

Lexical Suffixes

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This paper concentrates on lexical suffixes as a syntactic problem within a grammar of Bella Coola. A lexical suffix is one which reflects semantic properties of nouns. For example, ɬk'w 'big' may occur in varying shapes: ɬk'wũ and ɬk'wat. The former of round items, the latter of containers. A lexical suffix marks not syntactic properties (say, of arbitrary noun classes), but reflects semantic properties of some term in construction with the form to which it is affixed. Some lexical suffixes manifest more than a single property of a noun and are actually complete copies of a lexical item (although the phonological similarity of the copying lexical suffix and the copied lexical item may be remote, e.g., lexical suffix ak 'hand/arm' and noun suxa 'hand/arm'). Lexical suffixes are then partial or complete copies of a noun; the former may correspond to many lexical items, while the latter corresponds to a single one. The problem we treat here is restricted to lexical suffixes which are whole copies---generally of nouns denoting body parts---as they occur in verb stems based on transitive roots.¹ We are concerned with determining the occurrence of these suffixes and with proposing plausible syntactic sources for them.

We begin with the observation that Bella Coola has a set of person-number affixes which, in constructions involving a subject and object, mark both in semi-fused form; for example,

(1) 1st Person Subject

2nd Person Object	k'x-cinu 'I see you(sg.)'	k'x-tuɬap 'I see you(pl.)'
3rd Person Object	k'x-ic 'I see him'	k'x-tic 'I see them'

3rd Person Subject

1st Person Object	k'x-cs 'He sees me'	k'x-tuɬs 'He sees us'
2nd Person Object	k'x-ct 'He sees you(sg.)'	k'x-tap 'He sees you(pl.)'
3rd Person Object	k'x-is ² 'He sees him'	k'x-tis 'He sees them'

If we assume these affixes derive from agreement rules, then forms in (1) may have a general structure (2) in common³.

(2)



The lexical suffixes intersect this preliminary description in that they may occur in paradigms superficially identical to those in (1):

(3) 1st Person Subject

2nd Person Object	cp-ak-cinu 'I am wiping your hand' ⁴	cp-ak-tu ⁴ ap 'I am wiping your hands'
3rd Person Object	cp-ak-ic 'I am wiping his hand'	cp-ak-tic 'I am wiping their hands'

3rd Person Subject

1st Person Object	cp-ak-cs 'He is wiping my hand'	cp-ak-tu ⁴ s 'He is wiping our hands'
2nd Person Object	cp-ak-ct 'He is wiping your hand'	cp-ak-tap 'He is wiping your hands'
3rd Person Object	cp-ak-is 'He is wiping his hand'	cp-ak-tis 'He is wiping their hands'

The glosses of (3) show, however, that the surface objects in each case, e.g., 'you' in cp-ak-cinu, are not objects within the underlying structures of (2) and (3): they appear as the possessor of the objects of those structures.

Let us consider the following sentences:

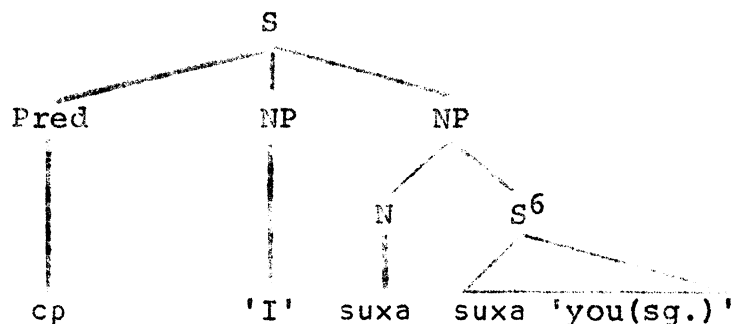
- (4) (i) cp-ic ti-suxa-nu-tx (wipe-I/it Det-hand-you-Det)
'I am wiping your hand'

- (ii) cp-ak-cinu
'I am wiping your hand'

(ti...tx are some of a set of deictic NP determiners. We gloss them here as 'the' or by omission with no further comment.)

(4i) and (4ii) are paraphrases⁵, and we would expect them to derive from identical deep structures. Perhaps

(5)



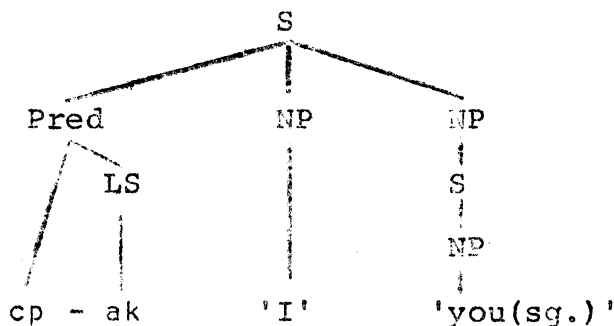
We now consider some transformational rules. Before PERSON-NUMBER agreement applies, we expect an EQUI-CONSTITUENT deletion rule(similar to the familiar EQUI-NP deletion rule of English) to apply dropping *suxa* from within the embedded S. Then the LEXICAL-SUFFIX COPY rule optionally applies producing a replica of the object N to the right of the verb *cp* within Pred. Finally, the copied object N is deleted. The ungrammaticality of

(6) (i) **cp-ak-cinu ti-suxa-nu-tx*

(ii) **cp-ak-ic ti-suxa-nu-tx*

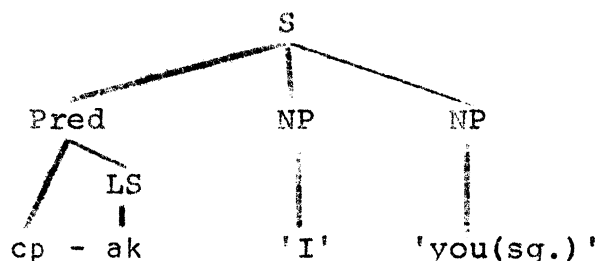
indicates that object N deletion is necessary. This yields a structure somewhat as follows:

(7)



The tree pruning rule adapted from Ross 1969 yields

(8)



and the same rule which produced the subject-object person-number paradigm of (1) now operates to yield the superficially identical paradigm of (3). (The personal pronouns as single constituents of subject, object, and indirect object NP's are obligatorily deleted.)

The paradigms of (1) and (3) are incomplete in that they contain no person-number entries where subject and object are identical. Recall that the 3rd person subject-3rd person object forms always imply distinct actors and recipients; k'x-is never means 'He sees himself'. Similarly, cp-ak-is never means 'He is wiping his own hand'. Deep structures with an identical subject and object produce a reflexive paradigm:

(9)	k'x-cut-c 'I see myself'	k'x-cut-it 'We see ourselves'
	k'x-cut-nu 'You see yourself'	k'x-cut-ap 'You see yourselves'
	k'x-cut-(s) 'He sees himself'	k'x-cut-aw 'They see themselves'

The person-number forms of (9) are notably different from (1) and (3); they are those of the intransitive paradigm and

indicate the subject only. Compare

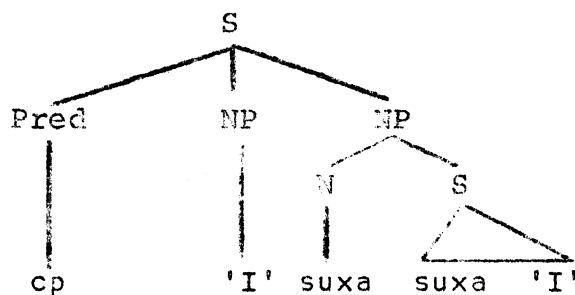
- | | | |
|------|-----------------------------|------------------------------|
| (10) | t4'ap-c
'I am going' | t4'ap-i4
'We are going' |
| | t4'ap-nu
'You are going' | t4'ap-ap
'You are going' |
| | t4'ap-(s)
'He is going' | t4'ap-aw
'They are going' |

Forms involving LEXICAL-SUFFIX COPY where the possessor of the copied N is identical to the subject yields a paradigm analogous to (9)

- | | | |
|------|--|--|
| (11) | cp-ak-m-c
'I am wiping
my hand' | cp-ak-m-47
'We are wiping
our hands' |
| | cp-ak-m-nu
'You are wiping
your hand' | cp-ak-m-ap
'You are wiping
your hands' |
| | cp-ak-m-(s)
'He is wiping
his[own] hand' | cp-ak-m-aw
'They are wiping
their hands' |

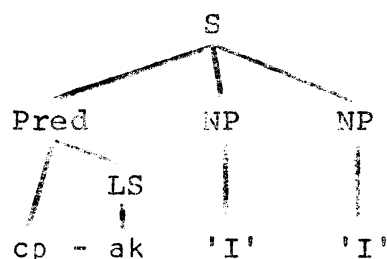
Given that utterances in (11) differ from those in (3) only in choice of lexical items (identical subject and N possessor as opposed to nonidentical), we would expect (11) to derive from the same structure as (3), viz. (5), repeated as (5').

(5')



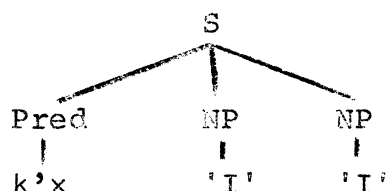
The presence of subject person-number affixes in place of subject-object person-number and the presence of the -m- require explanation. The same rules of EQUI-CONSTITUENT deletion and LEXICAL-SUFFIX COPY apply; but before the PERSON-NUMBER agreement rule applies, a rule must remove the object NP entirely. The intermediate structure of (5') which is comparable to (8) is

(12)



But this is comparable to the deep structure of the reflexive k'x-cut-c 'I see myself':

(13)



and we might expect an incorrect reflexive *cp-ak-cut-c, analogous to the true reflexive. Taking advantage of the derived nature of (12), we order the REFLEXIVE rule before EQUI-CONSTITUENT deletion and LEXICAL-SUFFIX COPY rules thus allowing REFLEXIVE to affect (13) but not (12). The second NP of the derived structure (12) is then (under condition of identity with the subject NP) copied in a position to the right of the lexical suffix, and the copied term is obligatorily deleted

yielding cp-ak-m, a medio-passive or middle voice form.⁸

PERSON-NUMBER agreement now has only the subject NP 'I' to copy deriving finally cp-ak-m-c 'I am wiping my hand'.

A final paradigm of forms involving LEXICAL-SUFFIX COPY is the following:

- (14) (ia) ?ip'-ak-m-cinu 'I am grabbing you with my hand' (ic) ?ip'-ak-m-tu4ap 'I am grabbing you with my hand'
- (ib) ?ip'-ak-m-ic 'I am grabbing him with my hand' (id) ?ip'-ak-m-tic 'I am grabbing them with my hand'
- (ii) ?ip'-ak-m-ic ti-?imlk-tx 'I am grabbing the man with my hand'
- (iii) ?ip'-ak-m-ic ti-?imlk-tx ?a4-ti-suxa-(c)-tx 'I am grabbing the man with my hand'
- (iv) ?i4'-is ti-?ixa-nu-tx ?a4-ti-suxa-(s)-tx 'He is moving your foot/leg with his hand'

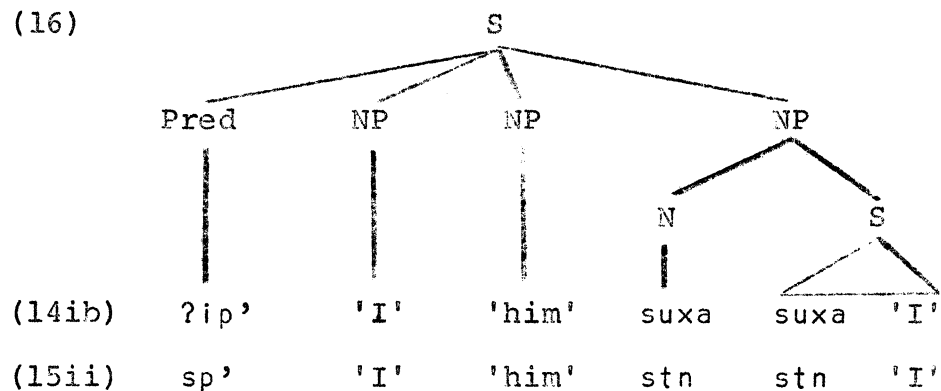
Although this series differs in structure from the preceeding two, no additional rules are required to account for it. The deep structures of (14) involve a third NP as instrument.⁹

The forms of (14) and such forms as

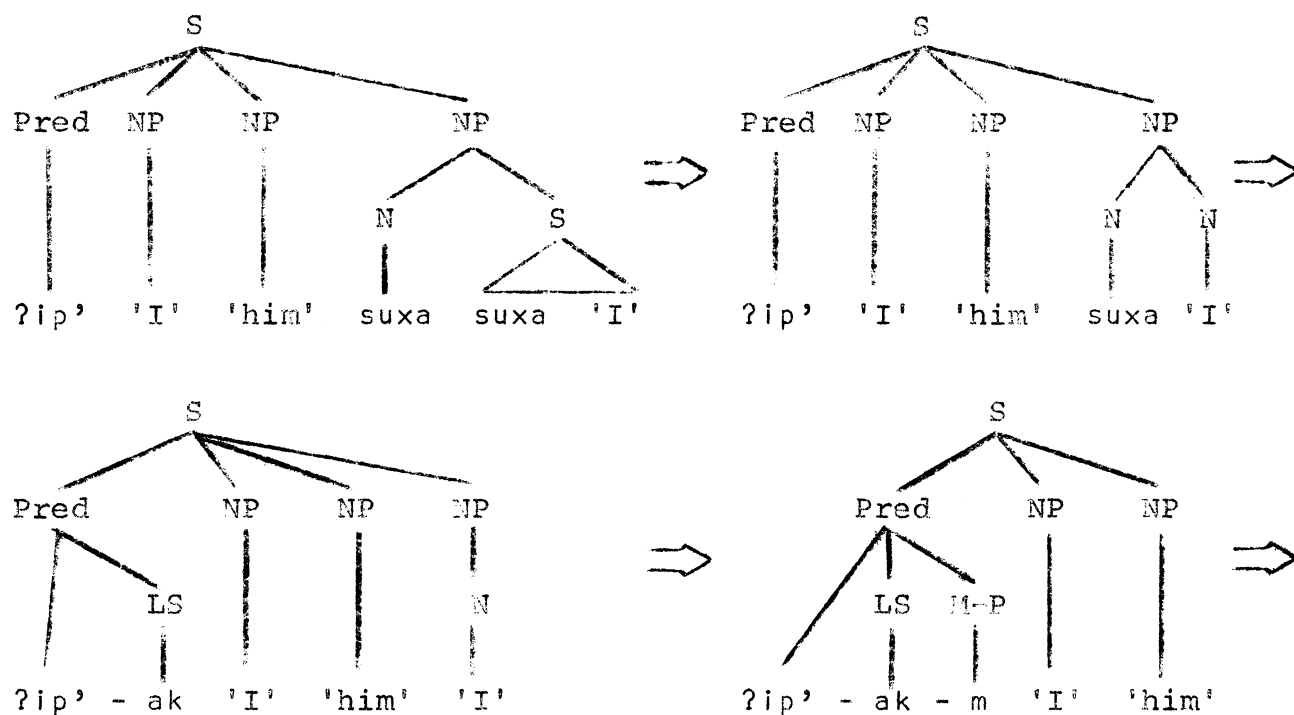
- (15) (i) sp'-ic ti-?imlk-tx ?a4-ti-stn-c-tx
(hit-I/him the-man with-stick-my)
'I hit the man with my stick'
- (ii) sp'-ic ?a4-ti-stn-c-tx
'I hit him with my stick'

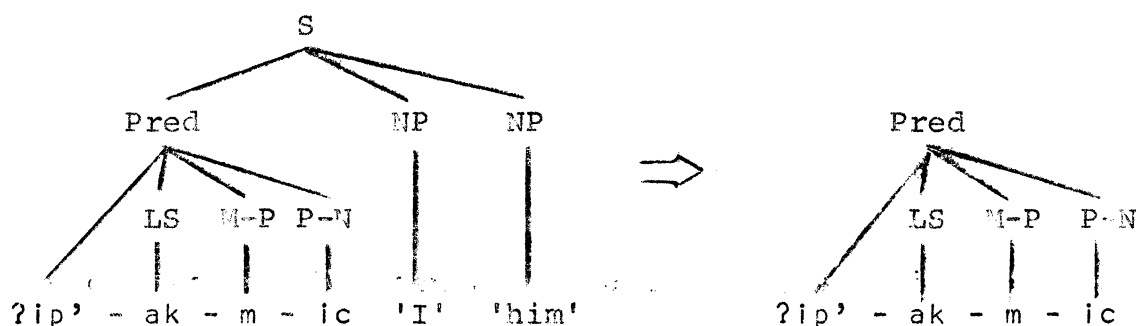
differ only in the choice of lexical items. The presence of a body part filling the instrument N permits LEXICAL-SUFFIX COPY to apply; the presence of a non-body part noun in (15) prevents its application. The structure of both (14) and (15) is:

(16)



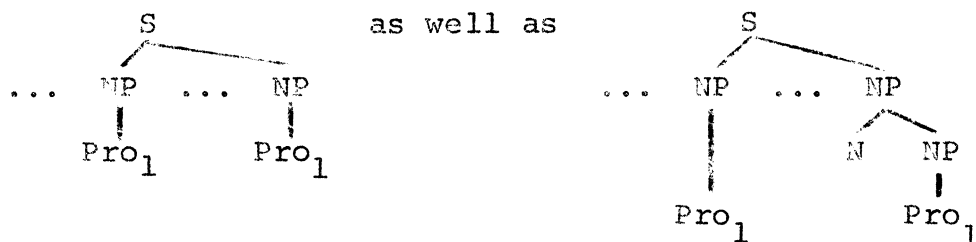
The derivation of (14ib) from (16) requires application of EQUI-CONSTITUENT deletion (and tree pruning), LEXICAL-SUFFIX COPY, and MEDIO-PASSIVE as follows:





The differences between the paradigm of (14) which shows subject-object person-number agreement and that of (11) which shows subject person-number agreement lies in the application of MEDIO-PASSIVE to the object NP in (11) and to the instrument NP in (14). In (11) PERSON-NUMBER has only the subject NP to affect; in (14), it has a subject and an object NP. ?ip'-ak-m is then an ambiguous stem, -akm- meaning 'my hand' or 'with my hand' depending on whether it is derived from an object NP or an instrument NP. The whole form, ?ip'-ak-m-c versus ?ip'-ak-m-ic, disambiguates the stem. If subject-object agreement is present, the -akm- must be an instrument copy; if subject person-number agreement is present, it must be an object copy.

Form (14iii) illustrates that deletion of a copied instrument N is optional and that deletion of that noun is not a requisite for MEDIO-PASSIVE. That is, MEDIO-PASSIVE must operate on



MEDIO-PASSIVE does require, however, that the N co-constituent of Pro_1 in the object or instrument NP be a noun copied by LEXICAL-SUFFIX COPY. It follows that $k'x\text{-ic } ti\text{-smatmx-c-tx}$ 'I see my friend' is not subject to MEDIO-PASSIVE, for smatmx 'friend' is not copiable by lexical suffixation. Similarly, neither of the forms of (15) is subject to MEDIO-PASSIVE. For MEDIO-PASSIVE to apply, LEXICAL-SUFFIX COPY must have applied with or without N deletion of the copied N. Thus $*cp\text{-m-ic } ti\text{-suxa-tx}$ 'I am wiping my hand' and $*cp\text{-m-ic } ti\text{-jaku}\ddagger\text{-tx } ?a\ddagger\text{-ti-suxa-(c)-tx}$ 'I am wiping the ball with my hand' are not acceptable because LEXICAL-SUFFIX COPY has not applied, but MEDIO-PASSIVE has.

The forms of (17) are the correct ones:

- | | | |
|----------|---|---|
| (17) (i) | cp-ak-m-c
'I am wiping
my hand' | (with obligatory deletion of the copied object N and obligatory MEDIO-PASSIVE) |
| (ii) | cp-ak-m-ic ti-jaku}\ddagger-tx
?a\ddagger-ti-suxa-(c)-tx
'I am wiping the ball
with my hand' | (with LEXICAL-SUFFIX COPY, no N deletion, and MEDIO-PASSIVE) |
| (iii) | cp-ak-m-ic ti-jaku}\ddagger-tx
'I am wiping the ball
with my hand' | (with LEXICAL SUFFIX COPY plus N deletion, and MEDIO-PASSIVE, and PRO deletion) plus copy |

Further, the incorrect $*cp\text{-ak-c}$ and $*cp\text{-ak-ic } ti\text{-jaku}\ddagger\text{-tx } ?a\ddagger\text{-ti-suxa-c-tx}$ show MEDIO-PASSIVE to be obligatory when LEXICAL-SUFFIX COPY has applied to either an object or instrument NP. The correct forms are again those of (17).

Deletion of the possessor noun or pronoun always occurs within the object NP affected by LEXICAL-SUFFIX COPY and MEDIO-PASSIVE. The latter rule copies the relevant constituent and obligatorily deletes the copied noun or pronoun wherever copied N deletion has resulted from LEXICAL-SUFFIX COPY. MEDIO-PASSIVE deletion therefore always applies within object NP's because LEXICAL-SUFFIX COPY deletion is obligatory there. If MEDIO-PASSIVE does not delete a possessor noun ---this is possible only within an instrument NP---PRONOMINALIZATION applies, replacing the noun with the appropriate pronoun. Compare

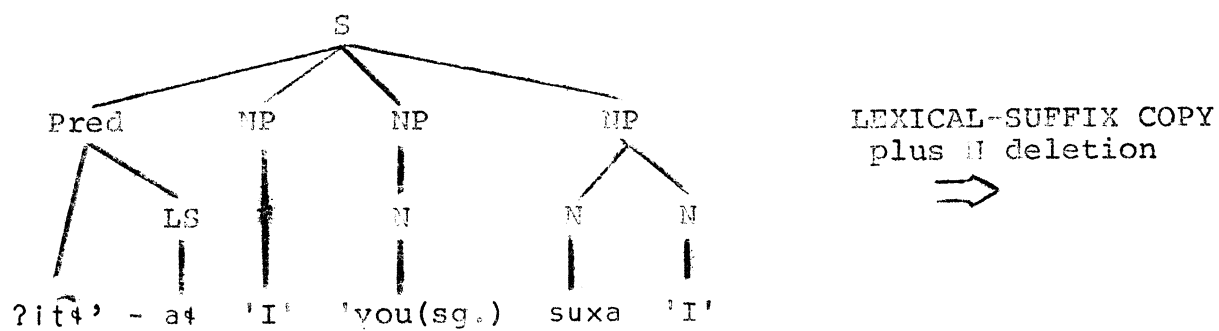
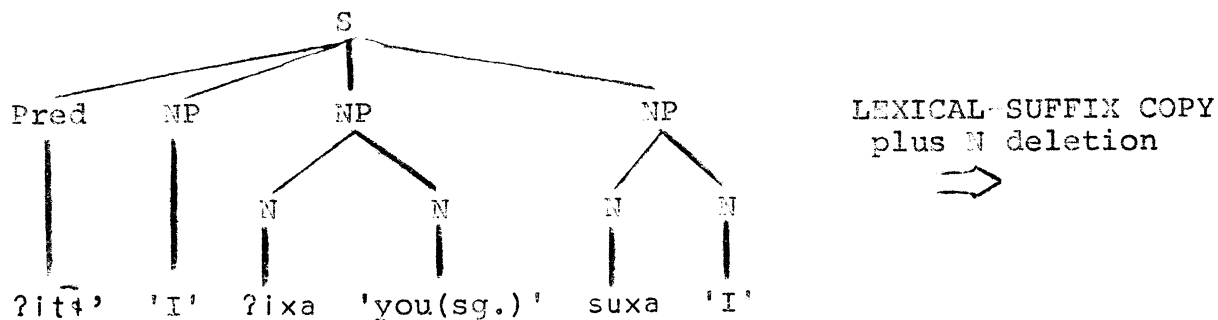
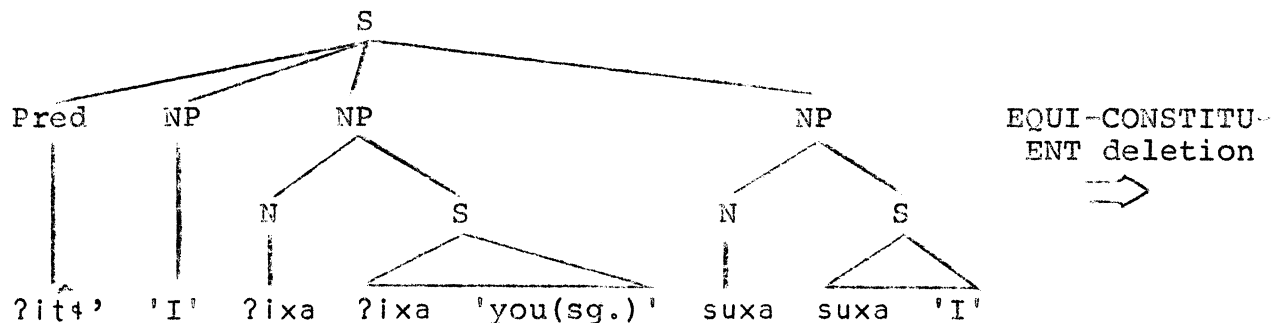
- (18) (i) cp-ak-m-s ti-?imlk-tx
'The man is wiping his hand'
- (ii) cp-ak-m-is ti-?imlk-tx ti-jaku-tx
?a-ti-suxa-s-tx
'The man is wiping the ball with his hand'

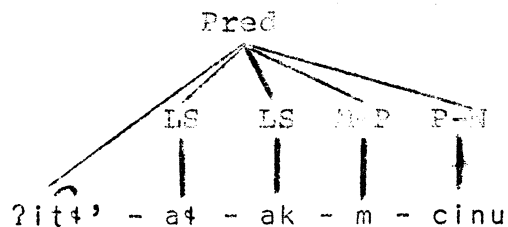
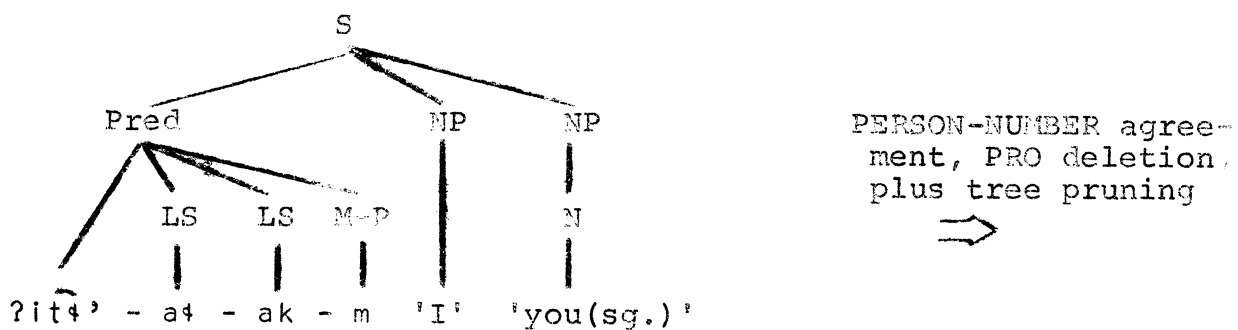
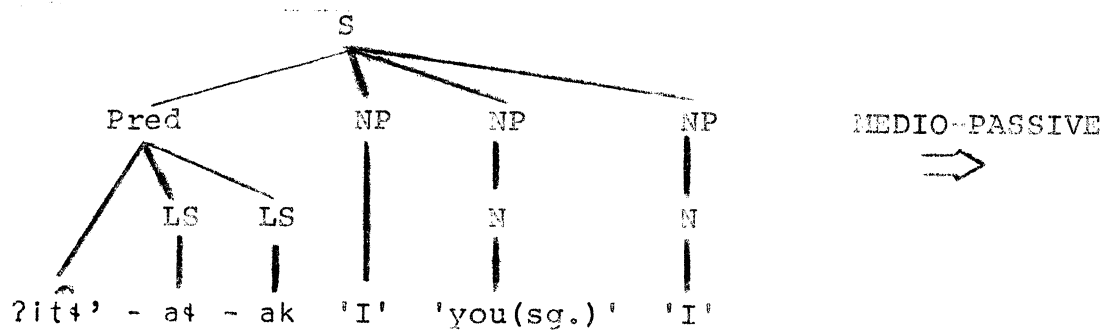
In (18i) an embedded ?imlk is copied and then deleted by MEDIO-PASSIVE. In (18ii) the embedded noun ?imlk is copied but not deleted. PRONOMINALIZATION now replaces ?imlk with the appropriate pronoun -s-. Had MEDIO-PASSIVE optionally deleted the copied N, the instrument NP of (18ii) would have had the shape ?a-ti-suxa-tx.

Forms involving object and instrument NP's where both dominate body part nouns, or nouns requiring whole lexical suffix copying, occur. Consider

- (19) (i) qu-t-ulmx-?lqsak-m-ic¹⁰
(write-ground-finger-M/P-I/it)
'I am writing on the ground with my finger'
- (ii) ?if-t'-a-t-ak-m-cinu
(move-foot-hand-M/P-I/you)
'I am moving your foot with my hand'

Again no additional rules are required. The correct forms are derived from a deep structure similar to (16) by two applications of LEXICAL-SUFFIX COPY, first to the object NP and then to the instrument NP, as follows:





Some transitive roots in Della Coola have fixed objects or instruments. The root c'm 'to dip something from a container' may have 'grease' alone as its object¹¹. tpTxw 'to put a lid on something' may have 'lid of a container' as its only object.¹² The root q'm 'to step on something' may have 'foot' as its only instrument. qup' 'to punch' may have only 'fist', and tx 'to cut with a knife' has a fixed 'knife' instrument. Compare lick in English which may have tongue as its sole instrument kick and so forth. Where object or instrument NP is fixed or inherent,

only the variant NP---instrument NP in the case of fixed-object roots, and the object NP in the case of fixed-instrument roots--- is available for LEXICAL-SUFFIX COPY. Fixed-object roots show no overt object, and fixed-instrument roots show no overt instrument. This requires no change in the transformational rules or structures above and may be accounted for by co-occurrence restrictions on the specific roots involved.

What we have attempted above is the simplification of the grammar of Bella Coola by suggesting possible syntactic sources for a set of derived stems. The solution proposed involves no unusual deep structures. The inclusion of a LEXICAL-SUFFIX COPY rule and a MEDIO-PASSIVE rule plus others required independently is sufficient. The complete set of rules discussed is

- (i) REFLEXIVE
- (ii) EQUI-CONSTITUENT deletion (and tree pruning)
- (iii) LEXICAL-SUFFIX COPY (and oblig. or opt. copied N deletion)
- (iv) MEDIO-PASSIVE (and oblig. or opt. copied N deletion)
- (v) PRONOMINALIZATION
- (vi) PERSON-NUMBER agreement
- (vii) PRO deletion (and tree pruning)

The plausibility of this proposal is supported by the observation that apparent irregularities in the occurrence of the subject-object person-number affixes and the subject person-number affixes follow naturally as regularities from the supposed structures and rules, and secondly, the medio-passive voice derives regularly from the same structures proposed in the analysis of lexical-suffix copying.

NOTES

¹Cf. Newman 1969:176 for a definition of "transitive nuclei" as those which occur with the subject-object paradigm and the passive paradigm.

²The subject and object of the 3rd person subject 3rd person object forms within this paradigm are necessarily nonidentical.

³The theoretical framework we assume here for exposition is generally that of Chomsky 1965. The category Pred in place of VP seems more appropriate to Bella Coola, and we use it here. Bella Coola is a VSO language, but the VP(or Pred) is not constrained to the class of items formally delimited as verbs. The Praguean distinction of theme and enunciation or rheme seems more correct. The first constituent of S is the added information (or enunciation) the following categories are the given theme. Compare the nonparaphrases $\hat{t}\hat{i}'ap-s$ $ti-\hat{t}\hat{i}'msta-tx$ (going-he the man) 'The man is going' versus $ti-\hat{t}\hat{i}'msta-tx$ $ti-\hat{t}\hat{i}'ap-s$ (the man going-he) 'It's the man who is going' or 'The man is going'. The latter is a possible answer to $waks$ $ti-\hat{t}\hat{i}'ap-s$ 'Who is going', while the former is not. The forms indicate that themes are not restricted to items formally identified as nouns and that the occurrences of NP are perhaps better replaced by something similar to the case categories of Fillmore 1968.

⁴This and the remaining forms are ambiguous. No distinction is made between 'your(sg. or pl.) hand' and 'your(sg. or pl.) hands'.

⁵Xinkade(1963:353) observes "Ordinary speech and narrative speech seem to prefer to use these lexical suffixes when possible, but since independent words exist for each of these suffixes, some things can be expressed two ways. A construction using independent words, when the use of comparable suffixes is possible, is used for emphasis, enunciation, or hypercorrectness. Such a case is /ʔénca we ʔet ʔaqʷósnčn šaʔ t méqsns/ I hit him on the nose for an equally possible /ʔénca we ʔet ʔaqʷósqsnsčn/." The forms without copying by lexical suffix within Bella Coola are similarly marked. Native speakers accept such forms on being prompted. They are understood but only occasionally used spontaneously. We conclude (4i) and analogous forms are grammatical and that copying by lexical suffix is optional in certain structures.

⁶We assume that modified nouns derive from structures similar to those proposed for English, viz., an NP dominating N and S. The structure of the possessives is not central here and we omit it. Some forms may be instructive

- (i) smʔk-c 'my fish'
- (ii) xʔ-smʔk-c 'I have a fish'
- (iii) ʔnc-ʔ-smʔk 'I have a fish' or 'it's my fish'

The form (i) is structurally ambiguous; $\text{stati}^m\text{x-c}$ may mean 'my chief' or 'I am a chief' as $\text{x}^s\text{-c}$ means 'I am fat'.

⁷The affixal forms $-\text{t}$ and $-\text{it}$ are phonologically conditioned variants.

⁸Burrow's (1955:203) comments on the Sanskrit middle voice are pertinent here. 'The middle is used when the subject is in some way or other specially implicated in the result of the action....The...distinction is seen between pacati '(the cook) cooks' and pacate 'he cooks (a meal for himself)'...Again the special sense of the middle is seen in those cases where the direct object of the verb is a member of one's own body nakhāni nikṛntate 'he cuts his nails', dato dhāvate 'he cleans his teeth'.

The m forms of (11) are paralleled by m-forms without the lexical suffixes. Compare

(i) $\text{p}^s\text{-m-c}$ 'I am bending over'

(ii) $\text{x}^w\text{up-m-c}$ 'I am sinking in mud'

with

(iii) $\text{p}^s\text{-ic}$ 'I am bending it'

(iv) $\text{x}^w\text{up-ic}$ 'I am putting it in a hole'

(Newman 1969:179 notes the medio-passive nature of transitive/intransitive nuclei without $-\text{m}-$ which occur with both the subject person number and the subject-object person-number paradigms, e.g., $\text{k}^t\text{-ic}$ 'I am dropping it' and $\text{k}^t\text{-c}$ 'I am falling'.) Again

the Sanskrit seems comparable. "In another class of roots there appears a distinction of a different nature, that between transitive (active) and intransitive (middle): ḍṛphati 'makes firm', ḍṛphate 'becomes firm', vardhati 'increases, makes bigger', vardhate 'increases (intr.), becomes bigger', vahati '(chariot) carries (man)', vahate '(man) rides (in chariot)'... One sense that the middle does not normally express is that of a direct reflexive, which is expressed by means of the accusative ātmānānam 'self'." (Burrow 1955:293-294) The similarity of the medio-passive voice without lexical suffixation (i-ii) to the forms of (11) suggests the former may be derived from a structure similar to (5') where the object *N* in place of *suxa* is an unfilled pro-form obligatorily deleted.

⁹Here, we assume the instrument to be simply a third NP of the enunciation portion of *S* without considering a possible more abstract source in the manner of Lakoff 1968.

¹⁰*kuṭuṁx* 'ground, earth, floor' is a non-body part noun which exhibits whole lexical suffix copying in the shape of *uṁx*.

¹¹In modern times the range of objects has been extended to butter, peanut-butter, jams, jellies, and any other substances in a semi-liquid state.

¹²This form appears to be *tp-Tx^w*, i.e., has to do with 'head', but it is a frozen form.

REFERENCES

- Burrow, T. 1955. The Sanskrit Language. New York: Barnes & Noble, Inc.
- Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge, Massachusetts: The M.I.T. Press.
- Fillmore, Charles J. 1968. "The case for case," in Universals of Language, eds. Emmon Bach and Robert T. Harms. New York: Holt, Rinehart and Winston, Inc.
- Kinkade, M. Dale. 1963. "Phonology and morphology of Upper Chehalis: II." International Journal of American Linguistics 29.345-356.
- Lakoff, George. 1968. "Instrumental adverbs and the concept of deep structure." Foundations of Language 4.4-29.
- Newman, Stanley. 1969. "Bella Coola grammatical processes and form classes." International Journal of American Linguistics 35.175-179.
- Ross, John Robert. 1969. "A proposed rule of tree-pruning," in Modern Studies in English, eds. David A. Reibel and Sanford A. Schane. Englewood Cliffs, N. J.: Prentice-Hall, Inc.