

On the Absence of Empty Categories in Lummi

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0. Introduction. The purpose of this paper will be to point out an interesting feature of the grammar of Lummi, a feature shared with related (Salish) languages: the absence of empty categories.¹ According to current work in the Government and Binding framework (Chomsky 1981; 1982), empty categories (ECs) are a key attribute of configurational languages such as English, where the grammatical relations of a sentence may be "read off" the structure of the sentence; that is, SUBJECT is NP of S, while OBJECT is NP of VP. Informally, the structure of some clause types in English is such that certain SUBJECT or OBJECT arguments may be said to be "missing", as a consequence of some movement rule or other syntactic process. It is the lexical structure of a verb or predicate which determines its argument array, and a crucial principle of Government and Binding (GB) theory requires that this argument array be represented in D- and S-structure (Chomsky, 1982):

- (1) Projection Principle (Extended):
 - a. The θ -marking properties of each lexical item must be represented categorially at each syntactic level;
 - b. each clause must have a subject.

Note that this requirement on representation is qualified by the term categorial; if an argument position is not filled in S-structure, then an EC is taken to be present; and because of the configurational properties of English, we can specify the locus of the EC. For example:

- (2) John wants [[e] to go to work].

The non-finite embedded clause in (2) has no subject; this property of this clause type has been stated in terms of an "Equi-NP Deletion" rule. The grammar of English tells us that the EC corresponding to the missing subject of the embedded clause must precede the verb. As we shall see in more detail in Section 2.1 below, this type of EC is classified as PRO.

The four types of ECs discussed in Chomsky 1982 are as follows:

- (3) a. trace. The result of NP movement, generally, except:
 - b. variable. The result of a particular type of NP movement, Wh-movement.
 - c. PRO. The consequence of Equi-NP deletion; and some other possible occurrences.
 - d. pro. The consequence of "pro-drop" in languages that have this feature.

We will discuss each of these syntactic processes in the following sections, and show that there are no comparable processes in Lummi, and therefore no corresponding ECs.

Chomsky (1982) observes that the distribution of ECs in English, and presumably in other languages, virtually parallels that of NPs. It is precisely because the distribution of nominals in Lummi is so different from that in configurational languages such as English that Lummi lacks most, if not all, ECs. We have argued elsewhere that there is no lexical class noun in Lummi (Jelinek and Demers, (1982)); there are only derived nominal expressions that are clause-like in having an argument structure.² Furthermore, these nominals are never syntactically integrated into the main clause, but simply adjoined to it, in the fashion of the adjoined clauses that Hale (1976) has described in certain Australian languages. Lummi nominals have only one possible position of occurrence, and thus are not subject to "movement", and there is no locus in a Lummi main clause that a nominal expression might occupy. In order to show that the structure of Lummi clauses does not permit NP movement, we will review briefly the evidence on Lummi clause types given in Jelinek and Demers (1982). (We ask the reader to bear with us while we summarize previously published remarks on Lummi clause types, since it is essential to the purposes of this paper, and we cannot assume that the earlier paper is at hand).

1. Clause types in Lummi.

1.1. Finite clauses.

The constituents of finite clauses in Lummi are as follows: (1), the predicate; and (2) the predicate arguments. The arguments are certain verbal suffixes that are object markers, and certain clitic pronouns that mark subject. The clitic pronouns form part of a second-position clitic sequence (AUX) that also may include certain tense/aspect markers, modal operators, etc. In addition, there is a third person ergative predicate suffix. The argument array of the predicate is always and only satisfied in syntactic structure by these suffixes and AUX clitics. The PREDICATE-AUX complex constitutes the complete inventory of finite clauses in Lummi, with the exception of a few clause final adverbs. Examples:

(4) Intransitive main clauses:

- | | | |
|----|-----------------------------------|----------------------|
| a. | səx ^v -sən | "I disappear" |
| b. | səx ^v -sx ^v | "You disappear" |
| c. | səx ^v -ɣ | "We disappear" |
| d. | səx ^v -β | "He, they disappear" |

(5) Transitive main clauses:

- | | | |
|----|---------------------------------------|------------------------|
| a. | k ^w içət-β-sən | "I butchered it" |
| b. | k ^w içət-β-sx ^v | "You butchered it" |
| c. | k ^w içət-β-ɣ | "We butchered it" |
| d. | k ^w içət-β-s | "He/they butchered it" |

Third person intransitive subject marking and third person transitive object marking are phonologically null; that is, there is a ZERO third person absolutive in complementation to the -s third person ergative shown in (5.d). First and second person show Nominative/Accusative case; this is the "ergative split" in Lummi. The -t- in the examples under (5) is a transitivizer; all transitive predicates are overtly marked as such. Therefore, when no other object is marked, a third person object is unambiguously present. Because of the fact that the third person intransitive subject marker is phonologically null, it is impossible for a Lummi clause to lack a subject. If no other subject marker is present, and the predicate appears alone (as in (4.d)), the construction is unambiguously understood as a finite sentence with a third person subject, since non-finite clauses are marked as such, and there is no lexical category noun.

1.2. Nonfinite clauses: derived nominal expressions.

There are three types: nominals, nominalizations, and hypotheticals. All are simply derived from predicates by placing one of a set of nominalizers before the predicate; these nominalizing clitics serve many of the functions of articles and determiners in other languages. Since they combine freely with predicates, they resemble the logician's iota operator, which serves to build terms from predicates. These nominalizers mark contrasts in gender, proximity,

visibility, etc. (but not definiteness). In all these non-finite clause types, predicates have the same argument structure that they have in main clauses, and these argument arrays are always and only satisfied by person marking affixes. These person-marking affixes that serve as verbal arguments in subordinate or non-finite clauses differ from main-clause verbal arguments in that there is no AUX constituent in non-finite clauses. Each type of non-finite clause has a distinctive set of person marking affixes.³ The presence of a phonologically null third person subject marker makes it impossible for some of these clause types to lack a subject marker, while other subordinate clause types have an overt third person subject marker. In any case, the argument array of a predicate is always satisfied in non-finite as well as finite clauses. Examples of these clause types are:

1.2.1. Nominals. There are two varieties of nominals, "subject-centered" and "object-centered" (Kuipers, 1967). They refer to individuals, much as relative clause constructions do in other languages; their "head" is the variable (overt, not an EC) that is incorporated in the nominalizer or iota operator, and is necessarily third person.

Object-centered:

- (6) a. cə kʷənəŋət-β-ən jx (Fy, x) the one that I helped
 b. cə kʷənəŋət-β-əxʷ the one that you helped

- | | | |
|----|------------------|---------------------------------|
| c. | cə kʷəneŋət-β-əs | the one that he/
they helped |
| d. | cə kʷəneŋət-β-ɣ | the one that we
helped |

The head of these nominal constructions is the object; third person object marking is phonologically null, as elsewhere in the language. One of the subject markers shown in (6) is always present, so that there are no "missing" arguments. Object-centered nominals are necessarily derived from transitive predicates.

Subject-Centered:

Subject-centered nominals have the subject as head. They may be either transitive or intransitive. Intransitive:

- | | | | |
|-----|-----------|---------|-----------------------------|
| (7) | cə səxʷ-β | jx (Fx) | the one that
disappears. |
|-----|-----------|---------|-----------------------------|

Transitive subject centered nominals have object marking:

- | | | |
|--------|-------------------------------|-------------------------------|
| (8) a. | cə kʷəneŋət-ones-β jx (Fx, y) | the one that helped
me/you |
| b. | cə kʷəneŋət-β-β | the one that helped
him |
| c. | cə kʷəneŋət-onaɣ-β | the one that helped
us |

Again, third person objects are phonologically null, so that the argument array of the predicate upon which the nominal is built is always necessarily satisfied. Note how the iota operator notation captures the contrast between subject- and object-centered nominals, and between transitive and intransitive ones. Ergative -s does not appear in subordinate clauses.

1.2.2. Nominalizations. Nominalizations refer to propositions as individuals. They may be built on intransitive or transitive predicates; in the latter case, both subject and object arguments are marked. Intransitive:

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|--------|---------------|---------------------|
| (9) a. | cə nə-s-səxʷ | "my disappearing" |
| b. | cə ʔən-s-səxʷ | "your disappearing" |
| c. | cə s-səxʷ-s | "his disappearing" |
| d. | cə s-səxʷ-ɣ | "our disappearing" |

Note that nominalizations include an s- prefix on the predicate.

We do not regard this s- as a nominalizer, since the clitic is the nominalizer.⁴ The s- distinguishes this subordinate clause type. First and second person singular subject markers in nominalizations are prefixes; third person and first person plural are suffixes. Transitive examples:

- | | | |
|---------|------------------------|-------------------|
| (10) a. | cə nə-s-kʷəneŋət-onəs | "my helping you" |
| b. | cə ʔən-s-kʷəneŋət-onəs | "your helping me" |

The common first/second person accusative marker is shown here.

- | | | |
|---------|-----------------------|----------------------|
| (10) c. | cə s-kʷəneŋət-onəs(s) | "his helping me/you" |
| d. | cə s-kʷəneŋət-β-ɣ | "our helping him" |

As example (10.d) shows, third person objects are again phonologically null. These examples show how the person markers specific to this clause type serve to satisfy the argument structure of the predicate.

1.2.3. Hypotheticals. These clauses, like nominalizations, refer to propositions as individuals. However, the proposition is not just unasserted; it is also marked as conditional or doubtful. Since hypotheticals are propositional, both subject and object arguments are marked if the construction is built on a transitive predicate. Transitive examples:

- (11) a. k^wənenət-ənəs-ən "if I help you"
 b. k^wənenət-ənəs-əx^w "if you help me"
 c. k^wənenət-ənəɹ-əs "if he helps us"
 d. k^wənenət-β-ɹ "if we help him"

Intransitive examples:

- (12) a. məɟ-ən "if I am full" (from eating)
 b. məɟ-əx^w "if you are full"
 c. məɟ-əs "if he/they are full"
 d. məɟ-ɹ "if we are full"

Examples (11.c) and (12.c) show that hypotheticals, like object-centered nominals, have an overt third person subject marker; (11.d) shows the phonologically null third person object marker. These examples show how the argument array of the predicate of a hypothetical clause is satisfied by affixes.

1.3. Complex sentences in Lummi. There is no embedding in Lummi; no clause is ever a constituent of another clause. Utterances or discourse segments begin with a finite (main) clause, to which a sequence of subordinate non-finite clauses

may be adjoined. In the following examples, commas mark optional pauses and falling contours.

- (13) ye-?-sən-sə, k^w tečəl-əs, cə John
 I will go, if/when he arrives, the one who is John
 ("I will go when John arrives.")
 (14) x^wənək^wen-sən k^w s-u-yos ?u? yéyo?
 I believe, SEQUENCING LINK:always LINK he goes
 ("I believe he always goes.")
 (15) niɹ-čə, ʔu-čəy-s, cə ?əx^wilirux^w
 DEICTIC STEM:MODAL, SEQUENCING LINK:their working,
 the people
 ("And then it seems the people went to work.")
 (16) čte-t-n-sən, k^w xčit-θ-ən, cə xəčənok^w-n
 I was asked, if I knew him, the one who is a
 surveyor
 ("He asked me if I knew the surveyor.")

Lummi nominal expressions are always optional additions to main clauses. Since they are not constituents of other clauses, they may not show "movement" within or across clauses. There are, however, anaphoric links between the pronominal verbal arguments and other clauses, or the pronominal arguments of other clauses, as the preceding examples (13 - 16) show. If there is no NP "movement", or "missing" verbal arguments, there are no ECs. The question then is: how does Lummi grammar provide for constructions that correspond semantically to constructions with

ECs in a language such as English? We turn now to a discussion of these construction types.

2. Constructions with ECs in English and their Lummi equivalents.

2.1. Trace. Trace is said to be present in a passive construction in English, where the underlying object NP has been "moved" into subject position. There is no passive transformation in Lummi; there is a lexical passive.⁵ In the following examples, clauses in parentheses are optional:

- (17) oŋəs-t-ŋ-sən (ə cə swəyʔqə?) (ə cə məhoy?)
"I was presented, (by the man), (with a basket)"
("I was given a basket by the man")

- (18) čʰoy-t-ŋ-β (cə sməyəs) (ə cə swəyʔqə?)
"It was killed, (the deer), (by the man)"
("The deer was killed by the man")

At present, we see no need to postulate traces here or elsewhere in Lummi.

2.2. Variables. Variables are said to be present in English sentences with Wh- movement:

- (19) Who did you see x?

In Lummi there are no Wh- words that function as NPs; there are interrogative predicates, that are clause initial and take person marking affixes as arguments, as follows:

- (20) wet-β kʰ leŋ-n-β-oxʰ
"Who was it, the one that you saw?"
("Who did you see?")

It is remarkable how closely the Lummi syntax approaches the logical form of the corresponding English sentence. Another example is:

- (21) ʔəxin-β, cə xʰotqəm
"Where is it, Bellingham?"
("Where is Bellingham?")

When these interrogative predicates appear in subordinate hypothetical clauses, the third person subject marker they carry is overt:

- (22) čte-t-ŋ-sən, kʰ wet-əs, kʰ leŋ-n-β-ən
"I was asked, who was it, the one I saw"
("They asked me who I saw")

We take the appearance of the -s person marker on the interrogative predicate in hypothetical clauses as evidence that the interrogative predicates carry a phonologically null third person subject marker in main clauses also, as do all intransitive predicates.

2.3. PRO. PRO is said to be present as the "missing" subject argument in embedded non-finite clauses in English, as in:

- (23) You want [PRO to go to Seattle].

The corresponding Lummi clause is not embedded, but adjoined, and carries a subject marker:

(24) ?ən-sli?-θ, kʷ ?ən-s-ye? λə si?éʔ

"It is your wish, your going to Seattle"

("You want to go to Seattle")

There are apparently no instances of PRO in Lummi, because all clause types have person markers that serve as predicate arguments.

2.4. pro or "little pro". This empty category is said to be the result of "pro-drop" in a language such as Spanish:

(25) a. pro Anda.

(He) walks.

b. pro Andan.

(They) walk.

The Spanish verb agrees in person and number with its subject so that a pronominal subject may be "dropped" and is ordinarily used only for emphasis. A key attribute of ECs that result from "pro-drop" is that they may optionally be filled by the corresponding pronoun that is determined by the agreement features of the verb. There is no agreement in Lummi and no independent pronouns. The AUX clitics and person marking affixes are the verbal arguments, and the adjoined nominalized clauses are the optional elements. The phonologically null third person arguments are not instances of pro-drop licensed

by INFL; they are unambiguously third person, whereas the "missing" pronoun in a Spanish sentence may be any person or number according to the agreement features specified by the verbal morphology. Though inaudible by itself, a ZERO argument is clearly "audible" in context in the sense of the contrastive absence of any other person marker. Since there is no underived lexical class noun, all predicates have argument arrays, and thus a construction lacking other person markers necessarily has third person argument(s). The examples given in Section 1 above demonstrate this feature of Lummi syntax.

3. Modal constructions in Lummi. There are certain modal constructions in Lummi that at first glance appear to involve an instance of trace, the result of "movement to subject". We will argue here that these constructions do not involve trace or movement to subject; our argument will be analogous to the Chomskyan argument for rejecting a "movement to subject" analysis of English sentences with AUX modals. We will conclude here, as of the other clause types considered in Sections 1 and 2, that there appears to be no necessity for postulating ECs in the analysis of Lummi syntax.

Modal notions are expressed in a variety of ways in Lummi. There are modal clitics that may appear in the second position (AUX) clitic sequence:

(26) a. ye?-čə-β cə swəy?qə?

"He went (evidently), the man"

("The man went")

b. ye?-q-sən

"I may go"

A second and very interesting set of elements that mark modality are the modal predicates. Some of these predicates may appear alone in a clause, like any other predicate:

(27) əskʷáy?-β kʷ s-ye?-ɣ

"It is impossible, our going"

("We can't go")

(28) ?əw?-β kʷ nə-s-ye?

"It is false, my going"

("I'm not going")

The class of modal predicates includes si?it "to be certain" and ho?, "to be possible".

Notice that (27) and (28) are two-clause constructions, just as the suggested English glosses are. There is a clause with a modal predicate, an adjoined clause with a lexical predicate, and an anaphoric link between the pronominal subject of the main clause and the adjoined clause. Evidence for the fact that there is a phonologically null third person subject marker in the main clause is that when such modal clauses follow a main clause that requires its adjunct to be in the hypothetical, the modal predicate has an overt third

person subject marker, just as all predicates in hypothetical clauses do. Examples:

(29) čtet-ŋ-sən kʷ si?it-əs kʷ nə-s-ye?

"I was asked, if it's certain, my going"

("They asked me if it's certain that I went")

(30) čte-t-ŋ-sən kʷ ?əskʷáy-əs kʷ nə-s-ye?

"I was asked, if it's impossible, my going"

("They asked me if it's impossible that I went")

(31) čte-t-ŋ-sən kʷ ?əw?-əs kʷ nə-s-ye?

"I was asked, if it's false, my going"

("They asked me if it's false that I went")

These modal predicates may also appear in another type of construction, where they are linked to the lexical predicate to form a complex predicate. In these constructions, they are syntactically integrated with the lexical predicate in a single clause. In this respect, they are comparable to the AUX modals in English, which are also syntactically integrated into a single clause with the lexical verb. We are not claiming that these modal predicates are AUX modals; on the contrary, they are still in the normal clause-initial position, and are followed by the clitic sequence labeled AUX. Examples:

(32) si?it-sən ?u? ye?
certain-I LINK go

("I'm certain to go: I must go")

- (33) ho?-I s-i-ye?
Possible-we LINK go

"Possible-we go"

("We may go")

- (34) ?aw-sən s-ye?
False-I go

("I'm not going")

These modal predicates are applicable to propositions, not persons. The clitic person markers are attached to them because of the requirement that AUX clitics appear in second position in Lummi main clauses. The modal predicate and the lexical predicate are linked in a complex predicate that is interrupted by the person marker. Compare the following:

- (35) leŋ-n-ŋ-sən ə cə swəy?qə?

"I was seen, by the man"

- (36) ?əne?-β, cə swəy?qə?

"He came, the man"

- (37) ?əne?-sən leŋ-t-ŋ, ə cə swəy?qə?

"Came-I was seen, by the man"

("The man came-to-see me; visited me")

The predicate ?əne?, "come" is one of a small set of directional predicates that may form a part of complex predicates. The second position subject clitic interrupts the complex predicate, and no person marking appears on the second predicate, because a clause is permitted to have only one subject.

Some quantifier predicates also participate in complex predicate constructions:

- (38) yos-sən ?u? ye?
Always-I LINK go

("I always go")

The linking element ?u? appears in (38) and in other quantifier + lexical predicate constructions. Here again AUX interrupts the complex predicate, and no person marking appears on the lexical verb; one clause, one subject.

Our proposal is that in the constructions with modal + lexical complex predicates illustrated in examples (32-34), that the lexical predicate is marked conjoined and non-finite by s-, and that person markers are excluded from the lexical predicate because the single subject of the clause is marked by the AUX clitic. Evidence for the fact that there is no clause boundary here, and that the predicate with s- is not an adjoined nominalized clause, is the fact that the nominalizer/complementizer k^w is excluded in these constructions, in contrast to the constructions where the modal predicate is the single predicate in its clause:

- (39) ?aw?-β k^w nə-s-ye?

It is false, NOM my going

("It isn't true that I will go")

- (40) ?aw?-sən (*k^w) s-ye?
False-I (*NOM) going

("I'm not going")

There is a semantic contrast present in these two sentences. The second one implies more control and volition on the part of the speaker, as the English glosses given suggest.

The point we want to make about these complex modal constructions and ECs is as follows: A comparison of (39) and (40) above might suggest that in (40) there has been a kind of NP movement leaving a trace, a kind of "movement to subject". We discount this possibility for the same reason that constructions with the English AUX modals are said not to show movement to subject; both cases involve single clause constructions. A two-clause construction such as:

(41) John seems [trace to be tired].

may be said to involve movement to subject: the subject of the lower clause, John, has been moved up to fill the subject position in the main clause. (This is possible within the GB framework because the subject position in the matrix clause has no θ -role.) But in single clause constructions, there is only one subject position, and thus no movement may occur. In the Lummi complex modal constructions, the subject occurs in second position, the only possible position for the subject clitic in a finite clause.

4. Conclusions. Our goal here has been to suggest that there seems to be no need to postulate ECs in the analysis of Lummi sentences. This feature of Lummi grammar follows from the system of person markers in Lummi, which provides a distinct set of possible verbal arguments for each clause type. All

verbal arguments are affixes and clitics, and there is no lexical class noun; therefore, there can be no NP movement. We have also pointed out a type of complex modal construction in Lummi, and have argued that these constructions do not involve "affix-moving" to subject. These unusual aspects of the grammar of Lummi and related Salish languages are of considerable importance for typological studies and the development of universal grammar.

NOTES

1. We gratefully acknowledge the help of the late Mr. Aloysius Charles in providing the Lummi material. We would also like to thank Mrs. Agatha McCluskey for sharing her knowledge of Lummi with us. The Office for the Vice-President of Research at the University of Arizona and the American Philosophical Society provided financial assistance for our Lummi research and we thank them for their support.
2. See Kinkade, Kuipers, and Thompson and Thompson for discussion of the lack of a noun/verb contrast in Salish.
3. Demers and Jelinek give a more detailed treatment of these person-markers.
4. See Davis and Saunders, Hukari, and Kinkade for observations on the function of the s- prefix in Salish.
5. Jelinek and Demers (1983) discuss the Lummi lexical passive and conclude that it is not an inverse construction.

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MORE ON NASAL LOSS ON THE NORTHWEST COAST

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This paper is intended as a sequel to Thompson and Thompson (1972; further relevant references can be found there), which detailed the known occurrence and distribution of voiced stops derived from nasals in Northwest Coast languages. In that paper, the authors pointed out (among other things) that there are six languages in the Northwest where there are (essentially) no nasals, but what would have been nasals in the proto-languages have shifted to corresponding voiced stops. They also note that some of these same languages have also developed other voiced stops from other sources, creating a new manner series among the consonants. Questions that were not answered in an entirely satisfactory way, however, were why just these particular languages lost nasals, and how it happened that they are not even all contiguous. Old data newly re-examined suggest some answers to these questions, and allow a slightly different interpretation of the linguistic situation in the Northwest.

The languages in which the nasal to voiced stop shift has occurred pervasively are Twana and Lushootseed on Puget Sound (both Salishan languages) and Quileute (Chimakuan), Makah and Nitinat (Wakashan) at the northwest corner of the Olympic Peninsula and the opposite coast of Vancouver Island. Thompson and Thompson also note that Sapir "reports b d as optional positional variants of m n" (1972:448) in Comox, which was spoken well up Georgia Strait in yet a third area. Although the Northwest Coast is well-known for its areal features occurring across language boundaries, why would this particular shift have occurred independently in three non-contiguous parts of this region? The answer seems to be that it did not, and although the (probably earlier) development of other voiced stops may have helped enable the shift, their presence was probably not instrumental in its coming about. Nor does one have to rely on putative population shifts as an explanation. What seems to have been the case is that there was a continuum of languages