TRANSITIVITY AND CAUSATION IN LUSHOOTSEED MORPHOLOGY*

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1.0 VALENCY-INCREASING SUFFIXES

The morphology of Lushootseed, a Salishan language of the Puget Sound area of Washington State, is notable for its use of a set of verbal suffixes which mark the syntactic role of the arguments of the verb to which they are attached. Hess (1993a) divides these suffixes into agent- and patient-oriented classes, depending on the semantic role taken by overt third person arguments, as in (1).[1]

(1) (a) Patient-oriented
ʔu+gʷəc̓+əd tsi c̓ac̓as
[pnt]+look+patient Df child
"[someone] looked for the girl" (Hess 1993a: 44)

(b) Agent-oriented
ʔu+gʷəc̓+əb tsi c̓ac̓as
[pnt]+look+agent Df child
"the girl looked for [someone]" (Hess 1993a: 9)

In (a), the NP is identified as the goal of the action, the transitive object, by the patient-oriented suffix *-t* (realized as [-əd]);[2] in (b), which is intransitive, the NP is identified as the agent, or subject, by the appearance of *-b*. The same pattern does not hold if the subject is first- or second-person.

(2) (a) ʔu+gʷəc̓+əd čəd tsi c̓ac̓as
[pnt]+look+patient I Df child
"I looked for the girl" (rare) (Hess 1993a: 10)

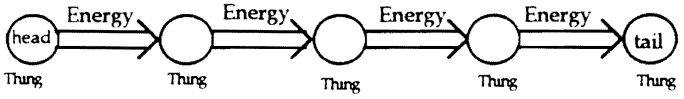
(b) ʔu+gʷəc̓+əb čəd ʔə tsi c̓ac̓as
[pnt]+look+agent I P Df child
"I looked for the girl" (based on Hess 1993a: 43)

Here the first-person pronoun is interpreted as agentive irrespective of the inflectional marking on the verb. In (a), the *-t* suffix has created a transitive verb, whereas the verb in (b) is intransitive and the preposition *ʔə* is required for the expression of the semantic goal.[3]

In all there are four patient-oriented (*-s* ~ *-c* "[applicative]", *-txʷ* [causative], *-dxʷ* [lack of control], *-t* "[patient-orientation]") and one agent-oriented suffix (*-b* "[middle]") that increase the valency of the stem to which they are attached. Cross-linguistically this situation is highly unusual. In general, valency-increasing affixes are confined to causatives, applicatives, and instrumentals (Comrie 1985) and in those languages where such suffixes are not associated with one or the other of these functions, the morpheme (often referred to as a "transitivizer") is generally homophonous with the causative (Kemmer and Verhagen 1994). In Lushootseed, these generalizations seem to apply only to two of the suffixes— *-s* ~ *-c* "[applicative]" and *-txʷ* "[causative]": the remainder do not obviously fall into any previously defined class of valency-increasing morphemes. The analysis here will resolve this dilemma by showing that *-t* , *-dxʷ* , and *-b* should be grouped together with *-txʷ* as causatives of a different order, used to mark the causality inherent in the transitive construction.

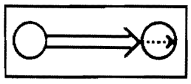
2.0 TRANSITIVITY, CAUSATIVITY, AND COGNITIVE GRAMMAR

Although the link between transitivity and causation has been made a number of times in the literature (cf. the papers in Shibatani 1976 and Comrie and Polinsky 1993), the most explicit connection between the two is made by Langacker (1991), who analyzes the transitive clause as being symbolic of a simple causative interaction between two objects. This idea is predicated on what Langacker terms the "billiard-ball" model of the universe—that is, the construal of the universe as consisting of energetic interactions of discrete objects or things, illustrated by the action chain in (3).

(3) 

(based on Langacker 1991: 283)

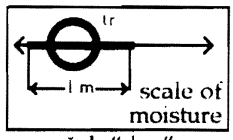
Chains such as this are initiated by the first object, or head, which transfers energy into the second object, which in turn interacts with the next object, and so on until the transmitted energy reaches the end or tail of the chain. The canonical event model is seen as a reduced form of this chain, consisting of a head that initiates the event and a tail or "theme"[4] that undergoes an internal change of state, as in (4).

(4) 

(based on Langacker 1991: 285)

In (4) the relation between the head and the internal change of state of the tail (broken arrow), is one of causation (the broad arrow), as it is the energy of the former which brings about the latter. In the canonical transitive clause, the event is construed as such an interaction, with the head of the action chain coded as the subject and the theme as the direct object. Although not all grammatically transitive clauses describe such events, Langacker (1991) and others (Kemmer and Verhagen 1994) have argued that non-causative transitive constructions are in fact modeled on the transitive event by analogy, making this model a conceptual template or archetype for a wide range of other events.

In Cognitive Grammar (CG) terms, the head of the transitive chain represented in (4) is referred to as the **trajector**, defined as the most salient or primary clausal figure. This is seen in (5), which represents *šab* "dry".

(5) 

šab "dry"

Here the trajector (dark circle), represents an entity—singled out as being dry by the speaker—which is located at some point on the scale of moisture (double-headed arrow) falling within that portion of the scale conceived of as constituting "dryness" (the thickened line); this portion of the scale is referred to as the **landmark** (lm), or secondary clausal figure. Both the trajector and the landmark in this representation are **profiled** (indicated by thickened lines)—accorded special prominence by the speaker as focal points of the utterance. In (5) the landmark is a referential landmark in that it serves to locate the trajector in some region of conceptual space; a landmark, however, can also represent a second clausal participant, in which case it is realized as the direct object, the trajector being realized as the subject.[5]

3.0 THE LUSHOOTSEED VERB

Hess (1993b) defines the most basic descriptive unit of the Lushootseed verb to be the radical stem—that is, the root with no accompanying affixes. With only a handful of exceptions, the profile

of radical stems never includes more than a single participant which represents the tail of the action chain designated by the corresponding transitive verb; this is seen most clearly in verbs as in (6):

(6) (a) ʔu+pus čəd
[pnt]+be•hit•by•flying•object I
"I [am/was] struck (by a flying object)"

(b) ʔu+pusu+d čəd[6]
[pnt]+be•hit•by•flying•object+[caus1] I
"I pelted [someone]"

(c) ʔu+c̓ax^{w} čəd
[pnt]+be•struck I
"I [was] struck"

(d) ʔu+c̓ax^{w}a+d čəd
[pnt]+be•struck+[caus1] I
"I struck [someone]" (Hess and Hilbert 1976: II, 136)

Verbal radicals are not the only candidates for the addition of valency-increasing suffixes: words corresponding to English adjectives often serve as the root of a verb and may appear in copular sentences which are syntactically and morphologically identical to sentences with a radical verbal stem as predicate. Conversely, radical verbal stems can serve attributive roles in a sentence. These facts suggest that at the level of the radical there is no clear distinction between verb and adjective, the only potential exceptions being a few inherently transitive stems and a handful of words like *luƛ̓* "old" and *haʔɬ* "good" which do not appear with the stative aspectual prefix *as-/ʔəs-* (Hess, personal communication).

This conflation of verb and adjective fits well with a proposal made by Givón (1979) that the lexical class "adjective" represents, rather than a universal category, a language-specific portion of the continuum of time-stability. This continuum runs from the active pole—depicting rapid change of state (verbs)—through temporary states (verbs/adjectives) to permanent-inherent properties (adjectives/ nouns) and objects and other things that do not change their identity over time or change it slowly (nouns). Givón notes languages vary as to how the middle portion of the continuum is lexicalized. In some languages temporary states are generally verbs (Krio, Topotha) while in others they are adjectives (English); other languages differ as to whether permanent-inherent states are most often adjectives (English, Bantu) or nouns (Walbiri). In Lushootseed, we have the verbs forming a morphologically uniform class with both the temporary and inherent-permanent adjectives. Interestingly, those radical stems that seem the best candidates for forming a distinctive class of adjective in Lushootseed—those that do not take the stative prefix—are those that lie at the high end of the permanent-inherent end of the spectrum and some of these (such as *luƛ̓* "old, old one") are used regularly as nouns. In CG, both verbs and adjectives express relations, the distinction being between those which profile a relation over time (verbs) and those which profile an atemporal relation (adjectives). In terms of Givón's continuum, languages thus differ as to whether temporary-state adjectives are construed to be temporal or atemporal relations. In languages that express tense in their verbal morphology, the distinction between temporal and atemporal relations is often made in the syntax by the appearance of a copula in predicate-adjective constructions. In Lushootseed, however, tense is not marked in this way and there is no copula, leaving us no way in which to distinguish between intransitive verbs and adjectives: therefore, the present analysis will assume that the verbal radical is an atemporal—and hence basically adjectival—relation which stands in a copular relationship with its subject, a stand which is by no means at odds with the Lushootseed propensity for forming sentences with non-verbal predicates.

3.1 *-b* "[middle]"

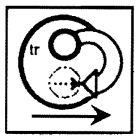
The first suffix to be considered here is *-b*, which Hess (1993a) dubs "middle voice", although in its canonical form it is not a voice (as defined by Mel'čuk 1993) as it increases the number of actants the verb has rather than merely permuting their syntactic roles. *-b* has two uses which correspond

conceptually to the traditional middle, which "serves to express that the subject is acting on herself/himself (reflexive) or for herself/himself" (Trask 1993: 171).[7] Corresponding to the second of these, the canonical middle denotes that the change of state described by the radical is caused on something in the subject's possession or for the benefit of the subject:

(7)	(a)	ƛ̓aċ̓	>	ƛ̓aċ̓+əb
		"cinched"		"cinch up one's own belt"
	(b)	dˀakʷ	>	dˀakʷaa+b
		"shake, rock"		"wag [one's tail]"
	(c)	ɬič̣	>	ɬič̣i+b
		"get cut"		"cut cattails [for matting]"
	(d)	šab	>	šab+əb
		"dry"		"dry sth [of one's own]"

This can be represented as in (8).

(8)



Here, the trajector is seen as acting on something within its possessive domain,[8] indicated by the larger circle surrounding the trajector and the unprofiled theme. This theme (dotted circle) corresponds to the trajector of the radical. *-b* involves the notion of causation, but the trajector's action is construed as turning back towards the actor itself; this deviation from the standard pattern results in an intransitive clause—the theme requiring the preposition ʔə if it is to be overt. The canonical middle is the only usage of *-b* which increases valency.

The second standard use of the middle is the "reflexive" middle, in which the subject acts not on some object in its possession but directly on itself. Compare the examples in (7) with those in (9):

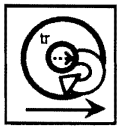
(9)	(a)	həd ʔiẇ	>	həd ʔiẇb
		"inside"		"go inside, enter (house)"
	(b)	p̓il	>	p̓il+əb
		"flat"		"go flat"
	(c)	dˀaƛ̓	>	dˀaƛ̓+əb
		"confused"		"be wrong, make a mistake"

The applicable subschema is shown in (10). Note that here, unlike (8), the trajector of the middle form is the same as the trajector of the radical; both represent the tail of an action chain, although here this chain has been made explicit in that the trajector is seen as being the theme of a causative interaction of which it is also the initiator. This group, which is not very numerous, coincides in meaning with the true reflexive, formed from a transitive verb with the reflexive suffix *-(s)ut*.

(10)

These two uses of the middle, while constituting distinct semantic structures, are clearly similar, and can be related schematically as subtypes of a prototype,

(11)



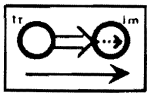
Prototypically the middle voice is depicted as canonically designating an event in which the trajector's energy is returned to within its own possessive domain; depending on the verb to which the middle is applied, the theme may be shifted to another object in that domain or remain with the trajector itself, thereby selecting the appropriate subschema.

3.2 *-t* "[first-order causative]"

The most common patient-oriented suffix is the "transitivizer" *-t*. The function of *-t* is to add a link to the action chain by adding an agent which causes the change in state of the theme. Consider the following:

(12)	(a)	həd?iẇ	>	həd?iẇ+d
		"inside"		"take sth inside"
	(b)	hud	>	hudu+d
		"burning"		"burn sth"
	(c)	ɬič	>	ɬiči+d
		"get cut"		"cut sth"
	(d)	pil	>	pili+d
		"flat"		"flatten sth"
	(e)	k'ʷəɬ	>	k'ʷəɬ+əd
		"flow, spill"		"spill, pour sth"

In terms of its CG representation, *-t* corresponds to the canonical event model in (4) and (13).

(13) 

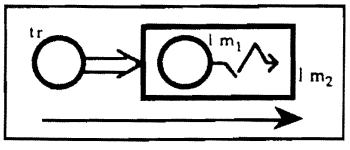
The morpheme here is seen as creating an action chain of which the trajector is head and the landmark tail. The relation between the trajector and the thematic change of state is causative, and the event is seen as a single process in which the trajector participates directly, playing the semantic role of agent (hence the term "first-order causative"). An exception to this pattern is experiencer verbs such as

(14)	(a)	k'ʷil	>	k'ʷili+d
		"peek, peer out"		"peer out at sth"
	(b)	ləq	>	ləq+əd
		"hear"		"hear sth"

In constructions such as these, the trajector or subject of the transitive form is clearly not agentive in the canonical sense of effecting a change in the landmark/direct object, which is unaltered by the interaction. Experiencer verbs do not represent a causative relationship, but are structured as transitive events by analogy, just as they are in languages like English (see section 2 above).

3.3 *-txʷ* "[second-order causative]"

Of the patient-oriented suffixes, *-txʷ* is the morpheme which best corresponds to the standard causative pattern discussed most frequently in the literature (e.g. Comrie 1985), represented in (15).

(15) 

(based on Langacker 1991: 410)

When combined with a radical, *-txʷ* adds a participant (tr) which is construed as the agent of some other (second-order) process in which it is not a direct participant, at least in the sense that the tra-

jector of the causative as a whole is not conceived of as the trajector of the initiated process. The trajector of the radical becomes the primary landmark (lm_1) of the clause, while the process itself—specified by the radical on which the causative is built—becomes a secondary, referential landmark (lm_2). This is seen most clearly when the process caused by the trajector is a verb of motion:

(16)	(a)	ʔəƛ̓	>	ʔəƛ̓+tx^{w}
		"come"		"bring sth"
	(b)	ʔibəš	>	ʔibəš+tx^{w}
		"walk"		"take s.o. for a walk"
	(c)	ʔuǰ^{w}	>	ʔuǰ^{w}+tx^{w}
		"go"		"take"

In these expressions, the object of the causative is seen to have undergone the type of motion designated by the radical, but the source of energy or cause of that motion is a second participant in the event, realized as the subject/trajector. Thus, the verb *ʔəƛ̓tx^{w}* "bring sth" means "to cause sth to come": the focus of the verb is the process of motion towards the speaker designated lexically by the radical (lm_2), but it is the direct object (lm_1) which undergoes this process rather than the subject. In addition, there are a large number of other roots that form obvious second-order causatives.

(17)	(a)	həli?	>	həli?+tx^{w}
		"alive"		"cure s.o."
	(b)	laǰ	>	laǰ+tx^{w}
		"remember"		"remind s.o."
	(c)	šuɬ	>	šuɬ+tx^{w}
		"see"		"show"

In each of these examples, as in (16), the causer of the process can be clearly separated from the process itself: in (17a) the causer is not the one who lives, just as in (b) or (c) it is a second participant, not the trajector, who remembers or sees. By the same token, in those causatives formed from verbs of motion, the causer is construed to be somehow outside the process which it initiates, the motion of its landmark.

Of course, the notion of being directly or immediately involved in a process is purely a matter of construal: in many languages verbs like "bring", "take", and "show" are normal transitives. Even in Lushootseed there is considerable overlap in the domains of first- and second-order causation:

(18)	(a)	həd?iẇ+d	:	həd?iẇ+tx^{w}
		"take sth inside"		"take sth inside"
	(b)	sula+d	:	sula+tx^{w}
		"place sth in centre of room"		"bring sth to centre of room"
	(c)	ƛ̓ub+əd (ƛ̓ub = well)	:	ƛ̓ub+tx^{w}
		"agree to sth"		"get sth fixed"
	(d)	?upu+d	:	?up̓+tx^{w}
		"seat s.o. on one's lap"		"seat s.o. on another's lap"

While some of these examples, like (a) and (b), seem completely synonymous, others, like (d), show a subtle semantic distinction that parallels exactly the sense of *-tx^{w}* illustrated by (16) and (17) above. It may well be that the remainder of these pairs contrast only in the degree to which the trajector is felt to be an immediate participant in the second-order process that affects the theme; the idiomatic *ƛ̓ubtx^{w}* "get sth fixed" in (18c), for instance, removes the trajector from the action that causes the landmark to become "well". For (a) and (b) a similar distinction may hold and the English glosses may simply be unable to reflect a subtle distinction of construal.

3.4 *-dx^{w}* "[lack of control]"

The category of "control" or "inadvertence" is an important feature of Lushootseed inflection. "Lack of control" is expressed by adding the suffix *-dx^{w}* to the radical, forming a transitive verb in

which the trajector or initiator of the action chain is seen to have less than total control over the event or its outcome. These verbs seem to fall into two distinct semantic classes, the first of which can be glossed roughly as "result achieved with difficulty". Consider the following:

(19)	(a)	bək^{w}+əd	:	bək^{w}+dx^{w}
		"take everything"		"manage to take everything"
	(b)	huyu+d	:	huy+dx^{w}
		"make, do sth"		"manage to make, do sth"
	(c)	k^{w}əda+d	:	k^{w}əd+(d)x^{w}
		"take sth"		"manage to get sth"
	(d)	čəsa+d	:	čəs+dx^{w}
		"send s.o. on errand"		"persuade s.o. to go on errand"

In the examples in the righthand column in (a) through (c), the subject is seen as having accomplished the task with some difficulty. Similarly, in the second verb in (d) the subject persuades someone else to do something, but *-dx^{w}* is required because the subject is not in complete control of the actions or feelings of that other person, although the subject is the principle causer of the event. This can also be seen in another group of verbs which take *-dx^{w}* (not all of which have other transitive forms):

(20)	(a)	x̌əc	>	x̌əc+dx^{w}
		"be afraid"		"scare s.o."
	(b)	x̌əɬ	>	x̌əɬ+dx^{w}
		"sick"		"hurt s.o."
	(c)	x̌^{w}al	>	x̌^{w}al+dx^{w}
		"fail"		"defeat s.o."

In each of these cases, the radical designates a state which in some way depends on the physical or mental disposition of its trajector. In the righthand examples, where the trajector seeks to cause some other participant to be in this state, the landmark is still felt to have some control over the outcome, either in that it is not amenable to the trajector's intentions (as in (a), where the person the trajector wants to scare may not be frightened) or in that it physically resists the trajector's efforts ((b) and (c)).

The second semantic class of verbs with *-dx^{w}* is illustrated by

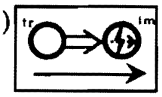
(21)	(a)	cili+d	:	cil+dx^{w}
		"dish out sth (food)"		"put sth on wrong plate"
	(b)	bəča+d	:	bəč+dx^{w}
		"set sth down"		"accidently knock sth down"
	(c)	g^{w}al+d	:	g^{w}al+dx^{w}
		"capsize sth"		"happen to capsize sth"

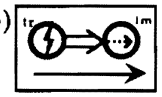
These examples show inadvertence, the event being the result of an action which was either itself undesired or which did not have the desired result—and which therefore was not under the trajector's complete control. Similarly, certain experiencer verbs reflect the non-volitional nature of such things as sight or memory, which are also not completely under conscious control:

(22)	(a)	šuɬ	>	šuɬ+dx^{w}
		"see"		"see sth"
	(b)	laǰ	>	laǰ+dx^{w}
		"remember"		"remember sth"

Thus, the lack of control morpheme would appear to have two rather different meanings. The apparent tension between the two may arise from a schematic relation between subschemas of the *-dx^{w}* morpheme—one in which a deliberate, voluntary action is directed towards an object construed as having partial control of the situation (either by volition or by virtue of being a difficult target for

the action), and a second where the subject has only partial (or negligible) control and causes an event in which the object's will is not an issue. These two subschemas can be represented as (23a) and (b) respectively. The notion "lack of control" is shown by the lightning bolt, which is associated with either the landmark or the trajector of the event, depending on which of the meanings of *-dxʷ* is appropriate to the situation.

(23) (a) 

(b) 

4.0 TRANSITIVITY AND VOICE: THE PASSIVE

In contrast to the valency-increasing suffixes we have considered so far, grammatical voice (as defined by Mel'čuk 1993) represents an inflectional category that alters the syntactic roles of the actants of a verb without changing its propositional meaning and, therefore, without changing the number of construed participants in the clause. The most pervasive voice in Lushootseed is the passive, formed by combining a patient-oriented suffix with the middle *-b*, as illustrated in (24):

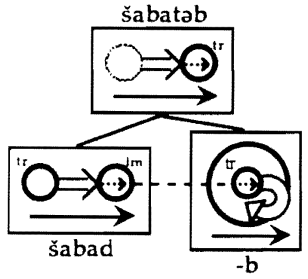
(24) (a) ʔu+ʔuxʷ+c+ə b ʔə ti luʎ̓ ti čačas
[pnt]+go+[appl]+[md] P D old D child
"the old man went after the boy"

(b) ʔu+šaba+t+ə b ʔə tsi luʎ̓ ti sʔuladxʷ
[pnt]+dry+[caus1]+[md] P D old D salmon
"the old woman dried the salmon"

(c) ʔu+ʔuxʷ+tu+b ʔə ti luʎ̓ ti čačas
[pnt]+go+[caus2]+[md] P D old D child
"the old man took the boy somewhere"[9]

(d) ʔu+ʔəy̓+du+b ʔe ti čačas ti sqʷəbayʔ
[pnt]+find+[l.o.c.]+[md] P D child D dog
"the boy found the dog" (Hess 1993a: 29 – 38)[10]

What is especially interesting about the passive here is that it is formed by a combination of suffixes—specifically, by the addition of the middle *-b* to a stem transitivized by a patient-oriented suffix—and as such we should expect it to combine the properties of these morphemes in some way. And indeed it does. As noted earlier, when added to a radical stem, the patient-oriented suffix creates an action chain in which a causer acts on the thematic element (trajector of the radical stem), the causer becoming the grammatical subject and the theme the direct object. When the middle suffix—which prototypically profiles a theme rather than a causer (though in middles these are often the same)—is added to this transitive construction, it shifts the profile of the composite structure to the tail of the transitive action chain, the theme, which then becomes trajector. This suggests the compositional schema in (25), where the *-b* suffix is added to the first-order causative form of the radical *šab* "dry" (*cf.* (24b)).

(25) 

The middle is the profile determinant (indicated by the dark box around it) and thus it a) selects the thematic element (what is dried) as trajector, and b) prevents the profiling of the non-thematic element (not present in the canonical middle), which must then be realized as a prepositional phrase in those cases where it is required in discourse—thereby creating an intransitive clause. Transitives formed on the other patient-orienting suffixes can also be combined with *-b* in this way, each retaining the particular aspects of its own meaning (second-order causativity, lack of control) while taking on the profile required by the middle, although—as in (25)—the resulting structures lose the middle's meaning of "the trajector acting on itself or for its benefit" in favour of the sense "the trajector is acted upon". Once again, the use of the middle in the creation of intransitive—in this case passive, de-transitive—clauses is far from unusual cross-linguistically, the most familiar examples being Spanish expressions such as *aquí se venden libros* "books are sold here", which are formed with the same morpheme, *se*, that also characterizes reflexive and middle constructions in this language.

5.0 CONCLUSION

The analysis of the Lushootseed data given above seems to lend a great deal of support both to the hypothesis that there is a close link between transitivity and causation and, in particular, to Langacker's (1991) contention that transitivity finds its conceptual basis in the notion of causal relations between subject and object. Lushootseed is an especially clear example of this principle in that it is a language that expresses what are ordinary transitive clauses in many other languages through the application of valency-increasing suffixes whose meaning includes the notion of causation. The key to understanding this phenomenon almost certainly lies in the unusual nature of Lushootseed radical verb stems, which are—with only a few exceptions—inherently atemporal and non-causative in nature and which, in fact, may not be verbal in any meaningful sense of the term, as they pattern both morphologically and syntactically with words corresponding to the lexical class of adjective in more familiar languages. As a result of this, Lushootseed radicals are inherently monovalent and thus require the addition of suffixes to allow for the additional actants needed to form transitive clauses and to express the minimal sort of causality encoded by transitive subject-object relations. Clearly, the recognition of the role played by the speaker's construal of events and its links to the symbolic functions of the grammatical and morphological processes underlying the structure of clauses offers new insights into these and many other important aspects of natural language; further extension of the type of analysis presented here will no doubt uncover additional evidence for these and for the conceptual links between causation, transitivity, and clause structure that are coded so explicitly in Lushootseed morphology.

NOTES

* I would like to thank Thom Hess, Ronald Langacker, Igor Mel'čuk, and Leslie Saxon for their help and insightful comments on this paper.This is a shorter version of a more detailed work. A full copy of this paper is available from the author via e-mail (dbeck@epas.utoronto.ca).

1 The following abbreviations are used in this paper: appl = applicative; caus1 = first-order causative; caus2 = second-order causative; D = deictic; *f* = female; lm = landmark; md = middle; pnt = punctual; P = preposition; s.o. = someone; sth = something; tr = trajector. Uncited examples are taken largely from Hess (1976) but also from Hess (1993a) and Hess and Hilbert (1976).

2 In (a), the grammatical subject of the sentence—a third-person NP whose identity would be unambiguous in discourse—has been elided by a surface rule of Lushootseed syntax, preventing the realization of more than a single direct actant (subject or direct object) in a clause.

3 Note, however, that a third-person subject of a patient-oriented stem may not be overt in a matrix clause. When such subjects are not inferable from discourse a passive is used (see section 4).

4 This term is not to be confused with the semantic role "theme" current in the literature.

5 For a more detailed discussion, see Langacker 1991, Chapter 7.

6 The stem-final /u/ in *ʔupusud* is part of the root, but is deleted word-finally and before many suffixes. A very large number of Lushootseed roots follow this pattern (not always with /u/).

7 "Middle" has also been used in the literature to refer to sentences which also fall under the heading "mediopassive" (Trask 1993), as in "This book reads easily". This is not the meaning used here.

8 The notion of possessive domain is derived from Langacker's (1991) "reference-point" model of possession and corresponds to his possessive dominion, or that set of things which the reference-point can be used to locate in conceptual space and which are linked to it by the use of a possessive construction. Hence, "my boss" does not designate possession in the usual sense, but indicates that the boss being discussed may be identified with reference to the speaker, who thus serves as a point of reference. The term possessive domain, however, is (potentially) more limited as it refers to those items in the posession of, or which may be acted upon to the benefit/detriment of, the trajector, although the two concepts are obviously connected.

9 When combined with *-b* in the passive, *-tx*^{w} surfaces as [-tu-] and *-dx*^{w} as [-du-].

10 These examples are glossed as active as the passive serves a different discourse function than it does in English and has the opposite rhematic structure, making an active gloss more idiomatic.

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