It may be noticed that in English the second derivation for an underlying S produces a sentence formally indistinguishable from the
main clause of an effective sentence. In Atsgewi, the second derivation
is of wide occurrence and produces adventive sentential-verbs for the most
part formally indistinguishable from effective, causative, or autic
sentential-verbs. A number of examples of adventive sentential-verbs
are to be found throughout Part III.
5.5 Situation Types: Synopsis and Preview

In the whole of section 5, we have distinguished a number of situation- and derivation-types where the usual linguistic treatment recognizes only two: 'non-causative' and 'causative'. By such a treatment, three of our types would be grouped together as 'non-causative' and four as 'causative', as indicated by showing the verbal constituents alone in (202) and (203):

\[(202)\]

\[(a)\] \[V \quad (\text{in an } S_T \text{ or } S_A)\]
\[(b)\] \[\text{FOLLOW-to-V} \implies fV \quad (\text{in an } S_c)\]
\[(c)\] \[\text{(MIS-)HAPPEN-to-V} \implies hV \quad (\text{in an } S_a)\]

\[(203)\]

\[(a)\] \[\text{LEAD-TO-Ving} \implies lV \quad (\text{in an } S_c)\]
\[(b)\] \[\text{ADDUCT-TO-Ving} \implies aV \quad (\text{in an } S_c)\]
\[(c)\] \[\text{EFFECT-(TO)-Ving} \implies eV \quad (\text{in an } S_e)\]
\[(d)\] \[\text{SUSTAIN-(FROM)-Ving} \implies sV \quad (\text{in an } S_a)\]

Among the syntactic evidence for our more finely distinguished types is the fact that a particular lexical verb can often be used only for some of the types and not for others. Thus, e.g., the English verb bring can be inserted only onto adjunctions of the types (203 a,b, & c), as seen in the earlier exposition, but not onto an adjunction of the type (203d), as seen in (204):

\[(204)\] \[^0\text{his dentures }_h\text{ came out on him when he fell}

*he \[^s\text{ brought his dentures out when he fell.}\]
For another example, the English lexical verb *knock* can usually be inserted only where there is an adjunction of the type (203b) and not where there is one of the type (203c), i.e., it usually specifies an adductive (accidental) relation and not an effective (intentional) relation; an adductive derivation is sketched for this verb in (205). Contrariwise, the English lexical verb *kick* usually has the reverse insertional and specificational characteristics; an effective derivation is sketched for this verb in (206):
(205)

(a) it, that the vase MOVEd off the landing, FOLLOWed FROM it, that his left foot knocked into the vase

(b) it, that the vase MOVEd off the landing, FOLLOWed FROM it, that he knocked into the vase with his left foot

(c) he ADDUCTed TO it, that the vase MOVEd off the landing, WITHBY it, that he knocked into the vase with his left foot

(d) he ADDUCTed-TO-MOVing the vase off the landing

\[ \text{MOVED} \]

WITHBY his knocking into it with his left foot

(e) he a MOVEd the vase off the landing WITHBY his knocking into it with his left foot

(f) he a MOVEd-WITHBY-his-knocking-into-it the vase off the landing

\[ \text{knocked} \]

with his left foot

(g) he a knocked the vase off the landing with his left foot

(206)

(a) \[ S_i \]

<it, that the vase MOVEd off the landing, FOLLOWed FROM

\[ S_i \]

<it, that his left foot kicked into the vase, FOLLOWed FROM

it, that he WILLED ON his left foot

(b) \[ S_i \]

<it, that the vase MOVEd off the landing, FOLLOWed FROM

it, that he \( e \)-kicked his left foot into the vase

\[ \Rightarrow \text{it, that he } e \text{-kicked into the vase with his left foot} \]

(c) he EFFECTed (TO) it, that the vase MOVEd off the landing,

BY it, that he \( e \)-kicked into the vase with his left foot

(d) he EFFECTed-(TO)-MOVing the vase off the landing

\[ \text{MOVED} \]

BY his \( e \)-kicking into it with his left foot
(e) \[\rightarrow\] he eMOVED the vase off the landing
   BY his e\text{\small k}icking into it with his left foot

(f)** \[\rightarrow\] he eMOVED\text{-BY-his-e\text{\small k}icking\text{-into-it}} the vase off the landing
   e\text{\small k}icked with his left foot

(g) \[\rightarrow\] he e\text{\small k}icked the vase off the landing with his left foot

* By a transformation not treated before, a translatory structure in
which there functions as FIGURE a PART of a WHOLE (his left foot
knocked into the vase) may convert into a structure in which the WHOLE
appears as subject and the PART appears in a WITH-phrase (he knocked
into the vase with his left foot).

** These are instances of the very common process in English whereby the
adjunction of a main-clause verb with a moved portion of the dependent
clause lexicalizes into a single surface verb (usually of the same
shape as a verb in the moved portion), as previously exemplified in
(79g).

Of the many situation-types and semantic distinctions in addition
to those treated thus far in this paper, we now briefly discuss three
in preview of fuller accounts to follow in later writings.

One additional situation-type -- also classed by the usual
linguistic treatment as 'causative' -- can be considered to consist of

\[(207)\quad\text{one entity inducing another to effect an event.}\]

In such an \textit{inductive situation}, the former entity will be said to function
as the AGITANT, to be symbolized as 'A', and to \textit{INDUCE (TO)} the
contained effective situation for which, of course, the latter entity
functions as the AGENT, as syntactically represented in \(208\):
(208)  \( S_{in} : \text{ the ENTITY (A) INDUCE (TO) } S_e. \)

With the 'AGITANT' as I and the \( S_e \) as the boy \( \text{went to the store}. \) where it is to be understood that the boy is the 'AGENT' effecting the motion of his own body as FIGURE (as if from *the boy (A) \( \text{went himself (P)} \) to the store), the underlying inducive structure appears as in (209a). The derivation in (209) then leads to a more analytic inducive surface sentence, while that in (210) leads to a more synthetic one in which an adjunction has been formed and lexicalized:

(209)

(a)  \( I (A) \text{ INDUCED (TO) it, that the boy (A) go to the store} \)

(b)  \( \Rightarrow I (A) \text{ INDUCED the boy (A) (TO) go to the store} \)

(c)  \( \Rightarrow I (A) \text{ had the boy (A) go to the store} \)

(210)

....

(b)  \( \Rightarrow I (A) \text{ INDUCED-(TO)-going the boy (A) to the store} \)

(c)  \( \Rightarrow I (A) \text{ insent the boy (A) to the store} \)

In addition to the causative structure, which specifies that a transitory event occurs in result of the immediate causal action on it of an adactive event, a distinct structure must be recognized for specifying such a resultative occurrence and -- not the immediate causal action, but -- the prior facilitative action of an event in which a blockage to occurrence has disappeared. These two structures, as incorporated in larger ones that include an AGENT, are illustrated
in (211) and (212), where the AGENT is I, the resultative translatory event is the tub emptied (a deletion of the tub emptied of its CONTENTS, a transform of the CONTENTS emptied from the tub, which reflects the original ordering of the underlying translatory structure), and, for (211), the immediate causal event is I dipped out the water, while, for (212), the prior facilitative event is I unplugged the drain (in which case the immediate causal event may be understood as something like GRAVITY ACTed ON the CONTENTS):

(211)

(a) I EFFECTed (TO) it, that the tub emptied, by dipping out the water
(b) \[\Rightarrow I \text{ EFFECTed-(TO)-emptied the tub by dipping out the water}\]
(c) \[\Rightarrow I \text{ emptied the tub by dipping out the water}\]

(212)

(a) I LET (TO) it, that the tub emptied, by’ unplugging the drain
(b) \[\Rightarrow I \text{ LET-(TO)-emptied the tub by’ unplugging the drain}\]
(c) \[\Rightarrow I \text{ let emptied the tub by’ unplugging the drain}\]

Notice that while the BY-clause in a structure like (211c) is based on an adactive structure and can, when of the requisite less-specific sort, reduce by deletion to a WITH-phrase, such is not the case for the BY’-clause in a structure like (212c):
(213)
....
(b) I emptied the tub by ACTing ON it with a dipper
(c) I emptied the tub with a dipper

(214)
....
(b) *I let emptied the tub by ACTing ON it with the plug
(c) *I let emptied the tub with the plug

The final additional semantic distinction to be noted here is that between what may be termed beginning-point causation, where the action of a translatory event ensues in result of a momentaneous causal event, and what may be termed extent causation, where the action of a translatory event continues in result of a durative causal event or an iterative sequence of causal events. To illustrate the distinction in an effective context including an AGENT: the sentence in (215) may be seen to unambiguously involve beginning-point causation:

(215) I b- threw the ball across the field;

that in (216) to unambiguously involve extent causation:

(216) I e- prodded the ball across the field;

and that in (217) to be ambiguous as to the type of causation involved (in one reading, I stand at field-edge and give the ball a single kick which sends it across; in the other, I run along with the ball giving
it one after another kick):

(217) \[ \text{I \{\text{g-p}\}_e} \text{ kicked the ball across the field.} \]
6. The Translatory Situation: The MDG Verb (-Root)

In section 3.1 we presented for an underlying translatory structure in Atsugewi that subderivation which led to the appearance in a sentential-verb of the 'FIGURE+MOTIVE-specifying' or 'FM root'. We now introduce a new root-forming subderivation; by its operation a bathic DIRECTIONAL prepositional and a bathic GROUND noun -- both earmarked for participation in this subderivation -- cojoin, onto the conjunction is inserted a non-surface-appearing vadic adverb, the adverb adjoins the bathic MOTIVE verb, and onto the adjunction is inserted a vadic root. This new type of root arising in this manner will be termed a MOTIVE+DIRECTIONAL+GROUND-specifying root, or, abbreviatedly, an MDG root.

A sentential-verb with an MDG root, like one with an FM root, may be autic, causative, effective, or adventive and contains a prefix which may be F, G, FC or BC. When its prefix is one of the latter three, the sentential-verb, it can be seen, contains no specification for FIGURE other than that provided by the inflectional affix-set. Whereas the FM root had to be followed in the sentential-verb by a DG suffix, the MDG root does not have to be, and, in fact, most often is not, so followed. When one does appear, a DG suffix provides a specification of the DIRECTIONAL and GROUND which is concurrent with and independent of that provided by the MDG root.

For a concrete illustration, the underlying translatory structure in (218), which contains bathic DIRECTIONAL and GROUND forms earmarked (as indicated by the subscript _R_ ) for participation in the MDG root subderivation and concurrently forms earmarked (as indicated by the
subscript 's') for participation in the DG suffix subderivation, derives into the MDG root-containing sentential-verb in (219), which for clarity is shown with most insertions delayed until this stage.*

*In this sentential-verb the inflectional affix-set, which gives 'I' as subject, arises by the same PART-WHOLE transformation described for English in the footnote to (205b).
The derived meaning of the MDG root appearing in (219) may be represented by three alternative formulations:

(220) -spaq-
   (a) '(for something) to move into mud'
   (b) '(for something) to move-amud'
   (c) '(for something) to enmud'

The whole sentential-verb, i.e.,

(221) /s- ' - w- ma- spaq -tip -u·m -a/ \[\rightarrow [s'\text{ma}\cdot sp'\text{aq}\cdot h\text{pu}\cdot ma],

may be literally translated as

(222a) '{my foot} moved into mud down into a pit-in-the-ground',

'I with my foot'

may be renderedly translated as

(222b) '(I)-foot-enmuddled-apit'

and has as one casual translation

(222c) 'I stepped into a deep mud-hole'.

In section 15 of Part III appear examples for this and one other MDG root. Homologous with Atsugewi MDG roots are a number of English 'MDG verbs', e.g., box, the derived MDG meaning of which may be represented autically as in (223):

(223) to box
   (a) '(for something) to move into a Box'
   (b) '(for something) to move-aBox'
   (c) '(for something) to enBox'
Unlike Atsugewi, such an English verb must in general appear with an independent FIGURAL expression, but, again homologously, it need not be followed by a DG phrase, and if one does appear its specifications for the DIRECTIONAL and GROUND are independent from those of the verb. Thus, in the effective sentence in (224), I is the AGENT, the cans is the FIGURE, $e_{boxed}$ is the effected MDG verb, and in parentheses is the optional, specificationally-independent DG phrase:

(224) I $e_{boxed}$ the cans (into number three cardboard cartons).
7. The Translatory Situation: The FMDG Verb (-Root)

We now introduce a third type of Atsugewi root subderivation which combines the effects of the first two. This new subderivation operates on an underlying translatory structure containing -- all earmarked for participation in the subderivation -- a bathic FIGURAL noun, a bathic DIRECTIONAL prepositional, and a bathic GROUND noun. Of these, the first adjoins the bathic MOTIVE verb, the latter two cojoin and key in a non-surface-appearing vadic insert which also adjoins the MOTIVE verb, and onto this complex adjunction is inserted a vadic root of a new type, to be termed a FIGURE+MOTIVE+DIRECTIONAL+GROUND-specifying root or, abbreviatedly, an FMDG root.

A sentential-verb with an FMDG root can be specificatory of any situation-type, contains a prefix which may be of any type, and optionally contains a DG suffix. A sentential-verb with an FMDG root, a G prefix, and a DG suffix can thus be seen to contain three concurrent and independent specifications of the GROUND. Several such verbs (as, example (d) for the root -a’aq-) appear among the examples for FMDG roots in section 16 of Part II.

To give a concrete illustration here, we start with the underlying translatory structure in (235), which contains earmarked for participation in the new root subderivation the bathic FIGURAL noun here represented as GROWTH and meaning 'a natural surface-growth', the bathic DIRECTIONAL prepositional here represented as FROM_A and meaning 'out of attachment to', the bathic GROUND noun here represented as BODY_L and meaning '(part of) a (once-) living body'; contains
earmarked for participation in the G prefix subderivation the concurrent batic GROUND noun here represented as BUTTOCKS and meaning 'buttocks'; and contains no concurrent forms, as per option, earmarked for participation in the DG suffix subderivation. This underlying structure derives approximately into the FMDG root-containing sentential-verb in (226), which for clarity is shown with most insertions delayed until this stage. The particular example we here have in mind to illustrate is actually adventive with 'the ENTITY SPEAKING' as ADVENTEE; however, in order not to distract from the relevant issue, i.e., the presentation of a new root-type, in (225) we show the S_T unembedded in an S_a and in (226) we show the structural underpinnings of the sentential-verb without the presence of SUSTAIN and (FROM), although the inflectional affix-set does give 'I', the ADVENTEE, as subject.

(225)

\[
\begin{align*}
S_T (s_T) \\
N_1: T-S-A \\
N_R: GROWTH \\
V (M) \\
MOVE \\
Pr (D) \\
FROM_m \\
N_R: BODY_L \\
N_P: BUTTOCKS
\end{align*}
\]
The derived meaning of the FMDG root in (226), still taken as autic rather than adventive, may be represented in three alternative formulations as

\[(227)\]

\[-luc-\] (a) 'for a natural surface-growth to move out of attachment to [\(=\) to come detached from] (part of) a (once-) living body'

(b) '(for it) to Growth-move-offBody'

(c) '(for it) to GrowthdeBody'

The whole sentential-verb now taken as adventive, i.e.,

\[(228)\] \( /s\-\'\-w\-.ti\-\_\_-luc\-^a/ \rightarrow [st\text{"}wil\text{"}uc^h] \)

may be literally translated as

\[(229a)\] 'the natural surface-growth came detached from part of a living body, which was the buttocks, on me',

may be renderedly translated as
(229b)  '(I)-buttocks-GrowthdeBodied',

and has as one casual translation

(229c)  'I skinned my behind (when I fell)'.

Homologous with Atsugewi FMDG roots are a number of English 'FMDG verbs', e.g., *peel*, the derived FMDG meaning of which may be represented as in (230):

(230)  *peel*  

(a) 'for a surface-layer to move by degrees out of attachment to (part of) an object' 

(b) '(for it) to Surface-move-offObject' 

(c) '(for it) to SurfacedeObject'.

Such an English verb must in general appear with an independent FIGURAL expression but is only optionally followed by an independent DG phrase, as in (231):

(231)  The paint is peeling (off the wall).
8. The Self-Referencing Translatory Situation: the fMDg Verb (-Root)

In this section, certain special cases of the translatory situation and their representation in English and Atsugewi are presented in a graduated series. To begin with, the situation specified by the sentence

\[(232)\] the red leaf \text{MOVED ADrift} towards the brown leaf drifted

\[
\rightarrow \quad \text{the red leaf drifted towards the brown leaf}
\]

is to be understood by the analysis developed in this paper as a translatory situation wherein the red leaf, as \text{FIGURE}, moves with respect to the brown leaf, as \text{GROUND}. Similarly, the situation specified by

\[(233)\] the brown leaf drifted towards the red leaf

is to be understood as translatory, where the brown leaf, as \text{FIGURE}, moves with respect to the red leaf, as \text{GROUND}.

Now let us consider the complex situation which consists of the previous two situations taking place concurrently, i.e., where, of the two leaves, each, as \text{FIGURE}, moves with respect to the other, as \text{GROUND} -- as suggested by the figure in (234):

\[(234)\]

\[
\begin{array}{c}
\text{F}_\alpha/G_\beta \\
\rightarrow
\end{array}
\quad
\begin{array}{c}
\text{F}_\beta/G_\alpha \\
\leftrightarrow
\end{array}
\]
and which can be specified by the successively more-derived sentences in (235):

(235)

(a) the red leaf drifted towards the brown leaf and (at the same time) the brown leaf drifted towards the red leaf

(b) *the red leaf and the brown leaf drifted (respectively) towards the brown leaf and the red leaf

(c) the red leaf and the brown leaf drifted towards each other

(for clarity, 'the two leaves' will henceforth be used in place of 'the red leaf and the brown leaf'). Such a situation, although analyzable -- and just now treated -- as conjunctional and hence complex, may also be analyzed as a simple translatory situation containing a composite FIGURE and a composite GROUND -- symbolizable as 'F' and 'G' -- i.e., consisting of a set of objects, as composite FIGURE, moving with respect to a set of objects, as composite GROUND. There is here the additional special circumstance that the F and the G are the same objects, i.e., the FIGURE constitutes its own GROUND, so that the new situation can be interpreted as a simple translatory situation consisting of a set of objects, as composite FIGURE, moving with respect to itself, as composite GROUND. Accordingly, we will henceforth refer to a situation thus analyzed and interpreted as a self-referencing translatory situation or, for short, an SR situation. The underlying syntactic structure which specifies such a situation will be referred to by corresponding terms
and symbolized as $S_{TSR}$; already partially particularized, this structure can be represented as in (236):

(236) 

$$S_{TSR} (S_T)$$

$$\leftarrow N (\tilde{F}) \quad V (M) \quad P (D) \quad N (\tilde{G})$$

THINGS \quad EACH-OTHER

Homologically with an ordinary translatory sentence -- as exemplified earlier by the (actually effective, but treated as autic) sentence

he drove home (to his cottage in the suburbs) --

an SR sentence can contain a 'DG satellite' in optional concurrence with an external 'DG phrase':

(237) the two leaves $\underline{MOVED\ ADRIFT}$ $\underline{TOWARDS\ EACH-OTHER}$ $\underline{(TOWARDS\ EACH-OTHER)}$

drifted together$_w$ (towards each other)

$\Rightarrow$ the two leaves drifted [closer and closer] together$_w$ (towards each other)

(here, together is given the subscript '$w$' to indicate that it has its 'towards' meaning rather than its 'into adjacency' meaning, for which the subscript '$a$' will be used; the expression closer and closer is indicated in brackets to help evoke a reading with the former meaning).

Also homologically with an ordinary translatory sentence -- as exemplified earlier by

the paint is peeling (off the wall) --
an SR sentence can contain an FMDG verb, again in optional concurrence with other DG-specifying forms. Unfortunately for the orderliness of our presentation, English has no FMDG verb appropriate to the present examples; however, gather -- which specifies a multiple, rather than merely dual, composite FIGURE/GROUND -- may be used to fill the paradigmatic gap and provide and ungrammatical but suggestive sentence:

(238) the two leaves \[\text{TWO THINGS MOVED TOWARDS EACH-OTHER}^{\text{\*gathered}_w}\]

\[
\begin{array}{c}
\text{TOWARDS EACH-OTHER} \\
\text{together}_w \\
\text{towards each other}
\end{array}
\]

\[
\text{\*gathered}_w \text{ [closer and closer] (together}_w \text{) (towards each other)}
\]

\[
\longrightarrow \text{the two leaves \*gathered}_w \text{ [closer and closer] (together}_w \text{) (towards each other)}
\]

A situation which is like the preceding one but in which the two leaves move in the reverse directional sense with respect to each other -- as suggested by the figure in (239):

(239)

\[
\begin{array}{cc}
\text{F}_a/G_b & \text{\textbullet}\text{\rightarrow} \\
\text{F}_b/G_a & \text{\textbullet}\text{\leftarrow}
\end{array}
\]

is also analyzable as self-referencing translatory. Using FROMWARDS to represent the bathic prepositional opposite in directional sense to TOWARDS, a sentence which specifies the new situation derives as in (240):
(240) the two leaves moved_a drift_a (away from) each other

⇒ the two leaves drifted [further and further] from each other.

As it happens, English has both a DG satellite and an FMDG verb appropriate to this particular exemplary situation:

(241) the two leaves moved_a drift_a from_a (from) each other

⇒ the two leaves drifted [further and further] apart (from each other).

(242) the two leaves things moved_a from_a (from) each other

⇒ the two leaves separated [further and further] (from each other)

While the previous SR situations contained a fluxional spatial relation between two objects, there are also SR situations which contain only or additionally a fixed spatial relation between two objects, as suggested for the relation of 'adjacency' by the figures in (243):

(243) ☐ ☐ ☐ ☐ ☐

The latter situations are specified by an underlying structure containing a DIRECTIONAL prepositional complex, as illustrated for the case
of 'adjacency' in (244):*

(244)

\[ S_{TSR} \]

\[ \begin{array}{c}
N (\tilde{F}) \quad V (M) \quad P (D) \quad N (\tilde{G}) \\
\text{THINGS} \quad \{ \text{BE}_L \} \quad \{ \text{AT} \} \quad \text{the ADJACENCY OF} \quad \text{EACH-OTHER} \\
\quad \{ \text{MOVE} \} \quad \{ \text{TO} \} \quad \{ \text{FROM} \}
\end{array} \]

*Although the matter was not gone into, all of the DIRECTIONALS used earlier in this paper are also, in proper underlying form, prepositional complexes. Several such complexes and their derivations are presented in the Appendix; three of these complexes and the surface prepositions into which they derive are shown now:

(i) \text{AT a POINT which IS OF the INSIDE OF} \\
\quad \Rightarrow \Rightarrow \text{in} \\
\text{TO a POINT which IS OF the INSIDE OF} \\
\quad \Rightarrow \Rightarrow \text{into} \\
\text{FROM a POINT which IS OF the INSIDE OF} \\
\quad \Rightarrow \Rightarrow \text{out-of},

where the \text{INSIDE} means 'the inside-space'. It can be seen from (i) that the prepositional complex of (244) has been simplified from

(ii) \{ \text{AT} \} \{ \text{TO} \} \{ \text{FROM} \} \text{a POINT which IS OF the ADJACENCY OF},

where the \text{ADJACENCY} means 'the immediately adjacent/surrounding space'.

Based on the underlying structure in (244) -- with the appropriate selection of the alternative forms within the braces (\text{BE}_L [a mnemonic for 'be-located'] goes with \text{AT}, and \text{MOVE} with \text{TO or FROM}) -- the
following illustrative SR sentences which contain the specification for a fixed spatial relation between two objects are derived:

(245)

(a) the two leaves \( \text{WERE, AFLOAT AT the ADJACENCY OF EACH-OTHER floated}_{L} \) [at] next to each other

\[ \Rightarrow \text{the two leaves floated}_{L} \) [at] next to each other. \]

(b) the two leaves \( \text{WERE, AFLOAT AT the ADJACENCY OF EACH-OTHER floated}_{L} \) \( \text{AT together}_{a} \)

\[ \Rightarrow \text{the two leaves floated}_{L} \) \( \text{AT together}_{a} \). \]

* * *

(246)

(a) the two leaves \( \text{MOVED AFLOAT TO the ADJACENCY OF EACH-OTHER floated}_{M} \) [to] next to each other

\[ \Rightarrow \text{the two leaves floated}_{M} \) [to] next to each other. \]

(b) the two leaves \( \text{MOVED AFLOAT TO the ADJACENCY OF EACH-OTHER floated}_{M} \) \( \text{TO together}_{a} \)

\[ \Rightarrow \text{the two leaves floated}_{M} \) \( \text{TO together}_{a} \). \]

(c) the two leaves \( \text{THINGS MOVED TO the ADJACENCY OF EACH-OTHER met} \)

\[ \Rightarrow \text{the two leaves met [while afloat on the water]} \]

* * *
(247)

(a) the two leaves \textit{MOVED} \textit{AFLOAT} \textit{FLOATED}_M \textit{FROM} the \textit{ADJACENCY} of \textit{EACH-OTHER} \textit{FLOATED}_M \textit{FROM} \textit{NEXT} to each other.

\[\Rightarrow\] the two leaves \textit{FLOATED}_M (away) from next to each other.

(b) the two leaves \textit{MOVED} \textit{AFLOAT} \textit{FLOATED}_M \textit{FROM} the \textit{ADJACENCY} of \textit{EACH-OTHER} \textit{PARTED}_a \textit{APART}_a

\[\Rightarrow\] the two leaves \textit{FLOATED}_M \textit{APART}_a.

(c) the two leaves \underline{THINGS} \textit{MOVED} \textit{FROM} the \textit{ADJACENCY} of \textit{EACH-OTHER} \textit{SEPARATED}_a

\[\Rightarrow\] the two leaves \textit{SEPARATED}_a [while afloat on the water].

* * *

We now come to the significant case of a situation which, in order for it to be specified by a syntactic structure, can be treated only as a self-referencing transitory situation and not also as a conjunction of simple transitory situations. We have such a situation where the FIGURAL (and, hence, GROUND) objects do not admit of a definite specification as to number (such as 'two') but rather are \textit{innumerate}, i.e., of unknown number, 'many', or the like; and consequently where the spatial relations among the objects can be specified not as a sum of simple relations between, say, pairs of objects, but only, when considered together as a gestalted whole, as a \textit{configuration}. The sentences in (248) provide immediate examples of the specification of such \textit{innumerate SR situations}, as they will be termed:
(248)

(a) the leaves floated\textsubscript{L} in a circle/circular configuration
(b) the leaves floated\textsubscript{M} into a circle
(c) the leaves floated\textsubscript{M} out of the circle [that they were in]

The general form of the underlying structure which specifies an innumerate SR situation can be represented as in (249):

(249)

\[
\begin{align*}
S_{SR} (s_T) \quad & \quad N (\bar{P}) \quad V (M) \quad P (D) \quad N (\bar{G}) \\
\text{THINGS} \quad & \quad \{ \text{BE}_{\text{L}} \} \quad \{ \text{AT} \} \quad \text{a CONFIGURATION OF} \quad \text{EACH-OTHER} \\
\{ \text{MOVE} \} \quad & \quad \{ \text{TO} \} \quad \{ \text{FROM} \} 
\end{align*}
\]

In (250) are two further examples of innumerate SR sentences, both containing the D\text{G} satellite \text{TO\textsubscript{together}}, and both containing an expression -- for the one, a D\text{G} phrase, and for the other, an FMDG verb -- based on the bathic CONFIGURATIONAL noun \text{HEAP}:
(250)

(a) the leaves $\text{MOVED AFLOAT floated}_M \text{ TO the ADJACENCY OF EACH-OTHER together}_a$

$\text{TO a HEAP OF EACH-OTHER into a heap [of][each other]}

$\Rightarrow$ the leaves floated$_M$ together$_a$ into a heap.

(b) the leaves MANY THINGS $\text{MOVED heaped TO a HEAP OF EACH-OTHER}$

$\text{TO the ADJACENCY OF EACH-OTHER together}_a$

$\Rightarrow$ the leaves heaped together$_a$ [by the river bank].

We now proceed to the case of an SR situation which, in order for it to be ultimately specifiable by a surface structure, must be treated at a still less analytic level than in the case just considered. We have such a situation where the FIGURAL (and, hence, GROUND) 'objects' not only admit of no definite specification as to number but also of none as to identity (such as 'leaves'), being, rather, 

indiscrete -- but where these constitute a single larger object which is specifiable as to identity; and consequently where spatial relation can be specified not as a configuration of the FIGURAL/GROUND 'objects' but only as the shape of the single larger object. With regard to such an indiscrete SR situation, as it will be termed for the indiscrete 'parts' of a whole contained therein, it is important to note that it is the 'parts' which are the real composite FIGURE/GROUND, i.e., which for all their indiscreteness must nevertheless be understood as the
'objects' moving or located with respect to each other, even though it is only the whole which can have a vadid lexical item to specify it. Accordingly, the semantic functions performed by the whole cannot be considered those of 'FIGURE' and 'GROUND', but will be given the new terms FIGUROID and GROUNDOID, to be symbolized as 'f' and 'g'. As an example, a situation in which a balloon expands or contracts (for it to conform with our basic notion of a translatory event) must be understood at the more analytic level, where the indiscrete 'parts' of the balloon, as composite FIGURE, move away from or towards each other, as composite GROUND -- as suggested by the figure in (251a) -- even though the situation (for it to be ultimately specifiable by a surface structure) must be treated at the next-higher level of organization, where the whole of the balloon, as FIGUROID, moves out from or in upon itself, as GROUNDOID -- as suggested by the figure in (251b):

(251)

(a)                      (b)

Thus, in (252) is represented the underlying structure which specifies an indiscrete SR situation at the more analytic level (here shown for clarity only with MOVE and TO) together with the derivation which translates the specification up to the next-higher level of organization:
(252)

(a) $ST_{SR} (st)$

N (F) V (M) P (D) N (G)

the 'PARTS' OF a WHOLE MOVE TO a CONFIGURATION OF EACH-OTHER OF the WHOLE

(b) $\Rightarrow$

N (f) V (M) P (D) N (g)

a WHOLE MOVE TO a CONFIGURATION-OF-'PARTS' OF ITSELF

a SHAPE

(c) $\Rightarrow$

N (f) V (M) P (D) N (g)

a WHOLE MOVE TO a SHAPE OF ITSELF
In (253) are presented specific examples of indiscr"e SR sentences, each containing concurrently both a Dg satellite \((\text{out, in})\) and a Dg phrase (based, respectively, on the bathic SHAPE nouns \textit{SPHERE} and \textit{DISC}): 

\begin{align*}
(a) & \quad \text{the bladder } \underbrace{\text{MOVED WITH' a SNAP}}_{\text{snapped}} \underbrace{\text{FROMWARDS ITSELF}}_{\text{out}} \quad \text{snapped} \\
& \quad \text{TO} \quad \underbrace{\text{a SPHERE}}_{\text{a sphere}} \quad \underbrace{\text{OF ITSELF}}_{\text{[of] [itself]}} \quad \text{a spherical shape} \\
\Rightarrow & \quad \text{the bladder snapped out into a sphere/a spherical shape} \\
& \quad \text{[when it was placed in the vacuum chamber]}. \\
(b) & \quad \text{the bladder } \underbrace{\text{MOVED WITH' a SNAP}}_{\text{snapped}} \underbrace{\text{TOWARDS ITSELF}}_{\text{in}} \underbrace{\text{TOWARDS ITSELF}}_{\text{upon itself}} \quad \text{snapped} \\
& \quad \text{TO} \quad \underbrace{\text{a DISC}}_{\text{a disc}} \quad \underbrace{\text{OF ITSELF}}_{\text{[of] [itself]}} \quad \text{a disc shape} \\
\Rightarrow & \quad \text{the bladder snapped in (upon itself) into a disc/a disc shape} \\
& \quad \text{[when it was placed in the pressure chamber].}^{*}
\end{align*}

An indiscr"e SR sentence can contain not only a Dg satellite and a Dg phrase as in the preceding examples, but also an fMDg verb, such a verb often specifying a FIGUROID/GROUNDROID and a SHAPE of highly idiosyncratic characteristics. In English, three such verbs are \textit{furl}, \textit{stanch}, and \textit{buckle}. Taking a little care to build up to examples with

\begin{align*}
\text{A fuller analysis than the present one would demonstrate the distinction between an object moving towards/fromwards itself [inwards (upon itself)/outwards (from itself)] and an object moving into/out of adjacency with itself [in}_a (upon itself)/out}_a (from itself)].
\end{align*}
the first of these, we first represent the derived meaning of *furl* in the most elaborated of the three styles of formulation previously used:

(254)  

*furl*   `for a flexible planar object *(f)* to move *(M)* into a unidimensionally coiled- or folded-together shape of *(D)* itself *(g)*`

Of this semantic formulation, the FIGUROID may be specified by a bathic noun to be represented as *FLEXPLANE*, and the SHAPE, by one to be represented as *UNICOIL*. In (255), we now present in schematic form a particular underlying indiscrete SR structure wherein the FIGUROID and the SHAPE components are multiply-specified, once by the preceding bathic nouns and once by the vadic nominals the *leaf* and a *tube*, respectively:

(255)    a *FLEXPLANE* *(f)* MOVED *(M)* TO a *UNICOIL* OF *(D)* ITSELF *(g)*  
the *leaf*                                                 TO a *tube*                                             OF ITSELF

In this representation of the structure, the first line of forms are all earmarked for participation in the subderivation leading to the surface verb; the second line of forms are all earmarked for appearance at the surface as external, independent expressions. The appropriate movements, adjunctions, and insertions then proceed as indicated in (256):

(256)  

⇒ the *leaf* *FLEXPLANE-MOVED-TO-UNICOIL-OF-ITSELF* TO a *tube* OF ITSELF  
       furred *(up)* into [of][itself]

⇒ the *leaf* furred *(up)* into a tube [from the plant rust affecting it].
With different concurrent vadic forms in the underlying structure in (255), the sentence in (257) can result:

(257) the flag furled (up) into a tight roll [in the wind].

In a similar manner, *olench* -- which, as it happens, specifies not only the indiscrete SR situation of a normal fMDg verb but also a whole causative situation as matrix: a new verb type not treated here -- can be semantically represented as in (258) and can appear in sentences like that in (259):

(258)

*clench*  'for an open body-part (f) to fmove (ρM)
              [in upon itself] into a closed (or solid-throughout)
              shape of (O) itself (g)
              from (δ) its own muscular contractions acting on it (σA)'

(259) his hand clenched into a fist [from an involuntary muscle spasm]

(The reason *olench* must be assumed to include the specification for an adactive event like that in (258) is that the verb cannot be used where the translatory event which it specifies is caused by some other kind of adactive event:

*his hand clenched into a fist from the wind blowing on it.)

Likewise, *buckle*, which like *olench* specifies a whole causative situation and additionally specifies a component of manner in the contained indiscrete SR situation, can be semantically represented and exemplified as in (260) and (261):
(260) buckle 'for a stiff planar solid (f) to move (M) with resistance (m)
into a (parallelly serial) ridge-containing shape
of (D) itself (g)
from (δ) pressure oriented along the solid's plane
acting on it (sA)'

(261) the land mass buckled (up) into a mountain-range covered region
from the action of continental drift.
the pavement buckled from its own expansion in the heat.*

Like English, Atsugewi has a number of fMDg roots. One of these,
to be exemplified along with two others in section 17 of Part III, may
be shown with its semantic representation at this point for the sake of
concreteness:

(262)
-miq- 'for a house-like structure (f) to move (M)
out of its integral shape of (D) itself (g)'

[or: '... into a non-integral shape of (D) ...'].

*A fuller treatment of the self-referencing translatory situation would
at this point go on to investigate the case where a set of objects
changes (a generalization of MOVEs) into a unitary object, and vice
versa, a case which we here merely exemplify with a sentence-pair:

several ice floes melted together_u into a single sheet of ice
the single sheet of ice broke apart_u into several ice floes.
Atsugewi's fMDg roots occur, often optionally, with a concurrent Dg suffix; a list of Atsugewi's Dg and Dg suffixes is now presented in (263):

(263)

(a) forms specifying objects moving towards/fromwards each other (Dg):
    - i·w             'dually together_w'
    - a·sy            'multiply together_w'
    - tip -asw        'apart_w'

(b) forms specifying objects moving into/out of adjacency with each other (Dg):
    - i·w             'dually \(\cap_{0}\)together_a'
    - a·sy            'multiply \(\cap_{0}\)together_a/into an accumulation'
    - tip -asw        'apart_a'

(c) forms specifying an object moving towards/fromwards itself (Dg):
    - a·sy            'inwards (upon itself)'
    - tip -asw        'outwards (from itself)'

(d) forms specifying an object moving into/out of adjacency with itself (Dg):
    - a·sy            'in_a (upon itself)'
    - tip -asw        'out_a (from itself)'

(e) forms specifying a set of objects changing into a unitary object (Dg), and vice versa (Dg):
    - i·w             'dually together_u'
    - a·sy            'multiply together_u'
<table>
<thead>
<tr>
<th>Base</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-tip -asw</td>
<td>'apart'</td>
</tr>
<tr>
<td>-nik -iy</td>
<td>'into two parts (in twain)'</td>
</tr>
<tr>
<td>-uww -ay</td>
<td>'into two unequal parts: one portion off from the rest'</td>
</tr>
<tr>
<td>-t -am</td>
<td>'into two unequal parts: one portion out from the rest'</td>
</tr>
<tr>
<td>-ikc -ik -ayw</td>
<td>'into fragments'</td>
</tr>
</tbody>
</table>
9. The Temporal Situation: the FM/fMDg Verb (-Root)

In this section we consider the complex situation -- a particular case of what will be termed the *temporal situation* -- in which a set of objects or a single whole object is moving or located with respect to itself while it is moving or located with respect to the rectilinear space in which it exists. The former portion of the situation is of course specified by a self-referencing translatory structure, where the set or whole is the composite FIGURE or FIGUROID; the latter portion is specified by an ordinary translatory structure, where the set or whole is simply the FIGURE. The whole situation will be specified by a particular case of a new type of structure, to be termed a *temporal structure* and symbolized 'S_t'.

*Without going into details, it may be noted that the temporal structure -- which specifies the location in time of one event with respect to another -- is in most respects homologous with the locative (rather than motional) translatory structure -- which specifies the location in space of one object with respect to another. Note, e.g., the temporospatial homologies between the following sentence-pairs:

the explosion took place (at a point) during the performance  
the fly was located (at a point) along the branch  
explosions took place all during the performance  
flies were located all along the branch  
the performance went on (lasted) for three hours/until 11 o'clock  
this road goes (extends) for three miles/to the next town

This particular case of the temporal structure could be represented as in (264):
(264) \( S_T: S_{TSR} \text{ OCCUR DURING } S_T \),

however, we will hold that for the particular case of the temporal situation under consideration and for the particular kind of surface sentence ultimately to specify it, the inverse of (264) is the correct underlying structure, as represented in (265), where the inverse of the bathic temporal-DIRECTIONAL preposition *DURING* is represented by the backward-spelling of that form:

(265) \( S_t: S_T \text{ OCCUR GNIRDU } S_{TSR} \).

Either way, the constraint must be imposed that the \( F \) or \( f \) of the \( S_{TSR} \) be the same object(s) as the \( F \) of the \( S_T \).

To illustrate, we take the situation of cows coming together into a herd while moving into a pen, and derive one temporal structure which specifies this situation as in (266):
(266)

(a) it, that the cows MOVEd into the pen,

\[ \text{OCCURred GNIRUD} \]

\[ \text{it, that the cows ANIMALS MOVEd TO a HERD OF EACH-OTHER herded}^M \]

\[ \text{TO the ADJACENCY OF EACH-OTHER} \]

\[ \text{TO together}^a \]

(b) \( \rightarrow \) the cows OCCURred to MOVE into the pen GNIRUD it,

\[ \text{O} \text{MOVEd} \]

that they herded\(^M\) \((\text{TO together}^a)\)

(c) \( \rightarrow \) the cows \( \text{O} \text{MOVEd} \) into the pen ELIH\(W\) herding\(^M\) \((\text{TO together}^a)\)

(d) \( \rightarrow \) the cows \( \text{O} \text{MOVEd ELIH\(W\)} \) herding\(^M\) \((\text{TO together}^a)\) into the pen

\[ \text{herded}^M \]

\[ \text{TO together}^a \]

(e) \( \rightarrow \) the cows herded \((\text{together})\) into the pen.

In this example, the two embedded structures have for simplicity been treated as autic, even though they are properly effective \(\text{the cows MOVEd themselves into the pen}\). If the reader cannot use \textit{herd} as in (266e), the sentence in (e) may be embedded in an indicative structure with an \textit{AGITANT}:

I herded the cows \((\text{together})\) into the pen.]

In (266c), the bathic subordinating conjunction ELIH\(W\) has been used as the inverse of \textit{WHILE}. The prose effect of the structure containing this form can perhaps be best rendered by the surface sentence

(267) the cows moved into the pen, herding together the while.
As an additional example of the type in (266e), but one which is overtly effective (containing an explicit FIGURE as direct object) we give the sentence in (268):

(268) she gathered the acorns (together) into her apron.*

*In (266) there has now finally been shown in a little detail that pattern of derivation first referred to as typical for English as far back as section 2. Thus, e.g., the derivation superficially indicated in (10) can now be shown in greater detail as:

(a) it, that the bottle MOVE\textsuperscript{d} into the cove,

\text{OCCUR\textsubscript{red} GNIRUD}

it, that the bottle

\text{WAS\textsubscript{L} ON a LIQUID-SURFACE [+ further specifications]}

\text{floated\textsubscript{L}}

(b) \longrightarrow \text{the bottle OCCUR\textsubscript{red} to MOVE into the cove GNIRUD}

it, that it floated\textsubscript{L}

(c) \longrightarrow \text{the bottle MOVE\textsubscript{d} into the cove ELIH\textsubscript{W} floating\textsubscript{L}}

(d) \longrightarrow \text{the bottle MOVE\textsubscript{d} ELIH\textsubscript{W} floating\textsubscript{L} into the cove}

\text{floated\textsubscript{L}}

(e) \longrightarrow \text{the bottle floated into the cove.}

Although no example of one was given in the preceding section, English has \text{FMDG} verbs which specify a composite FIGURE's being in a configuration rather than its moving into or out of one. One such verb has, again, the surface shape \textit{herd}, as in

(269) the cows were herding\textsubscript{L} (\textits{A\textsubscript{T}gether\textsubscript{a}}) in the pasture.
Thus, we now adduce another example of the type of temporal situation under discussion, one in which cows are together in a herd while moving along a corridor, and derive one temporal structure which specifies this situation, as in (270):

(270)

(a) it, that the cows MOVED along the corridor,

OCCURRED GNIRUD

it, that the cows ANIMALS WERE, AT a HERD OF EACH-OTHER herded

(b) \[\Rightarrow\] the cows OCCURRED to MOVE along the corridor

\[\text{oMOVED}\]

GNIRUD it, that they herded

(c) \[\Rightarrow\] the cows MOVED along the corridor ELIH\text{W} herding

(d) \[\Rightarrow\] the cows MOVED ELIH\text{W} herding along the corridor

\[\text{herded}\]

(e) \[\Rightarrow\] the cows herded along the corridor.

(the reader may again require that the sentence in (270e) be embedded in an inductive matrix).

The verbs which are inserted at the (d) stage of both (266) and (270) -- i.e., \(\text{herd}^M\) and \(\text{herd}^L\) -- will be designated as 'FM/FMDG' verbs in accord with their specificational characteristics.

Examples of the type of temporal situation under discussion wherein a FIGUROID moves into or out of a shape while moving or located
in rectilinear space are provided for the autic and effective case by (271) and (272):

(271) the frond coiled (up) into its sheath [as the night grew colder]

(272) I folded the blanket (up) into the gift box.

The verbs appearing in these sentences are appropriately designated as 'FM/fMDg' verbs. There appear, however, to be no SR sentences in English in which -- homologously with (269) -- an fMDg verb specifies that a FIGUROID is in a shape, nor temporal sentences in which -- homologously with (270e) -- the FM/fMDg verb specifies that a FIGUROID is in a shape while moving or located in rectilinear space.

In contrast with English, Atsugewi enjoys the full range and free use of all the just-noted sentential types. Thus, in an SR sentential-verb, any fMDg root may as freely specify a FIGUROID's being in a shape as its moving into or out of a shape (correspondingly appearing, of course, with either a locational or motional Dg suffix); and for a temporal sentential-verb there always corresponds an FM/fMDg root of the same shape which can as freely specify a FIGUROID's being in, as its moving into or out of, a shape while located or moving in rectilinear space. In the derivation leading to the temporal type of sentential-verb, however, there is the restriction that, in moving, the fMDg root may not bring with it any Dg suffix such as might appear at the surface beside the DG suffix of the $S_T$ -- this in contrast with English, where, e.g., up can move along with coil to appear beside into its sheath in

the frond coiled (up) into its sheath
(or where together can move along with herd to appear beside into the pen in the homologous sentence-type

the cows herded (together) into the pen).

The three Atsugewi FM/fMDg roots which correspond to the three fMDg roots of section 17 are presented in section 18 of Part III. For each, examples are given both where the FIGUROID is specified as moving into or out of a shape and where it is specified as being in a shape while otherwise moving or located.
Appendix to Part I

10.1 Motion/Location and Spatial Structures

The formulation given in (1) of Part I was only a rough characterization of the translatory situation's much finer spatio-temporal nature. At the core of the translatory situation is a putatively-universal system of abstract motion/location subsituations. A few of these are shown specified -- still quite roughly -- by the underlying motion/location structures in (1). In these structures appear the following 'topological' batic nouns with the specifications shown:

\[ \text{POINT}_{s,t} \] specifies an (unextended) point of space, time

\[ \text{POINT}_{s,t}^e \] specifies an extended point of space, time

\[ \text{EXTENT}_{s,t} \] specifies an (unbounded) extent of space, time

\[ \text{EXTENT}_{s,t}^b \] specifies a bounded extent of space, time
(1)

(a) a POINT_S BE_L AT a POINT_T

(b) a POINT_S MOVE TO a POINT_T (at a POINT_T)

(c) a POINT_S MOVE FROM a POINT_S (at a POINT_T)

(d) a POINT_S MOVE POR* a _POINT_S (at a POINT_T)

(e) a POINT_S MOVE ALONG an EXTENT_S (for an _EXTENT_T)

(f) a POINT_S MOVE ALENGTH an _EXTENT_S (in an _EXTENT_T)

* The DIRECTIONAL notion intended here would normally be expressed in English by through, as in 'for a point to move through a point'. For distinctness, however, the Spanish preposition por has been selected to represent the bathic morpheme.

In any particular language these universal structures take as relative clause formations on their right-hand nominal constituent a set of particular spatial structures (some aspects of which may also be universal). E.g., one such spatial structure for English is, highly simplified,

(2) a POINT_S IS OF the INSIDE of a SPHERE,

where the INSIDE specifies 'the space which is inside' and SPHERE is taken, again in a more topological sense, to specify any 'wholly or mostly closed surface'.
In a complex structure consisting of a motion/location structure and a spatial structure, the expressions for particular FIGURE and GROUND objects appear concurrently with the first and last constituents, as e.g., in:

(3) a POINT$_S$ IS$_L$ AT a POINT$_S$ which IS OF THE INSIDE OF a SPHERE the ball

the box

(which ultimately yields: the ball is in the box). The particular FIGURE and GROUND objects specified in such a complex structure can be appropriate only if they are capable of idealization as the topological objects concurrently specified. Thus, (3) can specify a semantically well-formed situation only if 'the ball' is topologically idealizable as 'a point of space', and 'the box' as 'a wholly or mostly closed surface'.

*Note that a single physical object can be idealized into several different topological objects. Thus, a particular box is idealized as a closed surface in the situation specified by

the ball is in the box,

but it is idealized as a point of space in the situation specified by

the box is 20 feet away from the wall.

Thus, it has been seen that the simple 'DIRECTIONAL expression' as treated in the body of this paper actually arises from a complex
construction: in particular, from the last portion of a motion/location structure together with the first portion of a spatial structure. We now take six such constructions -- built from the last portions of (1 a, b, and c) together with the first portions of two different spatial structures -- and sketch the derivations leading from these to the corresponding surface DIRECTIONAL expressions of English. The last portion of the spatial structures, i.e., the bathic topological noun, is shown only in brackets and is assumed not to participate directly in the derivation:
(4)

(A) For (1a):  
(a) AT a POINT $s$ which IS OF the INSIDE OF [a SPHERE]  
(b) AT a POINT $s$ OF the INSIDE OF  
(c) AT a POINT $s$ IN  
(d) AT IN  
(e)  
(f) IN AT  
(g) in

For (1b):  
(a) TO a POINT $s$ which IS OF the INSIDE OF [a SPHERE]  
(b) TO a POINT $s$ OF the INSIDE OF  
(c) TO a POINT $s$ IN  
(d) TO IN  
(e)  
(f) IN TO  
(g) in(to)

For (1c):  
(a) FROM a POINT $s$ which IS OF the INSIDE OF [a SPHERE]  
(b) FROM a POINT $s$ OF the INSIDE OF  
(c) FROM a POINT $s$ IN  
(d) FROM IN  
(e)  
(f) OUT FROM  
(g) out-of

(B)

(a) AT a POINT $s$ which IS OF the SURFACE OF [a PLANE]  
(b) AT a POINT $s$ OF the SURFACE OF  
(c) AT a POINT $s$ ON  
(d) AT ON  
(e)  
(f) ON AT  
(g) on

TO a POINT $s$ which IS OF the SURFACE OF [a PLANE]  
TO a POINT $s$ OF the SURFACE OF  
TO a POINT $s$ ON  
TO ON  
OFF FROM  
off(-of)

*In standard English, into, onto, and off-of can appear without the second element, but out-of cannot. At least in some black speech, however, this can happen: 'he fell out the bed'.*
It may be noted that the derivations in (4) apply equally well to Russian through the '(f)' forms. In deriving further to the surface '(g)' forms, the bathic morphemes IN, OUT, ON, and OFF key in the appropriate Russian prepositions, while the bathic morphemes AT, TO, and FROM key in case markers for the governed noun:

\[(5)\]

\[
\begin{array}{ccc}
(f) & \text{IN} & \text{AT} \\
(g) & \text{v + - prepositional} & \text{v + - accusative} \\
(f) & \text{ON} & \text{AT} \\
(g) & \text{na + - prepositional} & \text{na + - accusative} \\
\end{array}
\]

\[
\begin{array}{ccc}
(f) & \text{IN} & \text{TO} \\
(g) & \text{v + - accusative} & \text{iz + - genitive} \\
(f) & \text{ON} & \text{TO} \\
(g) & \text{na + - accusative} & \text{s + - genitive} \\
\end{array}
\]

We now exemplify the motion/location structures of (1 d, e, and f) in (6), (7), and (8). In each case, the motion/location structure's prepositional and right-hand nominal are shown in construction with several different spatial structures. For each such construction, a derivational sketch, a pictorial diagram, and illustrative sentences are given. The high degree of incompleteness, simplification, and imprecision in this merely suggestive presentation cannot be over-emphasized.
(a) POR a \( \text{POINT} \) which IS \( \text{L} \) TO-ONE-SIDE-OF [a POINT]  
PON TO-ONE-SIDE-OF [a POINT]  
past [a POINT]  

the ball sailed past his head (at exactly 3o'clock)

(b) POR a \( \text{POINT} \) which IS \( \text{L} \) ON and PERPENDICULAR-TO [a LINE]  
PON ON [a LINE]  
across [a LINE]  

the ball rolled across the border (at exactly 3o'clock)

(c) POR a \( \text{POINT} \) which IS \( \text{L} \) IN and PERPENDICULAR-TO [a PLANE]  
PON IN [a PLANE]  
through [a PLANE]  

the ball sailed through the windowpane (at exactly 3 o'clock)
(d) POR a \( e \) POINTS which IS \( L \) INSIDE and PERPENDICULAR-TO [a CIRCLE]

POR INSIDE [a CIRCLE]

through [a CIRCLE]

the ball sailed through the hoop/the arch (at exactly 3 o'clock)
(7) [Here and in (8), wherever up and up appear, down and
down are equally appropriate]

(a) ALONG an EXTENT_s which IS L TO-ONE-SIDE-OF and PARALLEL-TO [a LINE]
ALONG TO-ONE-SIDE-OF [a LINE]
along(side) [a LINE]

he walked along(side) the row of houses (for 5 minutes).

(b) 1. ALONG an EXTENT_s which IS L ON and PARALLEL-TO [a LINE]
ALONG ON [a LINE]
along (on) [a LINE]

2. ALONG an EXTENT_s which IS VERTICAL and ...
UP ALONG ON [a LINE]
up (along) [a LINE]

1. he walked along (on) the path (for 20 minutes).

2. he walked up (along) the ladder (for 10 seconds).
(c) 1. ALONG an EXTENTS which IS inside and PARALLEL-TO [a CYLINDER]
   ALONG inside [a CYLINDER]
   \{along inside \} [a CYLINDER]
   \{along) through\} [a CYLINDER]

2. ALONG an EXTENTS which IS VERTICAL and ...
   UP ALONG inside [a CYLINDER]
   \{up inside \} [a CYLINDER]
   \{up (through)\} [a CYLINDER]

1. he walked \{along inside \} the tunnel (for 20 minutes).
   \{(along) through\}

2. he crawled \{up inside \} the chimney (for 2 minutes).
   \{up (through)\}

(d) ALONG an EXTENTS which IS\ L TO-ONE-SIDE-OF [a POINT]
   ALONG TO-ONE-SIDE-OF [a POINT]

around [a POINT]

he ran around the house (for 20 seconds).

he ran around the house (for 2 hours).
(8)

(a) 1. ALENGTH an $B_{EXTENT_S}$ which IS, ON,
    PARALLEL-TO, and COTERMINOUS-WITH [a BOUNDED LINE]
    ALENGTH ON [a BOUNDED LINE]
    --- [a BOUNDED LINE]

2. ALENGTH an $B_{EXTENT_S}$ which IS VERTICAL and...
    UP ALENGTH ON [a BOUNDED LINE]
    up [a BOUNDED LINE]

1. *he walked --- the pier (in 5 minutes)
   [a different construction, one with a direct
   object and no preposition, must be resorted to
   here:
   
   he walked (the length of) the pier (in
   5 minutes)]

2. he walked up the ladder (in 20 seconds).

(b) 1. ALENGTH an $B_{EXTENT_S}$ which IS, INSIDE,
    PARALLEL-TO, and COTERMINOUS-WITH [a BOUNDED CYLINDER]
    ALENGTH INSIDE [a BOUNDED CYLINDER]
    through [a BOUNDED CYLINDER]

2. ALENGTH an $B_{EXTENT_S}$ which IS VERTICAL and...
    UP ALENGTH INSIDE [a BOUNDED CYLINDER]
    up [a BOUNDED CYLINDER]
1. he walked through the tunnel (in 30 minutes).
2. he crawled up the chimney (in 3 minutes).

(c) 1. \text{ALENGTH an } \underline{\text{BEXTENT}_S} \text{ which IS}_L \text{ ON}
    \text{and COTERMINOUS-WITH [a BOUNDED PLANE]}
    \text{ALENGTH ON [a BOUNDED PLANE]}
    \text{across [a BOUNDED PLANE]}

2. \text{ALENGTH an } \underline{\text{BEXTENT}_S} \text{ which IS VERTICAL and ...}
    \text{UP ALENGTH ON [a BOUNDED PLANE]}
    \text{up [a BOUNDED PLANE]}

1. he walked across the field (in 5 minutes).
   the fly walked across the wall (in 1 minute).
2. the fly walked up the wall (in 30 seconds).

(d) \text{ALENGTH an } \underline{\text{BEXTENT}_S} \text{ which IS}_L \text{ TO-ONE-SIDE-OF [a POINT]}
    \text{and COTERMINOUS-WITH ITSELF}
    \text{ALENGTH TO-ONE-SIDE-OF [a POINT]}
    \text{around [a POINT]}
he ran around the house (in 40 seconds).

In the final line of the derivations in (7 b2 and c2) it was indicated that the expression

'up along [a LINE]' can reduce to 'up [a LINE]' and the expression ·

'up through [a CYLINDER]' can reduce to 'up [a CYLINDER]', rendering possible such sentences as

'he walked up the ladder (for 10 seconds)'

and 'he crawled up the chimney (for 2 minutes)'.

A similar kind of reduction is now shown in (9) for several other English expressions.
(9)

(a) 1. in(to [a SPHERE]) through [a CIRCLE] \[\rightarrow\]
in [a CIRCLE]

2. out(-of [a SPHERE]) through [a CIRCLE] \[\rightarrow\]
out [a CIRCLE]

1. he crawled in the window (*... into the window).
2. he ran out the door (*... out of the door).

(b) around ([a POINT]) along on [a LINE] \[\rightarrow\]
around [a LINE]

he ran around the track (for 20 seconds/for 2 hours).

(c) across ([a BOUNDED PLANE]) A LENGTH ON [a BOUNDED LINE] \[\rightarrow\]
across [a BOUNDED LINE]

he walked across the bridge (in 3 minutes).
10.2 The D Satellite

As first brought up in the Introduction, a constituent from elsewhere in a structure can move into adjunction as a 'satellite' of - or, can \textit{assatelate} to - the verb, the whole constituting the 'verb complex'. This last was exemplified for English by the expressions in (10), now shown with the symbol ' \langle ' to mark the satellite:

\[(10)\]

\[
\begin{align*}
\text{fire} & \langle \text{mis-} & \text{start} & \langle \text{over} \\
\rightarrow \text{misfire} & \rightarrow \text{start over}
\end{align*}
\]

Counting the satellite which joins with the verb to key in an insertion, English can have up to five ordered satellites in a verb complex, as in the sentence in (11) [which a parent might say to a child in a treehouse]:

\[(11)\]

(a) '[\textit{\textbf{\langle ' \langle HITHER} \langle \text{'right} \langle \text{'back} \langle \text{'down} \langle \text{'out}] , [from up in there]}

(b) \textit{come right back down out from up in there}

Within a verb complex, as indicated in the first portion of (11a), all the constituents - except optionally (and sometimes obligatorily) the first - receive primary stress. Furthermore, within a sentence, such as that in (11a), which contains both a verb complex and a (DG)
prepositional phrase with a pronominal head, the verb complex as a whole receives primary stress and the prepositional phrase as a whole receives secondary stress. By the cyclic operation of stressing rules, the result at the surface, as indicated in (11b), is a sentence with a crescendoingly heavy-stressed verb complex and a low-stressed prepositional phrase.

Now, one of the most characteristic processes in Indo-European languages is for a copy of part of the DIRECTIONAL expression in a partly-derived translatory structure to assatellite to the MOTIVE verb, giving rise to what may be termed the DIRECTIONAL or D satellite. Familiar D satellites are, for example, certain instances of the 'verb particle' in English, of the 'separable' or 'inseparable verb prefix' in German, and of the verb prefix in Russian and Latin. This process and some of its further derivational ramifications in English are now sketched in (12) for the DIRECTIONAL expression $\text{POR TO-ONE-SIDE-OF}$ . Here, this expression is followed by the symbol '$>$', in effect 'pointing' to the GROUND nominal together with which the expression constitutes the DG phrase. Throughout the Appendix, this symbol is placed after every prepositional governing a nominal. We also introduce now a term which, for reasons of greater explicitness, was not used in Part I. Conflation will refer loosely to any syntactic process - whether a long derivation involving many deletions and insertions, or just a single lexical-insertion - whereby a more complex construction turns into a simpler one. Thus, the complex construction TO a POINT which IS OF the
SURFACE OF, as shown derived in (4b), will be said to conflate into 
onto; likewise, the adjunction of HITHER with GO, which is shown in 
(11a) keying in the insertion of come, can now be said to conflate 
into come.

(12)

(a)  [a POINT] MOVE     \underline{POR TO-ONE-SIDE-OF}> [a POINT] 
     \underline{past}

     \implies [a POINT] MOVE \underline{past}> [a POINT]

     [he drove past it]

(b) \implies [a POINT] MOVE \underline{<POR TO-ONE-SIDE } \underline{POR TO-ONE-SIDE-OF}> [a POINT] 
     \underline{by} \underline{past}

     \implies [a POINT] MOVE \underline{by past}> [a POINT]

     [he drove by past it]

(b') \implies [a POINT] MOVE \underline{by}

     [he saw us on the corner, 
      but he just drove by (i.e., past us)]
(c) \[\rightarrow [\text{a POINT}] \text{MOVE } \langle\text{by past}\rangle [\text{a POINT}]
\]
\[
\langle\text{by}\rangle
\]
\[
\langle\text{past}\rangle
\]
\[\rightarrow [\text{a POINT}] \text{MOVE } \langle\text{by}\rangle [\text{a POINT}]
\]
\[
\langle\text{past}\rangle
\]
[he drove by it]
[he drove past it]

(d) [an alternate route from (b)]
\[\rightarrow [\text{a POINT}] \text{MOVE } \langle\text{by past}\rangle [\text{a POINT}]
\]
\[\emptyset
\]
\[\rightarrow [\text{a POINT}] \text{MOVE } \langle\text{by}\rangle [\text{a POINT}]
\]
[he drove it by]
(13) Comments on the Derivation in (12):

-- The deep structures shown in this derivation are autic and contain \textit{MOVE}; the example sentences, however, are self-effective structures, based on the autic ones, and contain \textit{GO}.

-- In all the example sentences, this \textit{GO} verb has conflated with a MANNER expression from outside the structure (this is not shown) to yield the surface verb \textit{drive}.

1. -- In (12a), there is no assatellation from the DIRECTIONAL expression, so that in the bracketed surface sentence \textit{drove} constitutes the whole of the verb complex (shown with the heavy stress appropriate thereto) and \textit{past it} is the DG prepositional phrase (shown appropriately unstressed).

2. -- In (12b), a copy of most of the DIRECTIONAL expression has assatellated to the MOTIVE verb where it keys in the insertion of the vadic 'particle' \textit{by}. In the bracketed surface sentence, \textit{drove by} now constitutes the verb complex, within which heaviest stress falls on the rightmost constituent, i.e., on the 'particle' (the satellite); \textit{past it} is still the low-stressed DG phrase.

2' -- In (12b'), the DG phrase has deleted, leaving the verb complex alone to its left. The DG phrase can undergo such a deletion in certain cases where the contained G nominal is a deictic or anaphoric pronoun. In such a deletion, moreover, no DIRECTIONAL information is lost since the assatellated copy of the DIRECTIONAL expression
still remains in the verb complex.

3. -- In (12c), there takes place a derivational step perhaps unique to English, which apparently alone of Indo-European languages regularly has its D satellite and D preposition adjacent. Here, these two constituents conflate into a single constituent which might be termed a *satellite-preposition*. This partakes of the properties of both its 'parents': it has the heavy stress of a satellite and the pre-nominal positioning of a preposition. We have here marked this new constituent by enclosing it fore and aft with the symbols ' < ' and ' > '.

   -- An additional example of the distinction between a sentence without a satellite and with a preposition and one with a satellite-preposition is:

   
   I could see through> him (he was transparent)
   I could see <through> him (he was lying)

4. -- In (12d), we indicate that a sentence in which the GROUND-specifying nominal is the direct object arises simply by deletion of the DIRECTIONAL prepositional - a process which might accordingly be termed *transitivization*. The symbol ' > ' with no prepositional preceding it can thus be used as a marker for the direct object status of the nominal following it. The deletion which takes place in transitivization again causes no information loss since the DIRECTIONAL satellite still remains.

   * * *
Of course, the particular sentence-series in (12) does not have an acceptable transitivized form:

\[ ^* \text{he drove it by,} \]

but a closely related sentence-series (which is shown derived below) does have one:

\[ \text{he passed it by,} \]

and so does the Yiddish sentence-series homologous with that in (12) [here given in the present tense]:

\[ \text{er fort es farb\'ay.} \]

A transitivized sentence which also contains a satellite, such as the acceptable English sentence just preceding, calls for a re-statement in our terms of the well-known principles of 'particle' placement in English:

\[ (14) \]

\[ (a) \text{ in a sentence with a satellite and with a preposition before the GROUND nominal, the satellite cannot move over the preposition -- hence,} \]

\[ \text{he drove } \langle \text{by past} \rangle \text{ it} \]

\[ \text{cannot become} \]

\[ ^* \text{he drove past it } \langle \text{by;} \]
(b) in a sentence with a satellite and with no preposition before the
GROUND nominal (such as may arise by transitivization), the
satellite may move over the nominal if the latter contains a noun
and must move over it if it is a pronoun -- hence, to illustrate
the latter case,

he passed <by > it

must become

he passed > it <by.

Still in the context of transitivized sentences, we may return
to one such, already encountered in section 10.1. There, in (8a1),
it was shown that the absence in English of a DIRECTIONAL preposition
like *alength, such as might occur in a sentence like

*he walked alength the pier (in 5 minutes),

necessitates resorting to a transitivized sentence like

he walked the pier (in 5 minutes).

The derivation which yields this latter sentence can now be shown,
as in (15). There, we postulate as one of the steps the formation
of a D satellite which, after the deletion of the D preposition
(by transitivization), itself also deletes. By these deletions, all
explicit DIRECTIONAL information is lost to the surface. Even in
such a circumstance, however, some DIRECTIONAL information can always
be recovered (otherwise than purely by the situational context
depicted), since for any particular lexical verb -- such as walk --
only a certain few DIRECTIONAL expressions could have been deleted.

(15)
(a) he walked ALENGTH ON> the pier
(b) he walked (ALENGTH ALENGTH ON> the pier [by assatellation]
(c) he walked (ALENGTH > the pier [by transitivization]

[*he walked the pier alenght]

(d) he walked >the pier [by satellite deletion]

[he walked the pier (in 5 minutes)]

If, following (12 a), not a MANNER expression but an additional
copy from the DIRECTIONAL expression assatellates to the MOTIVE verb,
conflating with it to yield a vadic 'MD verb':

[a POINT] MOVE (POR TO-ONE-SIDE <POR TO-ONE-SIDE
pass by

POR TO-ONE-SIDE-OF> [a POINT]
past

then there derive the forms indicated in (16), the stages of which are
lettered to correspond to those of (12):
(16)

(b) [a POINT] pass <by past> [a POINT]  
[*he passed by past it]

(b') [a POINT] pass <by  
[he saw us on the corner, but he just passed by]

(c) [a POINT] pass <by> [a POINT]  
[he passed by it]

(d) [a POINT] pass <by > [a POINT]*  
[he passed it by]

* Although it means something different, a structure parallel to this one -- containing a bound, rather than a free, satellite -- can be compared here:

[a POINT] pass <by- > [a POINT]  
[he bypassed it]

It should be noted that the English morpheme by can be inserted not only onto the D satellite POR TO-ONE-SIDE, as seen above or in

(17)

(a) the ball flew by past my head,

but also onto the D satellite POR OVER, as in

(b) the ball flew by over my head.
But the morpheme should not be too closely identified with *POR- containing satellites in general, since it cannot be inserted onto most others:

(c)  *the ball flew by through the hoop

(d)  *the ball flew by through the windowpane

(e)  *the ball rolled by across the border.

In Russian, however, the morpheme which most corresponds to English *by -- viz., the verb prefix *pro-- should indeed be more closely identified with the *POR- containing satellites, since it can be inserted onto four of these, not merely two, as demonstrated in (18)*.

* The Russian forms here and all other non-English forms cited in the Appendix have been either supplied by or checked with native speakers.
Parallel to the derivation in (12) for the DIRECTIONAL expression 

POR TO-ONE-SIDE-OF, we now present the derivation for TO IN; here, fewer 
of the stages in the derivation are acceptable surface forms:
(19)

(a)  \[ \text{[a POINT] MOVE TO IN} \rightarrow \text{[a SPHERE]} \]
     \[ \text{into} \]
     \[ \rightarrow \text{[a POINT] MOVE into} \rightarrow \text{[a SPHERE]} \]
     \[ \text{*he walked into it} \]

(b)  \[ \rightarrow \text{[a POINT] MOVE \underline{TO IN} TO IN} \rightarrow \text{[a SPHERE]} \]
     \[ \text{in into} \]
     \[ \rightarrow \text{[a POINT] MOVE \underline{in} into \rightarrow [a SPHERE]} \]
     \[ \text{*he walked in into it} \]

(b') \[ \rightarrow \text{[a POINT] MOVE \underline{in}} \]
     \[ \text{[he stood at the entrance to the house, and then he walked in]} \]

(c)  \[ \rightarrow \text{[a POINT] MOVE \underline{in into} \rightarrow [a SPHERE]} \]
     \[ \text{into} \]
     \[ \text{[he walked into it]} \]
Comments:

-- For the underlying DIRECTIONAL expression \textit{TO IN} (and for several other expressions), it is doubtful that English any longer uses the derivational form shown in (19a), i.e., where there is a DG phrase but no D satellite, so that it is the verb which receives verb-complex stress (and this is not contrastive stress).

-- It is clear that English lacks the derivational form in (19b) containing both a D satellite and a DG phrase. This form is highly positable as a deep structure, however, because it is homologous with occurrent English forms involving other DIRECTIONAL expressions, as seen in (12b) for \textit{he drove by past it}, and because it is homologous with other languages' occurrent forms involving the same DIRECTIONAL expression. In fact, German has occurrent forms homologous with both (19a) and (19b), as shown in (20):

(20)

(a) \[
\begin{array}{c}
[a \text{ POINT}] \text{ MOVE \hspace{1cm} TO IN} \hspace{1cm} [a \text{ SPHERE}] \\
\text{in } +\text{-acc}
\end{array}
\]

[er ging ins Haus]

(b) \[
\begin{array}{c}
[a \text{ POINT}] \text{ MOVE } \langle \text{TO IN} \hspace{1cm} \text{TO IN} \rangle \hspace{1cm} [a \text{ SPHERE}] \\
+\text{ein} \hspace{1cm} \text{in } +\text{-acc}
\end{array}
\]

[er ging ins Haus hinein]

-- The derivational form in (19b) is also highly positable as a deep stage to be passed through because deletion of the DG phrase yields
an occurrent form, as seen in (19b'),

-- and because conflation of the D satellite and the D preposition
into a satellite-preposition also yields an occurrent form, as seen
in (19c).

-- It might be noted here that the satellite-preposition just referred
to, i.e., <into>, is distinct from the satellite plus preposition
sequence <in to> not only grammatically but also phonologically (by
such 'junctural' phenomena as segment transitions, syllable-duration
rhythm, etc.), as observable in (21):

(21)

(a) I walked <into> him (he was a giant with an opening)
(b) I walked <in to> him (he was sitting in his room).

***

For a third illustration, we present in (22) the derivation for
the underlying prepositional WITH, which, though this expression is
not strictly a DIRECTIONAL, parallels the derivations in (12) and
(19). As with (12), each stage of the derivation yields, upon vadic
insertion, an acceptable surface sentence. In (22), moreover, the
homologous insertions and exemplary sentences for two languages --
English and Yiddish -- are shown simultaneously.
Most of Russian's surface translatory sentences are obligatorily of the form at the (b) stage [or, after deletion, at the (b') stage] of the derivations shown above for English, German, and Yiddish. That is, they contain both a D satellite and a D prepositional [or contain just the D satellite after deletion of the DG phrase]. This is illustrated for the DIRECTIONAL expression TO IN in (23):
(23)

(a) \[ \text{[a POINT]} \text{ MOVE \ TO IN} \to \text{[a SPHERE]} \]

(b) \[ \to \text{[a POINT]} \text{ MOVE } \langle \text{TO IN} \quad \text{TO IN} \rangle \to \text{[a SPHERE]} \]
\[
\begin{array}{c}
\text{v-} \\
\text{v + -acc}
\end{array}
\]

\[
\begin{array}{cccc}
\text{on} & \text{vbežal} & \text{v} & \text{dom} \\
\text{he} & \text{ran-in} & \text{into} & \text{the house (acc)}
\end{array}
\]

(b') \[ \to \text{[a POINT]} \text{ MOVE } \langle \text{TO IN} \rangle \]
\[
\begin{array}{cc}
\text{v-} \\
\text{vbežal}
\end{array}
\]

he ran-in

In (24) we now present a number of Russian's D satellite plus D prepositional combinations. It may be noted that for most of the combinations the satellite has the same phonological shape as the preposition and thus reflects at the surface its derivational origin as a copy from the underlying DIRECTIONAL expression. In the format used in (24), each Russian D combination appears on the left and is exemplified in a Russian sentence (with a sublinear translation) to its right. Under each Russian D combination appears the closest English equivalent(s) -- this variously turns out to be simply a preposition, a satellite plus a preposition, a satellite-preposition, a phrase, or non-existent (as in (24 1), where a devised bathic equivalent is shown). Each English DIRECTIONAL form is exemplified to its right in an English sentence. Here, the lexical GROUND
nominal is given in parentheticals and only its pronominalization appears in the sentence proper so that the right conditions can be present in which stress placement reveals the type of the DIRECTIONAL form. While the English sentence's first responsibility is to provide a suitable showcase for the English DIRECTIONAL form under illustration, we have additionally tried to make it as close an equivalent of the Russian sentence as possible. Asterisks mark those entries in (24) which are commented upon in (25).

(24)

(a)  \(<v-\text{v} + \text{-acc}>\)  
\begin{align*}  
&\text{on } \text{vbežal} \ &\text{dom} \nonumber \\
&\text{he ran into the house (acc)} \nonumber \\
&\text{he ran into it (the house)} \nonumber 
\end{align*}  

(b)  \(<\text{na-\ na} + \text{-acc}>\)  
\begin{align*}  
&\text{on } \text{nastupil} \ &\text{zme'ú} \nonumber \\
&\text{he stepped-on onto the snake (acc)} \nonumber \\
&\text{he stepped (down) onto it (the snake)} \nonumber 
\end{align*}  

(c)*  \(<\text{na-\ na} + \text{-acc}>\)  
\begin{align*}  
&\text{my nábrel} \ &\text{derevn'ý} \nonumber \\
&\text{we wandered-on onto a village (acc)} \nonumber \\
&\text{we wandered onto one (a village)} \nonumber \\
&\text{we happened upon it} \nonumber \\
&\text{we stumbled across it} \nonumber 
\end{align*}
(d) <na- na + -acc> my napali na vraga
we fell-on onto the enemy (acc)
upon>
we fell upon them (the enemy)
we rode upon them (the enemy)

(e) <ob- ob + -acc> on obloktii's a o stenu
he leaned-against against the wall (acc)
against>
he leaned against it (the wall)

(f) <pod- pod + -acc> šarik podkatils'a pod krovat'
the ball rolled-under under the bed (acc)
<under>
the ball rolled under it (the bed)

(g) <za- za + -acc> mes'ac zašēl za tuču
the moon went-'za' 'za' the cloud (acc)
on zapyl' za mol
he swam-'za' 'za' the breakwater (acc)
<behind>
the moon went behind it (the cloud)
<beyond>
he swam beyond it (the breakwater)

(h) <pri- k + -dat> on prikolol izveščenie k doske
he pinned-fast the notice to the board (dat)
vetka priměrčla k oknu
the twig froze-fast to the window (dat)

(<fast) to>
he pinned the notice (fast) to it (the board)
<stuck to>
the twig froze stuck to it (the window)
(i)* <pri- k + -dat> on priexal k granice he drove-INTO-ARRIVAL to the border (dat) *<INTO-ARRIVAL at> he drove INTO-ARRIVAL at the border *driving, he WENT INTO-ARRIVAL at the border arrived

(j) <pod k + -dat> on podbežal ko mne he ran-'up' to me (dat)
<up(-)to> he ran up(-)to me

(k)* <do- do + -gen> on došel do Kiev he walked-'do' 'do' Kiev (gen)
<do doplyl do berega> he swam-'do' 'do' shore (gen)

all the way to> he walked all the way to Kiev he swam all the way to shore (or, closer to the Russian sense:)
walking, he made it (got) all the way to Kiev swimming, he made it (got) all the way (back) to shore

(1) <vy- iz + -gen> on vybežal iz doma he ran-out out-of the house (gen)
<out-of> he ran out-of it (the house)

(m) <s- s + -gen> kot sprygnul so stola the cat jumped-off off-of the table (gen)
<off-of> the cat jumped off-off of it (the table)
(n)*  iz-  iz + -gen>  zapax isxodít iz cvetov
an odor comes-forth from the flowers (gen)

<forth from>  an odor is coming forth from them (the flowers)

(o)  ot-  ot + -gen>  on otbežal ot men' a
he ran-'ot' from me (gen)

on ot·exal ot moeĩ mašiny
he drove-'ot' from my car (gen)

on otošel ot okna
he walked-'ot' from the window (gen)

(off)
he ran off a ways from me (and stopped)

<away a ways from>
he moved away a bit from my car

(back)
(he had been parked too close)

he stepped back a ways from the window

(he had been standing too close)

(p)*  ot-  ot + -gen>  on otkolol izveščenie ot doski
he unpinned the notice from the board (gen)

<un- from>
he unpinned the notice from the board
(25) Comments on the entries in (24):

1. -- In (24 c), the DIRECTIONAL expression underlying the Russian and all the English D surface-forms -- however it is best represented in bathic morphemes -- may be taken to specify a semantic area something like

'into encounter with/discovery of'.

Here and in a number of other cases, it can be seen that semantic notions which are not strictly DIRECTIONAL have found their way into the specificational area of what is perhaps still best syntactically characterized as an underlying 'DIRECTIONAL expression'. Where in an underlying structure such semantic notions are most appropriately specified and how such underlying portions subsequently move into the DIRECTIONAL expression are not considered here.

2. -- In (24 d), the DIRECTIONAL expression underlying the Russian and the English D surface-forms may be taken to specify a semantic area something like

'into assault upon'

3. -- As a locative prepositional, the Russian expression `a -ins means

'on the other side of (from the speaker)' and hence is more general than the closest single-word English equivalents behind, beyond and across, as used in such sentences as
he's behind the tree, he's beyond the breakwater, he's across the river. The Russian satellite + prepositional combination shown in (24 g) -- i.e., $<za-za+a-o>$ -- also has this more general DIRECTIONAL meaning, but in addition specifies a particular semantic increment, so that the meaning of the whole can be represented as:

'into occultation/inaccessibility on the other side of'.

Thus, the meaning of the Russian sentences in (24 g) is perhaps most closely represented in English by such 'rendered translations' as

the moon went + into-occultation on-the-other-side-of the cloud
he swam + into-inaccessibility on-the-other-side-of the breakwater

or by such 'casual translations' as

the moon disappeared behind the cloud
he swam dangerously far beyond the breakwater.

4. -- In (24h), the DIRECTIONAL expression underlying the Russian and the first English D surface-forms may be taken to specify a semantic area something like

'into attachment (affixment) to'.

In fact, 'into attachment' appears to have been precisely one of the meanings of the obsolescent English satellite $<fast>$. This satellite is here shown in parentheses, however, because, in modern English, any sentence with an appropriate DG phrase can as well omit as contain
"fast" in this meaning; thus, e.g.,

he nailed the board fast to the wall
and  he nailed the board to the wall.

If the DG phrase has been deleted, however, the satellite cannot be omitted; thus,

he nailed the board fast
but  * he nailed the board.

-- The second English form, "stuck to", specifies a narrower semantic area than the first form. It is not as close an equivalent of the Russian form, but it can be an appropriate translation thereof when, in the actual situation specified, the DIRECTIONAL falls within the requisite narrower area -- as is the case in the lower sentence of the exemplary pairs.

5. -- In (24i), it can be seen that Russian has a D surface-form which exactly specifies the DIRECTIONAL semantic area

'into arrivalat (to)'.

The underlying MOVE verb is thereby left free to conflate with a MANNER expression, yielding, e.g., the vadic Mm verb drive (exat'). English lacks such a D surface-form and must, to express the DIRECTIONAL notion at all, conflate the MOVE verb with the underlying D satellite, yielding the vadic MD verb arrive.

6. -- In (24k), the DIRECTIONAL expression underlying the Russian D
surface-form may be taken to specify a semantic area something like

'counteroppositionally all the way to'.

Since the English expression all the way to does not necessarily include the 'counteroppositional' notion, the first two English illustrative sentences do not quite render the Russian sentences. However, since the English verbal expressions make it and get do include the additional notion -- and, in fact, may be regarded as confluations from go plus COUNTEROPPOSITIONALLY -- the second pair of English sentences does render the Russian more closely. In using these verbal expressions, of course, English can no longer conflate a MANNER expression like by walking or by swimming into the verb -- a limitational circumstance already noted for the case of 'arriving' in comment 5.

7. -- In (24n), the DIRECTIONAL expression underlying the Russian (if not exactly the English) D surface-form seems to specify a semantic area something like

'into issuance/emmanation/emission from'.

8. -- In (24p), the DIRECTIONAL expression underlying the Russian and the English D surface-forms may be taken to specify a semantic area something like

'out of attachment to',

or, equivalently,
'into detachment from'.

***

Two underlying DIRECTIONAL prepositionals in Russian have derivational characteristics different from those just discussed. These prepositionals are ABOUT -- a form not treated in section 10.1 meaning 'all about, here and there, through various points' -- and ALONG. When either of these appears in an underlying DIRECTIONAL expression, a copy assatellates to the MOVE verb and then -- instead of keying in a distinct prefixal morpheme -- conlates with it to yield a special form of the MOVE verb, as sketched in (26). The further conflation of this special form with a MANNER expression -- such as one specifying 'running', 'flying', 'walking', 'riding', etc. -- yields a vadic verb known in standard grammatical treatments of Russian as the 'indeterminate' or the 'determinate' form of a motion verb, as sketched in (27) and exemplified in (28). It should be noted that these verb forms are fully comparable to those illustrated in (24) except that they have their own D satellite conlated within them.
(26)

(A)

(a) [a POINT] MOVE ABOUT ON> [a PLANE]
(b) \[a POINT] MOVE \(\text{ABOUT}\) ABOUT ON> [a PLANE]

MOVE \(\text{INDET}\) po + \(\text{-dat}\)

(B)

(a) [a POINT] MOVE ALONG ON> [a LINE]
(b) \[a POINT] MOVE \(\text{ALONG}\) ALONG ON> [a LINE]

MOVE \(\text{DET}\) po + \(\text{-dat}\)

(27)

(a) MOVE (M) \(\text{ABOUT}\) (D) \(\text{RUNning}\) (m)

MOVE \(\text{INDET}\) (MD) \(\text{RUNning}\) (m)

begat' (MDm)

(b) MOVE (M) \(\text{ALONG}\) (D) \(\text{RUNning}\) (m)

MOVE \(\text{DET}\) (MD) \(\text{RUNning}\) (m)

bežat' (MDm)
(28) 

(a) on begal po ulice (20 minut he ran-about about-on the street (dat) (for 20 minutes)
he ran (all) about/around (on) the street (for 20 minutes)

(b) on bežal po ulice (20 minut he ran-along along-on the street (dat) (for 20 minutes)
he ran along (on) the street (for 20 minutes)

Now, the derivational characteristics in Russian of underlying DIRECTIONAL expressions containing ALONG and of those containing LENGTH form a fascinating comparison. In the former case, as already seen in (268), a copy of ALONG assatellates to and conflates with MOVE, while the original DIRECTIONAL expression keys in a vadic prepositional complex. This process is sketched in (29) and then exemplified in (30) for three different DIRECTIONAL expressions containing ALONG. In the latter case, a copy of the whole LENGTH-containing DIRECTIONAL expression assatellates to MOVE, there keying in a distinct prefixal morpheme, while the original DIRECTIONAL expression deletes -- that is to say, transitivization takes place. It may be assumed that in the vacancy left by the deletion the prepositional formative -ččč is later transformationally introduced. This process is sketched in (31) and then exemplified in (32) for four different DIRECTIONAL expressions containing LENGTH -- the first three parallel to those shown for ALONG. In the derivational sketches which follow, parentheses placed around forms either indicate deletion or irrelevance to a particular conflation;
for clarity, AROUND is used instead of TO-ONE-SIDE-OF [a POINT], and ACROSS is used instead of ON [a BOUNDED PLANE].

(29)

(a) \text{MOVE} \: \text{ALONG ON} \Rightarrow \text{MOVE} <\text{ALONG} >_{\text{MOVE}_\text{DET}, \text{po} + \text{-dat}}_{\text{ALONG ON}}

(b) \text{MOVE} \: \text{ALONG INSIDE} \Rightarrow \text{MOVE} <\text{ALONG} >_{v + \text{-prep}}_{\text{(ALONG) INSIDE}}

(c) \text{MOVE} \: \text{ALONG AROUND} \Rightarrow \text{MOVE} <\text{ALONG} >_{\text{vokrug} + \text{-gen}}_{\text{(ALONG) AROUND}}

(30)

(a) on \text{bežal} \: \text{po} \: \text{ulice} \: \text{(20 minut)} \: \text{he ran-along along-on the street (dat) for 20 minutes}

(b) butylka \: \text{plyla} \: v \: \text{trube} \: \text{(20 minut)} \: \text{the bottle floated-along in the pipe (prep) for 20 minutes}

(c) satelit \: \text{letel} \: \text{vokrug zemli} \: \text{(3 dn'a)} \: \text{the satellite flew-along around the earth (gen) for three days}
(31)

(a) MOVE ALENGTH ON\) \implies MOVE \langle ALENGTH ON \rangle (ALENGTH ON)\)

(b) MOVE ALENGTH INSIDE\) \implies MOVE \langle ALENGTH INSIDE \rangle (ALENGTH INSIDE)\)

(c) MOVE ALENGTH AROUND\) \implies MOVE \langle ALENGTH AROUND \rangle (ALENGTH AROUND)\)

(d) MOVE ALENGTH ACROSS\) \implies MOVE \langle ALENGTH ACROSS \rangle (ALENGTH ACROSS)\)

(32)

(a) on probežal (vs'u) ulicu v 30 minut
he length-ran the (whole) street (acc) in 30 minutes

(b) butylka propylia trubu v 30 minut
the bottle through-floated the pipe (acc) in 30 minutes

(c) satelit obletel zeml'u v 3 casa
the satellite circum-flew the earth (acc) in 3 hours

(d) on perebežal ulicu v 5 sekund
he cross-ran the street (acc) in 5 seconds

NB: In (31b and d), the original DIRECTIONAL expression has the option of keying in the prepositional čerez + -acc instead of deleting, so that, in (32b and d), 'čerez' can be inserted before the final through/across nominal.
It seems likely, from casual inspection of various languages, that the derivational patterns just seen for *ALONG-* and *ALENGTH-* containing DIRECTIONAL expressions in Russian are Indo-European in origin and pan-Indo-European in original distribution, however much the system may have subsequently eroded in various languages. (As one particular note, it seems likely that in the *ALENGTH* case the as-satellated DIRECTIONAL expression always keyed in an 'inseparable', rather than a 'separable', prefix to the verb in Germanic languages.)
10.3 The MD Verb

It has been seen in Part I for English (and now in the Appendix for Russian) that, in the perhaps most typical, or characteristic, derivational pattern for a translatory structure, the MOTIVE verb conflates with a MANNER expression to yield a 'MOTIVE+MANNER-specifying' or 'Mm' verb. Thus, English (or Russian) has a whole system (using this term loosely here) of vadic verbs which -- as the result of conflation -- specify motion (and location) in various manners.

Similarly, it has been seen in Part I for Atsugewi that, in the perhaps most typical derivational pattern for a translatory structure, the MOTIVE verb conflates with a FIGURAL expression to yield a 'FIGURE+MOTIVE-specifying' or 'FM' verb-root. Thus, Atsugewi has a whole system of vadic verb-roots which -- as the result of conflation -- specify the motion (and location) of various objects.

Now it will be shown for Spanish that, in the perhaps most typical derivational pattern for a translatory structure, the MOTIVE verb conflates with a copy from the DIRECTIONAL expression to yield a 'MOTIVE+DIRECTIONAL-specifying' or 'MD' verb, as sketched in (33).

(33)

(a) [a POINT] MOVE TO IN> [a SPHERE]
(b) \[a POINT] MOVE \<TO IN\ TO (IN)> [a SPHERE] entra\[a

Thus, Spanish has a whole system of verbs which -- as the result of
conflation -- specify motion in various directions. Any notion of MANNER -- which English specifies conflatedly in its Mm verb -- in Spanish is either established in the prior discursive context or is specified by an independent expression which is included -- often with some awkwardness -- in the sentence containing the MD verb. In (34), a number of Spanish's MD verbs are shown in autic sentences. In each sentence there is also shown a parenthesized MANNER expression -- viz., flotando-- which may be omitted, or included after the verb or at the end, in most cases with some awkwardness. Its inclusion renders the Spanish sentence informationally equivalent to the under-shown English translation, which, since this is intended as a colloquial sentence, contains an Mm verb -- viz., floated.
(a) *la botella entró a la cueva (flotando)*
the bottle MOVED-in to the cave (floating)
the bottle floated into the cave

(b) *la botella salió de la cueva (flotando)*
the bottle MOVED-out from the cave (floating)
the bottle floated out of the cave

(c) *la botella pasó por la piedra (flotando)*
the bottle MOVED-by past the rock (floating)
the bottle floated past the rock

(d) *la botella pasó por el tubo (flotando)*
the bottle MOVED-through through the pipe (floating)
the bottle floated through the pipe

(e) *el globo subió por la chimenea (flotando)*
the balloon MOVED-up through the chimney (floating)
the balloon floated up the chimney

(f) *el globo bajó por la chimenea (flotando)*
the balloon MOVED-down through the chimney (floating)
the balloon floated down the chimney
(g) **la botella se fué de la orilla (flotando)**
the bottle MOVED-away from the bank (floating)
the bottle floated away from the bank

(h) **la botella volvió a la orilla (flotando)**
the bottle MOVED-back to the bank (floating)
the bottle floated back to the bank

(i) **la botella le dio vuelta a la isla (flotando)**
the bottle [gave turn to it:] to the island (floating)
   MOVED-around
the bottle floated around the island

(j) **la botella cruzó el canal (flotando)**
the bottle MOVED-across the canal (floating)
the bottle floated across the canal

(k) **la botella iba por el canal (flotando)**
the bottle MOVED-along along the canal (floating)
the bottle floated along the canal

(l) **la botella andaba por el canal (flotando)**
the bottle MOVED-about about the canal (floating)
the bottle floated around the canal
(m) las dos botellas se juntaron \( (\text{flotando}) \)
the two bottles MOVEd-together \( \text{a} \text{f} \text{l} \text{o} \text{t} \text{a} \text{i} \text{n} \text{g} \)

the two bottles floated together

(n) las dos botellas se separaron \( (\text{flotando}) \)
the two bottles MOVEd-apart \( \text{a} \text{f} \text{l} \text{o} \text{t} \text{a} \text{i} \text{n} \text{g} \)

the two bottles floated apart

(It might be noted that the Spanish MD verbs in (k) and (l), i.e., those meaning 'MOVE-along' and 'MOVE-about', are quite parallel to Russian's determinate and indeterminate verb-pairs, except that the latter have a MANNER-specifying expression, such as 'floating', additionally conflated within them. The use of \textit{por} after the Spanish verbs is also quite parallel to the use of \textit{po} after the Russian verbs.)
The same pattern-difference which distinguishes Spanish from English in sentences based on an autic structure also does so in sentences based on a self-effective structure. *

* This structure, which for no good reason was not explicitely treated in Part I, specifies that an entity, as AGENT, effects the motion of his own body, as FIGURE, and undergoes a derivation wherein MOVE gives rise to GO, as sketched in (i):

(i)

(a) an ENTITY (A) EFFECT (ρ) TO (δ)

it, that the ENTITY's BODY (F) MOVE (M) + 'DIRECTIONAL' + 'GROUND'

[BY it, that the ENTITY WILL ON the ENTITY's BODY]

(b) ⇒ an ENTITY (A) eMOVE (ρδM) the ENTITY's BODY (F)

GO (ρδMF)

+ 'DIRECTIONAL' + 'GROUND'

(c) ⇒ an ENTITY (A) GO (ρδMF) + 'DIRECTIONAL' + 'GROUND'

There are, of course, surface sentences in many languages which are based on the structure in (ib), before the conflation into GO. Compare, e.g., the following English '(b)' and '(c)' type sentence-pairs:

(ii)

(b) he threw himself out the window

(c) he jumped out the window

(b) he dragged himself to work

(c) he trudged to work
Thus, just as Spanish typically conflates a DIRECTIONAL expression with *MOVE*, as was sketched in (33), so does it also with *GO*:

(35).

(a)  [the 'AGENT'/a POINT] GETO IN> [a SPHERE]

(b) $\rightarrow$ [the 'AGENT'/a POINT] \underline{GO} <TO IN TO (IN)> [a SPHERE]

A few examples of paired Spanish and English self-effective sentences -- parallel to the autic sentence-pairs of (34) -- are now shown in (36).
(36)

(a) el hombre entró a la casa corriendo
the man WENT-in to the house running

the man ran into the house

(b) el hombre salió de la casa corriendo
the man WENT-out from the house running

the man ran out of the house

(c) el hombre subió (por) las escaleras corriendo
the man WENT-up along the stairs running

the man ran up the stairs

(d) el hombre bajó (por) las escaleras corriendo
the man WENT-down along the stairs running

the man ran down the stairs

(e) el hombre llegó a la casa corriendo
the man WENT-INTO-ARRIVAL to the house running

[here, English must resort to the Spanish pattern:]

the man arrived at the house at a run
The Spanish pattern of conflating a DIRECTIONAL expression with the MOTIVE-specifying verb is again observable in sentences based on an effective structure containing $MOVE$. Several of the surface verbs which result from such conflation are shown tabularly in (37).

\begin{tabular}{ll}
A poner & F en G \\
A meter & F a G \\
A subir & F a G \\
A juntar & $F_1$ & $F_2$ \\
A quitar & F de G \\
A sacar & F de G \\
A bajar & F de G \\
A separar & $F_1$ & $F_2$ \\
\end{tabular}

A put F onto G  \\
A put F into G \\
A put F up (on) to G \\
A put $F_1$ & $F_2$ together \\
A take F off of G \\
A take F out of G \\
A take F down from G \\
A take $F_1$ & $F_2$ apart
The English *put* verb may derive to the surface without further conflating with any MANNER (or other) expression.

* This verb can be considered a conflation from *move* and a MANNER expression specifying that the motion of the FIGURE is effected by the motion of the AGENT's body-parts without the translatory motion of the AGENT's whole body. This latter notion is specified by the English *carry* verb (⇒ *carry, bring, take*).

** The verb keys in the suppletive vadic forms *put, take, move, and pick*. The particular form keyed in is determined automatically:

*put in the presence of TO*
- I put the ball into the box
- I put the plate up onto the shelf

*take in the presence of FROM*
- I took the ball out of the box
- I took the plate down off of the shelf

*pick in the presence of FROM and up*
- I picked the plate up off of the bench

*move in the presence of ALONG or ALENGTH*
- I moved the toy car along the track
- I moved the lamp three feet back

However, it may further conflate, whereas the Spanish effective MD verbs may not. To give one example of this difference, English can say not only

I took the wrapper off the package
but also

I tore the wrapper off the package
I peeled the wrapper off the package
I cut the wrapper off the package,

whereas Spanish is limited to

quité el papel de -l paquete
I-eMOVED-off the paper from the package

The whole issue of the difference between English and Spanish recalls the discussion in section 4.1 on the differential disposition of information-specification in languages. There it was shown that Atsugewi -- with its extensive verb complex (i.e., the sentential-verb) and the conflational and assatellational characteristics thereof -- can backgroundedly (and casually) pack in specifications for FIGURE, GROUND, INSTRUMENT, and several more semantic components, where English must make the same specifications foregroundedly (and sometimes awkwardly) with independent expressions. As Atsugewi is to English, so English is to Spanish. For, English -- with its moderate-sized verb complex and the conflational and assatellational characteristics thereof -- can backgroundedly (and casually) pack in specifications for MANNER and several DIRECTIONALS, where Spanish must make the same specifications foregroundedly (and often awkwardly) with independent expressions. In some cases, in fact, the equivalent quantity of specifications cannot be made in a single sentence, so that a portion must either be omitted or established elsewhere in
the discursive context. As an example of this extreme situation, a rather ordinary English sentence like

The man ran back down into the cellar,

containing the backgrounded specifications for one MANNER and three DIRECTIONALs, has no Spanish informational-equivalent which is not impossibly awkward. The closest reasonable Spanish sentences specify at most two of these four components, as shown in (38) [here, the verb in the English translations is chosen so as to render the Spanish verb].
(38)  

(a) \textit{el hombre corrió a -l sótano}  
the man ran to the cellar  
the man ran to the cellar  

(b) \textit{el hombre volvió a -l sótano corriendo}  
the man WENT-back to the cellar running  
the man returned to the cellar at a run  

(c) \textit{el hombre bajó a -l sótano corriendo}  
the man WENT-down to the cellar running  
the man descended to the cellar at a run  

(d) \textit{el hombre entró a -l sótano corriendo}  
the man WENT-in to the cellar running  
the man entered the cellar at a run.  

The patterns of information-disposition for the languages we have looked at are now summed up in the table in (39).
It is of course an interesting matter to inspect other languages for their characteristic pattern and perhaps to discern some additional patterns. As one particular note in this vein, it appears on the basis of casual inspection that French (all of Romance?), Hebrew, and Samoan are of the Spanish pattern and that Nez Percé is of a pattern distinct from the three discussed (or, more accurately, is of a pattern further developed from a basically Spanish-type: beside a system of MD verb [-roots], the language apparently has a system of MANNER-specifying satellites [in particular, as affixes to the root in a polysynthetic verb-complex]).
10.4 $\alpha$-, $\beta$-, and $\gamma$-Order

A transitory structure at any stage of derivation

(40)

(a) will be said to be in $\alpha$-order
when the FIGURE-specifying nominal is in subject position
(i.e., has not moved from its original underlying location);

(b) will be said to be in $\beta$-order
when the FIGURE-specifying nominal has moved out of subject
position and no other nominal has moved into it;

(c) and will be said to be in $\gamma$-order
when the FIGURE-specifying nominal has moved out of subject
position and some other (e.g., the GROUND- or 'second-
GROUND'-specifying) nominal has moved into it.

When the FIGURE-specifying nominal has moved out of subject position --
or, extraposed -- it becomes preceded by a prepositional, usually either
WITH or OF (as we shall represent them); the term extraposition particle
will be applied to this prepositional or to the form which it keys in.

When some other nominal has moved into the vacated subject position --
or, retroposed -- any prepositional which had preceded it becomes deleted;
or, by an alternative interpretation, only a copy of the nominal retroposes and, by transformations of more general application, the original
nominal first pronominalizes and then (optionally) deletes together with
any prepositional before it.
An example from English of a location translatory structure passing through all three stages of (40) is sketched in (41). Here, extraposition takes place in (b); expletive it is inserted into the vacated subject position and the prepositional WITH is introduced before the FIGURAL nominal; WITH here keys in the preposition with. Retroposition takes place in (c); the original GROUND nominal pronominalizes and the whole DG phrase optionally deletes.

(41)

(a) bees (F) BE_L (M) all-over> (D) the yard (G) aswarm (m)

(a')\[\rightarrow\] bees (F) BE_L (M) \langle\text{aswarm (m)}\rangle all-over> (D) the yard (G)

\[\text{swarm (Mm)}\]

[bees were aswarm all over the yard]
[bees were swarming all over the yard]

(b) \[\rightarrow\] --- swarm (Mm) WITH> bees (F) all-over> (D) the yard (G)

it with

[it was swarming with bees all over the yard]

(c) \[\rightarrow\] the yard (G) swarm (Mm) with> bees (F) all-over> (D) the yard (G)

\[\text{\(\rightarrow\) it}\]

[the yard was swarming with bees all over it]
[the yard was swarming with bees]
In another locative English example sketched in (42), the *with* introduced in front of the extraposed FIGURE-specifying nominal keys in the particle *-adj* which, when moved to the rear of the nominal, either itself keys in a vadic adjectival suffix or, as in the present case, conflates with the nominal to yield an adjective.

(42)

(a) \[ \text{heat} \]  
\[ \text{HEAT (F) BE}_L (M) \rightarrow (D) \text{the room (G)} \]

[*heat was in the room; compare:  
- *there was too much heat in the room]*

(b) \[ \text{hot} \]  
\[ \text{BE}_L (M) \rightarrow \text{HEAT (F)} \rightarrow (D) \text{the room (G)} \]

[it was hot in the room]

(c) \[ \text{hot} \]  
\[ \text{the room (G) BE}_L (M) \rightarrow \text{HEAT (F)} \rightarrow (D) \text{the room (G)} \]

[the room was hot]

In a third example sketched in (43), the extraposition particle *with* has several derivational options in the \(\gamma\)-order structure. It can key in the preposition *with*, as seen in (43c₁). It can key in the particle *-en*, which (behaving like *-adj*) in turn usually keys in the ending(s) (*be-*)...*ed* in English and the ending *-t* in Latin (to take just one other language), as in *bearded* and *horned*, *barbatus* and *cornūtus* — as seen in (43c₂). And it can conflate with *BE\_L* to
yield the vadic verb have, as seen in (43c3). In the γ-order structures in (43), the original DIRECTIONAL and GROUND expressions have for clarity simply been deleted; where they do have the option of remaining, with the GROUND expression pronominalized, the illustrative sentences simply contain an additional parenthesized phrase.

(43) 

(a) Freckles (F) BEL (M) on> (D) the boy (G)

[*freckles were on the boy; compare:
  ◊there were freckles on the boy] 

(b) —> --- BEL (M) WITH> freckles (F) on> (D) the boy (G)

(c1) —> the boy (G) BEL (M) WITH> freckles (F) with

[*the boy was with freckles (on him); but:
  ◊I saw a boy (who was) with freckles (on him)]

(c2) —> the boy (G) BEL (M) WITH> freckles (F) -EN

  —> freckles -EN

  freckled

[the boy was freckled]

(c3) —> the boy (G) BEL (M) WITH> freckles (F) have

[the boy had freckles (on him)]
For languages like Serbian, French, and (old) Spanish (where
*haber* still meant 'to have') which express an existential sentence like

there are freckles on the boy

using a zero or expletive subject and *HAVE*, e.g., the equivalent of

(it) has freckles on the boy,

such a sentence is perhaps best derived from the β-order structure,
as in (43b), by conflation of *BE*$_L$ and *WITH* into *HAVE*.

The same derivational steps which yield the γ-order and the conflation into *have* of the sentence in (43c$_2$), i.e.,

the boy had freckles on him,

or, e.g., of the homologous sentence

the box had a book in it

can be used to account for γ-order *have*-containing sentences which
specify 'possession'. By this interpretation, the *have* in such
sentences still arises by conflation from *BE*$_L$ and *WITH* and does not
in itself specify any notion of 'possession'; this notion is specified,
rather, by a bathic prepositional complex which, together with its
nominal, has the option of deletion at the surface. The whole deriva-
tion is shown in (44); in (44a) is shown how the Russian sentence
specifying 'possession' is based on the α-order structure.
(44)

(a) \underline{a \text{ gold pen (F)}} \quad \underline{\text{BE}_L (M)} \quad \underline{\text{IN-the POSSESSION-OF} (D)} \quad \underline{\text{the boy (G)}}

\[ \text{zolotoe pero byt' u + -gen mal'čik} \]

[u mal'čika bylo zolotoe pero; rendered translation:

'by the boy was a gold pen']

(b) \[ \rightarrow \quad \underline{\text{BE}_L (M)} \quad \underline{\text{WITH} (F)} \quad \underline{\text{IN-the POSSESSION-OF} (D)} \quad \underline{\text{the boy (G)}} \]

(c) \[ \rightarrow \quad \text{the boy (G)} \quad \underline{\text{BE}_L (M)} \quad \underline{\text{WITH} (F)} \quad \underline{\text{have}} \]

[the boy had a gold pen (in the possession of him \rightarrow in his possession)]

If the α-order structure in (43a) additionally contains NOT, the resulting γ-order structure does not only yield the simple negatives of the sentences in (43c), i.e. (skipping: *the boy wasn't with freckles),

the boy wasn't freckled

the boy didn't have freckles (on him).

Rather, if the NOT is after the verb, additional derivational options can be taken: the NOT can key in \textit{UN}- and the WITH can, as before, key in \textit{-EN}, as seen in (45c); the NOT and the WITH can conflate into the particle \textit{-LESS}, which behaves like \textit{-EN}, as seen in (45c); the NOT and the WITH can conflate into the preposition \textit{WITHOUT}, as seen in (45c3); and the \textit{BE}_L, the NOT, and the WITH can all conflate into the verb \textit{lack},
as seen in (45c₄).

(45)

(a) freckles (F) BE₇ (M) NOT on> (D) the boy (G)

(b) \[\rightarrow \quad BE₇ (M) \quad NOT \quad WITH> \quad freckles \quad (F) \quad on> \quad (D) \quad the \quad boy \quad (G)\]

(c) \[\rightarrow \quad the \quad boy \quad (G) \quad BE₇ \quad (M) \quad \underbrace{NOT \quad WITH> \quad freckles} \quad (F) \quad \underbrace{UN- \quad EN} \quad \rightarrow \quad \underbrace{UN- \quad freckles} \quad \underbrace{-EN} \quad unfreckled\]

[the boy was unfreckled]

(c₂) \[\rightarrow \quad the \quad boy \quad (G) \quad BE₇ \quad (M) \quad \underbrace{NOT \quad WITH> \quad freckles} \quad (F) \quad \underbrace{-LESS} \quad \rightarrow \quad \underbrace{freckles} \quad \underbrace{-LESS} \quad freckleless\]

[the boy was freckleless]

(c₃) \[\rightarrow \quad the \quad boy \quad (G) \quad BE₇ \quad (M) \quad \underbrace{NOT \quad WITH> \quad freckles} \quad (F) \quad without\]

[the boy was without freckles (on him)]

(c₄) \[\rightarrow \quad the \quad boy \quad (G) \quad BE₇ \quad (M) \quad \underbrace{NOT \quad WITH> \quad freckles} \quad (F) \quad \underbrace{lack}\]

[the boy lacked freckles (on him)]

It might be correct to specify the relation of a part to a whole -- i.e., one form of so-called 'inalienable possession' -- by a translatory structure, as in (46a), or, as seems better, by a
particular closely-related structure, as in (46b), here shown with the translatory function-markings:

(46)

(a) the face (F) BE\(_L\) (M) ON\(_R\) (D) the boy (G)

(b) the face (F) BE (M) AS-PART-OF\(_R\) (D) the boy (G)\(^*\)

\(^*\) The DIRECTIONAL expression in this structure is of the prepositional-complex form, P-N-P, seen elsewhere (e.g., in TO-the INSIDE-OF).

When this structure remains in its present \(\alpha\)-order to yield a surface sentence, the first constituent of the prep-complex, \(AS\), does not show up, as seen for the homologous structure in (i):

(i) a face (F) BE (M) AS-PART-OF\(_R\) (D) a human (G)
\[\text{\(\emptyset\) part of}\]
\[\text{i.e., a face is part of a human.}\]

When the structure derives into \(\gamma\)-order to yield a surface sentence, the \(AS\) does show up, as seen in (ii):

(ii) a human (G) BE (M) WITH\(_L\) a face (F) AS-PART-OF\(_R\) (D) a human (G)
\[\text{have as part of him}\]
\[\text{i.e., a human has a face as part of him}\]

Thus, the surface sentence in (i) is at least one case for which there is evidence that what appears to be a 'subject + copula + predicate nominal (\text{\textit{part of a human}})' construction is actually a quadripartite structure, as per our general formulation. It might be similarly concluded that such a 'predicate nominal' construction as

(iii) the man is a doctor

also derives from a quadripartite structure whose prose-effect can be rendered something like
(iv) the man is a doctor

(compare the Russian sentences in which the 'predicate nominal' is in the instrumental case, as, e.g.,

\[
\text{on byl doktorom}
\]

he was a doctor (instr)

Either way, our present interest is in the circumstance where the 'part' nominal specifies the GROUND in one structure, and a 'part-whole' structure, such as in (46), stands as a relative clause on the nominal. In such a circumstance, the 'whole' nominal will be said to specify the 'second - GROUND', or 'G', as illustrated in (47) with the functional transvaluations indicated:

\[(47)\]

(a) \(\ldots\)the face (G) which \(\underline{\text{F B E}}_1 (M)\) \(\underline{\text{O N}}\) (D\(\Rightarrow\)D') the boy (G\(\Rightarrow\)G')

\[
\phi
\]

\(\text{on}
\]

\(\text{i.e.}, \ldots\)the face (G) \(\text{on}\) (D') the boy (G')

(b) \(\ldots\)the face (G) which \(\underline{\text{F B E}} (M)\) \(\underline{\text{A S-P A R T-O F}}\) (D\(\Rightarrow\)D') the boy (G\(\Rightarrow\)G')

\[
\phi
\]

\(\text{of}
\]

\(\text{i.e.}, \ldots\)the face (G) \(\text{of}\) (D') the boy (G')

Since we have been on sentences with freckles, another such may serve to illustrate how there can be an option as to which nominal retroposes in a \(\gamma\)-order structure (as per the characterization in (40c)). Thus, in (48c_1), the whole GROUND expression retroposes, while in (48c_2), only the second-GROUND expression retroposes.
(48)

(a) freckles (F) BE$_L$ (M) on> (D) the face (G) of> (D') the boy (G')

(b) $\implies$ --BE$_L$ (M) WITH> freckles (F) on> (D) the face (G)
of> (D') the boy (G')

(c$_1$) $\implies$ the face (G) of> (D') the boy (G') BE$_L$ (M) WITH> freckles (F)

the boy's face

have

on> (D) the face (G) of> (D') the boy (G')

it

[the boy's face had freckles on it]

(c$_2$) $\implies$ the boy (G') BE$_L$ (M) WITH> freckles (F)

have

on> (D) the face (G) of> (D') the boy (G') his face

him

[the boy had freckles on his face]

We now proceed to an example where, in β- and γ-order, the locative verb, the extraposition particle, and the extrapoosed FIGURAL nominal all conflate to yield simply a verb, as sketched in (49).

(49)

(a) PAIN (F) BE$_L$ (M) in> (D) the foot (G) of> (D') me (G')

(b) $\implies$ -- BE$_L$ (M) WITH> PAIN (F) in (D) the foot (G) of> (D') me (G')

it hurt

my foot

[it hurts in my foot; compare:

(it hurts where? $\implies$ ) where does it hurt?]
(c_1) \implies \text{the foot (G) of} (D') \text{ me (G')} BE_{L} (M) \overset{\text{WITH} > \text{PAIN (F)}}{\overset{\text{hurt}}{\text{hurt}}}

[°my foot hurts]

(c_2) \implies \text{I (G')} BE_{L} (M) \overset{\text{WITH} > \text{PAIN (F)}}{\overset{\text{hurt}}{\text{hurt}}} \text{in} (D) \text{ the foot (G)}

[*I hurt in the foot (x...in my foot); compare
(you hurt where? \implies ) °where do you hurt?]

For the deep structures in (49c) there is of course the alternative derivational option of inserting a preposition onto \textit{WITH} and a noun onto \textit{PAIN}:

(50)

(c_1) \implies \text{the foot (G) of} (D') \text{ me (G')} BE_{L} (M) \overset{\text{WITH} > \text{PAIN (F)}}{\overset{\text{in} \text{ pain}}{\text{hurt}}}

[°my foot is in pain]

(c_2) \implies \text{I (G')} BE_{L} (M) \overset{\text{WITH} > \text{PAIN (F)}}{\overset{\text{in} \text{ pain}}{\text{hurt}}} \text{in} (D) \text{ the foot (G)}

[*I am in pain in the foot (x...in my foot); compare:
(you are in pain where ? \implies ) °where are you in pain?]

For an additional example of the 'PAIN' type, i.e., where, in the \(\beta\)- and \(\gamma\)-order, there are the options both for the insertion of a preposition and noun and for conflation into a verb, we present a derivational sketch for \textit{FIRE} in (51):
(51)

(a) FIRE (F) $\text{BE}_L$ (M) all over $\rightarrow$ (D) the fields (G)

(b$_1$)$\rightarrow$ $\text{BE}_L$ (M) $\text{WITH}\rightarrow$ FIRE (F) ALL OVER $\rightarrow$ (D) the fields (G)

it on fire a-

[\*it's on fire/afire all over the fields]

(b$_2$)$\rightarrow$ $\text{BE}_L$ (M) $\text{WITH}\rightarrow$ FIRE (F) all over $\rightarrow$ (D) the fields (G)

it $\text{burn}$

[\*it's burning all over the fields]

(c$_1$)$\rightarrow$ the fields (G) $\text{BE}_L$ (M) $\text{WITH}\rightarrow$ FIRE (F)

on fire a-

[\*the fields are on fire/afire]

(c$_2$)$\rightarrow$ the fields (G) $\text{BE}_L$ (M) $\text{WITH}\rightarrow$ FIRE (F)

burn

[\*the fields are burning]

All preceding examples have illustrated the variety of derivational courses which the extraposition particle and the extraposed FIGURAL nominal can take in non-$\alpha$-order. To round out the range of this variety, we present an example with the verbal expression be-missing; here, the extraposition particle deletes, so that the extraposed FIGURAL nominal comes to stand as direct object to the verbal expression. As for this particular verbal expression itself, it may be assumed to arise by conflation in something like the following
manner:

(52)

(a) \( \ldots \text{be\textsubscript{L} at a point which is not the point} \)  
\( \)  
\( \text{(at which it belongs) which is\textsubscript{L} in \ldots} \)  

(b) \( \ldots \text{be\textsubscript{L} elsewhere than (where it belongs) in \ldots} \)  

(c) \( \ldots \text{be missing from \ldots} \)  

A sketch of the \( \alpha \)-order structure, with this expression, deriving into a \( \gamma \)-order structure is as follows:

(53)

(a) a piece (F) be-missing from\( \rightarrow \) (D) the puzzle (G)  
\( [\text{\( \alpha \)a piece is missing from the puzzle}] \)  

(b) \( \Longrightarrow \text{--- be-missing OF} \) a piece (F) from\( \rightarrow \) (D) the puzzle (G)  

(c) \( \Longrightarrow \text{the puzzle (G) be-missing OF} \) a piece \( \emptyset \)  
\( [\text{\( \alpha \)the puzzle is missing a piece}]^* \)

---

* Although its semantic relatedness is questionable, an additional example syntactically homologous with this derivation is:

(i)

(a) greater acclaim (F) be-due to\( \rightarrow \) (D) him (G)  
\( \left( \emptyset \right) \)  
\( [\text{greater acclaim is due to him}] \)  
\( [\text{greater acclaim is due him}] \)  

(b) he (G) be-due \( \mathbf{WITH} \rightarrow \) greater acclaim (F)  
\( \hat{\mathcal{O}} \)  
\( [\text{he is due greater acclaim}] \)
A close relative of this particular example can serve to show how an ADVENTEE-specifying nominal which appears in subject position may also be interpreted (alternatively to the account given in section 5.4) as arriving there by retroposition in γ-order:

\[(54)\]

(a) a piece (F) be-missing from\(\gamma\) (D) the puzzle (G) on (δ) me (A)
    
    [*a piece is missing from the puzzle on me]

(b) \(\Rightarrow\) --- be-missing \(\text{OF}\) a piece (F) from\(\gamma\) (D) the puzzle (G)
    on\(\delta\) me (A)

(c) \(\Rightarrow\) I (A) be-missing \(\text{OF}\) a piece (F) from\(\gamma\) (D) the puzzle (G)
    \(\text{∅}\)

    [°I am missing a piece from the puzzle]

While we are in this same set of examples, we can use it to illustrate how pronominalization of a repeated nominal, and then deletion of the prepositional phrase in which the pronominalized form occurs -- this to be termed \textit{meta-deletion} -- take place:
(55)

(a) a piece of the puzzle is missing from the puzzle

by pronominalization, and then meta-deletion, of 1:

* a piece of it is missing from the puzzle
  o a piece is missing from the puzzle

by pronominalization, and then meta-deletion, of 2:

  o a piece of the puzzle is missing from it
  o a piece of the puzzle is missing

(b) the puzzle is missing a piece of the puzzle from the puzzle

by pronominalization of 1 and 2:

* the puzzle is missing a piece of it from it

by meta-deletion of 1:

* the puzzle is missing a piece from it

by meta-deletion of 2:

  o the puzzle is missing a piece of it

by meta-deletion of 1 and 2:

  o the puzzle is missing a piece
(c) I am missing a piece of the puzzle from the puzzle

by pronominalization, and then meta-deletion of 1:

*I I am missing a piece of it from the puzzle

*I I am missing a piece from the puzzle

by pronominalization, and then meta-deletion, of 2:

*I I am missing a piece of the puzzle from it

*O I am missing a piece of the puzzle*

* Similar principles of pronominalization and deletion can be observed for a verb phrase:

(i) *O let whoever wants to go there, go there

by pronominalization, and then deletion, of 1:

*O let whoever wants to do so, go there

*O let whoever wants to, go there

by pronominalization of 2:

*O let whoever wants to go there, do so

With the preceding variety of examples set forth, we can now present in tabular form the particular insertions onto, and confluations involving, the extraposition particle in a non-α-order translatory structure:
(56) \[ \text{with}\] 
\[\text{in}\] 
\[\text{on}\] 
\[\text{a}\] 
\[\emptyset\] 
\[\text{-ADJ}\] 
\[\text{-EN}\] 
\[\text{-LESS}\] 
\[V \ (M) \ \text{WITH}\] 
\[V \ (M) \ \text{WITH} \ N \ (F)\]
10.42 ...in Motion Translatory Structures taking *WITH*

We now turn to examples of motion translatory structures as these derive through the α-, β-, and γ-orders, taking *WITH* in extraposition. We start with an English example for which the extraposition particle *WITH* keys in the vadic preposition *with*. The less-than-colloquial word *suffuse* has been selected as the verb for this first example because more colloquial words, as will be seen later, do not participate in as full a paradigm of acceptable sentences.

(57)

(a) perfume (F) MOVE (M) [THROUGH (D) <′MANNER′] suffuse

through> (D) the air (G)

[perfume (slowly) suffused through the air]

(b) --- MOVE (M) [THROUGH (D) <′MANNER′] WITH> perfume (F)

it suffuse with

through> (D) the air (G)

[*it (slowly) suffused with perfume through the air]

(c) the air (G) MOVE (M) [THROUGH (D) <′MANNER′] WITH> perfume (F)

suffuse with

[the air (slowly) suffused with perfume]

It should be noted that, in α-order, a structure containing *suffuse* can also undergo transitivization (i.e., deletion of the DIRECTIONAL prepositional):
(58)

(a) perfume (F) MOVE (M) \textless \text{THROUGH} (D) \textless \text{MANNER}' suffuse through\textgreater (D) the air (G) \emptyset

[perfume (slowly) suffused the air]

Such a sentence will be termed a \textit{transitivised} \(\alpha\)-order structure and, introducing an additional symbolism, will be said to be in '\(\alpha_t\)-order'.

* These terms can now, of course, be retroactively applied to such previously-seen sentences as

he walked the pier (in 30 minutes)

and the Russian original of

'the satellite circum-flew the earth (in 3 hours)'.

We now consider an example much like that with \textit{suffuse} but for which the \(\gamma\)-order structure additionally may transitivize -- i.e., the extraposition particle \textit{WITH} here has the option of deleting so that the extraposed FIGURAL nominal comes to stand as direct object to the verb. Such a form, here occurring in (59c2), will be termed a \textit{transitivized} \(\gamma\)-order structure and will be said to be in '\(\gamma_t\)-order'.

* These same terms can now be retroactively applied to the homologous locative translatory structures, as already exemplified by

the puzzle is missing a piece
(59)

(a) hot water (F) MOVE (M) \textless{}FORTH (D) \textless{}'MANNER'

\underline{spout}

from (D) the fissure (G)

[hot water spouted from the fissure]

(b) \implies{} --- MOVE (M) \textless{}FORTH (D) \textless{}'MANNER' WITH> hot water (F)

\underline{spout}

from (D) the fissure (G)

(c_1) \implies{} the fissure (G) MOVE (M) \textless{}FORTH (D) \textless{}'MANNER'

\underline{spout}

WITH> hot water (F)

with

[%the fissure spouted with hot water; compare the Yiddish:

\text{"der \text{"spalt \text{"sprit mit heyse vaser"]}

(c_2) \implies{} the fissure (G) MOVE (M) \textless{}FORTH (D) \textless{}'MANNER'

\underline{spout}

WITH> hot water (F)

\emptyset{}

[the fissure spouted hot water (from it)]

An example similar to that with spout but for which the \gamma{}-order structure must transitivize appears in (60):
(60)

(a)  \( \text{dust (F) MOVE (M) } \langle \text{INTO-ACCUMULATION (Dg) over (D) the ledger (G)} \rangle \) accumulate

\[
\text{[dust accumulated over the ledger]}
\]

(b) \( \Rightarrow \cdots \langle \text{MOVE (M) INTO-ACCUMULATION (Dg) WITH dust (F)} \rangle \) accumulate

\[
\text{over (D) the ledger (G)}
\]

(c) \( \Rightarrow \text{the ledger (G) MOVE (M) INTO-ACCUMULATION (Dg) WITH dust (F)} \) accumulate

\[
\text{\( \emptyset \) [the ledger accumulated dust (over it)]}
\]

Continuing now to illustrate the range of derivational courses that an extraposed FIGURAL nominal and its particle can take, we present the example in (61) for which the extraposition particle is WITH, but where this, the extraposed FIGURAL nominal, and the MOTIVE expression all conflate to yield a single surface verb. [This verb has additional DIRECTIONAL and GROUND expressions conflated within it, but for simplicity these are only indicated as 'MANNER']: 
(61)

(a) **BLOOD (F)** → **MOVE (M)** <FORTH (D) Ṣ'MANNER' come, flow

    from> (D) the nose (G) of> (D') him (G') his nose

*blood is coming out of / flowing from his nose; there's blood coming out of / flowing from his nose*

(b) → --- **MOVE (M)** <FORTH (D) Ṣ'MANNER' WITH> BLOOD (F) bleed

    from> (D) the nose (G) of> (D') him (G') his nose

*it is bleeding from his nose*

(c₁) → the nose (G) of> (D') him (G')

    **MOVE (M)** <FORTH (D) Ṣ'MANNER' WITH> BLOOD (F) bleed

*his nose is bleeding*

(c₂) → he (G') **MOVE (M)** <FORTH (D) Ṣ'MANNER' WITH> BLOOD (F) bleed

    from> (D) the nose (G)

*he is bleeding from the nose*

This particular example, containing a bathic FIGURAL noun destined for conflation, can form the basis for illustrating multiple specification. If, in the α-order structure in (61a), the FIGURE is multiply specified by the pair of concurrent nominals
BLOOD (F)...,

a green ichor

and, to make the example workable, the end portion is changed to

...from> (D) the wounds (G) of> (D') the Martlan (G'),

then two different post-α structures may be derived. In the one, only
the bathic noun extraposes, the vadic nominal remaining to fill the
subject position:

a green ichor (F) MOVE (M) <FORTH (D) 'MANNER' WITH> BLOOD (F)...

Refining our previous treatment of this stage, we now assume that the
extraposition particle and the extrapos ed noun, as a unitary phrase,
assatellite to the verb before conflation -- now understood as an
operation performed simply on the verb complex:

a green ichor (F) MOVE (M) <FORTH (D) 'MANNER' [WITH> BLOOD (F)]...

bleed

This particular structure, which may be said to be in 'αβ -order', then
gives rise to the sentence

a green ichor bled from the Martlan's wounds.

In the post-α structure derived by the other route, both of the concurrent
FIGURAL expressions extrapose:
--- MOVE (M)  "FORTH" (D)  "'MANNER'" WITH BLOOD (F) ...

WITH a green ichor

Such a structure may be said to be in 'ββ-order'. Assatellation of the bathic extrapoosed phrase now leaves the vadic one standing along in extrapositional location:

--- MOVE (M)  "FORTH" (D)  "'MANNER'"  "[WITH BLOOD (F)]" WITH bleed with,Ø

a green ichor (F) ...

With the retroposition of, alternatively, the GROUND and the second-GROUND expressions, the following γ-order and γt-order sentences result:

the Martian's wounds bled (with) a green ichor

the Martian bled (with) a green ichor from his wounds.

In the light of the 'bleed' examples, it can be seen that the treatment in Part I of the FM verb rain was a simplification, now to be understood as involving extraposition and an extraposition particle:

α : RAIN (F) MOVE (M) into> (D) the bedroom (G)

β : --- MOVE (M) WITH> RAIN (F) into> (D) the bedroom (G)

⇒⇒ MOVE (M) "[WITH> RAIN (F)]" into> (D) the bedroom (G) it rain

With the FIGURE multiply specified by a concurrent vadic nominal, the same two types of post-α structure as described in the 'bleed' case can be derived:
αβ: blood rained onto the land
ββ: it rained (with) blood onto the land.*

* It can be argued that even when there is just the bathic FIGURAL noun, it is only a copy of this which is involved in conflation, the original either remaining in subject position and then pronominalizing or extraposing and then meta-deleting. These deep processes can be represented in prose-effect form for the 'rain' case as:

\[
\text{rain rained into the bedroom}
\]

\[
\text{it}
\]

\[
\text{it rained (with) rain into the bedroom,}
\]

\[
\emptyset
\]

and similarly for the 'bleed' case as

\[
\text{he bled (with) blood from his nose.}
\]

\[
\emptyset
\]

The so-called 'cognate object' of traditional grammar (which should have also discussed a 'cognate subject' for sentences like rain rained down onto the land) can here be accounted for simply by the non-deletion of the original FIGURAL noun.

Another verb which derives like bleed is shine, as illustrated in the following three sketches:

(62)

\[
\text{αα: LIGHT (F) MOVE (M) THROUGH (D) my window (G)}
\]

\[
\text{the sunlight}
\]

\[
\text{αβ: the sunlight (F) MOVE (M) [WITH LIGHT (F)]}
\]

\[
\text{shine}
\]

\[
\text{THROUGH (D) my window (G)}
\]

\[
\text{through}
\]

\[
\text{[the sunlight is shining through my window]}
\]
(63)

αα: \( \text{LIGHT} (F) \ \text{MOVE} (M) \ \langle \text{FORTH} (D) \ \text{FROM} \rangle (D) \ \text{the sun} (G) \)

light

αβ: \( \text{light} (F) \ \text{MOVE} (M) \ \langle \text{FORTH} (D) \ \langle [\text{WITH}] \ \text{LIGHT} (F) \rangle \rangle \)

\[ \text{shine} \]

\( \langle \text{FORTH} \rangle (D) \ \text{the sun} (G) \)

from

[\( \times \text{light is shining from the sun} \)]

(64)

α: \( \text{LIGHT} (F) \ \text{MOVE} (M) \ \langle \text{FORTH} (D) \ \text{FROM} \rangle (D) \ \text{the sun} (G) \)

γ: \( \text{the sun} (G) \ \text{MOVE} (M) \ \langle \text{FORTH} (D) \ \langle [\text{WITH}] \ \text{LIGHT} (F) \rangle \rangle \)

\[ \text{shine} \]

[\( \text{the sun is shining} \)]

We now consider the circumstance where a motion translatory structure is embedded in an effective matrix. *

* In these considerations, the BY-clause will, for simplicity, be of that minimally-specific sort -- i.e., something like

\[ \text{BY} \ (\text{the 'AGENT's')}_e \ \text{ACTING ON the 'FIGURE' WITH SOMETHING (I)} \]

which leaves no trace at the surface.

While still embedded as a distinct constituent, the translatory structure may remain in \( \alpha \)-order or derive to \( \beta \)- or \( \gamma \)-order. After the EFFECT-TO derivation, whatever nominal had been in subject position in front of the autic verb comes to be in direct-object position after the effected
verb, and the AGENT-specifying nominal now occupies the subject position; the derived effective structure which results will now correspondingly be said to be in \(\alpha'\), \(\beta'\), or \(\gamma'\)-order. We now illustrate this process for the 'suffuse' example:
(64)

(a) I (A) EFFECT (p) TO> (δ) it (sτ), that

perfume (F) suffuse (MDm) through> (D) the air (G)

⇒ I (A) ∈suffuse (p δ MDm) > perfume (F) through> (D) the air (G)

[I suffused perfume through the air] (α'-order)

(b) I (A) EFFECT (p) TO> (δ) it (sτ), that

(it) suffuse (MDm) with> perfume (F) through> (D) the air (G)

⇒ I (A) ∈suffuse (p δ MDm) > (it) with> perfume (F) through> (D)

the air (G)

[*I suffused (it) with perfume through the air] (β'-order)

(c) I (A) EFFECT (p) TO> (δ) it (sτ), that

the air (G) suffuse (MDm) with> perfume (F)

⇒ I (A) ∈suffuse (p δ MDm) > the air (G) with> perfume (F)

[I suffused the air with perfume] (γ'-order)

It can be noted here that a transitivized autic structure is in principle unable, at least in English, to undergo the EFFECT-TO derivation, since if this happened there would result a structure with two direct objects in a row. This is to say, using our system of symbols, that for structures in α_t- or γ_t-order, there are no corresponding structures in α_t'- or γ_t'-order; these latter two symbols
in fact have no acceptable reference. The lack of an effective correspondent for $\alpha_t$-order can be illustrated with our previous 'suffuse' example:

(65) I (A) EFFECT TO it, that perfume (F) suffuse $\rightarrow$ the air (G)

$\implies$ I (A) e suffuse $\rightarrow$ perfume (F) $\rightarrow$ the air (G)

[*I suffused perfume the air]

The lack of an effective correspondent for $\gamma_t$-order would be best illustrated with our previous 'spout' example except that this verb cannot occur in any effective structures altogether. We accordingly switch to the similar verb squirt, which has no such restriction. Thus, this verb's regular autic $\alpha$-order form

water squirted from the syringe

has an effective $\alpha'$-order correspondent

I squirted water from the syringe,

but its autic, transitivized $\gamma_t$-order form

the syringe squirted water (from it)

has no effective $\gamma_t'$-order correspondent:

*I squirted the syringe water (from it).

The verb bleed, used earlier to exemplify the type of
translatory structure which conflates the *MOVE verb and the extraposed FIGURAL nominal, cannot be used to exemplify such a structure embedded in an effective matrix (*I bled him from the nose). Accordingly, we switch to another verb:

\[ (66) \]
\[
\alpha': \quad \text{I EFFECT TO} \to \text{it, that}
\]
\[
\quad \text{a CORK} \quad \text{MOVE} \langle \text{in into} \rangle \text{the bottle}
\]
\[
\quad \text{a balsa plug}
\]
\[
\alpha'': \quad \text{I EFFECT TO} \to \text{it, that}
\]
\[
\quad \text{a balsa plug } \text{MOVE} \langle \text{in } \langle \text{with a CORK} \rangle \text{ into the bottle} \quad \text{cork} \rangle
\]
\[
\to \quad \text{I} \quad \text{cork} \quad \text{a balsa plug into the bottle}
\]
\[
\quad \text{[*I corked a balsa plug into the bottle]}
\]
\[
\gamma': \quad \text{I EFFECT TO} \to \text{it, that}
\]
\[
\quad \text{the bottle } \text{MOVE} \langle \text{in } \langle \text{WITH a CORK} \rangle \text{ WITH a balsa plug} \quad \text{cork} \quad \text{with} \rangle
\]
\[
\to \quad \text{I} \quad \text{cork} \quad \text{the bottle with a balsa plug}
\]
\[
\quad \text{[I corked the bottle with a balsa plug]}
\]

We now present in tabular form for a number of examples the various structural orders which they can (and cannot) derive into. For each example we show what the structure is (or would be, if one existed) for \(\alpha-\) and \(\gamma-\)order, and for the effective correspondents of
these, i.e., $a'$- and $\gamma'$-order. Each example, as it happens, also has an existent structure for one or the other of the transitivized $\alpha_t$- and $\gamma_t$-orders, and this is also shown; of course, no effective correspondent of this is possible, and none is shown. It can be seen by looking at the table why suffuse was first selected to represent the examples which introduce WITH in extraposition: none of the other verbs participate in as great a number of structural orders.

(67)

(a) $\alpha$: perfume suffused through the air  
$\alpha_t$: perfume suffused the air  
$\gamma$: the air suffused with perfume  
$\alpha'$: I suffused perfume through the air  
$\gamma'$: I suffused the air with perfume

(b) $\alpha$: mud splashed all over her dress  
$\alpha_t$: mud splashed her dress  
$\ast \gamma$: her dress splashed with mud  
$\alpha'$: I splashed mud all over her dress  
$\gamma'$: I splashed her dress with mud

(c) $\alpha$: a thorn stuck into my finger  
$\alpha_t$: a thorn stuck my finger  
$\ast \gamma$: my finger stuck with a thorn  
$\alpha'$: I stuck a thorn into my finger  
$\gamma'$: I stuck my finger with a thorn

(slowly can be inserted in these sentences to aid the reading)

(when I drove by can be appended to these sentences to aid the reading)

(as I brushed past the bush can be appended to these sentences to aid the reading)
(d) $\alpha$: a twig poked into my back

$\alpha_t$: *a twig poked my back

$\gamma$: *my back poked with a twig

$\alpha'$: she poked a twig into my back

$\gamma'$: she poked my back with a twig

(e) $\alpha$: *the needle pierced through her earlobe

$\alpha_t$: the needle pierced her earlobe

$\gamma$: *her earlobe pierced with the needle

$\alpha'$: *he pierced the needle through her earlobe

$\gamma'$: he pierced her earlobe with the needle

(f) $\alpha$: hailstones pelted against the window

$\alpha_t$: hailstones pelted the window

$\gamma$: *the window pelted with hailstones

$\alpha'$: *the kids pelted stones against the window

$\gamma'$: the kids pelted the window with stones

(g) $\alpha$: *a ball hit into the man

$\alpha_t$: a ball hit the man

$\gamma$: *the man hit with a ball

$\alpha'$: *the kid hit a ball into the man

$\gamma'$: the kid hit the man with a ball

(steadily...during

the storm can be

added to the first

three sentences to

aid the reading)
(h) $^\alpha$: *water filled into the tub
$\alpha_t$: water filled the tub
$\gamma$: the tub filled with water
$^\alpha'$: *I filled water into the tub
$\gamma'$: I filled the tub with water

(soon can be inserted in these sentences to aid the reading)

(i) $^\alpha$: *sand covered over the plaque
$\alpha_t$: sand covered the plaque
$^\gamma$: *the plaque covered with sand
$^\alpha'$: *I covered sand over the plaque
$\gamma'$: I covered the plaque with sand

(gradually can be inserted in these sentences to aid the reading)

(j) $\alpha$: water squirted from the syringe
$\gamma$: *the syringe squirted with water
$\gamma_t$: the syringe squirted water (from it)
$\alpha'$: I squirted water from the syringe
$^\gamma'$: *I squirted the syringe with water

(k) $^\alpha\beta$: a green ichor bled from his wounds
$\gamma$: his wounds bled with a green ichor
$\gamma_t$: his wounds bled a green ichor

$^\alpha\beta'$: *I bled a green ichor from his wounds
$^\gamma'$: *I bled his wounds with a green ichor*
It may be noticed from these examples that there is a close relation between the two structural orders which have the G nominal as direct object, i.e., between \( \alpha_t \) and \( \gamma' \). In particular, a verb which has an \( \alpha_t \) structure also has a \( \gamma' \) structure even though it lacks a \( \gamma \) structure.

As the above example sets attest, modern English is not very rich in acceptable \( \beta \)-order structures. So far only the marginal

\[
\text{it rained with blood onto the land}
\]

has been adduced to exemplify this order for the autic motion case. Sentences containing \emph{pound} can additionally be adduced to exemplify this order for the effective motion case:

(68)

\[
\begin{align*}
\alpha: & \quad \text{xmy shoe pounded on the table} \\
\alpha_t: & \quad \text{xmy shoe pounded the table} \\
\beta: & \quad \text{*it pounded with my shoe on the table} \\
& \quad \text{*it pounded on the table with my shoe} \\
\gamma: & \quad \text{*the table pounded with my shoe} \\
\alpha': & \quad \text{I pounded my shoe on the table} \\
\beta': & \quad \text{I pounded \{it\} with my shoe on the table} \\
& \quad \text{I pounded \{it\} on the table with my shoe} \\
\gamma': & \quad \text{I pounded the table with my shoe}
\end{align*}
\]

(possible in the right context)
It can now be seen that the sentences containing *swing* which were used in Part I fit neatly in the paradigm of structural orders which has been developed thus far. In particular, the sentences used in Part I are the \( \alpha^- \), \( \alpha'^- \), and \( \beta'^- \)-order structures now shown tabularly in their proper paradigmatic locations in (69); the 'WITH-phrase' of Part I is now of course seen as the extraposed FIGURAL nominal and its extra-position particle.

(69)

\[
\begin{align*}
\alpha & : \text{ the boy's arm swung into the aerial} \\
*\alpha_t & : \text{*the boy's arm swung the aerial} \\
*\beta & : \text{*it swung with the boy's arm into the aerial} \\
& \quad \text{*it swung into the aerial with the boy's arm} \\
*\gamma & : \text{*the aerial swung with the boy's arm} \\
\alpha' & : \text{ the boy swung his arm into the aerial} \\
\beta' & : \text{ the boy swung [it] with his arm into the aerial} \\
& \quad \text{the boy swung [it] into the aerial with his arm} \\
*\gamma' & : \text{*the boy swung the aerial with his arm}
\end{align*}
\]

It may be recalled that some of the verbs we have dealt with above have a D satellite inherently conflated into them. For example, *suffuse* has <THROUGH(OUT)> incorporated within it. By virtue of being thus incorporated, such a D satellite is, so to speak, tucked out of the way and does not enter into any syntactic intricacies. There is also a way for an English D satellite to be overt, i.e., not incorporated,
and still be tucked out of the way: viz., when it is a prefixed satellite, syntactically cognate with German's 'inseparable prefixes'. There are few good examples to draw on for illustration here, but one which may serve, with some marginalities, involves the verb *overgrow*:

(70) [in these sentences, 'it' may be taken to refer to *the terrace*]

\[
\begin{align*}
*\alpha: & \text{ ivy grew } <over- \over> \text{ it} & \text{[ivy overgrew over it]} \\
\alpha_t: & \text{ ivy grew } <over- \over> \text{ it} & \text{[ivy overgrew it]} \\
\gamma: & \text{ it grew } <over- \with> \text{ ivy} & \text{[it overgrew with ivy]} \\
*\alpha': & \text{ I grew } <over- \over> \text{ ivy over it} & \text{[I overgrew ivy over it]} \\
\gamma': & \text{ I grew } <over- \over> \text{ it with ivy} & \text{[I overgrew it with ivy]}
\end{align*}
\]

Syntactic complexities are encountered when we come to the case where the D satellite is overt and postposed, syntactically cognate with German's 'separable prefixes', as illustrated in (71) with *run through*. In this case, it either happens that the D satellite and the D preposition conflate to give a D satellite-preposition, as in the \(\alpha\) and \(\alpha'\) sentences of (71), or that a deletion of the D preposition takes place, thereby rendering the G nominal a direct object and, when this is a pronoun, forcing the D satellite to the right of it, as in the \(\alpha_t\) and \(\gamma'\) sentences of (71). Furthermore, it can be seen that an extra derivational step is necessary for the \(\alpha'\) sentence. By the EFFECT-TO derivation, the old subject nominal *my sword* becomes the direct object of the verb-complex, but then the D satellite in that complex must
move out of it, being 'attracted' rightwards to the D preposition, with which it conflates to yield the D satellite-preposition:

(71)

\[ \alpha: \text{my sword ran } \underline{\text{through through}} \text{ him} \]

\[ \text{through} \]

\[ [\text{my sword ran through him}] \]

\[ \alpha_t: \text{my sword ran } \underline{\text{through through}} \text{ him } \beta \]

\[ [\text{my sword ran him through}] \]

\[ ^* \gamma: \text{he ran } \underline{\text{through with}} \text{ my sword} \]

\[ [*\text{he ran through with my sword}] \]

\[ \alpha': \text{I ran } \underline{\text{through }} \text{ my sword } \underline{\text{through}} \text{ him} \]

\[ \rightarrow \text{I ran } \underline{\text{through }} \text{ my sword } \underline{\text{through}} \text{ him } \underline{\text{through}} \]

\[ [\text{I ran my sword through him}] \]

\[ \gamma': \text{I ran } \underline{\text{through }} \text{ him } \underline{\text{with}} \text{ my sword} \]

\[ [\text{I ran him through with my sword}] \]

This particular verb-complex, \textit{run through}, happens also to have an acceptable \( \beta' \) form. That is, on the basis of the unacceptable \( \beta \) form:
\[
\beta: \quad \text{--- ran } \underline{\text{through}} \underline{\text{through}} \text{ him with } \text{ my sword}
\]

\[
\text{it through}
\]

\[
[* \text{it ran through him with my sword}]
\]

there derives:

\[
\beta': \quad \text{I e ran } \underline{\text{through}} \underline{\text{ > --- through}} \text{ him with } \text{ my sword}
\]

\[
\rightarrow \text{ I e ran } \underline{\text{ > --- through}} \underline{\text{ through}} \text{ him with } \text{ my sword}
\]

\[
[I \text{ ran through him with my sword}].
\]

Two additional examples which behave like \text{run through} are \text{run over} and \text{paint over}, as shown in (72) and (73):

(72)

\[
\alpha: \quad \text{a truck ran } \acute{o} \text{ver him}
\]

\[
\alpha_t: \quad \text{a truck ran him } \acute{o} \text{ver}
\]

\[
*\gamma: \quad *\text{he ran } \acute{o} \text{ver with a truck}
\]

\[
\alpha': \quad \text{the mobster ran a truck over him}^*
\]

\[
\beta': \quad \text{the mobster ran } \acute{o} \text{ver him with a truck}
\]

\[
\gamma': \quad \text{the mobster ran him } \acute{o} \text{ver with a truck}
\]

(73)  \[\text{[in these sentences, 'it' may be taken to refer to the old design]}\]

\[
\alpha*: \quad \text{I painted a new design over it}^*
\]

\[
\beta*: \quad \text{I painted } \acute{o} \text{ver it with a new design}
\]

\[
\gamma*: \quad \text{I painted it } \acute{o} \text{ver with a new design}
\]
* Since, in these α' sentences, the over is likely to lose primary stress to the nominal preceding it, it is not easily recognized as a satellite-preposition, i.e., as ⟨over⟩; however, if the preceding nominal is pronominalized, stress stays on the over:

the mobster ran it over him
I painted one over it.

The perhaps most noteworthy aspect, vis-à-vis English, of the run through, run over, and paint over paradigms is that in the forms which have deleted the D preposition (with the GROUND nominal becoming the direct object) -- viz., the αₜ- and γ'-orders -- there remains a D satellite which overtly specifies the DIRECTIONAL. In most English paradigms, there is no such D satellite at the surface. However, one may be hypothesized to be present at a deeper level -- whether as a copy of a D satellite (to be) incorporated in a lexical verb or as the sole bearer of DIRECTIONAL information -- and then to delete. Thus, for many of the verbs in (67), the αₜ and γ' forms shown can be hypothesized to derive from deeper forms containing a D satellite:

(74)

(a) \( \alphaₜ: \) *perfume suffused it through(out) ('it' = the room)  
    \( \gamma': \) *I suffused it through(out) with perfume

(b) \( \alphaₜ: \) *mud splashed it over ('it' = her dress)  
    \( \gamma': \) *I splashed it over with mud
(74) 

(c) \( \alpha_t: \quad \ast \text{a thorn stuck it in} \quad (\text{'it' = my finger}) \)

\( \gamma': \quad \ast \text{I stuck it in with a thorn} \)

(d) \( \alpha_t: \quad \ast \text{a twig poked it in} \quad (\text{'it' = my back}) \)

\( \gamma': \quad \ast \text{she poked it in with a twig} \)

(e) \( \alpha_t: \quad \ast \text{the needle pierced it through} \quad (\text{'it' = her earlobe}) \)

\( \gamma': \quad \ast \text{he pierced it through with the needle} \)

Just as we devised in (15) the D preposition, and thence the D satellite, \text{alength} to appear in the deep form

\( \alpha_t: \quad \ast \text{he walked the pier alength} \quad (\text{in 5 minutes}) \)

and then to delete for the surface form

\( \alpha_t: \quad \text{he walked the pier} \quad (\text{in 5 minutes}) \)

so we now devise the D preposition and satellite \text{alide}, meaning 'into collision (with)', to appear in the deep forms of (67f and g):

(74) [continued]

(f) \( \alpha_t: \quad \ast \text{hailstones pelted it alide} \quad (\text{'it' = the window}) \)

\( \gamma': \quad \ast \text{the kids pelted it alide with stones} \)

(g) \( \alpha_t: \quad \ast \text{a ball hit him alide} \quad (\text{'him' = the man}) \)

\( \gamma': \quad \ast \text{the kid hit him alide with a ball,} \)
and then to delete for the surface forms. And, of course, as will be discussed later, the verb in (67h), \textit{fill}, as in the case of \textit{run through}, \textit{does} have a D satellite at the surface as well as hypothetically at a deeper level:

(74) [continued]

(h) $\alpha_t$: \textit{water filled it full} \hspace{1cm} ('it' = the tub)

$\gamma'$: I filled it \underline{full} with water \hspace{1cm} \underline{full-of}

In the structural orders we have been discussing -- in particular in $\gamma'$-order -- it is of particular interest when a single lexical verb can take several different overt D satellites. Where such a circumstance holds for the $\gamma'$ forms, there is as much flexibility as, say, English has with its $\alpha'$ forms by using different D prepositions while keeping the MOTIVE+MANNER-specifying verb constant -- rather than the inflexibility of having to switch to a new MOTION+DIRECTIONAL+MANNER-specifying verbal conflate for every shift of DIRECTIONAL notion. Unfortunately, English is poor in such a system for its $\gamma'$ form. In order to illustrate as much of a system as English does have, e.g., with the MOTIVE+MANNER-specifying verbs \textit{lay} and \textit{set}, we have to present largely marginal forms and then resort to hypothetical forms to flesh out the range:

(75) [all forms are $\gamma'$:]

I inlaid it with silver
I overlaid it with silver
I underlaid it with silver
(75) *I circumlaid it with silver
    *I interlaid them with silver

(76) [all forms are γ':]
    *I set it in with gems
    *I set it over with gems
    *I set it under with gems
    I set it around with gems about
    *I set them between with gems

Some other languages, however, do have a living system of γ' structures taking a range of D satellites. This is illustrated for Russian in (77), where a single verb-root -- with a basic meaning renderable as 'to stick (a pointed object)' -- is shown taking three different D satellites in a set of γ' sentences (curiously, a Russian verb-root cannot acceptably take the satellite υ-, 'in', in a γ' sentence, but such a sentence is shown anyway for comparative purposes). Below each translated Russian sentence is given first a syntactically homologous English sentence -- i.e., a γ' structure with the verb stick taking a D satellite -- which is instructive for the purpose of comparison but is unacceptable, and then an acceptable English sentence which contains a distinct lexical verb with an incorporated D satellite:
(77)

(a) *ya votknul mužčinu nožom
I in-stuck the man (acc) a knife (instr)

*I stuck the man in with a knife
I stabbed the man with a knife

(b) ya protknul mužčinu štykom
I through-stuck the man (acc) a bayonet (instr)

*I stuck the man through with a bayonet
I pierced the man with a bayonet

(c) ya obtykal gr'adku kol'yami
I circum-stuck the flower bed (acc) pales (instr)

*I stuck the flower bed around with pales
I staked the flower bed with pales

(d) *ya istykál dosku gvozd'ami
I throughout-stuck the board (acc) nails (instr)

*I stuck the board all over with nails
I studded the board with nails

Notice that while English, lacking a flexible $\gamma' + D$ satellite system, must in the $\gamma'$ sentences of (77) resort to four different lexical verbs, it can, having a flexible $\alpha' + D$ preposition (or satellite-preposition) system, keep the single verb stick in the four corresponding $\alpha'$ sentences:
(78)  
(a) I stuck a knife into the man  
(b) I stuck a bayonet through the man  
(c) I stuck (in) pales around the flower bed  
(d) I stuck (in) nails all over the board* 

* To be more accurate, it must be noted that stick, like its Russian correspondent, is actually an FMDG verb whose meaning can be represented as 'for a pointed linear object to move axially into yielding material', and which therefore has the D satellite IN inherently incorporated within it. Accordingly, the sentence in (78c), for one, must be understood as derived from a temporal structure something like  

(i) it, that pales MOVED to around the flower bed 

    OCCURred GNIRUD 

    it, that SHARPLINOBJ MOVED AXIALLY INTO YIELDMAT 

    [the pales] stuck (in) [the flower bed] 

Thus, the most prominent D preposition in (78c), viz., around, actually arises from the matrix translatory structure in (i), not from the one leading to the stick verb; the same can be said about the origin of the D satellite ob- in the Russian γ' sentence in (77c). 

Yiddish has the same flexible system as Russian, additionally including the D satellite meaning 'in'. Moreover, for this and certain other DIRECTIONAL notions, Yiddish gives the D satellite distinct phonological forms when it appears in an α' sentence vs. in the corresponding γ' sentence:
(79)

\[ \alpha': \; \text{ix hob arayn-geštoxn a špilke in dem man} \\
\quad \text{I stuck-in a pin into the man} \]

\[ \gamma': \; \text{ix hob ayn-geštoxn dem man mit a špilke} \\
\quad \text{I stuck-in the man with a pin} \]
10.43 ...in Motion Translatory Structures taking \textit{OF}

All the motion translatory structures we have dealt with so far have introduced the extraposition particle \textit{WITH} in their non-\(\alpha\)-orders. We now turn to structures which introduce \textit{OF}. The general rule governing the choice is that 1) where the DIRECTIONAL prepositional in the underlying motion-structure [as shown in (1)] is \textit{TO}, \textit{POR}, \textit{ALONG}, or \textit{ALength}, the extraposition particle is regularly \textit{WITH}, and 2) where the DIRECTIONAL prepositional is \textit{FROM}, the extraposition particle is regularly \textit{OF}.*

* Translatory structures (i.e., structures built from a motion/location plus a spatial structure) which contain the DIRECTIONAL expression \textit{FORTH FROM}, as illustrated earlier by sentences with the verbs \textit{spout}, \textit{squirt}, and \textit{bleed}, constitute a special category: they differ from other \textit{FROM}-containing structures in introducing \textit{WITH} in extraposition and they differ from other \textit{WITH}-introducing structures in having a \(\gamma_t\) form rather than an \(\alpha_t\) form.

For a first illustration, we consider an example where the \textit{OF} keys in the vadic preposition \textit{of}. In this example, the FIGURAL expression, which contains the repeated nominal \textit{his veins}, goes through something like the following derivation when occupying the subject position in the \(\alpha\)-order structure, \((80a)\):

\begin{align*}
\text{the blood that was in his veins} & \quad \text{(by relative clause reduction)} \\
\text{the blood in his veins} & \quad \text{(by pronominalization)} \\
\text{the blood in them} & \quad \text{(by meta-deletion)} \\
\text{the blood} & \quad \text{(by meta-deletion)}. 
\end{align*}
and goes through something like the following derivation when occupying the prepositional-object position in the γ-order structure, (80c):

the blood that was in his veins
the blood in his veins (by relative clause reduction)
the blood in them (by pronominalization)
their blood (by 'possessivization'):

(80)

(a) \[ \text{the blood in his veins (F) MOVE (M) } \langle \text{OUT (D)} \rangle \langle \text{MANNER'} \rangle \]

\[ \text{drain from } (D) \text{ his veins (G)} \]

[the blood (slowly) drained from his veins]

(b) \[ \text{it MOVE (M) } \langle \text{OUT (D)} \rangle \langle \text{MANNER'} \rangle \]

\[ \text{drain OF } \text{the blood in his veins (F)} \]

\[ \text{of from } (D) \text{ his veins (G)} \]

[*it (slowly) drained of [the] blood from his veins]

(c) \[ \text{his veins (G) MOVE (M) } \langle \text{OUT (D)} \rangle \langle \text{MANNER'} \rangle \]

\[ \text{drain OF } \text{the blood in his veins (F)} \]

\[ \text{of their blood} \]

[his veins (slowly) drained of their blood]

The effective formations for this example are derived as in (81):
(81)

(a) I (A) EFFECT (ρ) TO (δ) it (s_τ), that

the blood (F) drain (MDm) from> (D) his veins (G)

⇒ I (A) e drain (ρ&MDm) > the blood (F) from> (D) his veins (G)

[I drained the blood from his veins]

(b) I (A) EFFECT (ρ) TO> (δ) it (s_τ), that

(it) drain (MDm) of> blood (F) from> (D) his veins (G)

⇒ I (A) e drain (ρ&MDm) > (it) of> blood (F)

from> (D) his veins (G)

[*I drained (it) of blood from his veins]

(c) I (A) EFFECT (ρ) TO> (δ) it (s_τ), that

his veins (G) drain (MDm) of> their blood (F)

⇒ I (A) e drain (ρ&MDm) > his veins (G) of> their blood (F)

[I drained his veins of their blood]

Another example, involving the verb clear, is much like that
with drain, as is shown in tabular form in (82):

(82)

α: the smoke cleared from the room

γ: the room cleared of the smoke (that was in it)

α': I cleared the smoke from the room

γ': I cleared the room of the smoke (that was in it)
A number of verbs are like the preceding ones except in having only effective forms; two such (which enter into metaphoric extensions from purely physical motion/location) are *sap* and *strip*:

(83)

\[ \alpha' : \text{worry (gradually) sapped his strength from him} \]
\[ \gamma' : \text{worry (gradually)sapped him of his strength} \]

(84)

\[ \alpha' : \text{I stripped his rank from him} \]
\[ \gamma' : \text{I stripped him of his rank} \]

There is another verb which is much like *sap* and *strip* except that it has different phonological shapes -- i.e., it has suppletive surface forms -- for the different structural-orders. To wit, it has *steal* for the \( \alpha' \) -- i.e., the non-extrapositional -- structure, and *rob* for the \( \gamma' \) -- i.e., the extrapositional -- structure. A possible mechanism by which the right suppletive form can be inserted would be for the extraposition transformation to leave a marker in the verb-complex. This marker can be represented by the symbol \( '\bar{\alpha} \) standing for 'non-\( \alpha \)', i.e., for 'extrapositional'. (Once instituted, this marker-introduction would presumably take place automatically, even when irrelevant for constant-shape verbs). The verb-complex which keys in the *steal/rob* verb contains a MANNER satellite shown in (85) as *BY-THEFT*; it also contains a DIRECTIONAL satellite shown as *FROM-POSSESSION*, representing that portion of the DIRECTIONAL prepositional which has assatellated; onto the verb-complex which does not
additionally have the marker 'ā', then is inserted steal, and onto the one which does, is inserted rob:

(85)

\[ \alpha': \quad I (A) \quad MOVE (M) \quad \langle BY-THEFT \rangle (m) \quad \langle FROM-POSSESSION \rangle (D) \quad \overbrace{\mathrm{steal}}^{\text{steal}} \]

\[ > \text{all his money (F)} \quad \langle \text{FROM-the-POSSESSION-OF} \rangle (D) \quad \text{him (G)} \quad \underbrace{\text{from}}_{\text{from}} \]

[I stole all his money from him]

\[ \gamma': \quad I (A) \quad MOVE (M) \quad \langle BY-THEFT \rangle (m) \quad \langle FROM-POSSESSION \rangle (D) \quad \overbrace{\overline{\alpha}}^{\text{rob}} \]

\[ > \text{him (G)} \quad \langle \text{OF} \rangle \quad \text{all his money (F)} \quad \underbrace{\text{of}}_{\text{of}} \]

[I robbed him of all his money]*

* -- Note that the approximately synonymous slang verb rip off has only this single form:

I ripped off all his money from him
I ripped him off of all his money

-- Another instance where the presence or absence of 'ā' must be recognized by the insertion transformation for the right lexical verb to be keyed in is with emanate/emit:

\[ \alpha: \quad \text{light} \quad MOVE \quad \langle FORTH \rangle \quad \langle FROM \rangle \quad \text{the sun} \quad \overbrace{\mathrm{emanate}}^{\text{emanate}} \quad \underbrace{\text{from}}_{\text{from}} \]

[light emanated from the sun]
\[\gamma_t: \text{the sun } \overset{\text{MOVE}}{\overset{\text{FORTH}}{\overset{\alpha}{\text{WITH}}}} \text{ light emit } \emptyset\]

[the sun emitted light]

As the verb bleed was earlier used to exemplify a structure which, in the non-\(\alpha\)-orders, introduces WITH and conflates a bathic FIGURAL noun with the MOVE verb, so dry can be used to exemplify an OF-introducing structure with the same conflational properties, as sketched in (86); the new D satellite FREE which appears here will be treated later.

(86)

\[\alpha: \text{the LIQUID (F) MOVE (M) } \langle\text{BY-EVAPORATION (m) } \langle\text{FREE (D) FROM} (D) \text{ the board (G)}\rangle\]

\[\left[\text{*the LIQUID } \begin{cases} \text{evaporated free} \\ \text{came free by evaporation} \end{cases} \text{ from the board}\right]\]

\[\beta: \quad \text{--- MOVE (M) } \langle\text{BY-EVAPORATION (m) } \langle\text{FREE (D) OF} \text{ LIQUID (F)}\rangle\]

\[\implies \text{MOVE (M) } \langle\text{BY-EVAPORATION (m) } \langle\text{FREE (D) } \langle\text{OF} \text{ LIQUID (F)}\rangle\rangle\text{ dry FROM} (D) \text{ the board (G)}\]

\[\left[\text{*it dried from the board}\right]\]

\[\gamma: \text{the board (G) MOVE (M) } \langle\text{BY-EVAPORATION (m) } \langle\text{FREE (D) } \langle\text{OF} \text{ LIQUID (F)}\rangle\rangle\text{ dry}\]

[the board (slowly) dried (in the sun)]
When the FIGURE is multiply specified by two expressions, the derivation in (86) yields sentences like those in (87):

(87)

\[
\begin{align*}
\alpha & : \quad \text{*the LIQUID (slowly) evaporated free from the board} \\
& \quad \text{the dew} \\
\alpha \beta & : \quad \text{the dew (slowly) dried from the board} \\
\beta & : \quad \text{*it (slowly) dried of dew from the board} \\
\gamma & : \quad \text{*the board (slowly) dried of the dew (that was on it)}
\end{align*}
\]

English structures which take OF in extraposition can appear with several different D satellites in \(\gamma\) - or \(\gamma'\)-order, perhaps more readily so than those structures taking WITH (for which our best example was I set it about/in with gems). This is illustrated with the verb wash (wipe works just as well) for the D satellites off in (88) and out in (89):
(88)  
\[\alpha: \text{the dirt washed (right) off my face}\]  
\[\gamma: \text{xmy face washed (right) off of the dirt (that was on it)}\]  
\[\quad \text{--xmy face washed (right) off*}\]  
\[\alpha': \text{I washed the dirt off my face}\]  
\[\gamma': \text{xI washed my face off of the dirt (that was on it)}\]  
\[\quad \text{-- I washed my face off*}\]  

(89)  
\[\alpha: \text{the dirt washed (right) out of the bowl}\]  
\[\gamma: \text{xthe bowl washed (right) out of the dirt (that was in it)}\]  
\[\quad \text{-- the bowl washed (right) out*}\]  
\[\alpha': \text{I washed the dirt out of the bowl}\]  
\[\gamma': \text{xI washed the bowl out of the dirt (that was in it)}\]  
\[\quad \text{-- I washed the bowl out*}\]  

* The \(\alpha\)-order structure underlying these sentences may be assumed to have a bathic FIGURAL noun like \textit{MATERIAL}. Thus, these sentences derive from the immediately underlying \(\gamma\) and \(\gamma'\) structures by meta-deletion of the extrapositional phrase \textit{OF} > \textit{MATERIAL}.  

A still larger range of D satellite variation can be demonstrated for structures containing the FIGURAL-noun-incorporating verb \textit{dry}. Such structures, in addition to appearing with the D satellite \textit{FREE} alone, can further appear with the choice of either \textit{OFF} or \textit{OUT}. Thus (to illustrate only for those structural orders which yield acceptable
sentences), beside an as form like that in (87), e.g.,

the dew dried from the board
the moisture dried from the blanket

(as if from ...dried free from...) can now be compared

the dew dried off of the board
the moisture dried out of the blanket,

and beside a γ form like that in (86), e.g.,

the board dried
the blanket

(as if from ...dried free) can be compared

the board dried off
the blanket dried out.

These last γ forms were autic; the parallel effective case can be illustrated with the verb dust. Thus, beside

I dusted the table
I dusted the bowl

(as if from *I dusted the table/bowl free) can be compared

I dusted the table off
I dusted the bowl out.
Presenting some background now for the D satellite \textit{FREE}, we introduce the spatial structure (not treated earlier)

(90) \text{[a POINT] IS OF the ASSOCIATE-SPACE OF [a PLANE, a SPHERE],}

where \text{ASSOCIATE-SPACE} is intended to specify a topological notion neutral to the distinctions of those specified by \text{SURFACE} and \text{INSIDE (-SPACE)}. When this spatial structure is in construction with the FROM-containing motion/location structure, something like the following derivation takes place for the combined DIRECTIONAL expression [compare the derivations in (4)]:

(91)

(a) FROM a POINT which IS OF the ASSOCIATE-SPACE OF
(b) FROM a POINT OF the ASSOCIATE-SPACE OF
(c) FROM a POINT BY
(d) FROM BY
(e) FROM FREE
(f) FREE FROM

For English, by assatellation from the (f)-stage form, there derives \text{\langle FREE FROM\rangle}, a DIRECTIONAL expression which is again intended to be neutral to the specificational-distinctions of both \text{\langle off-of\rangle} and \text{\langle out-of\rangle}, i.e., to specify in effect a general 'ablative' DIRECTIONAL. Under a range of syntactic circumstances, the bathic D satellite \textit{FREE} can be variously involved in the surface appearance of the D satellites \textit{\langle free and \langle un- and of the MD verbs remove and free, as illustrated in (92):}
(92)

(a)  [autic:]
\[ \alpha: \quad \text{the plug MOVE } \underline{\text{FREE FROM}} \text{ the bottle} \]
\[ \quad \underline{\text{free from}} \]

[the plug came free from the bottle]

\[ \gamma: \quad \text{the bottle MOVE } \underline{\text{FREE } \alpha \text{ OF}} \text{ its plug} \]
\[ \quad \underline{\text{free OF}} \]

[\text{xthe bottle came free of its plug}]

(b)  [effective:]
\[ \alpha': \quad I \underline{\text{MOVE FREE remove,free FROM}} \text{ the bottle} \]
\[ \quad \underline{\text{from}} \]

[I removed the plug from the bottle]
[I freed the plug from the bottle]

\[ \gamma: \quad I \underline{\text{MOVE FREE } \alpha \text{ OF}} \text{ its plug} \]
\[ \quad \underline{\text{free of}} \]

[I freed the bottle of its plug]
(c) [autic, with the FIGURE multiply-specified:]

\[\alpha\alpha: \text{the CORK MOVE \langle FREE FROM\rangle the bottle}\]
\[\alpha\beta: \text{the plug MOVE \langle FREE OF the CORK FROM\rangle the bottle}\]
\[\quad \rightarrow \text{the plug un- MOVE \langle[OF the CORK] FROM\rangle the bottle}\]
\[\quad \quad \quad \quad \quad \text{cork FROM}\]
\[\quad [\times\text{the plug uncorked from the bottle}]\]

\[\gamma: \text{the bottle MOVE \langle FREE \langle\alpha OF \rangle its CORK}\]
\[\quad \quad \quad \quad \quad \text{un- \langle OF its plug\rangle}\]
\[\quad \rightarrow \text{the bottle un- MOVE \langle[OF its CORK] (OF its plug)\rangle}\]
\[\quad \quad \text{cork (of}\]
\[\quad [\times\text{the bottle uncorked (*of its plug)}]\]
(92)

(d) [effective, with the FIGURE multiply-specified:]

\[ \alpha' : \overset{\alpha}{\text{e\_MOVE}} \langle \text{FREE} \rangle \overset{\gamma}{\to} \text{the CORK FROM} \overset{\delta}{\to} \text{the bottle} \]

\[ \alpha' : \overset{\alpha}{\text{e\_MOVE}} \langle \text{FREE} \rangle \overset{\gamma}{\to} \text{the plug OF} \overset{\delta}{\to} \text{the CORK FROM} \overset{\epsilon}{\to} \text{the bottle} \]

\[ \Rightarrow \overset{\alpha}{\text{e\_MOVE}} \langle \text{OF} \rangle \overset{\gamma}{\to} \text{the CORK} \overset{\delta}{\to} \text{the plug FROM} \overset{\epsilon}{\to} \text{the bottle} \]

[I uncorked the plug from the bottle]

\[ \gamma' : \overset{\alpha}{\text{e\_MOVE}} \langle \text{FREE} \rangle \overset{\gamma}{\to} \text{the bottle OF its CORK} \]

\[ \Rightarrow \overset{\alpha}{\text{e\_MOVE}} \langle \text{OF} \rangle \overset{\gamma}{\to} \text{its CORK} \overset{\delta}{\to} \text{its plug OF} \]

[I uncorked the bottle ("of its plug")]

*Actually, the neat paradigm for FREE set forth in these derivations, though suggestive, is not wholly accurate as it stands. The general ablative specification we intend for FREE -- that is to say, its out-of/off-of neutrality -- is indeed represented in the verb remove:

I removed the ball from the box
I took the ball out of the box
I removed the dish from the table
I took the dish off of the table

and in the prefixal satellite un-:
I uncorked the bottle
   I took the cork out of the bottle
I unyoked the oxen
   I took the yoke off of the oxen

And it is also represented in the verb *free* and in the postposed satellite *free*:

   I freed the stump from the soil
   I pulled the stump free from the soil
   I pulled the stump out of the soil
I freed the mussel from the rock
I pulled the mussel free from the rock
   I pulled the mussel off of the rock.

However, the latter two forms additionally incorporate the notion of 'counter-resistantly out of attachment' [in this regard, *<free* is like *<loose*, as in

   she pulled her skirt loose from the door (that had shut on it)]

The verb *pit* as in *I pitted the cherry*, has syntactic underpinnings parallel to those of the verb complex *uncork*, as in *I uncorked the bottle* -- i.e., it contains elements specifying both a FIGURE and the ablative DIRECTIONAL. However, it incorporates the element specifying the latter notion rather than having it as a satellite, as sketched in (93):
(93)

(a) [with a vadic FIGURAL nominal:]

\[ \alpha': \text{ I } \underbrace{\text{e-MOVE <FREE } > \text{ the pit FROM} } \text{ the cherry} \]
\[
\underbrace{\text{remove}}_{\text{from}}
\]

[I removed the pit from the cherry]

\[ \gamma': \text{ I } \underbrace{\text{e-MOVE <FREE } <_{\alpha} } \text{ > the cherry } OF \text{ its pit}} \]
\[
\underbrace{\text{free}}_{\text{of}}
\]

[I freed the cherry of its pit]

(b) [with a bathic FIGURAL noun:]

\[ \gamma': \text{ I } \underbrace{\text{e-MOVE <FREE } > \text{ the cherry OF} } \text{ its PIT} \]
\[
\rightarrow \text{ I } \underbrace{\text{e-MOVE <FREE } [OF} \text{ its PIT]} \text{ > the cherry } \underbrace{\text{pit}}_{\text{pit}}
\]

[I pitted the cherry]

If the verb *pit did not incorporate the ablative satellite \(<_{\text{FREE}}, \text{ English speakers perhaps might have to say}

*I pitted the cherry free

or *I unpitted the cherry.

Similarly, if there were not the verbs *dust and *dry, as encountered earlier, one might have to say

*I undusted the table

and *I unmoistured the board.
Other verbs which behave like these three in incorporating specifications both for FIGURE and for 'ablative' are shown in (94):

(94)

I pitted the cherry  I husked the corn
I boned the chicken  I shelled the peas
I cored the apple  I peeled the orange
I skinned the bear  I dusted the table
I seeded the grapes  I scalped the white man
I gutted the deer  I weeded the garden
I pantsed the initiate*

* It may be noted that the spatial structure in (90), when in construction with the TO-containing motion/location structure, i.e.,

TO a POINT which IS OF the ASSOCIATE-SPACE OF,

may be considered to specify a general allative DIRECTIONAL. This then derives into a D expression representable as (BY TO) (the correspondent of (FREE FROM)) which is neutral to the specificational distinctions of (into), (onto), and (all-over). The (BY) satellite then either becomes incorporated in the verb:

I corked the bottle
    I put a cork into the bottle
I tagged the suitcase
    I put a tag on (into attachment to) the suitcase
I varnished the cabinet
    I put varnish all over the cabinet,

or it keys in the vadic satellite <be->, an alternative so marginal in English (though frequent enough in other languages, e.g., German) that beside the perhaps single workable example:
I bemired the wares
I put mire all over the wares,

one can only adduce suggestive, but hypothetical forms:

*I becorked the bottle
*I betagged the suitcase
*I bevarnished the cabinet
10.44 ... in Location Translatory Structures with D Satellites

Assatellation from the DIRECTIONAL expression, yielding a D satellite (independent and/or incorporated in the verb), was seen for all the motion translatory structures discussed in 10.42 and 10.43 but for none of the location ones in 10.41. We now return to the latter structures to illustrate the process, beginning with an example where the D satellite remains independent (i.e., does not conflate):

(95)

(a) [an $\alpha$-order locative $S_T$:

\[
\text{the roof beams hung \underline{ABOVE} the terrace over}
\]

[the roof beams hung (out) over the terrace]

(b) [---after assatellation:]

\[
\rightarrow \text{the roof beams hung \underline{ABOVE} \underline{ABOVE} the terrace over- over}
\]

[*the roof beams overhung over the terrace]

(c) [---after transitivization (hence, an $\alpha_t$ form):]

\[
\rightarrow \text{the roof beams hung \underline{ABOVE} \underline{ABOVE} the terrace over- } \emptyset
\]

[the roof beams overhung the terrace]
This same derivation is exemplified again in (96) and (97), but here the D satellite conlates with the MOTIVE verb. In most previous locative S T's, the FIGURE has been one whose topological idealization could be specified by a POINT, and the MOTIVE could correspondingly be specified by BE L. In (96), the FIGURE is now better specified by an EXTENT, and the locative MOTIVE by EXTEND. In (97), the FIGURE is better specified by POINTS; the locative MOTIVE should be specified by a distinct bathic verb, but since there is no suitably suggestive English vadic verb by which to represent this, BE L will be used here too:

(96)
(a) the bridge EXTEND \underline{ACROSS} the river
    \underline{across}

    [the bridge extended across the river]

(b) \implies the bridge EXTEND \underline{\langle ACROSS \rangle ACROSS} the river
    \underline{span across}

    [*the bridge spanned across the river]

(c) \implies the bridge EXTEND \underline{\langle ACROSS \rangle ACROSS} the river
    \underline{span} \emptyset

    [the bridge spanned the river]
(97)
(a) trees BE airl around the cabin
     (all) around

[^trees were all around the cabin; compare:
  othere were trees all around the cabin]

(b) \rightarrow trees BE airl airl around the cabin
     surround (all) around

[^trees surrounded all around the cabin]

(c) \rightarrow trees BE airl airl around the cabin
     surround Ø

[trees surrounded the cabin]

This last example also has a \( γ \) form:

(98) the cabin was surrounded with trees,*

but it is not clear how best to derive this.

* This is not the passive of (97c), which would have by instead of with:

the cabin was surrounded by trees.

One possibility is to assume that the DIRECTIONAL expression in the
\( α \) structure is to retain something of its original nature as a
prepositional complex up until the assatellation transformation,
which would then assatellate a copy of the first portion of the complex, that is, a preposition+noun phrase. This possibility is more easily demonstrated for a verb akin to *surround*:

\[\text{trees } BE_{L} \langle[IN\ CIRCLE]\ IN-CIRCLE-OF\rangle \text{ the cabin.}\]

\[\text{circle } \emptyset\]

[trees circled the cabin]

In the \(\gamma\)-order structure, the assatellated phrase can then be assumed capable of some of the same derivational options as an extrapositional phrase. For example, the preposition in the phrase might key in the particle \(\alpha\)-, as in the non-existent but suggestive form

\[\text{the cabin } BE_{L} \langle[IN\ CIRCLE]\ WITH\rangle \text{ trees}\]

\[\text{\(\alpha\)- circle with}\]

[*the cabin was acircle with trees].

Or, it might key in the particle \(-EN\), as in the marginal form:

\[\text{the cabin } BE_{L} \langle[IN\ CIRCLE]\ WITH\rangle \text{ trees}\]

\[\text{-EN circle with}\]

[*the cabin was circled with trees].

It is by a form like this, then, that the 'be surrounded with' sentence in (98) might be account for.

Similar to *surround* is *cover* which arises from a DIRECTIONAL expression whose derivation is now shown in some detail:
(99)
(a) [POINTS] $BE_L$ AT ALL POINTS OF the SURFACE OF $>$ [a PLANE]
(b) $\implies$ AT ALL POINTS ON
(c) $\implies$ AT ALL ON
(d) $\implies$ AT ALL OVER
(e) $\implies$ ALL OVER

It can be noticed that this derivation is similar to that for on in (4B), the most noteworthy difference being the step from (c) to (d), where on changes to OVER. An example of a locative translatory structure containing this DIRECTIONAL expression is shown in (100):

(100)
(a) sand $BE_L$ ALL-OVER$>$ the floor
     (all) over

     [$\times$ sand was all over the floor; compare:
      $^o$there was sand all over the floor]
(b) sand $BE_L$ <ALL-OVER ALL-OVER> the floor
     cover (all) over

     [$\times$sand covered all over the floor]
(c) sand $BE_L$ <ALL-OVER ALL-OVER> the floor
     cover $\emptyset$

     [sand covered the floor]
(d) the floor BE \underline{ALL-OVER} \underline{WITH} sand
    -EN COVER with

[the floor was covered with sand]

(compare the impossible, but instructive:

*the floor was acover with sand)

Working very much like cover is fill. The DIRECTIONAL expression from which this arises is derived as shown in (101):

(101)

(a) [POINTS] BE \underline{AT ALL POINTS OF the INSIDE OF} \underline{> [a SPHERE]}
(b) \rightarrow \underline{AT ALL POINT IN}
(c) \rightarrow \underline{AT ALL IN}
(d) \rightarrow \underline{AT ALL FULL}
(e) \rightarrow \underline{ALL FULL}

It should be noted that although English has the preposition over for the DIRECTIONAL notion of 'covering':

there was sand all over the floor,

it lacks a corresponding preposition for the DIRECTIONAL notion of 'filling':

*there was water all in the tub.
    all full
Except for this lacuna, the paradigm of structures involving the
**ALL-FULL** prepositional is the same as that involving the **ALL-OVER**
prepositional; indeed, there is one additional derivational option
for the $\gamma$ structure:

(102)

(a)  water $\text{BE}_L \ \underline{\underline{\text{ALL-FULL}}} \ \text{the tub}$

      $\text{xxx}$

[*water was all in/all full the tub;
  *there was water all in/all full the tub]*

(b)  water $\text{BE}_L \underline{\underline{\text{ALL-FULL}}} \ \underline{\underline{\text{ALL-FULL}}} \ \text{the tub}$

      $\text{fill} \ \ \text{xxx}$

[*water filled all in/all full the tub]*

(c)  water $\text{BE}_L \underline{\underline{\text{ALL-FULL}}} \underline{\underline{\text{ALL-FULL}}} \ \text{the tub}$

      $\text{fill} \ \ \emptyset$

[water filled the tub]

(d$_1$) the tub $\text{BE}_L \underline{\underline{\text{ALL-FULL}}} \ \underline{\underline{\text{WITH}}} \ \text{water}$

      $\text{EN FILL} \ \text{with}$

[the tub was filled with water]

(d$_2$) the tub $\text{BE}_L \underline{\underline{\text{ALL-FULL}}} \ \underline{\underline{\text{WITH}}} \ \text{water}$

      $\text{full} \ \ \text{with}

      $\text{full-of}$

[the tub was full of water; compare the Yiddish:}
The two locative DIRECTIONALs we have just dealt with also have allative motion correspondents:

TO ALL POINTS OF the SURFACE OF $\rightarrow \rightarrow$ ALL-OVER$_T$ $\rightarrow$

TO ALL POINTS OF the INSIDE OF $\rightarrow \rightarrow$ ALL-FULL$_T$ $\rightarrow$

We illustrate the second of these in a set of structures where a copy of the DIRECTIONAL expression assatellites to the MOVE verb and then conflates with it:

(103)

$\alpha$: water $\underline{\text{MOVE}}$ $\underline{\text{<ALL-FULL}_T \text{ ALL-FULL}_T \text{ >}}$ the tub

$\underline{\text{fill}}$ $\underline{\text{xxx}}$

[*WATER (slowly) filled into the tub]

$\alpha'_t$: water $\underline{\text{MOVE}}$ $\underline{\text{<ALL-FULL}_T \text{ ALL-FULL}_T \text{ >}}$ the tub

$\underline{\text{fill}}$ $\underline{\text{}}$

[waters (slowly) filled the tub]

$\gamma$: the tub $\underline{\text{MOVE}}$ $\underline{\text{<ALL-FULL}_T \text{ WITH} \text{ >}}$ water

$\underline{\text{fill}}$ $\underline{\text{with}}$

[the tub (slowly) filled with water]

$\alpha'$: I $\underline{\text{MOVE}}$ $\underline{\text{<ALL-FULL}_T \text{ >}}$ water $\underline{\text{ALL-FULL}_T \text{ >}}$ the tub

$\underline{\text{fill}}$ $\underline{\text{xxx}}$

[*I filled water all into the tub]
\[\gamma': \quad I \_\text{move} \langle \text{ALL-FULL} \rangle \quad \text{fill} \quad \text{with} \quad \text{the tub} \quad \text{WITH} \quad \text{water}\]

[I filled the tub with water]

The same DIRECTIONAL expression can be illustrated in another set of structures (only effective ones, here) where a copy again assatellates to the \textit{move} verb but, this time, keys in the vadic satellite \textit{full} instead of conflating; \textit{move} here conflates with a MANNER expression:

\[\alpha': \quad I \_\text{pour} \langle \text{ALL-full} \rangle \quad \text{fill} \quad \text{with} \quad \text{the glass} \quad \text{WITH} \quad \text{water}\]

[*I poured water full into the glass]

\[\gamma': \quad I \_\text{pour} \langle \text{ALL-FULL} \rangle \quad \text{the glass} \quad \text{WITH} \quad \text{water}\]

\[\rightarrow I \_\text{pour} \quad \text{the glass} \quad \langle \text{ALL-FULL} \quad \text{WITH} \quad \text{water} \quad \text{full} \quad \text{with} \quad \text{full-of}\]

[I poured the glass full of water]

or, where the \textit{figure} is generic, permitting meta-deletion of the \textit{figural} noun:

\[\gamma': \quad I \_\text{pour} \langle \text{ALL-FULL} \rangle \quad \text{the glass} \quad \text{WITH} \quad \text{MATERIAL} \quad \emptyset\]

[I poured the glass full]
Derivational processes similar to those just seen for locative translatory structures can also be observed for structures which specify a cognitive or emotive situation. Although the way in which such structures may or may not be semantically related to translatory structures -- particularly in regard to homologies for FIGURE, GROUND, etc. -- is at this stage by no means clear, they can be used to illustrate our syntactic point. Thus, e.g., in an emotive structure which appears to be homologous with a locative α-order translatory structure containing a prepositional complex:

(105) physics BE WITH-INTEREST-TO> me,

the first two constituents of the complex -- which together constitute a prepositional+nominal phrase -- can participate in a range of derivations similar to that for the extrapositional phrase:

(106)

α-order:

(a) physics BE WITH> INTEREST to> me
   of interest

   [physics is of (some) interest to me]

(b) physics BE WITH> INTEREST to> me
   -ADJ
   INTEREST -ADJ
   interesting

   [physics is interesting to me]
(c) physics \<\text{\textsc{with}}\> \text{interest} \to me
\text{interest}

[*physics interests to me]*

\(\alpha_t\)-order:

(d) physics \<\text{\textsc{with}}\> \text{interest} \to me
\text{interest} \emptyset

[physics interest me]

Although the (c) derivational form in (106) is impossible for \textsc{interest},
it can be seen for another emotive noun:

(107)
\(\alpha\)-order

(a) her future \<\text{\textsc{with}}\> \text{import} \to me
\text{of importance}

[her future is of importance to me]

(b) her future \<\text{\textsc{with}}\> \text{import} \to me
\text{-adj}
\text{import -adj}
\text{important}

[her future is important to me]

(c) her future \<\text{\textsc{with}}\> \text{import} \to me
\text{matter}

[her future matters to me]
The emotive structure with \textit{interest} is also capable of deriving into what appears the homolog of a location $\gamma$-order structure, wherein the special prepositional+nominal phrase (\textit{with} $\gamma$-order) again participates in derivations similar to those for the extrapositional phrase. This $\gamma$ structure also contains a real extrapositional phrase (\textit{with} \textit{physics}, in the present example), again with the particle \textit{with}:

(106) [continued]

$\gamma$-order:

(e) \hspace{1cm} \textit{I be with} $\gamma$-order $\gamma$-order
\hspace{1cm} \textit{in physics}
\hspace{1cm} \textit{interested}
\hspace{1cm} \textit{interested}

[I am interested in physics]

(f) \hspace{1cm} \textit{I be with} $\gamma$-order $\gamma$-order
\hspace{1cm} \textit{have physics}
\hspace{1cm} \textit{in}

[I have (some) interest in physics]

Here in (e) and (f), the extraposition particle has keyed in the preposition \textit{in}, but there are several other possibilities:

(108)

in: physics is interesting to me
    I am interested in physics

with: this piece is familiar to me
     I am familiar with this piece
with: the play was boring to me
       I was bored with the play
at:    her decision was surprising to me
       I was surprised at her decision
about/ over his ill health concerned me
       I was concerned about/over his ill health
of:    such trifles are tiring to me
       I am tired of such trifles

[these last two sentences are not quite a semantic match
and should perhaps be considered to involve two
different emotive nouns, TIRE₁ and TIRE₂]
10.5 Types of Verbal Conflation

In this paper it has been seen how one or a combination of the expression-types from within a translatory structure -- viz., those specifying FIGURE, DIRECTIONAL, and GROUND -- can move into adjunction and then conflate with the MOTIVE verb. The same process has been seen for an expression-type from outside the translatory structure -- viz., what has been called the 'MANNER expression'. In this section we look in somewhat greater detail -- though still very sketchily -- at this latter expression: its sources, types, and conflational processes.

The conditions for 'MANNER' conflation are present when at the underlying level there is a complex structure whose leftmost embedding is a translatory structure; the structure embedded at the right is then the source of the MANNER expression. The complex structure seems always to be either a causative structure -- for which the rightmost embedding is, as seen earlier, an adative structure that later derives into a FROM-clause -- or a temporal structure -- for which the rightmost embedding will now be termed a co-structure, this later deriving into a co-clause. In conceiving the syntactic arrangement thus, we intend that all semantic specification of translatory motion/location in fact be localized within the translatory structure on the left, and none in the adative or co-structure on the right. The extent to which this specificatory separation is achievable will be examined for each example presented below.

Beginning the survey with temporal structures, we note that the co-structure therein can be of several types. One of these is the positional structure (to be treated more fully later), e.g.,
containing the verb *float*, as can be exemplified by

the craft floated (was afloat) on a cushion of air.

When this is in construction with a translatory structure, something like the following derivation -- the like of which has already been seen several times earlier in the text -- takes place:

(109)

(a) it, that the craft $\text{MOVED}$ into the hangar,

\[\text{OCCURRED GNIRUD} \]

it, that the craft floated on a cushion of air

(b) $\implies$ the craft $\text{MOVED}$ into the hangar ELIHW floating on a cushion of air

(c) $\implies$ the craft $\text{MOVED} \langle\text{ELIHW-floating}\rangle$ into the hangar

\[\text{floated on a cushion of air} \]

(d) $\implies$ the craft floated into the hangar on a cushion of air

Here, the positional structure specifies a situational circumstance -- viz., the buoyancy relation between the craft and the cushion of air -- which exists independently of the motion specified by the translatory structure. It might also be noted that the final phrase in (109d), *on a cushion of air*, can only belong with *float*, and its presence at the end of the sentence offers a kind of dramatic evidence that *float* has indeed moved to, rather than arisen in, its main-verb location.

The sentence representing the positional-structure was of course
purposely chosen to evidence such a discontinuity at the surface, and as far as possible a similar choice of sentence will be made to represent the other types of co-structure shown below.

The next such type we proceed to is the locative indiscrete (i.e., specifying a 'SHAPE') self-referencing translatory structure, as exemplified by

\[
\text{the water (f) BE}_L (M) \text{ in-drops-of (D) itself (g)} \\
\implies \text{the water is in (the form of) drops.}
\]

When this is in construction with a translatory structure, there derives a sentence with an FM/fMDg verb (as was treated in section 9 for a motional but not a locative SR structure), as shown more fully in (110) and in sketch form in (111):

(110)

(a) \text{it, that the water MOVEd into the sink} \\
\text{OCCURred GNIRUD} \\
\text{it, that the water WAS}_L \text{ in drops}

(b) \implies \text{the water}_o \text{MOVEd into the sink ELIHW BE}_L \text{ing in drops}

(c) \implies \text{the water}_o \text{MOVEd \llbracket \text{ELIHW-BE}_L \text{ing-in-drops} \rrbracket} \text{ into the sink} \\
\text{dripped}

(d) \implies \text{the water dripped into the sink}
(111)

(a) the water \textsc{moved} into the sink, in drops

(b) $\implies$ the water \underline{\textsc{moved}} \underline{\textsc{[in drops]}} into the sink
    \underline{\textsc{dripped}}

(c) $\implies$ the water dripped into the sink

A specificatory separation again holds here: the dispositional state
of the water, as specified by the co-clause, is independent of its
motion, as specified by the translatory structure.

As seen earlier in the text -- in fact, using the same example --
a motional indiscrete self-referencing translatory structure like

\begin{align*}
\text{the frond (f) \textsc{move}d (M) TO-a COIL-OF (D) itself (g)}
\end{align*}

$\implies$ the frond coiled (up)

can construct with a translatory structure, again producing a sentence
with an FM/fMDg verb, presentable in sketch form as

\begin{align*}
\text{the frond \textsc{move}d into its sheath, coiling (up)}
\end{align*}

$\implies$ the frond coiled (up) into its sheath.

Here, the specificatory-separation is not complete, since the translatory
motion and the self-referencing motion are not wholly independent of each
other, but are to a certain extent coordinated. In particular, in order
for the frond to move into its sheath, it must be the top end which
curls down towards the basal end, and not some other form of curling.
How such specificatory coordination may be accounted for is not resolved
here.

Two further types of co-structure -- kin to the preceding type in specifying motion which is 'self-contained' (able to go on indefinitely] without [extended] translation), if not self-referencing (because requiring reference to a rectilinear framework or to objects outside its own moving object) -- are the oscillatory (-motion) structure and the rotary (-motion) structure. The former of these, as exemplified by

the ball bounced (up and down) [on the pavement]

can construct with and then conflate into a translatory structure, as in the following sketch:

the ball MOVEd down the hall, bouncing (up and down)  
\[\Rightarrow\] the ball bounced down the hall.

The latter of the structures, as exemplified by

the log rolled (around and around) [in the water]

can also construct and conflate with a translatory structure:

the log MOVEd down the hill, rolling (around and around)  
\[\Rightarrow\] the log rolled down the hill.

In the former example, there is good specificatory-separation between the co-clause and the main clause by virtue of the fact that the oscillatory motion takes place in a different dimension (the vertical)
than the translatory motion does (the horizontal). To a certain extent, a similar separation is present for a similar reason in the latter example. Nevertheless, some specificatory-coordination is evident here between the co-clause and the main clause; in particular, the rotary motion must be clockwise if the translatory motion is to the right, and it must take place at just the rate at which no slippage occurs.

The problem with specificatory-separation is particularly acute for a type of co-event which cannot take place by itself but only in conjunction with translation, and hence for a type of co-structure which cannot appear by itself but only in construction with a translatory structure. Such a co-structure, e.g., is one specifying the notion of 'sliding', as can appear in a temporal structure derived as follows:

\[
\text{the box MOVEd down the incline, sliding on its side} \quad \rightarrow \quad \text{the box slid down the incline on its side.}
\]

Separation would be achieved if the verb *slide* could be entered in the lexicon solely with its semantic specifications for characteristics of friction and surface-contact between objects, all specification of translatory motion having been abstracted away (and consigned to its designated specifier, the translatory structure). This is difficult to do for *slide* since, among other reasons, the frictional characteristics it specifies only exist when motion is present, and then only in the directional dimension of that motion. One possible solution is
to consign to *slide* a specification for 'vagile' (wandering) motion -- as if it were to be entered in the lexicon with an inherent meaning something like 'slide about' -- thereby putting it on a par with such 'self-contained' motion verbs as oscillatory *bounce* and rotary *roll*. Another verb for which similar issues as for *slide* are involved is *swing*, as in:

the gate MOVED out, swinging on its rusty hinges

⇒ the gate swung out on its rusty hinges.

Another type of temporal situation than one where an 'extent' co-event goes on during an 'extent' translatory event -- as primarily seen above -- is one where a 'point' co-event occurs at a 'point' translatory event. Furthermore, of the components of the translatory event, the co-event need not be limited to sharing the FIGURE, as seen above, but may additionally or solely share the GROUND. These new possibilities can be exemplified by (112) and (113):

(112) the door MOVED against the jamb with a slam

⇒ the door slammed against the jamb.

(113) the capsule MOVED into the ocean with a splash

⇒ the capsule splashed into the ocean.

In (112), the point co-event of 'slamming' occurs at the point of translatory contact-making between door and jamb, and inherently involves the presence of both those FIGURE and GROUND objects.
In (113), the point co-event of 'splashing' occurs at the point of translatory entry of the capsule into the ocean water, and involves the presence solely of that latter GROUND object.

In a causative structure, the adactive structure has of course been seen in Part I as the source of an expression which moves into the translatory structure to conflate with the \textit{MOVE} verb. A recapitulation of the derivation involved here is sketched in (114), as before for the verb \textit{blow}.

(114)

(a) \quad \textit{it, that the box \textit{MOVED} into the street}
\textit{FOLLOWed FROM}
\textit{it, that a gust of wind \textit{blew} on the box}

(b) \quad \Rightarrow \text{the box } \textit{MOVED} \text{ into the street } \text{FROM a gust of wind blowing on it}

(c) \quad \Rightarrow \text{the box } \textit{MOVED} \langle \text{FROM...blew on it} \rangle \text{ into the street}
\quad \underbrace{\text{blew}} \text{ FROM a gust of wind}

(d) \quad \Rightarrow \text{the box blew into the street from a gust of wind}

The structure in (114), which specifies beginning-point causation, is paralleled by one specifying extent causation:

(115) \quad \text{the box \textit{MOVED} down the alley, FROM the wind blowing on it}
\Rightarrow \text{the box \textit{blew} down the alley from the wind (for 20 seconds).}
Another example of causative verbal conflation involving a different verb from *blow* is seen in (116):

(116) the ball MOVEd out of its socket

\[ \rightarrow \text{the ball pulled out of its socket from the attached spring's excessive force.} \]

The specificatory-separation in this last example -- in particular, the absence from the adactive structure of any specification of translatory motion -- is especially clear. For, the adactive structure can stand alone to yield the acceptable surface sentence

the attached spring pulled on the ball,

in whose specifications there is no implicit presence -- if not an explicit absence -- of motion. Similarly for the previous example, the adactive structure, as taken alone to yield

the wind blew on the box,

does not specify any motion for 'the box'. In the translatory structures, on the other hand, 'the ball' and 'the box' are specified as the moving FIGUREs of their respective translatory events. The surface characteristics of English, moreover, mark a distinction between the no-motion-specifying adactive structures and the motion-specifying post-conflational causative structures. To wit, the former's verbal phrase -- *blow on, pull on* -- contains the preposition *on*, while the latter's -- *blow down, pull out* -- contains a translatory
DIRECTIONAL preposition.

A single translatory structure can of course be in construction with either a co-clause or an adactive clause:

(117)
(a) the box MOVEd across the ice, sliding on its side
    \[\Rightarrow\] the box slid across the ice on its side

    the box MOVEd across the ice from the wind blowing on it
    \[\Rightarrow\] the box blew across the ice from the wind.

But it is particularly interesting when one is in construction with both types of clause at once. In such a circumstance, either one of the clauses can conflate, the other remaining external (as per the Spanish pattern); in some cases, there is the third option that neither clause conflates, both remaining external. For the translatory structure in (118a), which gives rise to the DG satellite <shut (homologous with the DG satellite <home, as discussed in Part I):

(118)
(a) [a PLANE] MOVE TO ACROSS an OPENING
    the door shut

(b) \[\Rightarrow\] the door MOVE shut

(c) \[\Rightarrow\] the door MOVE <shut,

all three options can be observed:
(119)

(a) the door MOVEd shut with a slam from the wind blowing on it

(b₁) → the door slammed shut from the wind blowing on it

(b₂) → the door blew shut from the wind with a slam

(b₃) → the door shut with a slam from the wind blowing on it

Here, in (b₁), the co-phrase *with a slam* has conflated with *MOVE*. In (b₂), a portion of the FROM-clause has conflated with *MOVE*, the rest remaining external (shown before the co-phrase because the other order invites a misreading). And in (b₃), the DG satellite *shut* has conflated with *MOVE* to yield the MDG verb *shut*, thereby taking up the conflational space which might otherwise have been filled by the co-phrase or FROM-clause -- these now being forced to remain external.

All the conflational characteristics seen above for a co-structure and an adactive structure remain when these latter appear in an effective (or 'effective-like': e.g., an adductive) structure. For the case where a co-event is specified, one example of such a structure, taken at a later derivational stage, is

(12)

(a) I EFFECTed TO it,

that the box MOVEd across the ice,

ELIHW (its) sliding on its side.
Two different derivational routes from this structure suggest themselves. By one, the co-clause in the lowest line first conflates with the transulatory structure, and then the whole 'effectivizes':

\[(b_1) \rightarrow I \text{ EFFECTed TO it,} \]
\[\text{that the box slid across the ice on its side}\]

\[(c_1) \rightarrow I \text{ slid the box across the ice on its side.}\]

By the other, effectivization first takes place separately for the two clauses, and then the resultants conflate:

\[(b_2) \rightarrow I \text{ MOVEd the box across the ice} \]
\[\text{ELIHWE sliding it on its side}\]

\[(c_2) \rightarrow I \text{ slid the box across the ice on its side.}\]

For the case where an adactive event is specified, one example of an effective structure, shown partly derived in a manner familiar from Part I, is:

\[(121)\]

(a) \[I \text{ EFFECTed TO it,} \]
\[\text{that the box MOVEd across the ice} \]
\[\text{BY it,} \]
\[\text{that I \text{ pushed on it with my left hand}}\]
(b) \( \implies \) I \( _e \) MOVED the box across the ice
   BY \( _e \) pushing on it with my left hand

(c) \( \implies \) I \( _e \) MOVED \( [\text{BY-} _e \text{pushing-on-it}] \) the box across the ice
   pushed
   with my left hand

(d) \( \implies \) I pushed the box across the ice with my left hand.

It should also be noted that the parallel sentences

I slid the box across the ice
I pushed the box across the ice

can derive equally from structures specifying beginning-point causation
(I stand at the ice's edge and set the box in motion) and from structures
specifying extent causation (I move along with the box).

The surface distinction noted before between the verbal phrase
in an adactive structure and that in a post-conflational causative
structure is particularly evident in the effective case. For, in the
former structure, which does not specify FIGURAL motion, the verbal
phrase contains the preposition \( \text{on} \), while in the latter structure, which
does specify FIGURAL motion, it takes a direct object:

I blew on the ant               I blew the ant off the plate
I pushed on the door            I pushed the door open
I pulled on the door            I pulled the door shut
Additional examples of this phenomenon can be seen for the verb *chop (on)* in the effective structure:

\[ I \text{ moved the tree down BY chopping on it at the base} \]

\[ \rightarrow I \text{ chopped the tree down at the base,} \]

and for the verb *press (on)* in the adductive structure (containing an embedded self-referencing 'SHAPE' structure):

\[ \text{this machine moves hay into bales WITHBY pressing on it} \]

\[ \rightarrow \text{this machine presses hay into bales.} \]

Starting with a particular autic transulatory structure, we will now trace the full route by which the particular relevant lexical verb is keyed in, moves through more complex structures, and conflates. Containing the D preposition *ALIDE* ('into collision with'), which in English keys in any of the prepositions *into, onto, against* (although the devised *alide* will also be used in the formulations below), the transulatory structure in (122a), with three of its four constituents multiply specified, gives rise to the FMDG verb *kick*:
(122)

(a) an ENTITY's FOOT (F) MOVE (M) ALIDE (D) a SURFACE (G)

my left foot alide the wall

(b) \[\rightarrow\] my left foot (F)

[an ENTITY's FOOT (F)] \[\rightarrow\] MOVE (M) \[\leftarrow\] ALIDE (D) \[\leftarrow\] a SURFACE (G)

kick (FMDG)

alide (D) the wall (G)

(c) \[\rightarrow\] my left foot (F) kick (FMDG) alide (D) the wall (G)

\[\left[\text{my left foot kicked into the wall}\right]\]

When this translatory structure is embedded in an effective structure, the whole gives rise to the 'effected verb' \(e\)kick:

(123)

(a) I (A) EFFECT (\(\rho\)) TO (\(\delta\)) it (\(s_\tau\)),

that my left foot (F) kick (FMDG) alide (D) the wall (G)

(BY my WILLing ON my left foot \[\rightarrow\] \(\emptyset\))

(b) \[\rightarrow\] I (A) EFFECT (\(\rho\)) TO (\(\delta\)) kicking (FMDG) my left foot (F)

\(e\)kick (\(\rho\delta\)FMDG)

alide (D) the wall (G)

(c) \[\rightarrow\] I (A) \(e\)kick (\(\rho\delta\)FMDG) my left foot (F) alide (D) the wall (G)

\[\left[\text{I kicked my foot into the wall}\right]\]
The structure in (123c) is in $\alpha'$-order. This is now emplaced in the full paradigm of effective structural orders in (124):

(124)

$\alpha'$:

I (A) $e_k$ick ($\rho \circ FMDG$) my left foot (F) alide (D) the wall (G)

[$^x$I kicked my left foot into the wall]

$\beta'$:

I (A) $e_k$ick ($\rho \circ FMDG$) alide (D) the wall (G) with my left foot (F)

[$^x$I kicked into the wall with my left foot]

$\gamma'$:

I (A) $e_k$ick ($\rho \circ FMDG$) the wall (G) with my left foot (F)

[I kicked the wall with my left foot]

The $\gamma'$ structure in (124) may now be embedded in a second-order effective structure, shown derived in (125) with the functional transvaluations indicated:
(125) 

(a) \[ I \begin{array}{l} (A) \hspace{1cm} \text{EFFECT (} \rho \text{) TO (} \delta \text{) it (} s_\tau \text{),} \\
\hspace{1.5cm} \text{that the ball (} F \text{) MOVE (} M \text{) across (} D \text{) the field (} G \text{)} \\
\hspace{1.5cm} \text{BY it (} s_e \text{),} \\
\text{that I (} A \text{) \underline{e}^\text{kick (} \rho \delta \text{FMDG} \Rightarrow \rho \delta \text{IMDF)} } \\
\hspace{1.5cm} \text{the ball (} G \Rightarrow F \text{) with my left foot (} F \Rightarrow I \text{)} \end{array} \]

(b) \[ \Rightarrow I \begin{array}{l} (A) \hspace{1cm} \text{MOVE (} \rho \delta \text{M) the ball (} F \text{) across (} D \text{) the field (} G \text{)} \\
\hspace{1.5cm} \text{BY \underline{e^\text{kicking (} \rho \delta \text{IMDF)} the ball (} F \text{) with my left foot (} I \text{)} } \end{array} \]

(c) \[ \Rightarrow I \begin{array}{l} (A) \hspace{1cm} \text{MOVE (} \rho \delta \text{M) \left[BY e^\text{kicking (} \rho \delta \text{IMDF)} it (} F \text{)] (} BC \text{)} \\
\hspace{1.5cm} \underline{e^\text{kick (} \rho \delta \text{MBC)}} \end{array} \]

\[ \text{the ball (} F \text{) across (} D \text{) the field (} G \text{) with my left foot (} I \text{)} \]

(d) \[ \Rightarrow I \begin{array}{l} (A) \hspace{1cm} e^\text{kick (} \rho \delta \text{MBC) the ball (} F \text{) across (} D \text{) the field (} G \text{)} \\
\hspace{1.5cm} \text{with my left foot (} I \text{)} \end{array} \]

[I kicked the ball across the field with my left foot]

From the preceding presentation we can extract this point of particular note: the WITH-phrase in a sentence like

I kicked the wall with my left foot

contains the FIGURE-specifying nominal, and that in a sentence like

I kicked the ball across the field with my left foot

contains the INSTRUMENT-specifying nominal.
The verb *hit*, of course, works very much like *kick*, arising in autistic translatory structures like

the hammer hit alike the window.

Thus, in a sentence like

*I hit the window with the hammer,*

*hammer* specifies the FIGURE. However, in a sentence like

*I broke the window with a hammer,*

*hammer* specifies the INSTRUMENT, as can be seen from the immediately-underlying structure

*I broke the window BY: ACTing ON (hitting) it with the hammer.*

It should be noted that a self-referencing translatory 'SHAPE' structure like

*the window MOVED TO a BROKEN-SHAPE OF itself*

\[ \Longrightarrow \text{the window MOVED broken} \]

\[ \Longrightarrow \text{the window broke} \]

does not permit the conflation of its *MOVE* verb with an expression from an adactive structure:

*I hit the window broken with the hammer*

(although I understand that Mandarin does have just such a construction).
In the remainder of this section we present brief notes and sketches relating to additional aspects of verbal conflation. 'Positional structures' can be exemplified by

(126) the craft floated on a cushion of air
the rope hung from a hook
the cabinet stood on a layer of stones
the cabinet lay on a layer of stones
the knife stuck in the wood.

They can appear as the co-structure along with a translatory structure (in a temporal structure). Here, the GROUND nominal of the former is often the same as the GROUND nominal of the latter in form, but these two nominals should in principle not be identified with each other in function. We illustrate the construction in (127) with locative translatory structures; here, the two GROUND nominals have been kept distinct in form:

(127) the craft WAS\_ in the hangar, floating on a cushion of air

$\Rightarrow$ the craft floated in the hangar on a cushion of air.

the rope EXTENDED across the canyon, hanging from two hooks

$\Rightarrow$ the rope hung across the canyon from two hooks

the cabinet WAS\_ in the water, standing on a layer of stones

$\Rightarrow$ the cabinet stood in the water on a layer of stones

the cabinet WAS\_ in the water, lying on a layer of stones

$\Rightarrow$ the cabinet lay in the water on a layer of stones.
The two GROUND nominals make only one appearance between them in a sentence like

\[
\text{the pen WAS}_L \text{ on the table, lying on the table}
\]

\[\rightarrow\] \text{the pen lay on the table.}

The types of translatory structure with which a positional structure can appear in construction is peculiarly limited. Thus, of the positional structures in (126), only the one with float can appear with a motion translatory structure:

(128)

(a) \text{the craft MOVEd into the hangar, floating on a cushion of air}

\[\rightarrow\] \text{the craft floated into the hangar on a cushion of air.}

(b) \text{the pen MOVEd down the incline, lying on it}

\[\rightarrow^*\text{the pen lay down the incline.}

Likewise, if a positional structure is to appear with a structure containing the PUT verb (a form of effected translatory structure), the latter's DIRECTIONAL preposition must be TO:

(129)

(a) \text{I PUT (put) the pen TO ON (on) the table, on which it would lie}

\[\rightarrow\] \text{I laid the pen on the table}

(b) \text{I PUT (took) the pen FROM ON (off) the table, on which it had lain}

\[\rightarrow^*\text{I laid the pen off the table}^*/\text{I unlaid the pen from the table}


(c) I PUT (moved) the pen ALONG ON (along) the table, on which it was lying

*⇒ I laid the pen along the table.

Atsugewi, by contrast with English, does have forms comparable to those in (129)

In some cases, a more adequate account can be given for a set of similar conflations into a translatory structure when this latter is already partly derived and contains a particular verb, e.g., PUT. This is now shown more fully for PUT and for several other such verbs:

(130)

(a) paint COVERed the wall in dots

⇒ paint dotted the wall

the wall was COVERed with paint in dots

⇒ the wall was dotted with paint

(b) dirt COVERed her cheeks in streaks

⇒ dirt streaked her cheeks

her cheeks were COVERed with dirt in streaks

⇒ her cheeks were streaked with dirt

(c) boulders COVERed the field in a strew

⇒ boulders streewed the field

the field was COVERed with boulders in a strew

⇒ the field was strewn with boulders
(a) he WENT to N.Y. by plane  
⇒⇒ he flew to N.Y.

he WENT to N.Y. by ship  
⇒⇒ he sailed to N.Y.

(b) he WENT all the way to N.Y. reading a book  
⇒⇒ he read a book all the way to N.Y.

she WENT to the party wearing a green dress  
⇒⇒ she wore a green dress to the party

(132) I PUT the pen on the table, on which it would lie  
⇒⇒ I laid the pen on the table

I PUT the lamp on the table, on which it would stand  
⇒⇒ I stood the lamp on the table

I PUT the picture up on the wall, on which it would hang  
⇒⇒ I hung the picture up on the wall

I PUT the knife into the wood, in which it would stick  
⇒⇒ I stuck the knife into the wood
Situations which involve state and change of state seem to be organized by the human mind in such a way that they can be specified by structures homologous with translatory structures. We do not now go deeper into this matter, but illustrate it with a few examples. These are shown only in sketch form, without indication of most derivational steps or distinctional niceties. The symbol ' is placed before a MOTIVE verb with the new, generalized sense. We begin by presenting forms for the notion of 'sleep':

(a) he 'BE \_ AT SLEEP
  \underline{a- \_ sleep}
  [he is asleep]

(b) he 'BE \_ AT SLEEP
  \underline{sleep}
  [he is sleeping]

(c) he 'MOVE TO SLEEP
  \underline{go to sleep}
  [he went to sleep]
(d) the baby 'MOVE TO SLEEP, rocking
to sleep

[the baby rocked to sleep]

(e) he 'MOVE TO SLEEP
fall a- sleep

[he fell asleep]

(f) he 'MOVE TO SLEEP
*asleep

[*he aslept; compare the Russian
' on zasnul]

(g) she e 'MOVE him TO SLEEP
put to sleep

[she put him to sleep]

(h) she e 'MOVE the baby TO SLEEP, by rocking him
to sleep

[she rocked the baby to sleep]

(i) she e 'MOVE TO SLEEP him
*asleep

[*she aslept him]
With \textit{WAKE(FULNESS)} in place of \textit{SLEEP}, there do exist English (f) and (i) forms:

\begin{itemize}
  \item she awoke
  \item \textit{I} awoke her.
\end{itemize}

Conflation does not seem possible for the (d) form:

\begin{itemize}
  \item she 'MOVE TO \underline{WAKE}, from the sunlight shining on her face \underline{a-\hspace{0.1cm}waked}
\end{itemize}

\begin{itemize}
  \item [*she shined awake from the sunlight on her face],
\end{itemize}

but it can occur for the (h) form:

\begin{itemize}
  \item I e 'MOVE her TO \underline{WAKE}, by shaking her \underline{a-\hspace{0.1cm}waked}
\end{itemize}

\begin{itemize}
  \item [I shook her awake].
\end{itemize}

With \textit{DEATH} in place of \textit{SLEEP}, one particularly revealing set of forms arises:

\begin{itemize}
  \item (135)
  \item (a) he 'MOVE TO \underline{DEATH}, from choking on a bone \underline{died}
  \item [he died from choking on a bone]
  \item (b) he 'MOVE TO \underline{DEATH}, from choking on a bone \underline{to\hspace{0.1cm}death}
  \item [he choked to death on a bone]
\end{itemize}
(c) I \underline{\text{move to death}} him, by choking him

\underline{kill}

[I killed him by choking him]

(d) I \underline{\text{move to death}} him, by choking him

\underline{to death}

[I choked him to death]

It may be assumed that \underline{move} keys in \underline{become} when \underline{to} keys in

\underline{-adj}:

(136)

(a) the ceiling \underline{\text{move}} \underline{to blackness}

\underline{become} \underline{-adj}

become, grow, etc. \underline{black}

[the ceiling became black]

(b) the ceiling \underline{\text{move to blackness}}

\underline{blacken}

[the ceiling blackened]

(c) she \underline{\text{move to blackness}} the ceiling

\underline{become} \underline{-adj}

\underline{make} \underline{black}

[She made the ceiling black]
(d) she \(_{\text{move to blackness}}\) the ceiling
\[\text{blacken}\]

[she blackened the ceiling]

Conflation onto \textit{become} is illustrated by the following example:

this coat has \(_{\text{moved}}\) thin in spots from wear
\[\text{become}\]

[this coat has become thin in spots from wear]

[this coat has worn thin in spots]

We may pause at this example to point out that a conflated expression can be used to indicate the presence in deep structure of a form which otherwise never appears at the surface. Thus, the older English use of \textit{be} plus the past participle of many verbs, including \textit{become}, has disappeared from the surface, but its presence under the surface can still be detected after conflation:

this coat is \(_{\text{become}n}\) thin in spots from wear
\[\emptyset\]

[this coat is thin in spots from wear]

this coat is \(_{\text{become}n}\) thin in spots from wear

[this coat is worn thin in spots]
In the same way, it can be determined that the verb _be_, as in

the bank is on the corner of Oak and Elm

my friend is on the corner of Oak and Elm

does not simply lack the distinction between simple and progressive present maintained by other verbs, but _deletes_ it:

the bank _BE_ on the corner

my friend _BE-ing_ _BE_ on the corner

so that there never arises a surface form such as

*my friend is being on the corner ...*

However, the progressive marker _BE-ing_ does not delete -- and hence its presence under the surface can be ascertained -- once a positional verb like _stand_ conlates with the _BE_:

the bank stands on the corner of Oak and Elm

my friend is standing on the corner of Oak and Elm

We now consider the case where the generalized transulatory structure gives rise to the verbs _FORM_ and _MAKE_. In (137) appears an example which derives through all three _α_, _β_, and _γ_ forms, conflating the FIGURAL noun with the _FORM_ verb in the latter two:
\[\alpha: \text{ice 'MOVE INTO EXISTENCE over the windshield FORM}\]

[ice formed over the windshield]

\[\beta: \text{it FORM WITH> ICE over the windshield ice up}\]

[it iced up over the windshield]

\[\gamma: \text{the windshield FORM WITH> ICE ice up}\]

[the windshield iced up]

In (138) appears an example which conflates an external expression with the \textit{FORM} verb; several delicate issues as to what constitutes FIGURE and what GROUND are passed over here:

\[\text{(138)}\]

(a) a hole FORM in the ice from the ice melting

[a hole formed in the ice from the ice melting]
[a hole melted in the ice]

(b) a hole FORM through the table from the cigarette burning the table

[a hole formed through the table from the cigarette burning it]
[a hole burned through the table from the cigarette]
An example of the above structure-type in the effective is

\[
\text{she } \underline{\text{MOVE INTO EXISTENCE a cake }} \\
\underline{\text{FORM}} \\
\underline{\text{MAKE}}
\]

[She made a cake]

Again, external expressions may conflate with the \textit{MAKE} verb:

\begin{enumerate}
\item[(139)]
\begin{itemize}
\item she \textit{MADE} a cake by baking \textit{(stuff)}
\item \quad \implies she \textit{baked} a cake
\item she \textit{MADE} a sweater by knitting
\item \quad \implies she \textit{knitted} a sweater
\item the mouse \textit{MADE} a hole in the sack by nibbling on the sack
\item \quad \implies the mouse \textit{nibbled} a hole in the sack
\item I \textit{MADE} a path through the jungle by clearing \textit{(stuff away)}
\item \quad \implies I \textit{cleared} a path through the jungle
\end{itemize}
\end{enumerate}

We conclude this section and the Appendix with an example showing multiple, or nested, conflations:
(140)  
(a) could you give (hand) me that bottle  
    by getting it down off the shelf  
    by reaching to it with this clasper?  
(b) $\Rightarrow$ could you get me that bottle down off the shelf  
    by reaching to it with this clasper?  
(c) $\Rightarrow$ could you reach me that bottle down off the shelf with this  
    clasper?
Part II. Lists of Atsugewi Core Prefixes

This part of the paper contains a fairly thorough, though in many respects still preliminary, listing of the forms and meanings of Atsugewi's core (i.e., root-adjacent) prefixes. Forms which are as yet poorly attested are marked with an asterisk. The numbers accompanying the forms will be used as indices by which the forms will be referred to in the examples of Part III.

11. The FROM-Clause and BY-Clause Replacing Prefixes

Although most of the prefixes in this section have both $PC$ and $BC$ usage, all the definitions are cast solely in FROM-clause formulation. The corresponding BY-clause formulation can be easily deduced from this in accordance with the account given in section 5.32.

One Atsugewi $PC/BC$ prefix specifies the minimally-specific INSTRUMENT (and adactive situation):

0. $i-/a-$ from (nothing/) something acting on the FIGURE

The remaining prefixes specify INSTRUMENTs (and adactive situations) which are more specific. As presented below, these prefixes are grouped into subsections in accordance with the particular type of INSTRUMENT which they specify, as characterized by the subsection heading.
11.1 Type: 'from a body-part of a person acting on the FIGURE'

Although the prefixes listed below are defined in terms of human body-parts, they may also specify those of animal. No separate indication is given of this usage, however, because it varies in accordance with how the animal body-parts are analogized to the human. Thus, e.g., the action on a FIGURE of a chicken's leg can be specified by either \( \sigma^- \) (2), 'hand', or \( \mu^- \) (3), 'foot'.

In the definition of any of the prefixes listed below, the relation which the particular body-part specified bears to the human (or animal) is of course to be understood as that of part-to-whole ('inalienable possession') rather than possession-to-possessor ('alienable possession'). Thus, e.g., \( \mu^- \) (3) can specify as INSTRUMENT a foot which is on a person in the normal way at the end of his leg and cannot specify as INSTRUMENT a severed foot which is owned by a person and held in his hand.

The prefixes listed below can appear in structures which specify either beginning-point causation or extent causation [see section 5.5]. Accordingly, the FROM-clauses which are formulated below with the more generic phrase '... acting on ...' could be more specifically formulated with an option of two phrases:

... moving into (contact with) ...

[or a similar phrase appropriate to beginning-point causation]

... moving with ...

Thus, e.g., \( \mu^- \) (3) can specify either of the following:
'from a person's foot kicking into the FIGURE'

'from a person's foot sliding along with the FIGURE'.

More to the point, when any of the prefixes listed below appears in an effective extent-causation structure, the prefix can be translated by such English clauses as:

'by a person's holding, carrying, putting, taking the FIGURE (with his hands, feet, teeth, etc.)'
1. tu- 'from the hand/hands of a person
   -- working inwards upon itself/towards each other --
   acting on the FIGURE'

2. ci- 'from the hand/hands of a person
   -- working manipulatively (other than as for tu-) --
   acting on the FIGURE'

3. ma- 'from the foot/feet of a person acting on the FIGURE'

4. ti- 'from the buttocks of a person acting on the FIGURE'

5. wi- 'from the teeth of a person acting on the FIGURE'

6. pri- 'from the mouth-interior of a person
   -- working ingressively -- acting on the FIGURE'
   [e.g., by sucking in]

7. phu- 'from the mouth-interior of a person
   -- working egressively -- acting on the FIGURE'
   [e.g., by spitting out]

8. *pu- 'from the mouth-exterior of a person acting on the FIGURE'

9. hi- 'from the whole/unspecific part/
   specific part not treated by other prefix
   -- of the body of a person acting on the FIGURE'

10.-15. 'from the arm of a person acting on the FIGURE'
   [The arm of a person is treated as a linear object. In accordance
   with its particular manner of acting on the FIGURE, it is specified
   by one or another of those prefixes -- (10) to (15) in the
   following section -- which specify linear objects acting in various
   ways on a FIGURE.]
11.2 Type: 'from a geometric object acting on the FIGURE'

Each of the prefixes listed below is given three slightly different definitions, lettered (a), (b), and (c), [for some prefixes, only one or two of these], in accordance with whether it occurs in a causative structure along with

(a) a motion translatory structure

(b) a motion self-referencing translatory structure

or (c) a location (self-referencing) translatory structure.

The three kinds of causative structure in which the prefixes are considered occurring can thus be characterized by the following formulations:

(a) for a 'FIGURE' to MOVE + 'DIRECTIONAL' + 'GROUND'
   from the 'INSTRUMENT' ACTing ON it

(b) for a 'FIGUROID' to MOVE INTO/OUT-OF a SHAPE (or CONDITION)
   from the 'INSTRUMENT' ACTing ON it

(c) for a 'FIGURE' to BE\(_L\) (REMAIN\(_L\)) + 'DIRECTIONAL' + 'GROUND'
   for a 'FIGUROID' to BE\(_L\) (REMAIN\(_L\)) IN a SHAPE-(or CONDITION)
   from the 'INSTRUMENT' ACTing ON it

In addition:
-- in the (a) definition of each prefix (for which the following is applicable), two different wordings are given for the 'act on' phrase -- e.g., 'move against' and 'move with' -- in accordance with whether the causative structure involves beginning-point causation or extent causation [two different diagrams are correspondingly given];
-- in the (b) definition for each prefix (for which the following is applicable), two different wordings are given for the 'act on' phrase --
e.g., 'move onto' and 'move into' -- in accordance with whether the 'INSTRUMENT' does not or does penetrate the 'FIGUROID' [two different diagrams are correspondingly given];

-- in the (c) definitions of the prefixes, it should be noted, the wording of the 'act on' phrase always contains either 'push (press) on' or 'pull on';

-- in all the definitions, the particular part of the geometric INSTRUMENTAL object which makes contact with the 'FIGURE' or 'FIGUROID' is specified within brackets.
10. uh-

(a) 'from a linear object moving circumpivotally (i.e., swinging) 
[with one end] against/with the FIGURE'
[e.g., by batting/by throwing]

(b) 'from a linear object moving circumpivotally (i.e., swinging) 
[with one end] against/into the FIGUROID'
[e.g., by pounding/by chopping]
11. cu-
(a) 'from a linear object moving axially
   [with one end] non-obliquely against/with the FIGURE'
   [e.g., by pool-cueing, prodding/by pushing steadily with a
    stick]

(b) 'from a linear object moving axially
   [with one end] non-obliquely against/into the FIGUROID'
   [e.g., by poking/by piercing, skewering]

(c) 'from a linear object pressing axially
   [with one end] non-obliquely on the FIGURE'
   [e.g., by holding pinned against a wall, by supporting with
    a cane]
12A. ra-

(a) 'from a linear object moving axially
     [with one end] obliquely with the FIGURE'
     [e.g., by thrusting up at an angle]

(b) 'from a linear object moving axially
     [with one end] obliquely into the FIGUROID'
     [e.g., by digging, awling, sewing]

(c) 'from a linear object pressing axially
     [with one end] obliquely on the FIGURE'
     [e.g., by propping, leaning, poling]
12B.

(a) 'from a linear/planar object moving laterally
   [with one end/edge] along a surface with the FIGURE'
   [e.g., by raking, sweeping, scraping]

(b) 'from a linear/planar object moving laterally
   [with one end/edge] over/through the FIGUROID (a surface)'
   [e.g., by smoothing over/by whittling, plowing]

(c) 'from a linear/planar object pressing laterally
    [with its side] on the FIGURE, FIGUROID'
    [e.g., by vising, hugging, being pinned down by a log]
12C. ra-

(b) 'from a planar object moving in its own plane [with one edge] into the FIGUROID'
[e.g., by scoring, slicing, sawing]

12D. ra-

(a) 'from a circular object moving rotationally (i.e., rolling) [with its edge] along a surface with the FIGURE'
[e.g., by carting, driving]

(b) 'from a circular/cylindrical object moving rotationally (i.e., rolling) [with its edge/surface] along a surface over the FIGUROID'
[e.g., by roller-pinning, steam-rolling, getting run over]
13. *ta-*

(a) 'from a linear object moving laterally
[with one end] through liquid with the FIGURE
[e.g., by paddling (a hot rock around in soup)]

(b) 'from a linear object moving laterally
[with one end] through the FIGUROID (a liquid)
[e.g., by stirring]

NB: *ra-* (12Ba, b) is usually used instead of *ta-*
14. *ka-

(b) 'from a linear object moving with axial-spin
    [with one end] into the FIGUROID
    [e.g., by boring]

\[\text{Diagram:} \quad \begin{array}{c}
\text{I} \\
\downarrow \\
\text{f}
\end{array} \]

NB: ra- (12Ab) has been found instead of ka- for 'by screw-driving'

15A. ru-

(a) 'from a (flexible) linear object moving axially with tension
    (i.e., pulling)
    [with one end] with the FIGURE'
    [e.g., by dragging with a cord, flexing (up one's forearm)
    with a muscle]

\[\text{Diagram:} \quad \begin{array}{c}
\text{F} \\
\rightarrow \\
\text{I}
\end{array} \]

(c) 'from a (flexible) linear object pulling axially
    [with one end] on the FIGURE'
    [e.g., by suspending with a cord]

\[\text{Diagram:} \quad \begin{array}{c}
\text{F} \\
\rightarrow \\
\text{I}
\end{array} \]
15B. ru-

(c) 'from a (flexible) linear object (under axial-tension) pressing laterally with its side] circumferentially in on the FIGURE, FIGUROID' [e.g., by binding, girding]

16. mi-

(b) 'from a knife cutting [with its edge] into the FIGUROID

NB: ra- (12Cb) may be used instead of mi-
11.3 Type: 'from a free-flying object acting on the FIGURE'.

17. uh-

'from a free-flying object [other than that specified by phu- (18)]
sailing/falling into the FIGURE'

[exs.: hailstone, thrown/kicked/batted object]

18. phu-

'from matter, propelled by the mouth working egressively [= phu- (7)]
sailing into the FIGURE'

[exs.: blown breath, spit, spat-out object]
11.4 Type: 'from a substance/energy acting on the FIGURE'

19. ca- 'from the wind blowing on the FIGURE'

20. cu- 'from flowing liquid acting on the FIGURE'

21. ka- 'from the rain acting on the FIGURE'

22. ra- 'from a substance exerting a steady push on the FIGURE'
   [e.g., gas in stomach, ice under soil]

23. ru- 'from a substance exerting a steady pull on the FIGURE'
   [e.g., a stream on an anchored cloth]

24. uh-
   (a) 'from the weight of a substance bearing down on the FIGURE'
   [e.g., snow on a limb]
   (b) 'from gravity/the FIGURE's own weight acting on the FIGURE'
   [e.g., falling]

25. miw- 'from heat/fire acting on the FIGURE'

   mu:- 'by the AGENT applying heat/fire to the FIGURE'

26. *wu:- 'from light shining on the FIGURE'
11.5 Type: 'from a sensible aspect of an object, event acting on
the FIGURE'

The prefixes listed below were not discussed in Part I but are
given here for completeness. They generally occur with roots specifying
an emotive or cognitive state, the construction of prefix and root often
specifying a causative situation something like:

'for a person to come into/be in an emotive, cognitive state of mind
from a sensible aspect of an object, event acting on the person'

An example of several 'sense' prefixes occurring with an 'emotive' root
appears in section 19 of Part III.

Not further treated here are the facts that:
-- the 'sense prefixes are involved in the specification of situation-
types other than those discussed in this paper;
-- the 'sense' prefixes can also function as F and G prefixes;
-- the four phonological forms shown below for (27) and (28) are actually
distinct from each other in usage and meaning.
27. sa-/su-/si-/siw-
   'from the visual aspect of an object, event acting on the FIGURE' 

28. ka-/ku-/ki-/kiw-
   'from the auditory aspect of an event acting on the FIGURE' 

29. tu-
   'from the feel of an object acting on the FIGURE' 

30. pri-
   'from the smell/taste of an object acting on the FIGURE' 

31. tu-
   'from the taste of an object acting on the FIGURE'
12. The FIGURE- and GROUND-Specifying Prefixes

The prefixes listed below are grouped under rubrics corresponding to those for the FC and BC prefixes of section 11. All the forms listed below can function as F prefixes; in general, the forms listed in 12.1 and 12.2 can also function as G prefixes.

12.1 Type: 'a body-part'

32. tu- the hand(s), arm(s)
33. ma- the foot (feet), leg(s)
34. ti- the buttocks
35. wi- the teeth
36. pu- the mouth, a mouth-shaped object [e.g., a flower]
37. ce- the eye(s), an eye-shaped object [e.g., a button, a hailstone]
38. hi- the whole/specific part not treated by other prefix/unspecific part -- of the body
12.2 Type: 'a geometric object'

39. uh-
a linear/planar object in swinging motion
   [e.g., a pendulum]

40. cu-
a linear/planar object moving/sticking perpendicularly into a surface
   [e.g., a car in collision/the sun-shade on a cradle-board]

41. pa-
a linear object sticking perpendicularly out of a surface
   [e.g., an erect penis, the target-stick in horseshoes]

42. ra-
a linear/planar object sticking obliquely into/against/out of a surface
   [e.g., a leaning cradle-board, a shingle]

43. ih-/uh-
a planar object lying flush against a surface
   [e.g., a spread-out blanket, a board nailed to the wall]

44. ru-
a (flexible) linear object attached at one or both ends
   [e.g., sinew, a belt, an unerect penis, an icicle]

45. cri-
a set of linear objects parallelly together
   [e.g., hairs in a plait, stalks in a sheaf, sticks in a bundle]

46. cu-
material tightly-packed in a space [e.g., caulking material]
12.3 Type: 'a free-flying object'

47. uh- a free-flying object

12.4 Type: 'a substance/energy'

48. ca- wind

49. cu- flowing liquid

50. ka- rain

51. uh- a weightful substance/object; a load

52. miw- heat/fire

53. wu:-/ma:- light
13. The Noun Prefixes

The majority of Atsugewi nouns are derived from sentential-verbs by any of a number of productive nominalizing affixes. Of the remaining nouns -- the non-productively formed ones -- most also show clear structure, generally consisting of a root (often a recognizable verb-root) and a prefix. This last morpheme is usually one of the F prefixes listed in section 12. In addition to these, the following prefixes -- some with a fairly discernible meaning -- are found:

pri- the tongue
phu- the lips
ka- the ear, jaw
mi-/ma- a kinsman [e.g., father-in-law, aunt,...]
ha-/hi- viscous matter [e.g., pitch, mucus]
ti- festered matter [e.g., pus, a boil, a rotten log]
ma- skin eruptions [e.g., eczema, a wart]
mi- a sharp-edged object [e.g., obsidian, fingernail]
^hu- object with multitude of parallel components [e.g., cattail pod, millipede]
čna- +variants insect [e.g., grasshopper, piss-ant]; miscellaneous
amu- earth [e.g., mud, angleworm]
ali- +variants frog [e.g., small frog sp., large frog sp.]; miscellaneous

+ a number of additional, less characterizable forms
Part III. Examples of Atsugewi Sentential-Verbs

Each of the twenty numbered examples which make up this part of the paper begins with the presentation of a single verb root. This root is then followed by several different sets of affixes, lettered (a), (b), etc., with which it can occur to form a sentential-verb. In this presentation, the following symbols are used:

\[
\begin{align*}
R & : \text{ root} \\
F & : \text{ F prefix} \\
G & : \text{ G prefix} \\
FC & : \text{ FC prefix} \\
BC & : \text{ BC prefix} \\
DG & : \text{ DG suffix} \\
Px & : \text{ other prefix} \\
Sx & : \text{ other suffix} \\
Ax & : \text{ the inflectional affix-set}
\end{align*}
\]

The following points should also be noted:

-- The meaning of the root is always given in an autic formulation even though the root is to have an effective function in the structures underneath.

-- Likewise, the meaning of a prefix is always given in an FC formulation even though the prefix is to have a BC function in a particular structure (in this case, however, it is indexed as a BC prefix).
Each prefix is followed by a parenthesized number which refers to
its listing in Part II.

Where the definition of a prefix in Part II or of a suffix in Part I
has included alternative wordings, the definition here usually contains
only the alternative relevant to the particular structure in which the
prefix or suffix is to appear.

The definition for each inflectional affix-set shows in order: the
personal surface-subject, the personal surface-object, the mode.
When the subject or object is 'third-person' (which is not distinguished
in Atsugewi as to number, entityhood, or gender), this is designated
by the number '3'.

Variety in inflection has been kept to a minimum in the examples so
as not to distract from the other aspects of verbal structure and
meaning in Atsugewi.

To the right of the inflectional affix-set, the particular semantic
situation-type specified by the structure is indicated by one of the
terms: autic, causative, effective, adventive.

Under each set of affixes with which the root can occur to form a
sentential-verb, this sentential-verb is shown in morphophonemic and
broad-phonetic form.

In some cases, there is then given a literal translation, i.e., a
part-for-part rendering into English of the whole structure underlying
the sentential-verb.
-- In all cases, there is then given a casual translation, i.e., an English sentence suggested by the informant which often contains particular referents not specifically implied by the Atsugewi verb, but which depicts a situation to which the Atsugewi verb could be used to refer.
14. -- With an FM Root ($R_1$)

1.

$R_1$: -swal 'for limp (not stiff/resilient) material to move/be-located'

(a)

FC: ca- (19) 'from the wind blowing on the FIGURE'
DG: -mič 'down onto the surface of the ground'
Ax: *'- w- -ѧ '3, (3), factual' --causative

/'- w- ca- swal -mič -ѧ/ ⟷ [čwaswǎmič]

Literally: 'limp-material moved down to the surface of the ground from the wind blowing on it'
Casually: 'the clothes blew down from the clothesline'

(b)

BC: ra- (12Ba) 'from a linear object moving laterally [with one end] along a surface with the FIGURE'
DG: -im 'thither'
Ax: *'- a: 'you, (3), imperative' --effective

/'- ra- swal -im -ѧ:/ ⟷ [iawalwá:]

Literally: 'you effect limp-material to move thither by moving a linear object laterally [with one end] along a surface with it!'
Casually: 'push that dead snake away with this stick!'
(c)

**BC:** tu- (1)  
'from the hand of a person, working in upon itself, acting on the FIGURE'

**DG:** -ič  
'up'

**Ax:** s- - w- a  
'I, (3), factual'  --effective

/s- - w- tu- swal -ič -a/ \rightarrow [stuswalič]

Literally: 'I effected limp-material to move up by acting on it with my hand, working in upon itself'

Casually: 'I picked up the rag'

(d)

**BC:** uh- (10a)  
'from a linear object moving circumpivottally [with one end] with the FIGURE'

**DG:** -ičt  
'into a liquid'

**Ax:** - w- a  
'3, (3), factual'  --effective

/'- w- uh- swal -ičt -a/ \rightarrow [woswaličta]

Literally: 'she effected limp-material to move into a liquid by moving a linear object circumpivottally [with one end] with it'

Casually: 'she threw the clothes into the laundry tub'
(e) 

BC: ti- (4) 'from the buttocks of a person acting on the
     FIGURE'

DG: -ič 'up'

Ax: n- w- -a '3, (3), evidential' --effective

/n- w- ti- swal -ič -a/ ➞ [ntwiswalič]

Literally: 'he evidently effected limp-material to be-located up
by acting on it with his buttocks'

Casually: 'I see where he's carrying the rabbits he killed
hung from his belt'

(f) 

Px: p- 'mis-, mal-

F: ru- (44) 'a flexible linear object attached at one end'

DG: -iks 'at the lateral surface of a solid'

Ax: '- w- -a '3, (3), factual' --adventive

/-' - w- p- ru- swal -iks -a/ ➞ [pluswaliks]

Literally: 'limp-material, which was a flexible linear object
attached at one end, was mal-located at the lateral surface of
a solid, on him'

Casually: 'his penis stayed limp (on him),
he couldn't get an erection'
2.

R₁:  -staq  'for runny, "icky" material to move/be-located'

(a)

BC:  uh- (10a)  'from a linear object moving circumpivotaly
       [with one end] with the FIGURE'

DG:  -i·w  'dually together'

Ax:  s- 'w- -a  'I, (3), factual'  --effective

/s- 'w- uh- staq -i·w -a/ ⇝ [swostaqí·wa]

'I slammed together the hunks of clay I held in either hand'

(b)

BC:  ra- (12Aa)  'from a linear object moving axially
       [with one end] obliquely with the FIGURE'

DG:  -im  'thither'

Ax:  same as (a)

/s- 'w- ra- staq -im -a/ ⇝ [swrastaqíw]

'I slung away the rotten tomatoes, sluicing them off the pan
they were in'
(c)

\( R:\) ci- (2) 'from the hands of a person, working manipulatively, acting on the FIGURE'

\( DG:\) -iks 'horizontally onto the lateral surface of a solid'

\( Ax:\) same as (a)

\( /\text{s- 'w- } \text{ci- } \text{staq -iks -a/ } \Rightarrow [\text{scwist\text{a}q\text{iksa}}] \)

'I patted some mud against the wall'

(d)

\( P:\) : - 'augmentative' [here used idiomatically]

\( BC:\) pri- (6) 'from the mouth-interior of a person, working ingressively, acting on the FIGURE'

\( DG:\) -ic 'up'

\( Ax:\) same as (a)

\( /\text{s- 'w- } \text{pri- } \text{staq -ic -a/ } \Rightarrow [\text{spre-\text{staq}\text{i\text{c}}}] \)

'I picked up in my mouth the already-chewed gum/the guts from where it was stuck/they lay on the table'

(e)

\( BC:\) ma- (3) 'from the feet of a person acting on the FIGURE'

\( DG:\) -ipsnu 'into a volume-enclosure'

- im 'thither'

\( Ax:\) same as (a)

\( /\text{s- 'w- ma- } \text{staq -ipsn -im -a/ } \Rightarrow [\text{sma-staqipsnu}] \)

'I tracked the house up (with the manure I stepped in)'
(f) With a metathesized form of the root: \(-qst^-a\)

BC: \(phu- (7)\)  'from the mouth-interior of a person, working egressively, acting on the FIGURE'

DG: \(-m -ik\cdot\)  'onto a head, into a face, into an eye'

Ax: same as (a)

/s- 'w- phu- qst^-a -m -ik\cdot^-a/ \[\rightarrow s'hqqst'îm-ik\cdot a\]

'I spat (a packet of saliva) in his face'
3.

R₁: -lup 'for a small shiny spherical object to move'

(a)

BC: cu- (11a) 'from a linear object moving axially [with one end] non-obliquely against the FIGURE'

DG: -hiy -ik 'out of a snug-enclosure/a socket; detached from moorings'

Ax: s-' w- a 'I, (3), factual' --effective

/s- ' w- cu- lup -hiy -ik- a/ [s cilупhiyk-a]

'I poked his eye out (with a stick)'

(b)

BC: pri- (6) 'from the mouth-interior of a person, working ingressively, acting on the FIGURE'

DG: -nik -iy 'all about, here and there, back and forth'

Ax: same as (a)

/s- ' w- pri- lup -nik- iy- a/ [spilупhnik-a]

'I rolled the round candy around in my mouth'

(c)

BC: phu- (7) 'from the mouth-interior of a person, working egressively, acting on the FIGURE'

DG: -im 'thither'

Ax: same as (a)

/s- ' w- phu- lup -im- a/ [spholупiw]

'I spat out the round candy'
4.

R₁: -hmup  'for a cover for a horizontal surface to move/be-located'

(a)

BC: uh- (10a)  'from a linear object moving circumpivotally
   [with one end] with the FIGURE'

DG: -cam  'to a position athwart a fire-site'

Ax: s- ' w- a  'I, (3), factual' --effective

/s- ' w- uh- hmup -cam - a/ \(\rightarrow\) [swohmupcaw]

'I threw a blanket over the fire'

(b)

BC: ra- (12Aa)  'from a linear object moving axially
   [with one end] obliquely with the FIGURE'

DG: -m -ik.  'onto a head, into a face, into an eye'

Ax: same as (a)

/s- ' w- ra- hmup -m -ik. - a/ \(\rightarrow\) [swrahmupmik.a]

'I slung the blanket up over his head'

(c)

BC: ci- (2)  'from the hands of a person, working manipulatively,
   acting on the FIGURE'

DG: -pik -ayw  'around'

Ax: same as (a)

/s- ' w- ci- hmup -pik -ayw - a/ \(\rightarrow\) [sçwehmuph'kaywa]

'I tucked the kids in'
(d)

F:  uh- (51)  'a weightful/resting substance/object'

DG:  -cis'  'down onto the upper surface of a solid'
     -ak'  'locative'

Ax:  s'- w- a  'I, (3), factual'  --adventive

/s'- w- uh- hmup' -cis' -ak' -a/  ⇒  [s'ohmup'chak-a]

Literally:  'a horizontal-surface cover, which is a resting object, is down onto the upper surface of a solid, on me'

Casually:  .'I have a cap on'
5.

\( R_1: \quad -\tilde{t}^i \)

'for a planar object to move/be-located'

(a)

\( F: \quad \text{uh- (43)} \)

'a planar object lying flush against a surface'

\( \tilde{D}G: \quad -a\cdot s\tilde{y} \)

'multiply together'

\( A_x: \quad s\cdot 'w\cdot -^a \)

'I, (3), factual' --effective

\( /s\cdot 'w\cdot uh\cdot \tilde{t}^i -a\cdot s\tilde{y} \cdot -^a/ \rightarrow [s\tilde{w}oht\tilde{a}\cdot s\tilde{y}a] \)

'I patched a hole in the wall with boards'

(b)

\( F: \quad \text{ra- (42)} \)

'a planar object sticking obliquely into/out of/ against a surface'

\( \tilde{D}G: \quad -w\cdot s\tilde{u} \)

'to all-over a surface'

\( -i\kappa. \)

'hither'

\( A_x: \quad \text{same as (a)} \)

\( /s\cdot 'w\cdot ra\cdot \tilde{t}^i -w\cdot s\tilde{u} \cdot -i\kappa. \cdot -^a/ \rightarrow [s\tilde{w}r\tilde{a}t\tilde{w}i\cdot s\tilde{u}k\cdot a] \)

'I shingled the roof'

(c)

\( F: \quad \text{cu- (40)} \)

'a planar object sticking perpendicularly into a surface'

\( \tilde{D}G: \quad -m -i\kappa. \)

'onto a head, into a face, into an eye'

\( A_x: \quad \text{same as (a)} \)

\( /s\cdot 'w\cdot cu\cdot \tilde{t}^i -m -i\kappa. \cdot -^a/ \rightarrow [s\tilde{c}u\tilde{t}\tilde{m}\tilde{k}\cdot a] \)

'I stuck the sun-shade on the cradle-board'
(d)

Px: p- 'back, reflexive'
F: ce- (37) 'eye, eye-shaped object'
DG: -i·w 'dually together'
DG: -ihiy 'on one's body'

Ax: same as (a)

/s- ’w- p- ce- tí -i·w -ihiy -a/ → [spçet·i·wehe·]

Literally: 'I effected planar objects, which were eye-shaped objects, to come dually together back to me on my body'

Casually: "I buttoned up"
15. --With an MDG Root (R₂)

6.

R₂:  "spaqt"  
     'to move into, through mud'

(a)

F:  tu- (32)  
     'the hand'

DG:  -im  
     'thither'

Ax:  s-"w- -a  
     'I, (3), factual'  --effective

/s-"w- tu- spaqt -im -a/  \[stus'pqiw\]

'I stuck my hand into the mud'

(b)

F:  ra- (42)  
     'a linear object sticking obliquely into a surface'

Ax:  same as (a)

/s-"w- ra- spaqt -a/  \[swras'paq\]

'I worked the stick around in the mud'

(c)

BC:  uh- (10a)  
     'from a linear object moving circumpivotally
      [with one end] with the FIGURE'

DG:  -im  
     'thither'

Ax:  same as (a)

/s-"w- uh- spaqt -im -a/  \[swos'paqir\]

'I threw the apple into the mud puddle'
(d)

F: ma- (33) 'the foot'

DG: -tip -u· 'into a pit'
    -im 'thither'

Ax: s- 'w- a 'I, (3), factual' autic

/s- 'w- ma- spaq -tip -u· -im a/ \rightarrow [sma·spaqtʰpu·ma]

'I stepped into a deep mud-hole'
R2: -kʰu̞k 'to move into contact with a big stomach'

(a)

F: hi- (38) 'the whole body of a person'
Ax: s- 'w- -a 'I, (3), factual' --autic
/s- 'w- hi- kʰu̞k -a/ ⟷ [sʰweh[kʰ.ókʰ]
'I bumped into his protruding belly'

(b)

BC: uh- (10a) 'from a linear object moving circumpivotaly [with one end] with the FIGURE'
DG: -wam -im 'into someone's body'
Ax: s- 'w- -a 'I, (3), factual' --effective
/s- 'w- uh- kʰu̞k -wam -im -a/ ⟷ [sʰwokʰokuʔmaw]
'I hit him in his big stomach with my fist'

(c)

BC: tu- (1) 'from the hands of a person, working towards each other, acting on the FIGURE'

Ax: same as (b)
/s- 'w- tu- kʰu̞k -a/ ⟷ [stukʰ.ókʰ]
'I grasped his protruding belly between my hands,
I played with the deer's stomach (that was lying on the ground)'
16. —With an FMDG Root (R₃)

8.

R₃:  -luc  'for the natural surface-growth on a (once-)
      living object to come detached from (part of)
      the object'

(a)

BC:  ra-  (12Ba)  'from a planar object moving laterally
         [with one edge] along a surface with the FIGURE'

Ax:  s-  'w-  -a  'I, (3), factual'  --effective

/s-  'w-  ra-  luc  -a/  \[swlal."uch]\n
'I scraped the fur off the hide'

(b)

BC:  ru-  (15Aa)  'from a linear object moving with axial-tension
         [with one end] with the FIGURE'

Ax:  same as (a)

/s-  'w-  ru-  luc  -a/  \[sw'ulu."uch]\n
'I pulled a handful of hair out of his head'

(c)

BC:  mu:-  (25)  'by the AGENT applying heat/fire to the FIGURE'

Ax:  same as (a)

/s-  'w-  mu:-  luc  -a/  \[sm'o."uch]\n
'I burnt the quills off the porcupine' or
'I scalded the feathers off the chicken'
(d)

**BC:** wi- (5) 'from the teeth of a person acting on the FIGURE'

**Ax:** same as (a)

/s- 'w- wi- luc -a/ $\Rightarrow$ [sweluch]

'I slid the bark off a willow twig, holding one end in my teeth'

(e)

**BC:** ma- (3) 'from the foot of a person acting on the FIGURE'

**Ax:** same as (a)

/s- 'w- ma- luc -a/ $\Rightarrow$ [smaluch]

'I skinned the rabbit by accidentally stepping on it'

(f)

**G:** ti- (34) 'the buttocks'

**Ax:** s- 'w- -a 'I, (3), factual' --adventive

/s- 'w- ti- luc -a/ $\Rightarrow$ [stwiluch]

Literally: 'the natural surface-growth came detached from a living object, which was buttocks, on me'

Casually: 'I skinned my behind when I fell'

(g)

**G:** hi- (38) 'a specific part of the body not treated by other prefix'

**Ax:** same as for (f)

/s- 'w- hi- luc -a/ $\Rightarrow$ [swhelmuch]

'I scraped some hair off my head when I fell'
R₃:  -skit  'for soft material to snag on/lodge in an object'

(a)

FC:  cu- (20)  'from flowing liquid acting on the FIGURE'
Ax:  'w- -a  '3, (3), factual'  --causative
     /'w- cu- skit -a/  \[ćuskîh]\n
'some brush in the stream got snagged on a limb jutting up'

(b)

F:  uh- (47)  'a free-flying object'
Ax:  'w- -a  '3, (3), factual'  --autic
     /'w- uh- skit -a/  \[woskîh]\n
'a ball sailing through the air got caught in the tree'

(c)

Px:  p-  'mis-, mal-

G:  ra- (42)  '(one end of) a linear object sticking obliquely out of a surface'
Ax:  'w- -a  '1, (3), factual'  --adventive
     /'s- w- p- ra- skit -a/  \[spraskîh]\n
Literally:  'soft-material snagged on an object, which was (one end of) a linear object obliquely sticking out of a surface, on me'

Casually:  'I caught my shirt on a nail'
(d)

G:  wi- (35)   'the teeth'
DG: -im  'into one's body'
Ax: same as (c)

/s/- w- wi- skit -im -[^a]/ → [swe·skitīw]
'I got a piece of food caught in my teeth'

(e)

G:  uh- (39)   '(one end of) a linear object in swinging motion'
Ax:  'w- -[^a]  '3, (3), factual' --adventive

/w/- w- uh- skit -[^a]/ → [\woskitʰ]

Literally: 'soft-material lodged in an object, which was (one end of) a linear object in swinging motion, on him'

Casually: 'the chicken pecking at the bone got a piece of meat caught in its bill'
10.

$R_3$: -mur  'for fluid to come out of a biologic membranous sack'

(a)

$FC$: hi- (9) 'from the whole body of a person/animal acting on the FIGURE'

$DG$: -ik  'hither'

$Ax$: 'w- -a  '3, (3), factual' --causative

/’w- hi- mur -ik- -a/ $\rightarrow$ [whemurik-a]

'the cow’s birth-sac (amnion) burst from the baby calf inside'

(b)

$BC$: tu- (1) 'from the hand of a person, working in upon itself, acting on the FIGURE'

$Ax$: s- 'w- -a  'I, (3), factual' --effective

/s- 'w- tu- mur -a/ $\rightarrow$ [stu?mur^u]

'I made the milk squirt out of the cow’s teat by squeezing it in my hand'

(c)

$BC$: ci- (2) 'from the hands of a person, working manipulatively, acting on the FIGURE'

$Sx$: -cic  'go and'

$Ax$: s- '  'I, (3), intentive' --effective

/s- 'ci- mur -cic/ $\rightarrow$ [sci?mur^ucic^h]

'I’ll go milk the cow'
(d)

**BC:** ra- (12Bc) 'from a linear object pressing laterally [with its side] on the FIGURE'

**DG:** -im 'thither'

**Ax:** same as (b)

\[ /s- 'w- ra- ṃur -im -a/ \implies [swraʔumriw] \]

'I made the milk squirt out by pressing against the cow's udder with a stick'

(e)

**BC:** pri- (6) 'from the mouth-interior of a person, working ingressively, acting on the FIGURE'

**DG:** -ik· 'hither'

**Ax:** 'w- -a '3, (3), factual' --effective

\[ /'w- pri- ṃur -ik- -a/ \implies [priʔumrik-a] \]

'he sucked on the woman's breasts to start the milk-flow'

(f)

**BC:** phu- (7) 'from the mouth-interior of a person, working egressively, acting on the FIGURE'

**DG:** -im 'thither'

**Ax:** same as (e)

\[ /'w- phu- ṃur -im -a/ \implies [phoʔumriw] \]

'the doctor sucked the matter out of the boil and spat it out'
11.

R3:  -scak'  'for a sharp-pointed linear object to move axially with its point into-the-substance-of yielding material'

(a)

F:  cu- (40)  'a linear object moving perpendicularly into a surface'

Ax:  s- 'w- 'a  'I, (3), factual'  --effective

/s- 'w- cu- scak' 'a/  \rightarrow  [scusčak]

'I skewered the piece of meat with a fork'

(b)

BC:  uh- (10a)  'from a linear object moving circumpivotaly [with one end] with the FIGURE'

DG:  -cis'u  'down into-the-substance-of a solid resting on the ground'

-im  'thither'

Ax:  same as (a)

/s- 'w- uh- scak' 'cis' 'im- 'a/  \rightarrow  [śwosčak'u]

'I swung the pickaxe head down into the tree-stump by the handle'

(c)

BC:  same as (b)

DG:  -m -ik.  'onto a head, into a face, into an eye'

Ax:  same as (a)

/s- 'w- uh- scak' 'm -ik. - 'a/  \rightarrow  [śwosćakmik-a]

'I threw a nail into his eye'
(d)

Px:   p-       'mis-, mal-'  
G:    tu-  (32)  'the hand(s), arm(s)'
DG:   -im      'into one's body'
Ax:   s- 'w- -a  'I, (3), factual'  --adventive

/s- 'w- p- tu- sfak -im-a/  [spłusfakw]

Literally:  'the end of a sharp-pointed linear object mal-moved axially into-the-substance-of yielding material, which was my hand, into my body, on me'

Casually:   'I got a thorn stuck in my finger'

(e)

Px:   :-       'augmentative' [here used idiomatically]
G:    ti-  (34)  'the buttocks'
DG:   same as (d)
Ax:   same as (d)

/s- 'w- :- ti- sfak -im-a/  [stwe.sfakw]

'I got a splinter stuck in my behind'
12.

R₃: -puq  'for dust to move off a surface (into a cloud)'

(a)

BC: ma- (3)  'from the feet of a person acting on the FIGURE'
Ax: s- 'w- -a  'I, (3), factual' --effective

/s- 'w- ma- puq -a/ → [smɑ-ˈpɔqʰ]
'I kicked up the dirt as I walked along'

(b)

BC: ra- (12Ba)  'from a planar object moving laterally
[with one edge] along a surface with the FIGURE'
Ax: same as (a)

/s- 'w- ra- puq -a/ → [sʰɾap-ˈoqʰ]
'I swept the dust up into a cloud'

(c)

BC: uh- (10a)  'from a linear object moving circumpivotally
[with one end] with the FIGURE'
Ax: same as (a)

/s- 'w- uh- puq -a/ → [sʰʊhpʰqʰ]
'I shook out the blanket'
(d)  

*BC:* \text{phu- (18)} 'from matter propelled by the mouth working egressively sailing into the FIGURE'  

*DG:* \text{-uww} 'off from over a surface'  
\text{-ihiy} 'on one's body'  

*Ax:* same as (a)  
\(/s- 'w- \text{phu- puq -uww -ihiy -a}/ \rightarrow [s\text{hop-oqúw.ehe.}]\)  
'I blew the dust off my clothes'  

(e)  

*FC:* \text{i- (0)} 'from (nothing/) something acting on the FIGURE'  

*Dg:* \text{-asw} 'all about within itself' [e.g., hair tousling about, clothes flapping about]  

*Ax:* 'w- -a' '3, (3), factual'  
\(/'w- \text{i- puq -asw -a}/ \rightarrow [\text{wip-oqáswa}]\)  
'there's dust swirling about over the road (where the horses had ridden past)'
R₃:  -hapuk  

'for an object (or a sensible aspect thereof) to fail to come to -- by passing to one side of -- a body-part (or a sense) of a person' 

This R occurs idiomatically with: 

Px:  :- 

Sx:  -mi'c  

The examples in this set are all given with the following inflectional affix-set and situation-type: 

Ax:  s'-w- -ₐ  'I, (3), factual' --adventive

(a)  

G:  tu-  (32)  'the hands' 

/s'-w-:-tu-hapuk-mi'cₐ/  \[→ s[to.hapúk₉mi'c]\]  

Literally:  'an object failed to come to, passing to one side of, a body-part, which was the hands, on me' 

Casually:  'I missed catching the ball'

(b)  

G:  ma-  (33)  'the foot/feet' 

/s'-w-:-ma-hapuk-mi'cₐ/  \[→ s[ma.hapúk₉mi'c]\]  

'I missed a step as I was walking down the stairs'

(c)  

G:  ti-  (34)  'the buttocks' 

/s'-w-:-ti-hapuk-mi'cₐ/  \[→ s[twe.hapúk₉mi'c]\]  

'As I bent to sit down, I got the chair pulled out from under me'
G: \textit{si- (27)} 'the visual aspect of an object'

/s-/ -w- :: si- hapuk -mič -\textsuperscript{a}/ \Rightarrow [s\textsuperscript{w}se·hap\textsuperscript{h}mič]

'I looked over too late to catch sight of that deer'
17. --With an fMDg Root (R₄)

14.

R₄:  -miq  'for a house-like structure to move into a non-integral shape'

(a)

PC:  uh- (24b)  'from gravity/the FIGURE's own weight acting on the FIGURE'

Dg:  -tip -asw  'apart'

Ax:  n- w- -₃  '3, (3), evidential' --causative

/n- w- uh- miq -tip -asw -₃/  →  [nohmęq̪ʰpaswa]

'the house fell apart'

(b)

PC:  ca- (19)  'from the wind blowing on the FIGURE'

Dg:  -uww -ay  'into two unequal parts: one part off from the rest'

Ax:  same as (a)

/n- w- ca- miq -uww -ay -₃/  →  [nochwam-eq̪w-e.]

'the roof blew off from the house'

(c)

BC:  ma- (3)  'from the foot of a person acting on the FIGURE'

Dg:  -t -am  'into two unequal parts: one part out from the rest'

Ax:  s- 'w- -₃  'I, (3), factual' --effective

/s- 'w- ma- miq -t -aw -₃/  →  [sm̪a-meq̪ta-]

'I kicked the door out off its hinges'
(d)

**BC:**  ci- (2)  'from the hands of a person, working manipulatively, acting on the FIGURE'

**Dg:**  -ikc -ik -ayw  'into fragments'

**Ax:**  same as (c)

\[ /s^-w^c- ci- mi^q -ikc -ik -ayw -a/ \Rightarrow [scwim-eqikʰcikaywa] \]

'I tore the house down, demolished the house'
15.

\( R_4: \text{-} \nu\hat{u}q \) 'for a live articulated object to move into a folded-together shape'

(a)

\( F: \text{tu-} (32) \) 'the hand(s), arm(s)'

\( Dg: \text{-}a\cdot\hat{s}y \) 'multiply together/into an accumulation'

\( Ax: \text{s-'}-\text{w-} -a \) 'I, (3), factual' --effective

\( /s- ' -\text{w- tu-} \nu\hat{u}q -a\cdot\hat{s}y -a/ \rightarrow \ [\text{stu}\frac{\nu\hat{u}q}{a}\cdot\hat{s}y\hat{a}] \)

'I made a fist'

(b)

\( Bc: \text{ci-} (2) \) 'from the hands of a person, working manipulatively, acting on the FIGURE'

Optional \( Dg: \text{-}a\cdot\hat{s}y \) 'multiply together/into an accumulation'

\( Ax: \) same as (a)

\( /s- ' -\text{w- ci-} \nu\hat{u}q (-a\cdot\hat{s}y) -a/ \rightarrow \ [\text{cw}\frac{\nu\hat{u}q}{a}\cdot\hat{s}y\hat{a}] \)

\( [\text{cw}\frac{\nu\hat{u}q}{a}\cdot\hat{s}y\hat{a}] \)

'I doubled the cat up (by drawing its limbs together)'
16.

R₄: -caqih
     'for the leg-set on a creature to move into an open shape'

(a)

BC:  ci- (2)  'from the hands of a person, working manipulatively, acting on the FIGURE'

Dg:  -tip -asw  'apart'

Ax:  s- 's- w- -a  'I, (3), factual'  --effective  
     /s- 's- w- ci- caqih -tip -asw -a/    \[s\text{c}\text{wic-}a\text{qêht}h\text{p}a\text{swa}\]  
     'I spread his legs apart (with my hands)'

(b)

F:  ma- (33)  'feet, legs'
     or  ti- (34)  'buttocks'

Dg:  same as (a)

Ax:  same as (a)
     /s- 's- w- ma- caqih -tip -asw -a/    \[s\text{m}a\text{-caqêht}h\text{p}a\text{swa}\]  
     or  /s- 's- w- ti- caqih -tip -asw -a/    \[s\text{twic-}a\text{qêht}h\text{p}a\text{swa}\]  
     'I spread my legs apart'
16. With an FM/fMDg Root (R₅)

17A.

R₅: -miq 'for a house-like structure to move, coming into a non-integral shape the while'

(a)

FC: miw- (25) 'from heat/fire acting on the FIGURE'
DG: -mič 'down onto the surface of the ground'
Ax: n- w- -a '3, (3), evidential' --causative
/n- w- miw- miq -mič -a/ → [nemwêmêqmič]
'the house burnt down to the ground'

(b)

FC: cu- (20) 'from flowing liquid acting on the FIGURE'
DG: same as (a)
Ax: same as (a)
/n- w- cu- miq -mič -a/ → [ncum-êqmič]
'the house collapsed from the flood'

(c)

FC: uh- (24b) 'from gravity/the FIGURE's own weight acting on the FIGURE'
DG: -tip -u. 'down into a pit in the ground'
-im 'thither'
Ax: same as (a)
/n- w- uh- miq -tip -u. -im -a/ → [nöhmeq'tpu-ma]
'the house fell all the way down into the cellar'
17B.

R₅: -miq

'for a house-like structure to move, being in a non-integral shape the while'

(a)

BC: hi- (9) 'from the whole body of a person acting on the FIGURE'

DG: -ičw 'up'

Ax: 'w- a³ '3, (3), factual' --effective

\(/w- hi- miq -ičw -a³/ \rightarrow [\text{whem-eqíčwa}]\)

'the kid crawling under the pile of boards from the torn down house lifted them up as he stood'
18A.

R₅: -nuq
      'for a live articulated object to move, coming into a folded-together shape the while'

(a)

Px: p- 'back, reflexive'
F: tu- (32) 'the hand(s), arm(s)'
Dg: -a·sy' 'multiply together/into an accumulation'
DG: -ihiy 'on one's body'
Ax: s- 'w- -'a 'I, (3), factual' --effective
    /s- 'w- p- tu- nuq -a·sy' -ihiy -'a/ \[sptuŋọqà·syeye.\]
'I folded my arms across my chest'

(b)

Rc: ma- (3) 'from the foot of a person acting on the FIGURE'
DG: -mič 'down onto the surface of the ground'
Ax: same as (a)
    /s- 'w- ma- nuq -mič -'a/ \[smaŋọqmič\]
'as he was sitting there, I bent his head down to the ground with my foot'

(c)

Be: ma- (3) 'from the foot of a person acting on the FIGURE'
DG: -içt 'into a liquid'
Ax: same as (a)
    /s- 'w- ma- nuq -içt -'a/ \[smaŋọqiçta\]
'I shoved the reluctant cat into the water with my foot, getting him doubled up as I did so'
18B.

R$_5$: -ńuq $'$for a live articulated object to move, being in a folded together shape the while' $$(a)$$

BC: cî- (2) $'$from the hands of a person, working manipulatively, acting on the FIGURE' $\,$

DG: -wam $'$into a gravitic-container' $\,$

Ax: s- ' w- -a $'$I, (3), factual' $\,$ $\,$--effective

/s- ' w- cî- ńuq -wam -a/ \[s\,c\,w\,i\,\,t\,\,o\,\,q\,u\,\,m\,a\] $\,$

$'$I stuffed the doubled-up cat into the basket' $\,$
19A.

R₅: -caqih 'for the leg-set on a creature to move, coming into an open shape the while'

(a)

F: uh- (51) 'a weightful substance/object, a load'

DG: -ikn 'to a position over/ astraddle an edge'

-ik- 'hither'

-ihiy 'on one's body'

Ax: s- ' w- -a 'I, (3), factual' --effective

/s- ' w- uh- caqih -ikn -ik- -ihiy -a/ ➔ [swohcaqêhniheké]

Literally: 'I effected a creature's leg-set, which was a weightful object/a load, to move to a position astraddle an edge hither on my body, bringing the leg-set into an open shape the while'

Casually: 'I set him up on my back with his legs over my shoulders so I could carry him someplace'

(b) In a particular periphrastic construction with:

the bare root as first element
the verb i, 'to go', as second element taking all affixation

DG: -im 'thither'

Sx: -ak 'continuative'

Ax: ' w- -a '3, (3), factual' --(self-) effective

/-caqih ' w- i -im -ak -a/ ➔ [caqêh wìʔmakh]

'the frog went jumping along'
19. --With a Root Taking 'Sense' Prefixes

20.

R:  -lay    'for a person to come into/be in a pleased state of mind'

This root occurs idiomatically with:

Sx:  -im

Keeping constant the inflectional affix-set:

Ax:  s-  '- w-  -a   'I, (3), factual'

the following forms with different 'sense' prefixes occur:

(a)

FC:  sa- (27)  'from the visual aspect of an object acting on the FIGURE'

/s-  '- w- sa- lay -im -a/  \[s^9alayiw\]  
'I find it good-looking, pretty/I like it (e.g., a picture)'

(b)

FC:  ka- (28)  'from the auditory aspect of an event acting on the FIGURE'

/s-  '- w- ka- lay -im -a/  \[skwalayiw\]  .  
'I find it good-sounding/I like it (e.g., the singing)'

(c)

FC:  pri- (30)  'from the smell/taste of an object acting on the FIGURE'

/s-  '- w- pri- lay im -a/  \[splilayiw\]  
'I find it good-smelling, -tasting/I like it (e.g., the flower)'

(d)

FC:  tu- (31)  'from the taste of a body acting on the FIGURE'

/s-  '- w- tu- lay -im -a/  \[slulayiw\]  
'I find it good-tasting, tasty/I like it (e.g., the food)'