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 phenomenation 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:

(65) 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 *conflations*, 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 translatory, 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

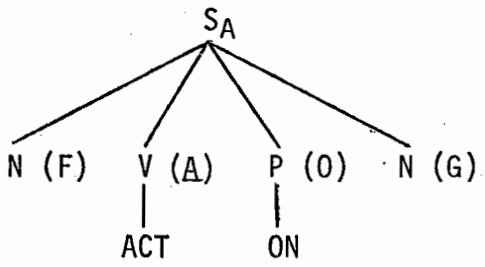
will be termed an *adactive situation* and symbolized as 's_A'. The two element-components of the adactive situation will, as for the translatory situation, be termed the *FIGURE* and the *GROUND*. The remaining two components will, for simplicity, be termed the *ACT* component and the *ON* component and symbolized as '$\underline{A}$' and 'O'. The adactive situation as a semantic structure can thus be represented in symbolic form as in (69):

(69)
$$s_A:$$
$$F + \underline{A} + O + G$$

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 $\underline{A}$- and O-specifying constituents are posited to be always particularized, respectively, by the bathic verb to be represented here as *ACT* and the bathic prepositional to be represented here as *ON*. The already partly particularized underlying adactive structure can thus be represented

as in (70):

(70)



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 / pulling (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, thorugh the mechanics of object-interaction, from an adactive event

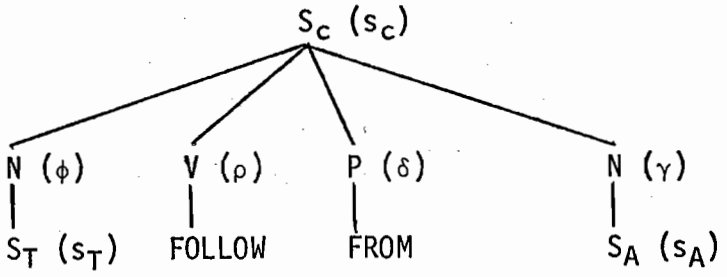
(where, accordingly, the FIGURE of the former is the same object as the GROUND of the latter)

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 particularized 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)



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) the FIGURE of the translatory situation (F_T) will be considered the FIGURE of the causative situation (F_c),*

the GROUND of the translatory situation (G_T), will be considered the GROUND of the causative situation (G_c),

the FIGURE of the adactive situation (F_A) will be considered the *INSTRUMENT*, to be symbolized as 'I', of the causative situation (I_c).

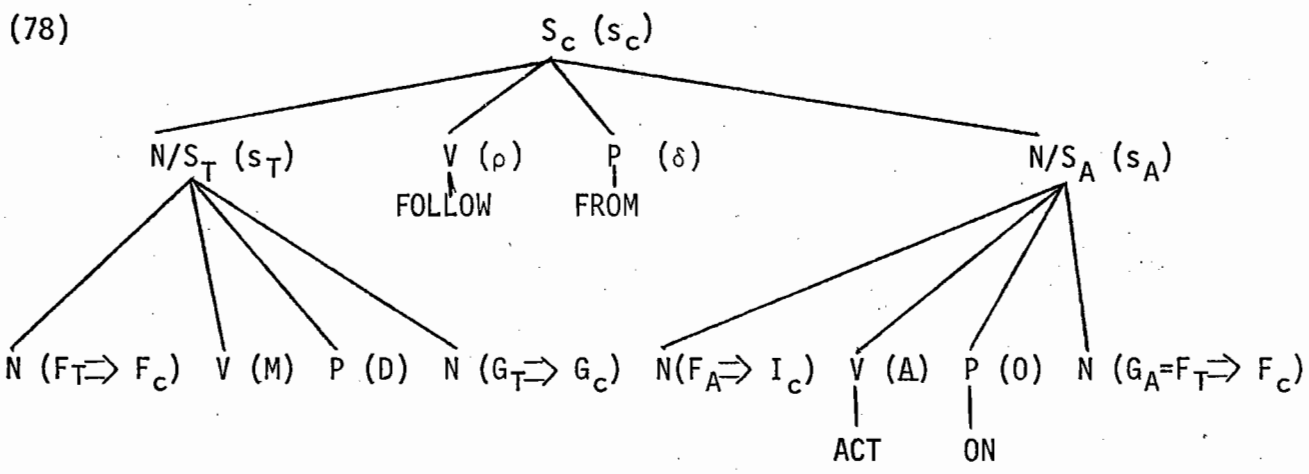
In addition, as per the proviso in (74):

*A more precise statement of this transvaluation is: the element which functions as the FIGURE of the translatory 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:

(78)

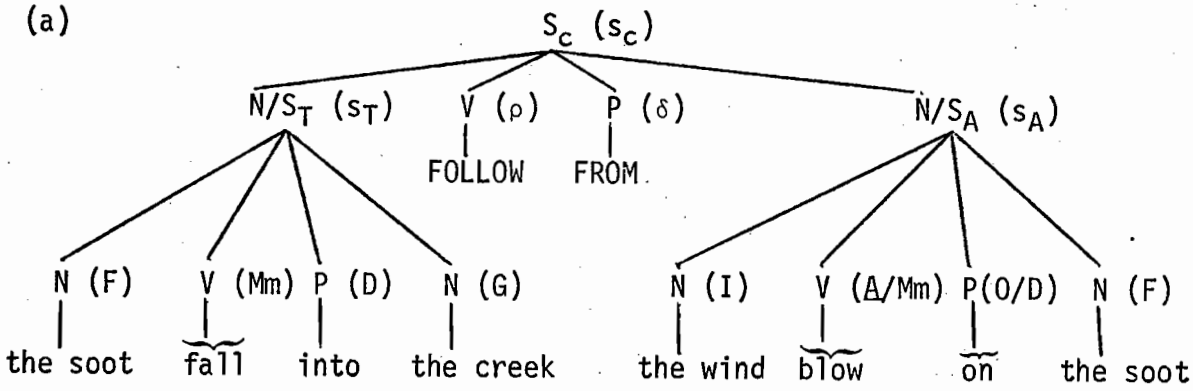


5.211 The 'FOLLOW-FROM' Derivation

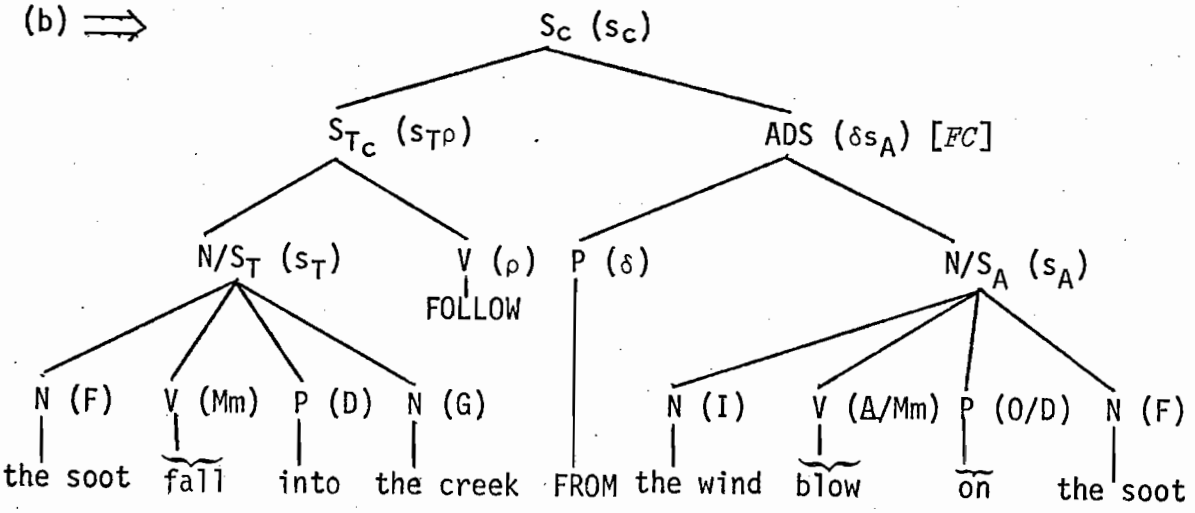
When fully particularized, the underlying causative structure has the option of undergoing a perhaps universal derivation -- to be termed the *FOLLOW-FROM derivation* -- whereby the embedded translatory structure becomes the main clause and the embedded adactive structure becomes the head of the dependent 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)

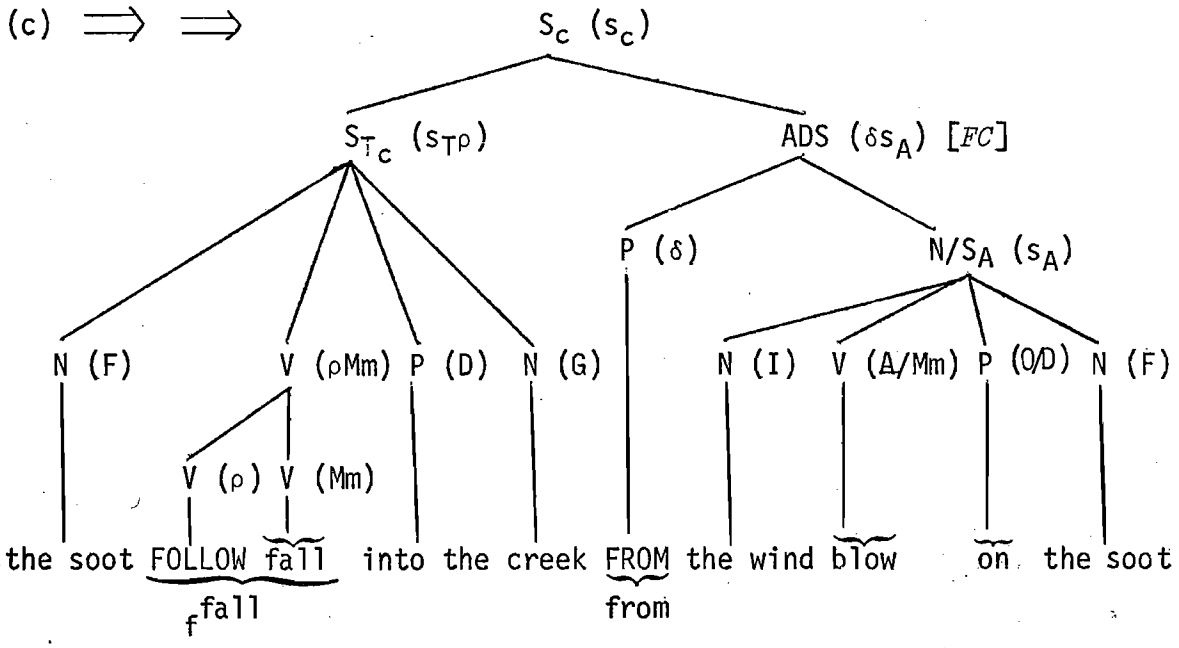
(a)



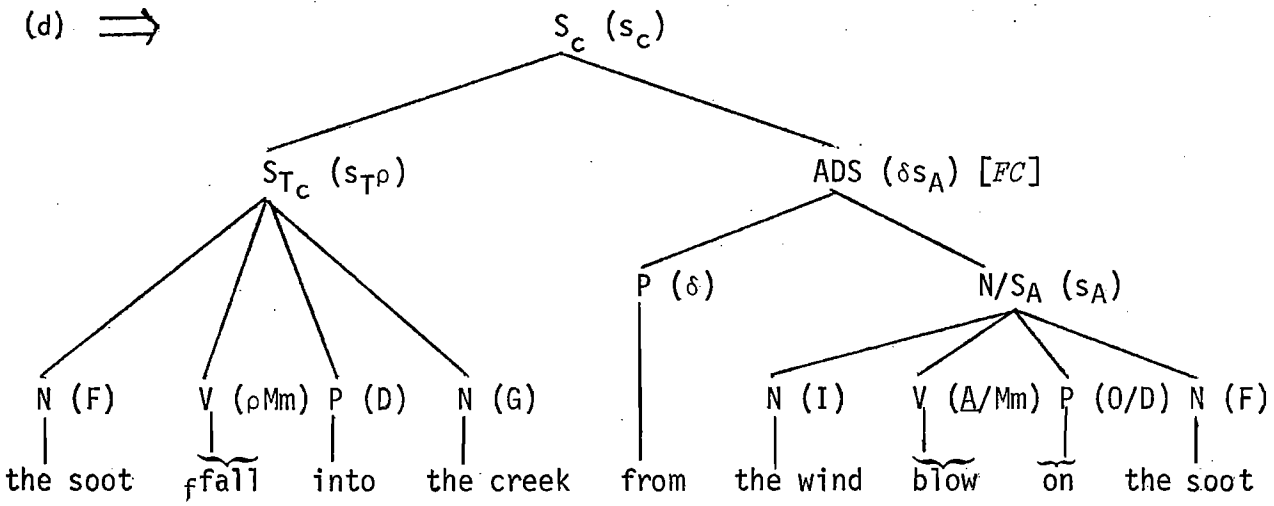
(b) ⟹



(c) $\Longrightarrow$ $\Longrightarrow$



(d) $\Longrightarrow$



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

(e) $\Longrightarrow$ 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 cojunction of the translatory N node (N/S_T) 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 '$S_{T\rho}$'.

-- The dependent clause has formed by the cojunction 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

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 *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 'ρMm'.

-- Onto this adjunction, the lexical-insertion of the vadic verb $_f$*fall* -- to be termed a *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 *FOLLOW* which underlies it.

-- The universal bathic DIRECTOR *FROM* may in English be lexically-inserted onto by several vadic expressions such as *as a result of* or *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

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

(d) the soot $_{f}$fell into the creek
from it, that the wind blew on the soot

(e) the soot $_{f}$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 $_{f}$fell into the creek from the wind

(g) the soot $_{f+}$blew into the creek from the wind

(h) the soot $_{f+}$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 *ACT* and *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 cojunction with the DIRECTOR-specifying bathic preposition *FROM* under an ADS node, and it is onto this cojunction 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 *FROM-clause-replacing morpheme* or, abbreviatedly, an '*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.

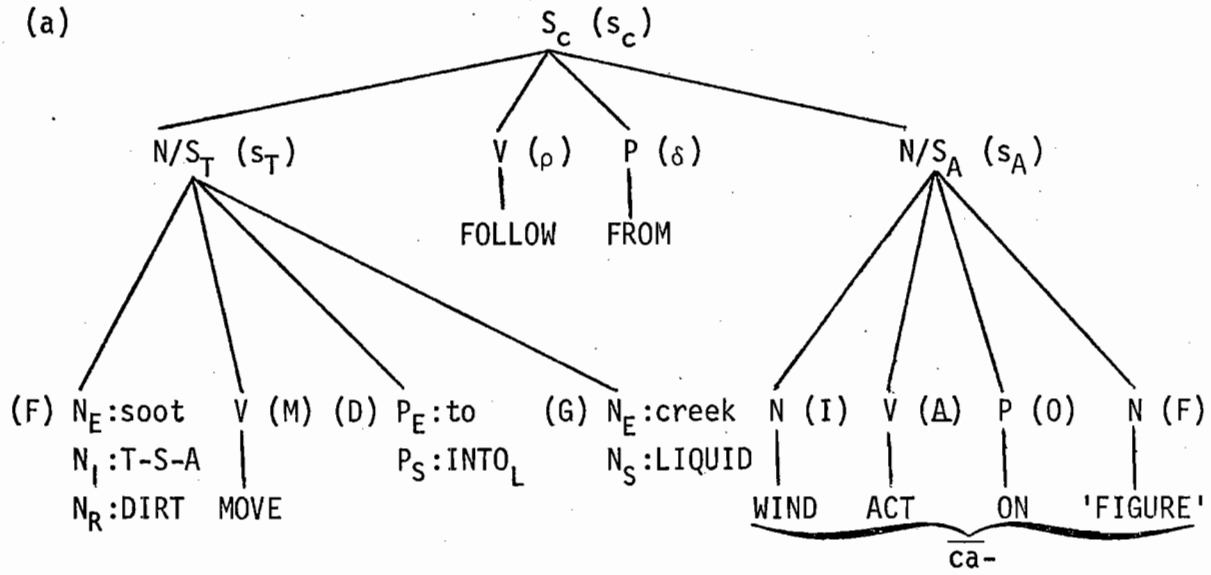
As a note on derivationally-related morphemes (in the sense that *breed* is related to *brood*), it is to be observed that of the many *FC* prefixes with the same phonological shapes as F or G prefixes, a number do indeed specify as the INSTRUMENT objects similar to those specified as the FIGURE or GROUND by the latter prefixes. However, the *FC* prefix system and the F prefix system (of which the G previx 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.

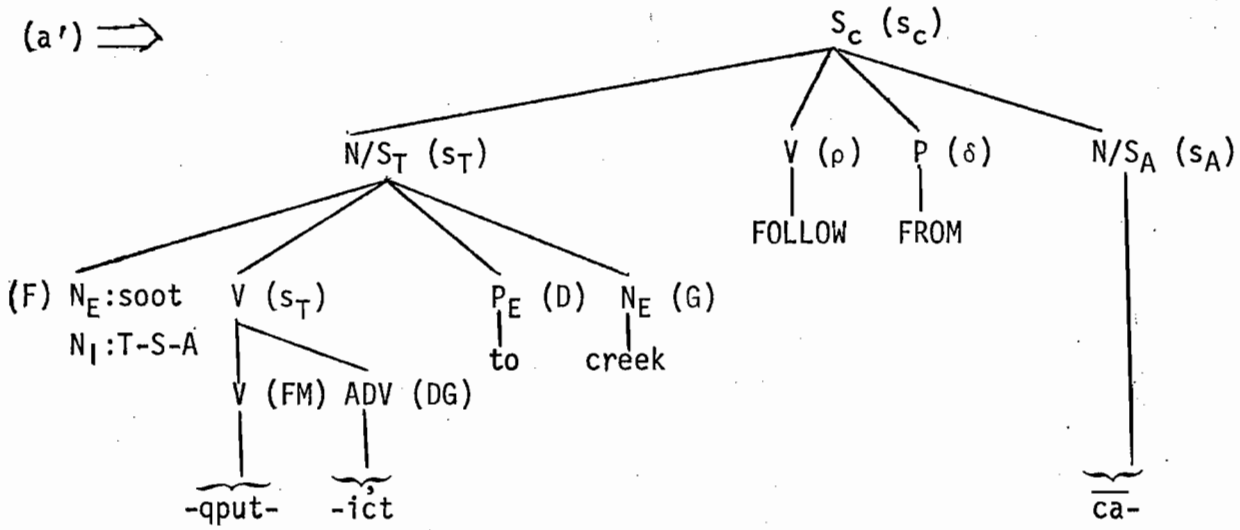
In (82), we now indicate in phrase-marker form the derivation of an underlying causative structure into a surface sentential-verb (plus, in this example, external vadic expressions). The derivational stages have been lettered so as to correspond to those of the preceding English example in (79).

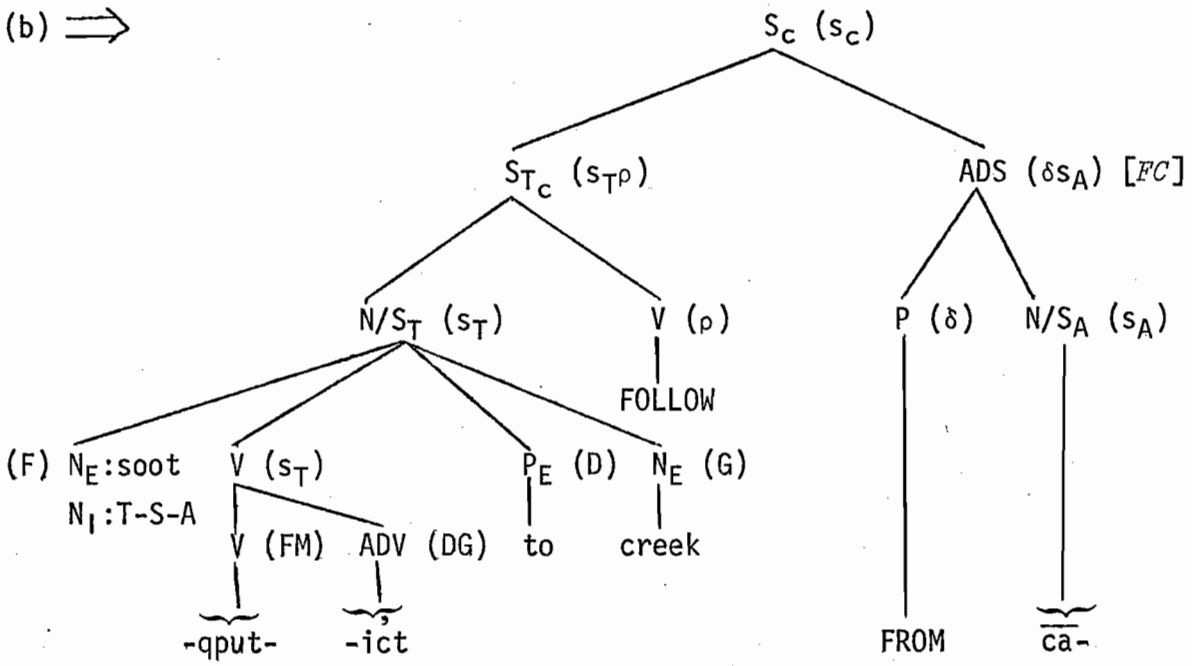
(82)

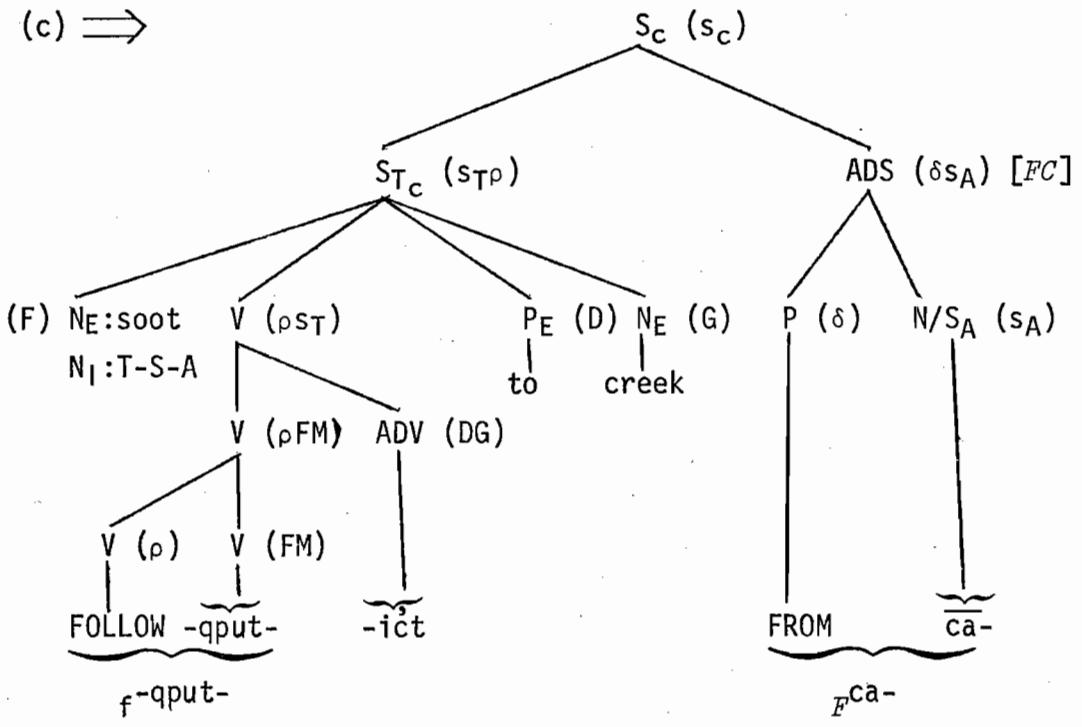
(a)



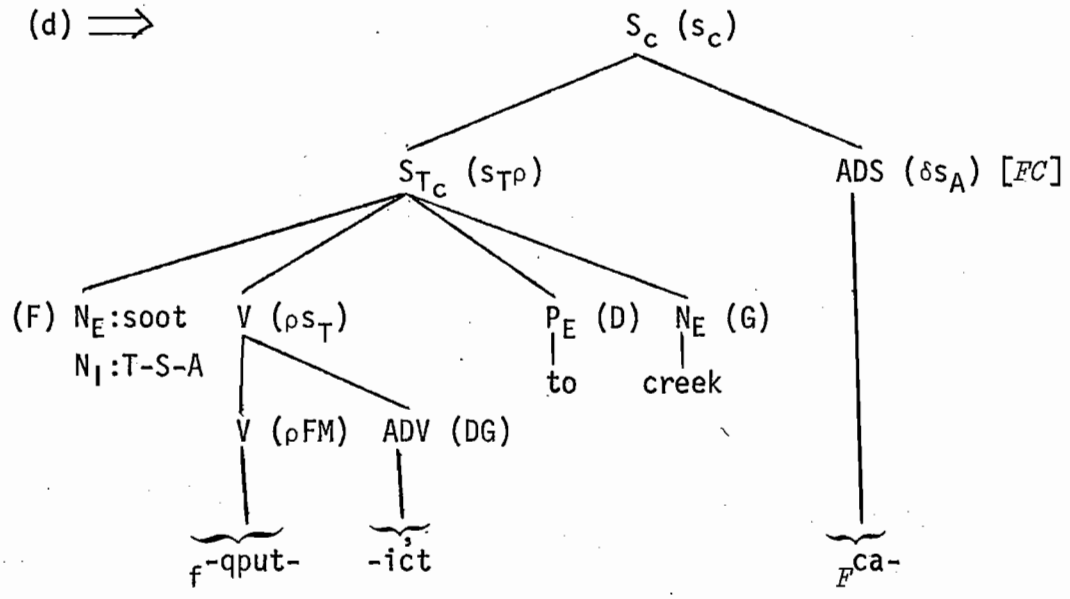
(a′) ⟹



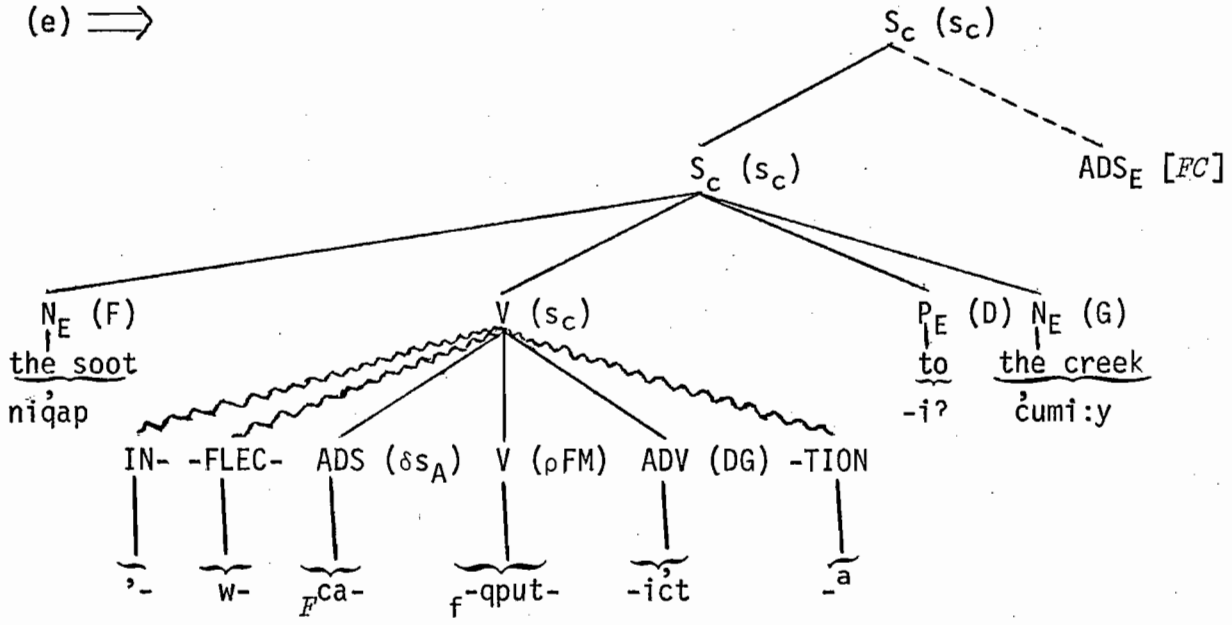

(b) ⟹
S_c (s_c)
S_{T_c} ($s_T\rho$)
ADS (δs_A) [FC]
N/S_T (s_T)
V (ρ)
P (δ)
N/S_A (s_A)
FOLLOW
(F) N_E:soot
N_I:T-S-A
V (s_T)
P_E (D)
N_E (G)
V (FM)
ADV (DG)
to
creek
-qput-
-ict
FROM
ca-


(c) ⟹
S_c (s_c)
S_{T_c} ($s_T\rho$)
ADS (δs_A) [FC]
(F) N_E:soot
N_I:T-S-A
V (ρs_T)
P_E (D)
N_E (G)
P (δ)
N/S_A (s_A)
to
creek
V (ρFM)
ADV (DG)
V (ρ)
V (FM)
FOLLOW
-qput-
-ict
FROM
ca-
$_f$-qput-
$_F$ca-

(d) ⟹


S_c (s_c)
S_{T_c} ($s_T\rho$)
ADS (δs_A) [*FC*]
(F) N_E:soot
N_I:T-S-A
V (ρs_T)
P_E (D)
N_E (G)
to
creek
V (ρFM)
ADV (DG)
f-qput-
-ict
F ca-

(e) ⟹


S_c (s_c)
S_c (s_c)
ADS_E [*FC*]
N_E (F)
the soot
niʔqap
V (s_c)
P_E (D)
N_E (G)
to
the creek
-iʔ
ċumi:y
IN-
-FLEC-
ADS (δs_A)
V (ρFM)
ADV (DG)
-TION
ʔ-
w-
F ca-
f-qput-
-ict
-a

(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 'N_P: 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 $\overline{ca}$-, 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-adjoin with the FM-specifying V node. The new V node created by the adjunction is marked for specifying the combination of components '$_{\rho}$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 cojunction of the DIRECTOR preposition *FROM* and the non-surface-appearing s_A-specifying morpheme $\overline{ca}$-, the lexical-insertion of the surface-appearing *FC* morpheme *ca-* is indicated. This latter form is marked with the italic subscript '$_F$' as a mnenomic 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 '$_F$ca', 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 '*FC* 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_c} node which dominated the 'caused translatory 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) /ʼ- w- ca- qput -ic̓t -ᵃ /

(b) = [c̓waqʰputíc̓ta]

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-aliquid',

(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 translatory event to the adactive event -- hence, to highlight the translatory 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 translatory 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 translatory 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 (ϕ) FOLLOW FROM S_A (γ)
S_A (γ) LEAD TO S_T (ϕ)

(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.

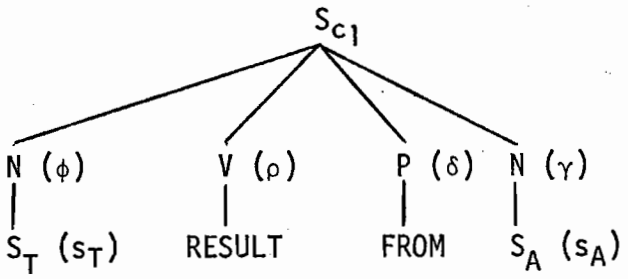
An alternative to this approach via derivation to account for differences in relief and highlight is to assume that the 'causational' situation (i.e., the particular portion of phenomenation under discussion), after its reduction to two elements and a relation between them, can have its elements ranked 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 translatory event results, through the mechanics of object-interaction, from an adactive event

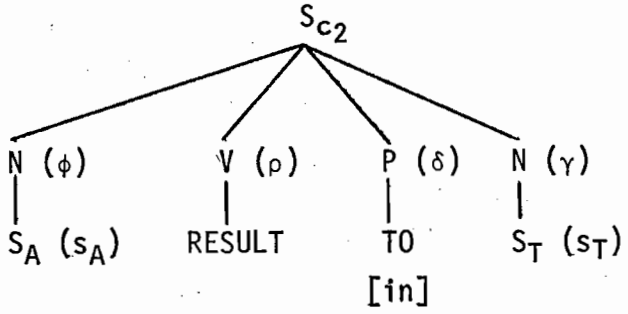
(iv) an adactive event results, through the mechanics of object-interaction, in a translatory event.

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

(v)



(vi)



(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', 'ρ', and 'δ']

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):

(86) S_T FOLLOWs FROM S_A

$\Longrightarrow$ S_A LEADs TO S_T (FROM S_A)

$= \emptyset$

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) $\Longrightarrow$ 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) $\Longrightarrow$ 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 / made the aerial come down}]

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

LED-TO-coming the aerial down

$_{\text{|}}$brought

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

[the wind's blowing on it $_{\text{|}}$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 vadic verb is indicated. This verb is marked with the subscript '$_l$' 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) '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) '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):

(91) S_T FOLLOWs FROM S_A [the 'INSTRUMENT' ACTs ON the 'FIGURE']

$\Longrightarrow$ the 'INSTRUMENT' ADDUCTs TO S_T 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) $\Longrightarrow$ the wind ADDUCTed TO it, that the aerial came down,
WITHBY it, that the wind blew on the aerial

(c) $\Longrightarrow$ the wind ADDUCTed the aerial TO coming down
WITHBY it, that the wind blew on the aerial

[the wind {*adducted the aerial to coming down / caused the aerial to come down / made the aerial come down} with its blowing on it]

(d) $\Longrightarrow$ the wind ADDUCTed-TO-coming the aerial down
(ADDUCTed-TO-coming → $_a$brought)
WITHBY it, that the wind blew on the aerial
(WITHBY → with)

(e) $\Longrightarrow$ the wind $_a$brought the aerial down
with it, that the wind blew on the aerial

[the wind $_a$brought 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 S_A 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 translatory 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

$$S_{T_3} \qquad S_{A_2} \qquad S_{A_1}$$

can itself be specified by a serial causative structure

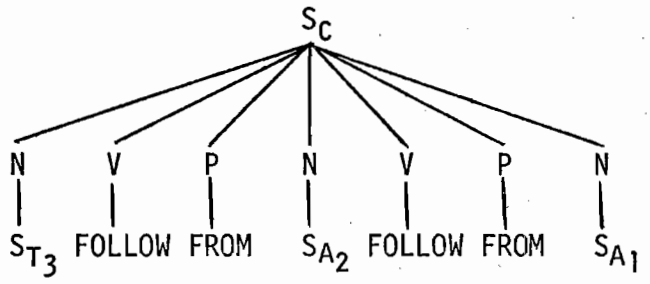
$$S_C$$

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

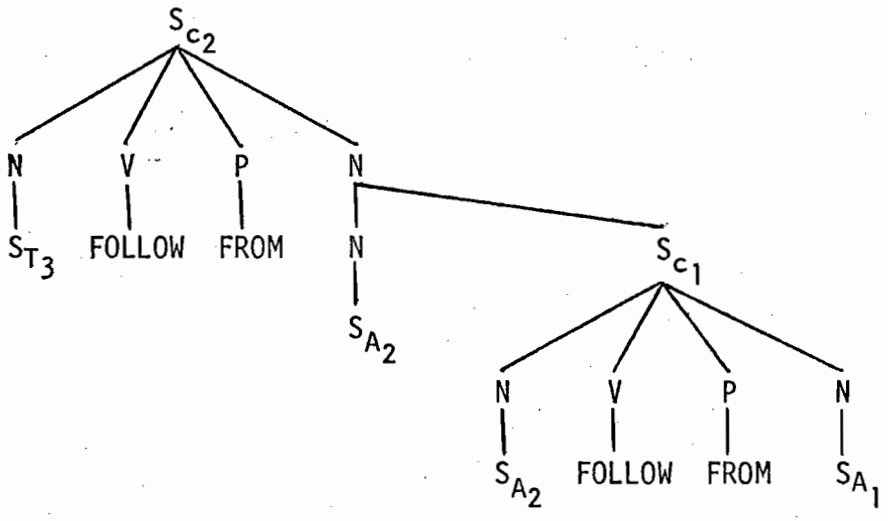
$$S_{C_2} \qquad S_{C_1}$$

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) $\Longrightarrow$ 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 $_{l}$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) $\Longrightarrow$ the aerial $_{f}$came down from

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

ii. ^{o}the branches $_{f+}$blowing down onto it

iii. ^{x}the wind blowing on them $_{l}$bringing the branches down onto it

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

v. ^{o}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 (*blow*) 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 (*blow*) 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 mnenomic 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 $_{a+}$blowing the branches down onto the aerial
$_{1}$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_{A_V}'. The S_{A_V} may be taken as a normal adactive structure which is already particularized, as indicated in (103):

(103) S_{A_V}: 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_{A_V}: 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 *WILLER*, to be symbolized as 'W'. The translatory event characterized in (102) must be specified by a translatory structure whose FIGURAL constituent is already particularized and which is thus also of a special type -- to be symbolized as 'S_{T_B}' (the '$_B$' a menomic for 'BODYPART') -- as indicated in (105):

(105) S_{T_B}: 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 *causative situation with volition* -- which can be syntactically specified as in (106):

(106) S_{T_B} FOLLOWs FROM S_{A_V}.

This *causative structure with volition* appears, when written out in full, as in (107):

(107) it, that the ENTITY's BODYPART (F) + 'MOTIVE' + 'DIRECTIONAL'
+ 'GROUND',
FOLLOWs FROM
it, that the ENTITY (W) WILLs ON the ENTITY's BODYPART,

where all occurrences of *ENTITY* and of *BODYPART* are of course co-referential and will, in general, appear in multiple specification with concurrent vadic 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 translatory 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 requirements of imaginative speech and the like, such things as 'telekinetic 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_{A_V} 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_{T_B}.

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 'Ɨ'. 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 (Ɨ) 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 (*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) in an s_e, a single entity both intends and adducts to (here: is the willer of an s_{A_V} which causes) a single translatory 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 translatory event of the latter, with which it will be said to be *in association*. The s_e will be specified at the underlying level by a syntactic structure to be termed the (*simple* or *first-order*) *effective structure* and symbolized as 'S_e', as represented in (114):

(114) $$S_e : \left\langle \begin{matrix} S_i \\ S_{T_B} \end{matrix} \right\rangle \text{ FOLLOWs FROM } S_{A_V} ,$$

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) $\langle \begin{matrix} S_i \\ S_{T_B} \end{matrix} \rangle$ FOLLOWs FROM S_{A_V}

(b) $\Longrightarrow$ $\langle \begin{matrix} \text{the ENTITY (I) INTENDs (TO) } S_{T_B} \\ \text{the ENTITY (W) ADDUCTs TO } S_{T_B} \end{matrix} \rangle$ WITHBY S_{A_V}

(c) $\Longrightarrow$ the ENTITY (A) EFFECTs (TO) S_{T_B} BY S_{A_V} ($\Longrightarrow \emptyset$)

(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 'S_{T_B}' are replaced in the output by a single occurrence. By the characterization of the effective situation in (112), both input occurrences of 'S_{T_B}' 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_{A_V} 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 *EFFECT-(TO) derivation* -- of an underlying effective structure:

(117)

(a) the boy INTENDed (TO) it, that the boy's arm swung into the aerial
it, that the boy's arm swung into the aerial,

FOLLOWed FROM

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

(b)$\Longrightarrow$ the boy INTENDed (TO) it, that the boy's arm swung into the aerial
the boy ADDUCTed TO it, that the boy's arm swung into the aerial

WITHBY it, that the boy WILLed ON the boy's arm

(c)$\Longrightarrow$ the boy EFFECTed (TO) it, that the boy's arm swung into the aerial

(BY it, that the boy WILLed ON the boy's arm)

$\Longrightarrow$ $\emptyset$

$\left(\right.$(d)$\Longrightarrow$ the boy EFFECTed the boy's arm (TO) swinging into the aerial

[the boy made his arm swing into the aerial]$\left.\right)$

(e)$\Longrightarrow$ the boy EFFECTed-(TO)-swinging the boy's arm into the aerial

$_{e}$swung

(f)$\Longrightarrow$ the boy $_{e}$swung the boy's arm into the aerial

[the boy $_{e}$swung his arm into the aerial]

(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) $\overset{((S_i))}{\langle S_T \rangle}$ FOLLOWs FROM $\overset{(S_i)}{\langle S_A \rangle}$ FOLLOWs FROM $\overset{S_i}{\langle S_{A_B} \rangle}$ 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 'adactive' (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) S_T FOLLOWs FROM $\overset{S_i}{\langle S_{A_B} \rangle}$ 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) ⟹ it, that the aerial came down

FOLLOWed FROM

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

(c) ⟹ 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) ⟹ 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) ⟹ the boy $\underbrace{\text{ADDUCTed-TO-coming}}_{{}_{a}\text{brought}}$ the aerial down,

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

(f) ⟹ 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 (*come*) raises into adjunction with *ADDUCT TO*, the adjunction keying in the insertion of a vadic verb marked with the subscript '$_a$' (*$_a$bring*).

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) $\langle {}^{S_i}_{S_T} \rangle$ FOLLOWs FROM $\langle {}^{S_i}_{S_{A_B}} \rangle$ FOLLOWs FROM S_{A_V}

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_{A_V}, 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 INTENDed (TO) it, that ---
⟨ it, that the aerial came down,
FOLLOWed FROM
the boy INTENDed (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 INTENDed (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 INTENDed (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 translatory 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_{A_V} (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_{A_V}, 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 '$_e$' ($_e$*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 $_{f}$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 $_{e}$swung his arm into the aerial

(b) $\Longrightarrow$ the boy $_{e}$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 $_{e}$brought the aerial down by $_{e}$swinging his arm into it

(b) $\Longrightarrow$ the boy $_{e}$brought the aerial down by $_{e}$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 $_{e}$brought the aerial down by $_{e}$ACTing his arm ON it*

(b) the boy $_{e}$brought the aerial down $\underbrace{\text{by } {}_{e}\text{ACTing ON it}}_{\emptyset}$ with his arm

(c) the boy $_{e}$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, $_{e}$*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 $_{e}$*apply* (NP) *to* (NP), as if the dependent clause were now to be written

...by $_{e}$APPLYing his arm TO it.

We now proceed to the consideration of a third-order effective situation, as syntactically represented in (134):

(134) $\langle \begin{matrix} S_i \\ S_T \end{matrix} \rangle$ FOLLOWs FROM $\langle \begin{matrix} S_i \\ S_A \end{matrix} \rangle$ FOLLOWs FROM $\langle \begin{matrix} S_i \\ S_{A_B} \end{matrix} \rangle$ FOLLOWs FROM S_{A_V}.

We now pass immediately to the presentation of the particularization and derivation of a structure of this kind in (135).

(135)

(a) ⟨the boy INTENDed (TO) it, that...
it, that the aerial came down⟩

FOLLOWed FROM

⟨the boy INTENDed (TO) it, that .....
it, that the stick swung into the aerial⟩

FOLLOWed FROM

⟨the boy INTENDed (TO) it, that .....
it, that the boy's hand ACTed ON the stick⟩

FOLLOWed FROM

it, that the boy WILLed ON the boy's hand

(b) $\Longrightarrow$ ⟨the boy INTENDed (TO) it, that...
it, that the aerial came down⟩

FOLLOWed FROM

⟨the boy INTENDed (TO) it, that.....
it, that the stick swung into the aerial⟩

FOLLOWed FROM

it, that the boy $_{e}$ACTed the boy's hand ON the stick

(c) $\Longrightarrow$ ⟨the boy INTENDed (TO) it, that...
it, that the aerial came down⟩

FOLLOWed FROM

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

$\Longrightarrow$ BY it, that the boy $_{e}$ACTed ON the stick WITH the boy's hand

$\Longrightarrow$ WITH the boy's hand

(d) $\Longrightarrow$ the boy $_e$brought the aerial down

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

[the boy $_e$brought the aerial down by (his) $_e$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_{A_V}, an S_{A_B} -- 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 $_e$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 $\begin{Bmatrix} {}^{o}\text{with} \\ {}^{o}\text{in} \end{Bmatrix}$ red ink

b. he wrote the document $\begin{Bmatrix} {}^{*}\text{with} \\ {}^{o}\text{in} \end{Bmatrix}$ red ink with a quill

(ii) a. he drank the milk $\left\{\begin{matrix}{}^{o}\text{with} \\ {}^{o}\text{through}\end{matrix}\right\}$ a straw

b. he drank the milk $\left\{\begin{matrix}{}^{*}\text{with} \\ {}^{o}\text{through}\end{matrix}\right\}$ 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 $_{e}$brought the aerial down by $_{e}$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 *ACT* and *ON* morphemes unadjoined by specific expressions, but also has its *BODYPART* morpheme unaccompanied by a concurrent specific expression (such as *hand*), then, in a derived structure which has undergone the deletion of all of its BY-clause except the WITH-phrase, the new transformation now obligatorily deletes the WITH-phrase, too. Thus, if in (135a) the S_{A_B} had less-specifiedly been

(137a) ... it, that a BODYPART of the boy 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 $_{e}$brought the aerial down
by $_{e}$swinging the stick into it with a BODYPART of his

(e) the boy $_{e}$brought the aerial down
by $_{e}$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 $_{e}$brought the aerial down
by $_{e}$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_{A_B} 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_{A_B} 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.

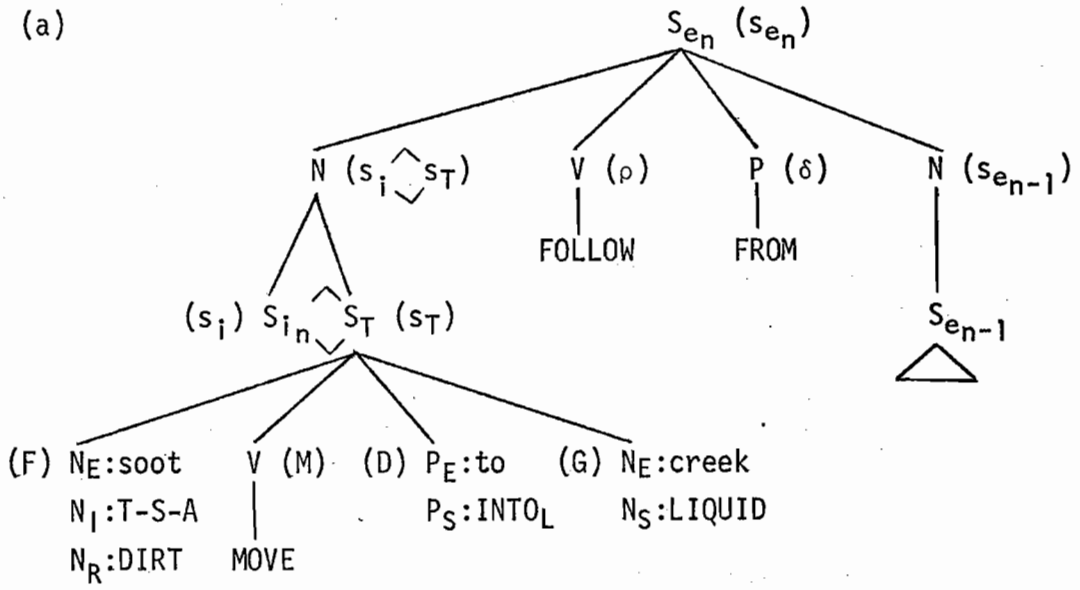
5.32 Effective Structures in Atsugewi

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.

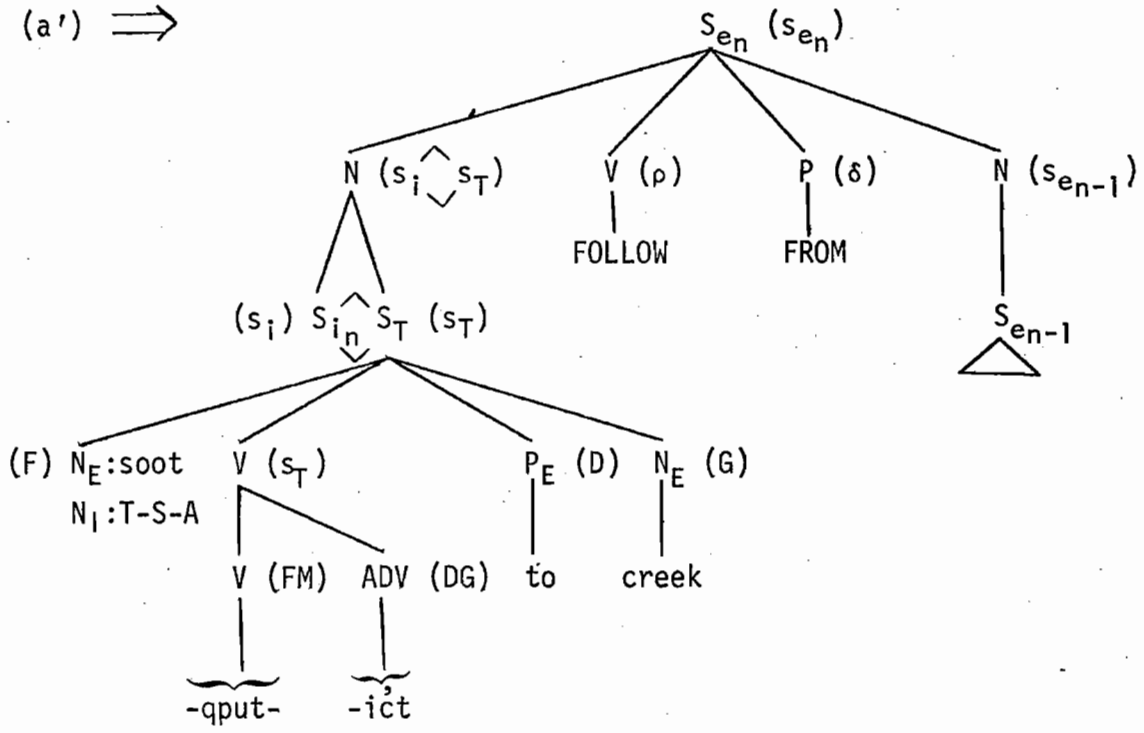
We commence immediately, then, with the last cyclic pass of the EFFECT-(TO) derivation, as represented in phrase-marker form in (140). The steps in the derivation may be compared with those in the derivations previously presented in (82) and in (126).

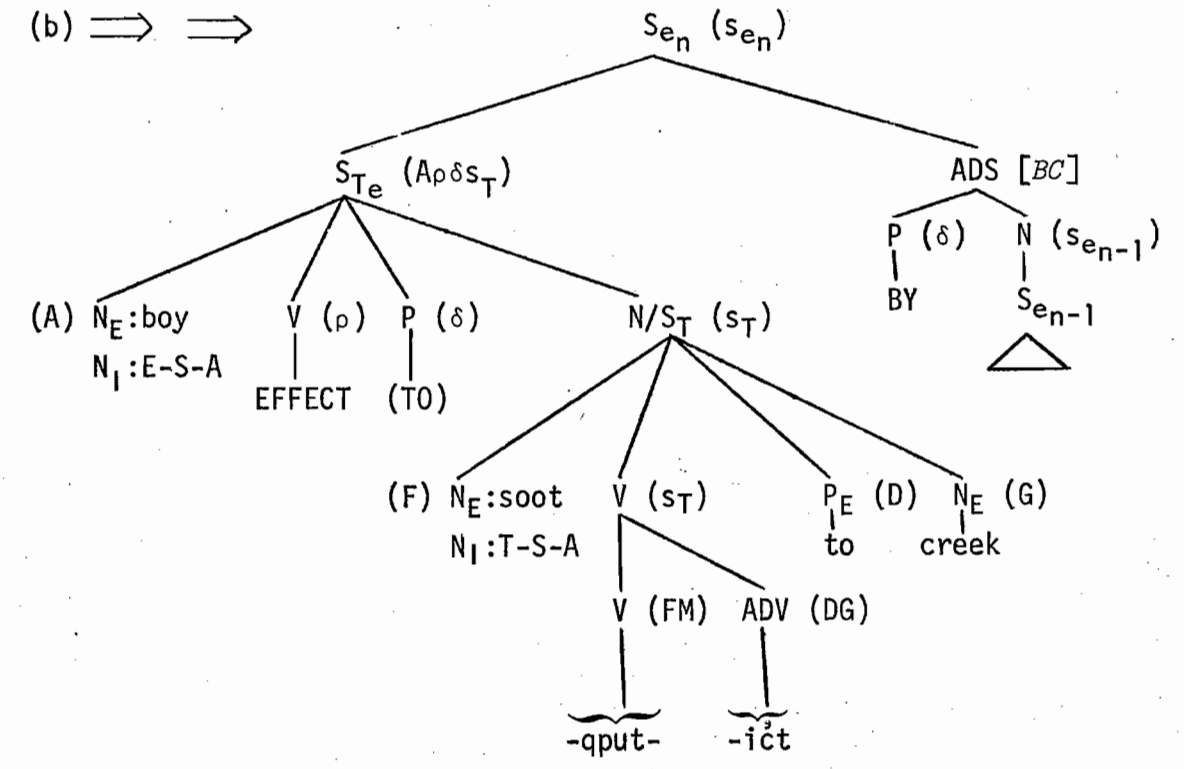
(140)

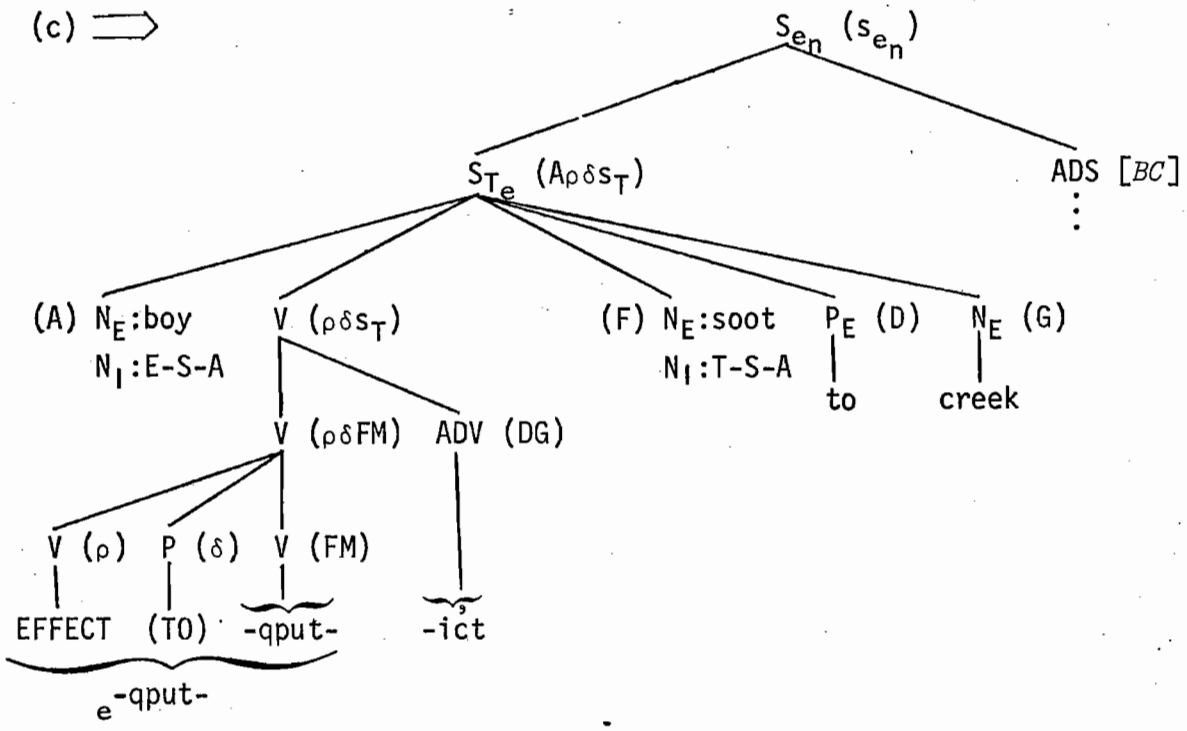
(a)

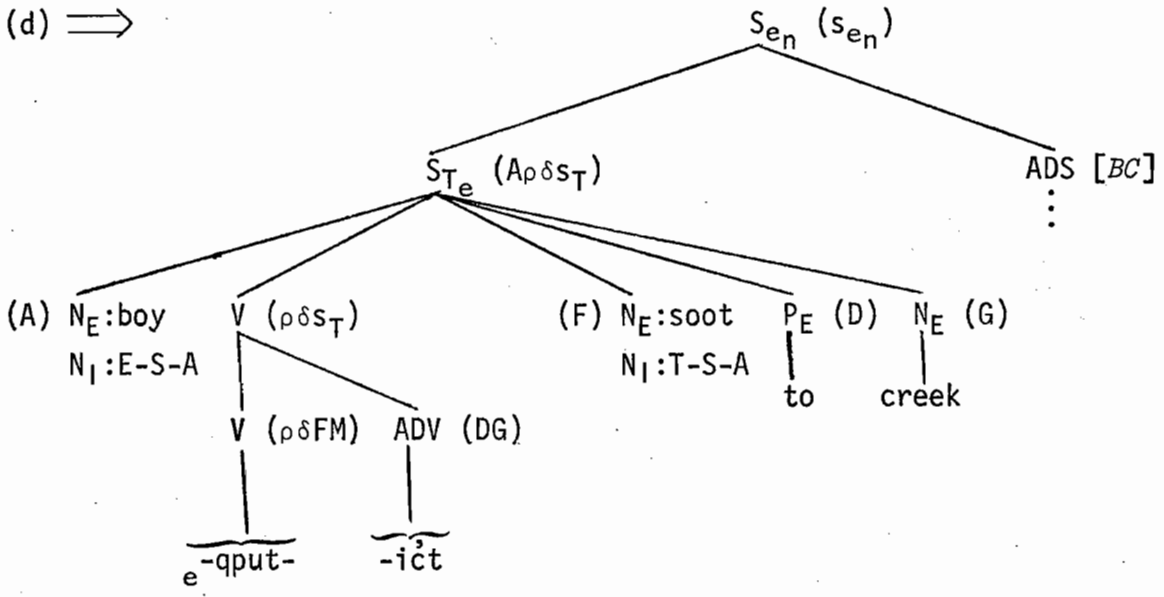

S_{e_n} (s_{e_n})
N ($s_i \frown s_T$)
V (ρ)
P (δ)
N ($s_{e_{n-1}}$)
FOLLOW
FROM
(s_i) S_{i_n} S_T (s_T)
$S_{e_{n-1}}$
(F) N_E:soot
N_I:T-S-A
N_R:DIRT
V (M)
MOVE
(D) P_E:to
P_S:INTO$_L$
(G) N_E:creek
N_S:LIQUID

(a′) ⟹


S_{e_n} (s_{e_n})
N ($s_i \frown s_T$)
V (ρ)
P (δ)
N ($s_{e_{n-1}}$)
FOLLOW
FROM
(s_i) S_{i_n} S_T (s_T)
$S_{e_{n-1}}$
(F) N_E:soot
N_I:T-S-A
V (s_T)
P_E (D)
N_E (G)
V (FM)
ADV (DG)
to
creek
-qput-
-ict


(b) ⟹ ⟹
S_{e_n} (s_{e_n})
S_{T_e} ($A\rho\delta s_T$)
ADS [BC]
P (δ)
N ($s_{e_{n-1}}$)
BY
$S_{e_{n-1}}$
(A) N_E:boy
N_I:E-S-A
V (ρ)
P (δ)
EFFECT
(TO)
N/S_T (s_T)
(F) N_E:soot
N_I:T-S-A
V (s_T)
P_E (D)
to
N_E (G)
creek
V (FM)
ADV (DG)
-qput-
-ict


(c) ⟹
S_{e_n} (s_{e_n})
S_{T_e} ($A\rho\delta s_T$)
ADS [BC]
(A) N_E:boy
N_I:E-S-A
V ($\rho\delta s_T$)
(F) N_E:soot
N_I:T-S-A
P_E (D)
to
N_E (G)
creek
V ($\rho\delta$FM)
ADV (DG)
V (ρ)
P (δ)
V (FM)
EFFECT
(TO)
-qput-
-ict
e-qput-


(d) ⟹
S_{e_n} (s_{e_n})
S_{T_e} ($A\rho\delta s_T$)
ADS [*BC*]
(A) N_E:boy
N_I:E-S-A
V ($\rho\delta s_T$)
(F) N_E:soot
N_I:T-S-A
P_E (D)
N_E (G)
to
creek
V ($\rho\delta$FM)
ADV (DG)
e-qput-
-ict

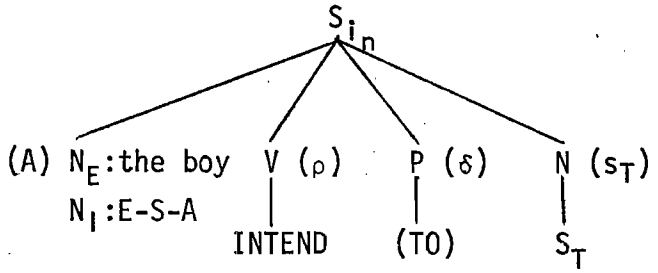
(141) Comments on the derivation in (140):

1. -- In (140a) [which is comparable to (82a) and to (126b)] is given the nth-order effective structure, here symbolized as 'S_{e_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 '$S_{e_{n-1}}$', 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)



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).

1' -- 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 translatory 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 vadic 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, '$V\ (\rho\delta s_T)$', 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 ($\rho\delta s_T$). 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, '$V\ (\rho\delta FM)$', 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 autic root -- in this case, -*qput*-, on the pattern of English $_{e}$*swing/swing* rather than that of English $_{e}$*bring/come*. As to meaning, just as we gave in (18) three equivalent formulations for the derived verbal meaning of -*qput*-, as a representative autic 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 bathic personal system. This member must contain the term *ENTITY*, and so can be, e.g., any of the bathic noun phrases of (36) except ($36c_2$). The bathic 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.

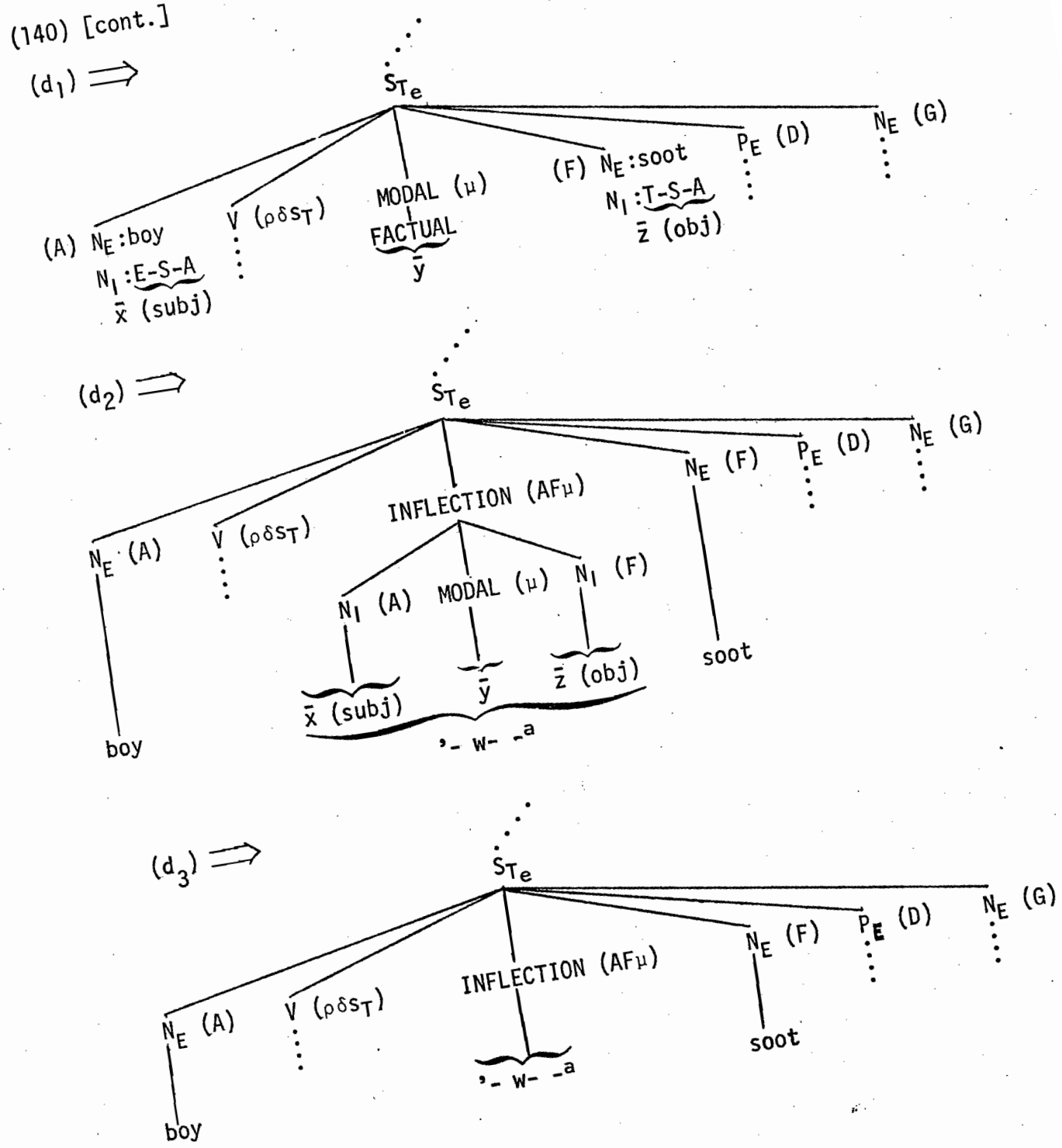
5. Onto this cojunction of non-surface-appearing vadic forms is inserted the particular set of surface-appearing vadic morphemes which is keyed to it.

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 ($140d_1$ - d_3):

(140) [cont.]


(d1) ⇒
S_{T_e}
(A) N_E:boy
N_I:E-S-A
$\bar{x}$ (subj)
V ($\rho\delta s_T$)
MODAL (μ)
FACTUAL
$\bar{y}$
(F) N_E:soot
N_I:T-S-A
$\bar{z}$ (obj)
P_E (D)
N_E (G)
(d2) ⇒
S_{T_e}
N_E (A)
V ($\rho\delta s_T$)
INFLECTION (AFμ)
N_I (A)
MODAL (μ)
N_I (F)
N_E (F)
P_E (D)
N_E (G)
boy
$\bar{x}$ (subj)
$\bar{y}$
$\bar{z}$ (obj)
soot
'- w- -a
(d3) ⇒
S_{T_e}
N_E (A)
V ($\rho\delta s_T$)
INFLECTION (AFμ)
N_E (F)
P_E (D)
N_E (G)
boy
'- w- -a
soot

(143) Comments on the inflectional subderivation in (140d_1 - d_3):

1. -- In (140d_1), the non-surface-appearing vadic forms, represented as '$\bar{x}$', '$\bar{y}$', and '$\bar{z}$', have been respectively inserted onto the inflection-participating expressions specifying the AGENT, the MODE, and the FIGURE components.

   -- '$\bar{x}$' has been marked for subject and '$\bar{z}$' for object.

2. -- In (140d_2), the insertions have taken place. The inserts with the nodes to which they are attached have moved into a cojunction under the new node 'INFLECTION'.

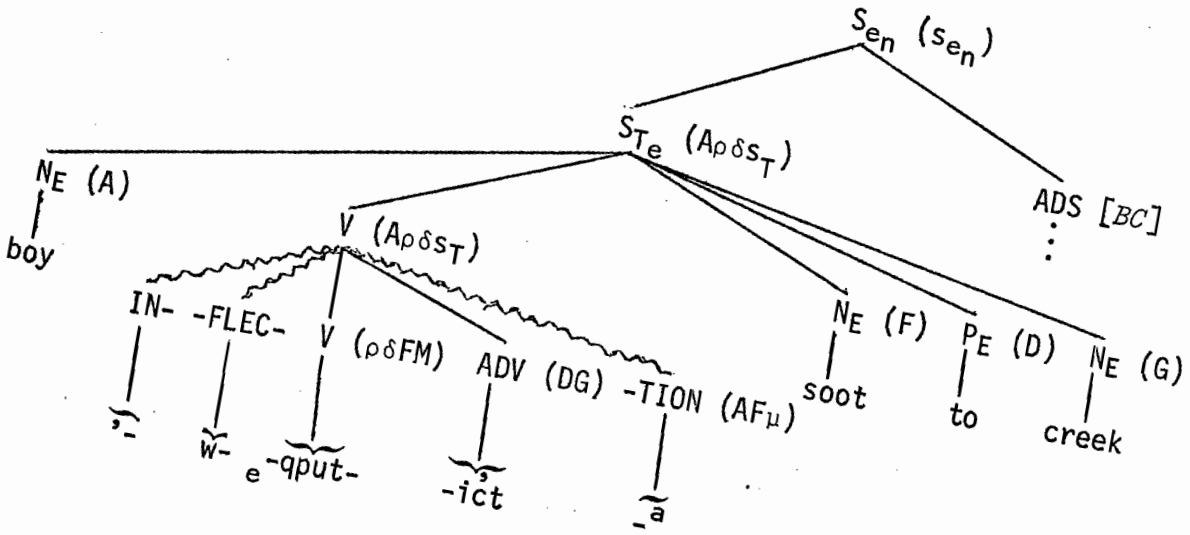
   -- The insertion onto the cojunction of the appropriate surface-appearing morpheme-set is indicated.

3. -- In (140d_3), the insertion has taken place.

* * *

Finally, in completing the inflectional subderivation, the INFLECTION node of (140d_3) moves into daughter-adjunction with the V node, breaking up into its requisite discontinuous form, as shown in (140e) [which is comparable to (82e)]:

(140e) ⟹


Sen (sen)
STe (Aρδ ST)
NE (A)
boy
V (Aρδ ST)
ADS [BC]
IN-
-FLEC-
V (ρδFM)
ADV (DG)
-TION (AFμ)
NE (F)
PE (D)
NE (G)
soot
to
creek
w-
e
-qput-
-ict
-a

It may have been noticed that the inflectional affix-set appearing in the autic sentential-verb of (82e), namely '- w- -^{a}, 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- -^{a} ,

which specifies that

the BODY of the ENTITY SPEAKING (F)
FACTUALLY [MOVEd],

is formally identical to the effective inflectional affix-set

s- '- w- -^{a} ,

which specifies that

the ENTITY SPEAKING (A)
FACTUALLY [$_{e}$MOVEd]
$\left\{\begin{matrix}\text{the BODY (-IES) of the ENTITY (-IES)}\\ \text{the THING (-S)}\end{matrix}\right\}$ SPOKEN ABOUT (F).

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 [$_e$MOVEd]
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 FOLLOW] FROM $\underset{\uparrow}{S_A}$ ....

(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) $\left[\langle {}^{S_{i_2}}_{S_T}\rangle \text{ FOLLOW}\right] \text{ FROM } \langle {}^{S_{i_1}}_{\uparrow\, S_{A_B}}\rangle \text{ FOLLOW FROM } S_{A_V}$

(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_{A_B} 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) $\left[\langle {}^{S_{i_n}}_{S_T}\rangle \text{FOLLOW}\right] \text{FROM} \langle {}^{S_{i_{n-1}}}_{\uparrow\, S_A}\rangle \text{ FOLLOW FROM } \ldots . \langle {}^{S_{i_1}}_{S_{A_B}}\rangle \text{ FOLLOW FROM } S_{A_V}$

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_{A_B} in (145), not being a systematic S_A (with one exception), specifies only a minimally-specific body-part -- as represented by the simple bathic 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 fails 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'.

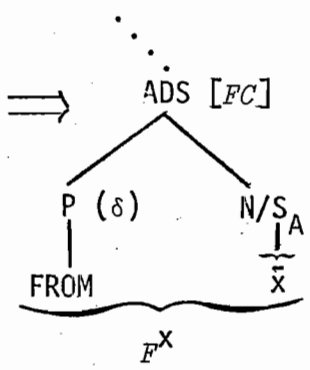
In (146), then, we now present in schematic form for the generic instance the derivation which the unbracketed portion of (143) undergoes (as already presented in (82) in phrase-marker form for a specific instance):

(146)

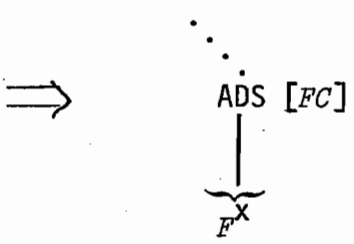
(a) ... FROM S_A : the 'INSTRUMENT' ACT ON the 'FIGURE'
$\bar{x}$

(b) $\Longrightarrow$ ... FROM S_A : $\}\ \bar{x}$

(c)



(d)



(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 cojunction of the DIRECTOR *FROM* and the embedded S_A.

-- Onto the cojunction is indicated the insertion of the surface-appearing vadic FROM-clause replacing morpheme '$_F$x' -- marked with the subscript '$_F$' 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 *FC* prefix.

* * *

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

(148)

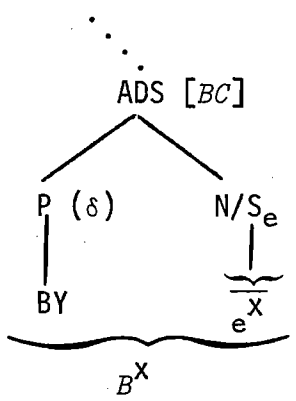
(a) $\langle S_i$: the 'INTENDER' INTEND (TO) S_A
... FROM S_A : the 'INSTRUMENT' ACT ON the 'FIGURE' $\rangle$ FOLLOW FROM ....
$\bar{x}$

(b) $\langle S_i$: the 'INTENDER' INTEND (TO) $S_A \rangle$
$\Longrightarrow$... FROM $\langle S_A$: $\}\,\bar{x}$ FOLLOW FROM ....

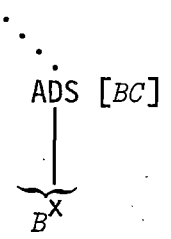
(c) $\Longrightarrow \Longrightarrow$
... FROM S_e : the 'AGENT' EFFECT (TO) S_A : $\}\,\bar{x}$...
$\overline{e^x}$

(d) $\Longrightarrow$... FROM S_e : $\}\,\overline{e^x}$

(e) $\Longrightarrow$



(f) $\Longrightarrow$



(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, '$\overline{{}_e x}$', 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 cojunction of the DIRECTOR *BY* and the embedded S_e.

-- Onto the cojunction is indicated the insertion of a surface-appearing vadic morpheme, '$_B$x', marked with the subscript '$_B$' 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

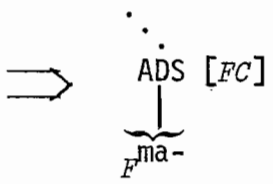
(150) S_{A_B} : an ENTITY's FOOT ACT ON the 'FIGURE',

where the bathic noun *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) $\Longrightarrow$ S_{A_B} : $\left.\right\}$ $\overline{\text{ma-}}$

and stage (146d) as in (151d):

(151d)



With the *FC* morpheme '$_{F}$ma-' thus the product of derivation, its derived meaning may be represented as

(152) '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) /'- w- $_{F}$ma- $_{f}$qput -ic't -^{a}/ ⟹ [ma·q^{h}puti'c'ta]

which may be casually translated as

(154) '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) ... FROM ⟨ S_{i_1} : the 'INTENDER' INTEND (TO) S_{A_B} ; S_{A_B} : the ENTITY's FOOT ACT ON the 'FIGURE' ⟩

ma-

FOLLOW FROM S_{A_V}

Stages (148e) and (148d) now appear as in (155c) and (155d):

(155)

(c) ... FROM S_e : the 'AGENT' EFFECT (TO) S_{A_B} : } $\overline{ma}$- = $\overline{{}_e ma}$-

(d) ⟹ ... FROM S_e : } $\overline{{}_e ma}$-

With the s_e-specifying morpheme '$\overline{{}_e ma}$-' 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 $_e$acts on the FIGURE with his foot/feet'

Continuing the derivation, the stage in (148f) now appears as in (115f):

(155f)

⟹ ADS [*BC*]

$\underbrace{\quad}_{{}_B ma-}$

and the derived meaning of this lastly inserted *BC* morpheme '$_B$ma-' may be represented as

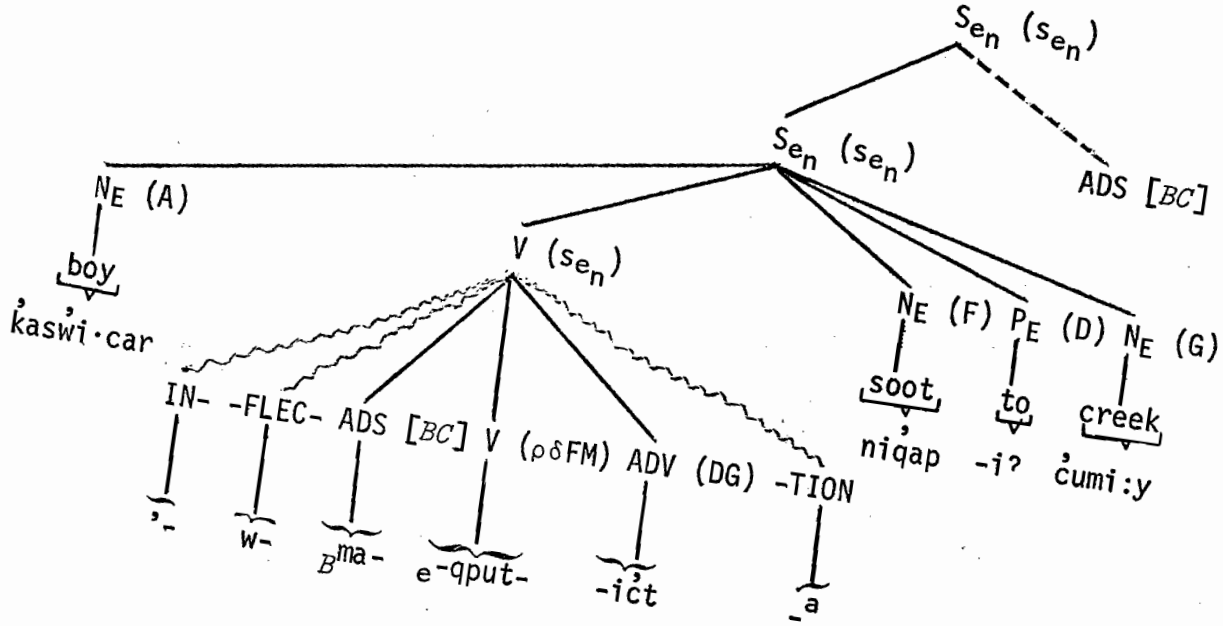
(157a) 'by the AGENT's acting on the FIGURE with his foot/feet',

or simply as

(157b) 'with his (the AGENT's) foot/feet'

(compare the derived meaning of the corresponding *FC* morpheme '$_{F}$ma-' 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):

(140f) ⟹


Sen (sen)
Sen (sen)
ADS [BC]
NE (A)
V (sen)
NE (F)
PE (D)
NE (G)
boy
ʔkaswi·car
IN-
-FLEC-
ADS [BC]
V (ρδFM)
ADV (DG)
-TION
soot
to
creek
ʔniqap
-iʔ
ʔcumi:y
ʔ-
w-
Bma-
e-qput-
-iʔct
-a

(158) Comments on (140f):

1. -- Because a *BC* prefix is now in the sentential-verb, the dominating V node is marked for specifying the whole of the higher-order effective situation -- 's_{e_n}' -- changed from what was marked for it in (140e); for the same reason, the S_{T_e} node of (140e) is here changed to S_{e_n}.

-- Although with the presence of '$_B$ma-' 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 S_{e_n} 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) /ʾ- w- $_B$ma- $_e$qput -icʾt -^{a}/ ⟹ [ʾma·q^{h}putíʾcta].

This sentential-verb can be represented in literal translation as

(160a) 'the entity spoken about $_e$moved the dirt-like material
(which was the thing spoken about)
into the liquid by $_e$acting on it with his foot/feet',

in rendered translation (using '(he)' for third-personal AGENT) as

(160b) (he)-footly-dirted-aliquid-(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 '$_{F}$ma-' and '$_{B}$ma-' 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) $_{B}$ci- 'by the AGENT's acting on the FIGURE with his hand (-s) working manipulatively'

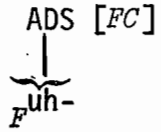
For our next specific representative example, we now consider that systematic S_A whose underlying form may be represented somewhat simplifiedly as

(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):

(163b) $\Longrightarrow$ S_A : } uh-

(163d)



The derived meaning of the *FC* morpheme '$_{F}$uh-' 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- $_{F}$uh- $_{f}$qput -ic't -^{a}/ $\Longrightarrow$ [wo'q^{h}puti'c'ta],

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)

$$\ldots \text{ FROM } \left\langle \begin{matrix} S_{i_{n-1}} : \text{ the 'INTENDER' INTEND (TO) } S_A \\ S_A : \underbrace{\text{a LINEAR-OBJECT SWING INTO the 'FIGURE'}}_{\overline{\text{uh-}}} \end{matrix} \right\rangle$$

$$\text{FOLLOW FROM } \ldots \left\langle S_{i_1} \right\rangle_{S_{A_B}} \text{ FOLLOW FROM } S_{A_V}.$$

Stages (148c & d) now appear as in (167c & d):

(167)

(c) $\ldots$ FROM S_e : $\underbrace{\text{the 'AGENT' EFFECT (TO) } S_A : \}\overline{\text{uh-}}}_{\overline{e\text{uh-}}} \ldots$. BY $S_{A_{B_e}}$

(d) $\Longrightarrow \ldots$. FROM S_e : $\}\overline{e\text{uh-}}$

The derived meaning of the s_e-specifying morpheme '$\overline{{}_e\text{uh-}}$' may be represented more analytically as in (168a) or more synthetically as in (168b):

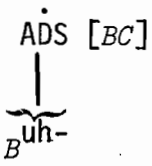
(168)

(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) $\Longrightarrow$



and the derived meaning of this lastly inserted *BC* morpheme '$_B$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 '$_F$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) /'- w- $_{B}$uh- $_{e}$qput -ic't -^{a}/ $\Longrightarrow$ [$\acute{}$woq^{h}puti$\acute{}$c$\acute{}$ta],

which may be literally translated as

(171a) 'the entity spoken about $_{e}$moved the dirt-like material
(which was the thing spoken about) into the liquid
by $_{e}$swinging a linear-object into it ...
with a body-part of his',

and casually translated as

(171b) 'he batted 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 '$_{F}$uh-' and '$_{B}$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 S_A can appear in an underlying serial structure only as the next-to-last member:

(172) in a situation involving a causal series of events, only that adactive event immediately causing the final translatory event and (with one exception) none of the earlier adactive events can be specified by a prefix in a sentential-verb 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 '$_{B}$uh-' -- 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 '$_{B}$ma-', '...feet'; '$_{B}$ci-', '...hands'). That is to say, an effective sentential-verb like (170) but with, e.g., '$_{B}$ma-' in place of '$_{B}$uh-' 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 collisive object, that the exception 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 '$\overline{\text{uh}'}$-', (marked with a prime to distinguish it from the 'uh-' discussed just preceding) and the first-class systematic S_A

(174) S_{A_B} : an ENTITY's MOUTH, working EGRESSIVELY, ACTs ON the 'FIGURE',

which keys in the insertion of '$\overline{\text{phu}}$-', and which, in syntactic circumstances parallel to those in which '$\overline{\text{ma}}$-' derives into '$_{B}$ma-', 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 '$\overline{\text{uh'-}}$' -- and the S_{A_B} is of the minimally-specific sort, as indicated in (177), where the parenthesized insertion is to be disregarded:

(177) $\left[\left\langle \begin{matrix} S_{i_n} \\ S_T \end{matrix} \right\rangle \text{FOLLOW}\right]$ FROM $\left\langle \underbrace{S_A}_{\overline{\text{uh'-}}} \right\rangle$ FOLLOW FROM .... $\left\langle \underbrace{S_{A_B}}_{\left(\overline{\text{phu-}}\right)} \right\rangle$ FOLLOW FROM S_{A_V}

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 '$_{B}$uh'-' 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 [$_{B}$ma-] or by the AGENT's poking into it with a stick [$_{B}$cu-] which he manipulates with his hands [$_{B}$ci-]. 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 '$\overline{\text{uh}}$'-' -- and the S_{A_B} is (174) -- this keying in the insertion of '$\overline{\text{phu}}$-' -- 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) $_{B}$phu'- 'by the AGENT's propelling an object into (into 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 '$_{B}$phu'-' rather than '$_{B}$uh'-'.

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 *FC* prefix form:

(180) $_{F}$ca- 'from the wind's blowing on the FIGURE',

as appears in the causative sentential-verb in (82), and lacks a corresponding *BC* prefix form such as might appear in an effective sentential-verb.

The remaining prefixes in section 11.4 have both *FC* and *BC* forms -- behaving like '$_{F}$uh-' and '$_{B}$uh-' above -- the *BC* forms being of the second class. One of these remaining prefixes is that exception mentioned earlier for which the *FC* and the *BC* forms are of different phonological shapes. Specifically, from the systematic S_A

(181) S_A : HEAT ACT ON the 'FIGURE'

derive the *FC* prefix

(182) $_{F}$miw- 'from heat/fire acting on the FIGURE'

and the *BC* prefix

(183) $_{B}$mu:- '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 *FC* shape and meaning since, with all the preceding descriptions, their *BC* shape and meaning (if existent) are readily derivable.

In addition to all of the above, Atsugewi has two special systematic S_A's which may be said to specify, respectively, the minimally-specific S_{A_B} and the minimally-specific S_A. The first special systematic S_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) $_F$hi- 'from an entity's body-part acting on the FIGURE'

$_B$hi- '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 *ma-* instead of *hi-*). (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), wubstance, 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) $_F$i- /$_F$a- 'from something acting on the FIGURE'

$_B$i- /$_B$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 $_{f}$came off the roof from a branch swinging into it

and

(189) the boy $_{e}$brought the aerial off the roof by (his) $_{e}$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 $_{e}$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:

(193)

FIGURAL expressions as SUBJECT in the CLAUSES of (188)	FIGURAL expressions as OBJECT in the CLAUSES of (189)
the aerial ($_{f}$came)	($_{e}$brought) the aerial
a branch (swinging)	($_{e}$swinging) 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 $_{e}$brought the aerial off the roof
by $_{e}$swinging 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., $_{f}$*come* vs. $_{e}$*bring* 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) /ˀ- w- $_{F}$ma- $_{f}$qput -icˀt -^{a}/ ⟹ [ˀma·q^{h}putíˀcta]

'the dirt-like material $_{f}$moved into the liquid
from an entity's foot/feet acting on it'

and

(195) /ˀ- w- $_{B}$ma- $_{e}$qput -icˀt -^{a}/ ⟹ [ˀma·q^{h}putíˀcta]

'the entity spoken about $_{e}$moved the dirt-like material
into the liquid
by his $_{e}$acting 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:

ˀ- w- -^{a} 'third-person [FIGURE, subject] factual [MODE]'

is identical to the affix-set in (195), containing such specification:

'- w- -[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 *BC* or *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 *ma-* of (194) that a four-term dependent clause is being specified and from the *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):

$_{f}$-qput- 'for dirt-like material to $_{f}$move'

is phonologically identical to the effected root of (195):

$_{e}$-qput- '(for an AGENT) to $_{e}$move dirt-like material'.

(This phonological identity is like that of English $_{f}$swing/$_{e}$swing as opposed to English $_{f}$come /$_{e}$bring.)

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-distincted prefix pair '$_{F}$miw-/$_{B}$'mu:-'.

3. The *BC* prefix '$_{B}$ci-' which has no *FC* correspondent.

4. The *FC* prefixes, such as '$_{F}$ca-', which have no *BC* correspondents.

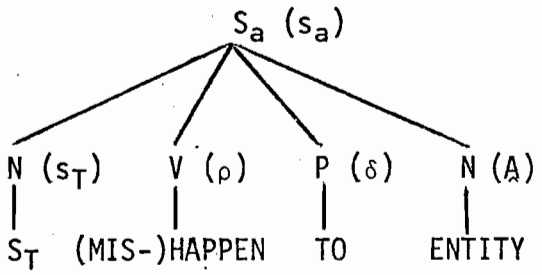
5.4 The Adventive Situation

A complex situation which (in the simplest case, the only one treated here) can be considered to consist of

(196) a translatory 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 bathic verb here to be represented as *(MIS-)HAPPEN* (although *BEFALL* might be an equally suggestive choice) and by the bathic 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 $\underbrace{\text{(MIS-)HAPPENed-to-slip}}_{{}_h\text{slipped}}$ out of joint $\underbrace{\text{TO}}_{\text{on}}$ me

(c) my knee ${}_h$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 $\overline{dative}$ 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 S_a first undergoes a transformation (similar to the LEAD-TO transformation for an S_c) which deletes the original RELATOR verb *(MIS-)HAPPEN*, preposes a copy of the N (A) before the S_T, 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) S_T (MIS-)HAPPENs TO N (A)

$\Longrightarrow$ N (A) SUSTAINs (FROM) S_T (TO N (A))

$=$ $\emptyset$

Thus, considering an instance for English where in the underlying S_a the embedded S_T 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) $\Longrightarrow$ I SUSTAINed (FROM) it, that my sweater caught on a nail (TO me) $\Longrightarrow \emptyset$

(c) $\Longrightarrow$ I $\underbrace{\text{SUSTAINed-(FROM)-catching}}_{{}_{s}\text{caught}}$ my sweater on a nail

(d) $\Longrightarrow$ I ${}_{s}$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):

(201)

(a1) ^{o}my arm $_{h}$broke on me when I fell

(2) ^{o}I $_{s}$broke my arm when I fell

(b1) ^{o}my knee $_{h}$slipped out of joint on me during the race

(2) *I $_{s}$slipped my knee out of joint during the race

(c1) *my sweater $_{h}$caught on a nail on me

(2) ^{o}I $_{s}$caught my sweater on a nail

(d1) *my pen $_{h}$got-lost in the park on me

(2) ^{o}I $_{s}$lost my pen in the park

(e1) *a wart $_{h}$developed in my ear on me

(2) ^{o}I $_{s}$developed a wart in my ear.

It may be noticed that in English the second derivation for an underlying S_a produces a sentence formally indistinguishable from the main clause of an effective sentence. In Atsugewi, 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	(in an S_T or S_A)
(b)	FOLLOW-to-V	$\Longrightarrow$	${}_{f}V$	(in an S_c)
(c)	(MIS-)HAPPEN-to-V	$\Longrightarrow$	${}_{h}V$	(in an S_a)

(203)

(a)	LEAD-TO-Ving	$\Longrightarrow$	${}_{l}V$	(in an S_c)
(b)	ADDUCT-TO-Ving	$\Longrightarrow$	${}_{a}V$	(in an S_c)
(c)	EFFECT-(TO)-Ving	$\Longrightarrow$	${}_{e}V$	(in an S_e)
(d)	SUSTAIN-(FROM)-Ving	$\Longrightarrow$	${}_{s}V$	(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) ^{o}his dentures ${}_{h}$came out on him when he fell

*he ${}_{s}$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) $\overset{*}{\Longrightarrow}$ it, that the vase MOVEd off the landing, FOLLOWed FROM
it, that he knocked into the vase with his left foot

(c) $\Longrightarrow$ he ADDUCTed TO it, that the vase MOVEd off the landing,
WITHBY it, that he knocked into the vase with his left foot

(d) $\Longrightarrow$ he $\underbrace{\text{ADDUCTed-TO-MOVing}}_{{}_{a}\text{MOVEd}}$ the vase off the landing
WITHBY his knocking into it with his left foot

(e) $\Longrightarrow$ he ${}_{a}$MOVEd the vase off the landing WITHBY his knocking into it
with his left foot

(f) $\overset{**}{\Longrightarrow}$ he $\underbrace{{}_{a}\text{MOVEd-WITHBY-his-knocking-into-it}}_{{}_{a+}\text{knocked}}$ the vase off the landing
with his left foot

(g) $\Longrightarrow$ he ${}_{a+}$knocked the vase off the landing with his left foot

(206)

(a) $\langle {}^{S_i} \rangle$ it, that the vase MOVEd off the landing, FOLLOWed FROM
$\langle {}^{S_i} \rangle$ it, that his left foot kicked into the vase, FOLLOWed FROM
it, that he WILLed ON his left foot

(b) $\Longrightarrow \langle {}^{S_i} \rangle$ it, that the vase MOVEd off the landing, FOLLOWed FROM
it, that he ${}_{e}$kicked his left foot into the vase
$\Longrightarrow$ it, that he ${}_{e}$kicked into the vase with his left foot

(c) $\Longrightarrow$ 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) $\Longrightarrow$ he $\underbrace{\text{EFFECTed-(TO)-MOVing}}_{{}_{e}\text{MOVEd}}$ the vase off the landing
BY his ${}_{e}$kicking into it with his left foot

(e) $\Longrightarrow$ he $_{e}$MOVEd the vase off the landing
BY his $_{e}$kicking into it with his left foot

(f)** $\Longrightarrow$ he $\underbrace{_{e}\text{MOVEd-BY-his-}_{e}\text{kicking-into-it}}_{e+\text{kicked}}$ the vase off the landing
with his left foot

(g) $\Longrightarrow$ he $_{e+}$kicked 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) one entity inducing another to effect an event.

In such an *inducive situation*, the former entity will be said to function as the *AGITANT*, to be symbolized as 'A', and to *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} : the ENTITY (A) INDUCE (TO) S_e.

With the 'AGITANT' as *I* and the S_e as *the boy* $_e$*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)* $_e$*went himself (F) 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) INDUCEd (TO) it, that the boy (A) $_e$go to the store

(b) $\Longrightarrow$ I (A) $\underbrace{\text{INDUCEd}}_{\text{had}}$ the boy (A) $\underbrace{\text{(TO)}}_{\emptyset}$ $_e$go to the store

(c) $\Longrightarrow$ I (A) had the boy (A) $_e$go to the store

(210)

....

(b) $\Longrightarrow$ I (A) $\underbrace{\text{INDUCEd-(TO)-}_e\text{going}}_{_{in}\text{sent}}$ the boy (A) to the store

(c) $\Longrightarrow$ I (A) $_{in}$sent the boy (A) to the store

In addition to the causative structure, which specifies that a translatory 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) $\Longrightarrow$ I $\underbrace{\text{EFFECTed-(TO)-emptying}}_{{}_{e}\text{emptied}}$ the tub by dipping out the water

(c) $\Longrightarrow$ I ${}_{e}$emptied the tub by dipping out the water

(212)

(a) I LET (TO) it, that the tub emptied, by' unplugging the drain

(b) $\Longrightarrow$ I $\underbrace{\text{LET-(TO)-emptying}}_{{}_{let}\text{emptied}}$ the tub by' unplugging the drain

(c) $\Longrightarrow$ I ${}_{let}$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 $_{e}$emptied the tub by ACTing ON it with a dipper

(c) $\Longrightarrow$ I $_{e}$emptied the tub with a dipper

(214)

....

(b) *I $_{let}$emptied the tub by ACTing ON it with the plug

(c) $\Longrightarrow$ *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 $_{b\text{-}p}$e threw the ball across the field;

that in (216) to unambiguously involve extent causation:

(216) I $_{e}$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) I $\left\{\begin{matrix} b \\ e \end{matrix}\text{-P}\right\}$ e kicked the ball across the field.