A TAXONOMY AND TYPOLOGY OF LUSHOOTSEED VALENCY-INCREASING SUFFIXES[1]

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A great deal has been written about causatives and applicatives, yet efforts to relate these two types of VALENCY-INCREASER are still in their early stages. This paper is an attempt to develop a unified treatment using data from the Salishan language Lushootseed, which derives its transitive verb stems from intransitive radicals using a variety of valency-increasing suffixes. This paper proposes a taxonomy of these suffixes based on two parameters—the distinction between a CAUSATIVE, which adds a subject, and an APPLICATIVE, which adds an object, and the distinction between DIRECT and NONDIRECT—that is, whether the CAUSEE or the applied object is a direct object or is more oblique. This study also touches on some current debates in Salishan studies about whether these morphemes are inflectional or derivational, and the extent to which verbal radicals can be treated as uniformly unaccusative, a characterization of the family that has been used to motivate some significant claims about language universals.

[KEYWORDS: Lushootseed, Salishan, causatives, applicatives, transitivity]

1. Introduction. Causatives and applicatives are a perennial favorite topic for typologists and syntacticians, yet attempts to systematize the cross-linguistic similarities and differences between these morphemes, which fall under the collective heading of VALENCY-INCREASERS—morphemes that allow for the expression of semantic actants beyond those normally associated with the underived form of a verbal base—are still in their early stages. Most typological work has focused on causatives (e.g., Nedjalkov and Silnitsky 1973, Shibatani 1975; 2002, Aissen 1979, Comrie and Polinsky 1993, and Song 2001), whereas systematic cross-linguistic investigation of applicatives has lagged behind (see, however, Kiyosawa 2006 and Peterson 2006) and typological efforts to treat the two types of valency-increasers together have just begun (Mel'čuk 1993–2000 and Dixon 2000). This paper is an attempt to

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develop just such a treatment using data from the Salishan language Lushootseed.[2] Lushootseed is an apt choice for this because of its large number of valency-increasers and the critical role they play in its grammar. I argue here that Lushootseed valency-increasers (and, by extension, analogous morphemes in other languages) can be taxonomized using two syntactic parameters, then further subdivided according to additional semantic effects of the affix on its base. The first-order parameter used in the taxonomy is whether or not the semantic actant added to the base is expressed as a subject (as in the case of causatives) or an object (as with applicatives). The second-order parameter has to do with the surface realization of the objects of the derived verb. For causatives, the issue is whether the displaced subject of the verbal base is treated as a direct or a nondirect object; for applicatives, it is whether or not the new object is direct or nondirect. This study also seeks to give some typological perspective to current debates in Salishan studies—in particular, the status of valency-increasers as inflectional or derivational, and the extent to which verbal radicals in Lushootseed can be treated as uniformly unaccusative, a characterization of the family which has been used to motivate some significant claims about language universals.

2. Semantic valency, valency-increase, and syntactic transitivity. A central notion for this paper is SEMANTIC VALENCY, the set of semantic argument-slots needed in a dictionary definition or linguistic representation of the meaning of a lexeme expressing a semantic predicate (Mel'čuk 2004). The semantic valency of a verb depends both on the number of event-participants entailed by the conceptual structure of the event it expresses and on the number of syntactic argument positions for those participants. Event-participants that are realizable as syntactic arguments are SEMANTIC ACTANTS. In the simplest cases, the number of semantic actants in a verb's semantic valency corresponds to the number of event-participants in its conceptual structure, as in English *see* (≈ 'X perceives Y by means of X's eyes'), as opposed to *cost* which means something like 'X is provided to Y by some person in exchange for an amount of money Z' (Mel'čuk 2004:14). Here, there

[2] Salishan is a family of 23 languages found in the coastal areas of British Columbia, Washington State, and parts of Oregon, and extending eastward into the Rocky Mountains. Lushootseed, or *Dəxʷləšucid*, is a member of the Central Coast group and was originally spoken throughout the Puget Sound area, although it is currently the native language of only a handful of very elderly speakers. The data used for this paper are drawn primarily from an interlinearized corpus of 5,394 lines (23,656 words) of text built from the materials collected or compiled by Thomas M. Hess, who was kind enough to lend them to me for the purposes of analysis. When contextualized examples from the corpus correspond to a line from a previously published text, that source is directly cited, although the gloss presented is the one used in the corpus, which in some cases differs from that in the published source; otherwise, citation is by speaker's initials, title of text, and line number. Data from the corpus have also been supplemented with forms taken from a variety of other published sources.

are three semantic actants, but the conceptual structure includes a fourth participant (the PAYEE) that cannot be expressed as a syntactic argument of the verb—what is referred to here as an IMPLICIT PARTICIPANT.

Much of the discussion below focuses on verbs that express two-participant events. While such verbs range over a wide variety of semantic classes, they can be ranked on a relative scale of semantic transitivity (Hopper and Thompson 1980 and Tsunoda 1985), with verbs at the highest end of the scale expressing energetic interactions between event-participants in which one (the initiator, typically an AGENT) acts directly on another (the endpoint, typically a PATIENT). At this end of the scale, the interaction between initiator and endpoint is one of causation (McCawley 1976 and Dowty 1991), resulting in the endpoint undergoing some internal change of state (Langacker 1987). As a result of this interaction, the endpoint comes into what I refer to for heuristic purposes as an ENDSTATE. In most languages, events high on the scale of semantic transitivity are lexicalized as underived bivalent, syntactically transitive verbs. In Lushootseed, however, most semantically transitive events are lexicalized as syntactically monovalent verbal radicals, a pattern also found in some (but not all) other Salishan languages such as St'át'imcets (Davis 2000 and Davis and Demirdache 2000), Lummi (Jelinek and Demers 1994), Squamish (Kuipers 1968), and Musqueam (Suttles 2004).

Many languages have derivational processes which increase the basic semantic valency of a verb and permit the expression of additional syntactic arguments. These processes can be classified according to the syntactic treatment of the new semantic actant, dividing valency-increasers into two broad classes depending on whether the new actant is realized as a subject or a nonsubject (cf. Dixon 2000). In the overwhelming majority of cases, the first class of valency-increaser falls under the heading of CAUSATIVE, a term usually applied to constructions like (1*b*):[3]

[3] The abbreviations used here are as follows: √ = verbal radical; ° = bound form; = = clitic boundary; - = affix boundary; • = lexical suffix boundary; SMALL CAPS = semantic role; 1, 2, 3 = first, second, third person; ACT = causative of activity; ADD = additive; ADNM = adjunctive nominalizer; ALTV = allative applicative; APPL = applicative; ATTN = attenuative; BEN = benefactive; COORD = coordinative; CS = causative; CTD = contained; DAT = dative applicative; DC = diminished control; DEF = definite; DIST = distal; DSTR = distributive; DTV = dative case; ECS = external causative; FEM = feminine; FOC = focus; FUT = future; FV = final vowel; ICS = internal causative; IMPF = imperfective; INDEF = indefinite; IND = indicative; INST = instrumental; INT = interrogative; IRR = irrealis; LOC = locative; MAP = middle applicative; MASC = masculine; MDCS = middle causative; NC = noun class; NEU = neuter; NM = nominalizer; NOM = nominative case; OBJ = object; PASS = passive; PFV = perfective; PL = plural; PO = possessive; PR = preposition; PRES = present; PROG = progressive; PROX = proximal; PRTV = partitive; PTCL = particle; REFL = reflexive; REM = remote; SBJ = subjunctive; sby = somebody; SCONJ = sentential conjunction; SG = singular; STAT = stative; sth = something; SUB = subject. Lushootseed data are transcribed using standardized orthography which is essentially an Americanist IPA in which /č/ = /tʃ/; /š/ = /ʃ/; /x̌/ = /χ/; /ǰ/ = /dʒ/; /c/ = /ts/; and /dˀ/ = /dz/; data from other languages is given in the orthography used in the original sources.

Upper Necaxa Totonac (Totonac-Tepehua family)

(1*a*) *kit* *na-ik-**skúx**-a* *ču:wá* *watsá*
I FUT-1SG.SUB-work-IMPF now here
'I'll work here now'

(1*b*) *li:-lą̣ʔapu̱:cí:* *akšní* *iš-kin-ta-**ma:-skux-ú:*** *axcananú*
INST-be.sad when PAST-1OBJ-3PL.SUB-CS-work-CS back.then
'it was sad when they made me work back then' (author's field notes)

(1) contrasts the monovalent verb *skux-* 'work' with its causative derivative, *ma:skuxú:* 'make sby work', which is bivalent. The new semantic actant in (1*b*) becomes the subject, and the "displaced" subject of the base—generally referred to as the CAUSEE—is realized as a direct object. The new semantic actant has the role of CAUSER, which differs from AGENT by virtue of being the initiator of an unspecified event that in turn triggers the event expressed by the verbal base (Langacker 1987). In languages with morphological causatives, verbs whose subjects express prototypical AGENTs tend to be underived stems, whereas those whose subjects are clearly CAUSERs tend to be derived. However, both within and across languages there is a certain fuzziness about where the line between the two roles is drawn, and which predicates are derived or underived. Thus, a meaning like 'kill' is expressed in Turkish by a causativized verb *öldür* 'kill [lit., 'cause (*-dür*) to die (√*öl*)]' (Comrie 1989:175), while in Upper Necaxa Totonac the same meaning is expressed by a monomorphemic radical (√*mą̣ʔní:* 'kill'). This variability stems both from the underlying similarity of the semantic roles of CAUSER and AGENT, and from the causality inherent in the prototypical semantically transitive event. Seen in this light, any definition of "causative" that stipulates that the new semantic actant be assigned the role of CAUSER will founder on both intra- and cross-linguistic facts. A more generally applicable definition is that of a morpheme that adds a new semantic actant to its base, that actant being expressed as a syntactic subject.[4] By this definition, Lushootseed has five causative suffixes.

[4] There are a few examples across languages of valency-increasing affixes that add subjects with nonagentive roles, suggesting that in actual fact causatives may be a (dominant) subtype of "subject-adding" morpheme. Thus, some languages have permissives and cooperatives (Mel'čuk 1993–2000:2:318), while a few others, such as Mapudungun (F. Zúñiga, personal communication), Dyribal (Manning 1996), and Tagalog (Schachter and Otanes 1972), have affixes that seem to add subjects in a variety of semantic roles more generally associated with applicatives. However, such affixes appear to be rare cross-linguistically and, in the case of Dyribal and Tagalog, their analysis is controversial. As the Lushootseed data has nothing to tell us about such morphemes, I concentrate here on affixes that add AGENT/CAUSER subjects and leave these more exotic creatures for future investigation and refinement of the typology of valency-increasers across a wider range of languages.

The second type of morpheme that can increase semantic valency is the APPLICATIVE. Although there is widespread agreement in the literature about which morphemes in a particular language should be classified as applicatives, there is no commonly held definition of the term. One current usage defines an applicative as a morpheme that promotes a peripheral argument of a verb to a core argument (Trask 1993, Dixon 2000, and Peterson 2006); however, this formulation seems not to cover cases such as that in (2), which represents the type of construction most commonly termed "applicative" in descriptive grammars:

Kichaga (Bantu family)

(2*a*) *n-ã-ĩ-**ly**-à* *k-élyà*
FOC-NC1.SUB-PRES-eat-FV NC7-food
'he/she is eating food'

(2*b*) *n-ã-ĩ-**lyì-í**-à* *ḿ-kà* *k-élyà*
FOC-NC1.SUB-PRES-eat-APPL-FV NC1-wife NC7-food
'he is eating food for/on his wife' (Bresnan and Moshi 1990:148)

The semantic actant expressed by the new syntactic argument (the APPLIED OBJECT) of the verb *lyìíà* 'eat sth for/on sby' in (2*b*) is by no means a part of the semantic valency of the verb *lyà* 'eat sth' in (2*a*). Instead, Bresnan and Moshi's characterization of applicatives as "introducing a new object argument to the base verb" (1990:148) seems more accurate (cf. Mel'čuk 1993–2000:2:333–34) and is consistent with the definition of applicative that is adopted here: an applicative is a morpheme that adds a new actant to the semantic valency of the verb, that actant being expressed as a syntactic object.[5] By this definition, Lushootseed has three productive applicative affixes.

Unlike semantic valency, SYNTACTIC TRANSITIVITY characterizes the surface realization of syntactic arguments, or the GOVERNMENT PATTERN, of the verb—specifically, whether or not a verb has a direct object. Bivalent verbs can be either transitive or intransitive, depending on the syntactic expression of their nonsubject argument. Although frequently overlooked in discussions of argument structure, bivalent intransitive verbs such as *agree* (*with*), *consist* (*of*), and *dine* (*on*), or those shown in (3), are actually quite common in natural language:

[5] It is also true that applicatives sometimes allow the expression of implicit participants, and there are also applicatives that, for certain verbs, merely promote an oblique object that is already part of the base's semantic valency. Clearly, there is room for a more nuanced discussion of the issue beyond the scope of this paper.

Spanish

(3*a*) *le* *gust-an*
3SG:DTV please-3PL:PRES:IND
'they are pleasing to him/her'

Russian

(3*b*) *ono* *prinadležit* *vrač-u*
3SG:NEU:NOM belong.to-3SG.PRES $\text{doctor}_{\text{MASC}}$-SG:DTV
'it belongs to the doctor'

The nonsubject arguments in (3) clearly express semantic actants, yet the fact that they are not direct objects can be seen both in their case marking (dative being the case of indirect objects in both Spanish and Russian) and the fact that they resist syntactic operations such as passivization. Although the morphosyntactic markers of and diagnostics for direct-objecthood vary from language to language and are by no means always straightforward (Comrie 1982, Dryer 1983, and Beck 2006), direct and oblique objects are clearly distinguished in Lushootseed. Obliques do not control object agreement and are introduced by the preposition *ʔə*, as in (4*a*), while direct objects trigger agreement on the verb, as in (4*b*):

Lushootseed (Salishan family)

(4*a*) *gʷəl* *lə-qʼʷuʔ-t-sut* *∅* ***ʔə*** *tiʔəʔ* *caadił*
then PROG-gathered-ICS-REFL 3SUB PR PROX they
'then [Pheasant] joins them' (Hess 1998:79, line 41)

(4*b*) *ʔu-ʔəx̌ʼ-tu-**bš*** *tsi* *lux̌ʼ*
PFV-come-ECS-1SG.OBJ DEF:FEM old
'the old woman brought me' (Hess 1995:41, ex. 2b)

Lushootseed direct objects (but not obliques) also undergo passivization:

(5) *ʔu-ʔəx̌ʼ-**tu-b*** *čəd* *ʔə* *tsi* *lux̌ʼ*
PFV-come-ECS-PASS 1SG.SUB PR DEF:FEM old
'I was brought by the old woman' (Hess 1995:41, ex. 2a)

Direct objects are also distinguishable from oblique objects in Lushootseed in that the former but not the latter can head finite, nonnominalized relative clauses (Hukari 1977 and Beck 2000*a*).

Government pattern is important for taxonomizing valency-increasers because of the potential variation in the syntactic role assigned the semantic

actants by the derivative. For causatives, the issue is whether the displaced subject of the noncausativized base is a direct or nondirect object. Swahili shows the former pattern:

Swahili (Bantu family)

(6*a*) *mimi* *ni-li-**chok**-a*
I 1SG.SUB-PAST-be.tired-FV
'I got tired'

(6*b*) *yeye* *a-li-ni-**chok-sh**-a*
he 3SG.SUB-PAST-1SG.OBJ-be.tired-CS-FV
'he made me tired' (Hinnebusch 1979:225 [interlinear glosses mine])

Alternatively, the subject of the noncausativized verb may be realized as a nondirect object, as in the following pair of Lushootseed sentences:

Lushootseed

(7*a*) *ʔu-dx^{w}-**šab*** *ti* *d=s=q^{w}alc*
PFV-CTD-be.dry DEF 1SG.PO=NM=be.boiling
'what I'm boiling is going dry' (Bates, Hess, and Hilbert 1994:207)

(7*b*) *ʔu-**šab-alik^{w}*** *tsi* *luƛ'* *ʔə* *ti* *sʔuladx^{w}*
PFV-be.dry-ACT DEF:FEM old PR DEF salmon
'the old woman dried the salmon' (Bates and Hess 2003:1, ex. 1b)

The comparison between (6*b*) and (7*b*) motivates the second-order taxonomic distinction between DIRECT CAUSATIVES, where the displaced subject of the base becomes a direct object, and NONDIRECT CAUSATIVES, where the displaced subject of the base becomes an indirect or oblique object.[6] When the verbal base is already transitive, a direct causative results in the CAUSEE being expressed as a direct object with the pre-existing object demoted to some form of indirect or oblique argument (e.g., Amharic [Amberber 2000]). Nondirect causatives of a transitive base simply realize the CAUSEE as indirect or oblique and leave the direct object in place (Yup'ik [Mithun 2000]). Unfortunately, because Lushootseed does not productively add valency-increasing affixes to already transitive stems, further exploration of this issue will depend on consideration of additional languages.

[6] Davis and Demirdache (2000) use the term "direct" in a similar manner in their discussion of St'át'imcets valency-regulating morphology.

With applicatives, it is the applied object that can be either direct or nondirect. DIRECT APPLICATIVES realize the applied object as a direct object, as in the Haka Lai sentence in (8*b*), where the applied object controls object agreement:

Haka Lai (Tibeto-Burman family)

(8*a*) *tsewmaŋ* *door=ʔaʔ* *ʔa-**kal***
Tsewmaŋ market=LOC 3SG.SUB-go
'Tsewmaŋ went to the market'

(8*b*) *tsewmaŋ* *door=ʔaʔ* *ʔa-ka-**kal-piak***
Tsewmaŋ market=LOC 3SG.SUB-1SG.OBJ-go-BEN
'Tsewmaŋ went to the market for me' (Peterson 2006:24)

Contrast this with the behavior of the instrumental applicative in Temne, a NONDIRECT APPLICATIVE which treats the applied object as an oblique:

Temne (Niger-Congo family)

(9*a*) *ɔ-langba* *ɔ* ***ləm*** *ʌ-ŋ-sar*
NC:DEF-man 3SG.SUB throw NC-DEF-stone
'the man throws the stone'

(9*b*) *ɔ-langba* *ɔ* ***ləm-ʌnɛ*** *ʌ-ŋ-sar* *ʌ-lanθ*
NC:DEF-man 3SG.SUB throw-INST NC-DEF-stone NC:INDEF-sling
'the man throws the stone with a sling' (S. Kanu, personal communication)

Syntactic relations in Temne are indicated by constituent ordering, and the oblique status of the applied object *ʌlanθ* 'a sling' is marked by its separation from the verb by the direct object, *ʌŋsar* 'the stone'. For bases that are already transitive like the Temne *ləm* 'throw something', nondirect applicatives merely add an additional indirect or oblique object, leaving the original object in place. Direct applicatives of transitive stems add a direct applied object, displacing the original direct object (e.g., Motuna [Onishi 2000]).[7]

Our taxonomy thus gives us four types of valency-increaser. Each of these types can be further subdivided according to semantic criteria, such as the semantic role played by the new actant or particular effects the derivation

[7] It is also possible that allowance will have to be made for a third type of affix that creates ditransitives with equally ranked (Upper Necaxa Totonac [Beck 2006]) or symmetrical objects (Kichaga [Bresnan and Moshi 1990]).

has on the verb's meaning. The remainder of this paper is dedicated to applying this taxonomy to the Lushootseed valency-increasing suffixes. There are eight of these in all, five causatives, one applicative, and two "secondary suffixes" (suffixes that appear combined with one of the causatives), both of which are applicatives:

Suffix	Name	Affix Type	Derived Stem
-t	'internal causative'	direct causative	transitive
-tx^{w}	'external causative'	direct causative	transitive
-dx^{w}	'diminished control'	direct causative	transitive
-b	'middle causative'	nondirect causative	bivalent intransitive
-alik^{w}	'causative of activity'	nondirect causative	bivalent intransitive
-c/-s	'allative applicative'	direct applicative	transitive
-yi-	'dative applicative'	direct applicative	trivalent transitive
-bi-	'middle applicative'	direct applicative	transitive

Each suffix is discussed in turn in the sections below, following a discussion of some of the properties of the radicals to which they attach.

3. Verbal radicals. The syntax and semantics of verbal radicals in Salishan languages has been a contentious issue, much of the debate revolving around the question of whether all radicals are monovalent and intransitive (Kuipers 1968, Jelinek and Demers 1994, Davis 2000, Davis and Demirdache 2000, and Suttles 2004) or whether Salishan languages actually do have underived transitive verbs (Nater 1984, Gerdts 1988; 2006, and Thomason and Everett 1993). While some of the disagreement may be the result of variation within the family (Nuxalk, for instance [as described by Nater 1984 and Davis and Saunders 1997], clearly has underived transitive radicals), it is true that many Salishan languages are like Lushootseed, where most bare radicals are syntactically intransitive, and syntactically transitive verbs bear some morphological indicator of that transitivity. Consider these examples:

(10*a*) *ʔu-**ɬič'*** *čəd*
PFV-be.cut.with.knife 1SG.SUB
'I got cut with a knife'

(10*b*) *ʔu-**ɬič'i-d*** *čəd* *tə* *sq*^{w}*iq*^{w}*ali*
PFV-be.cut.with.knife-ICS 1SG.SUB INDEF hay
'I cut hay (with a blade)' (Bates et al. 1994:146)

In (10*a*), the radical √*ɬič'* 'be cut with a knife'—despite expressing a two-participant event high on the scale of semantic transitivity—takes only a

single syntactic argument expressing the PATIENT (Hess 1973). In order to express an AGENT (10*b*), it is necessary to apply the suffix *-t* (which is realized word-finally as [-d]). Thus, what are plain transitive verbs in most languages are formed by morphological means from monovalent radicals in Lushootseed and many other members of the family.

The controversy that has arisen amongst Salishanists is about whether affixes such as *-t* and its cognates—often glossed as 'transitivizer' (e.g., Mattina 2001) or 'transitive' (e.g., Gerdts 2006)—are inflections associated with the realization of an overt AGENT of a syntactically transitive stem (e.g., Hess 1973 and Gerdts 1988), or whether they are derivational affixes creating bivalent transitive verbs from monovalent radicals (e.g., Davis 2000 and Davis and Demirdache 2000). The position taken here is the latter, that *-t* and other valency-increasers in Lushootseed are derivational suffixes applied to mostly monovalent bases, although the language-specific facts of Lushootseed are not consistent with subsidiary claims made for languages such as St'át'imcets, where it is argued that all verbal radicals follow the "unaccusative" pattern shown in (10) (Davis and Demirdache 2000:99).

In Lushootseed, radicals can be grouped into several semantic classes, only one of which is genuinely unaccusative (see table 1).[8] This class, one of the largest, contains verbs like √*łič'* 'be cut with a knife' in (10) which express a semantically transitive event but require one of the valency-increasing affixes to express an AGENT. While most languages lexicalize events at this end of the scale of semantic transitivity to include a valency-slot for both the AGENT and the PATIENT/endpoint of the event, Lushootseed only includes the PATIENT in the verb's semantic valency and treats the AGENT as an implied participant. As large as this group of unaccusative radicals is, however, a variety of other forms also undergo alternations following the pattern in (10). These include radicals corresponding to verbs of position (√*łaq'* 'be fallen, be lying down') and location (√*č'it* 'be near', √*dək*^{w} 'be inside'), as well as verbs expressing some states (°√*ǰu?* 'be glad', √*qəł* 'be awake', √*q'ax*^{w} 'be frozen'), property concepts (√*cək'*^{w} 'be straight', √*q'*^{w}*əl* 'be cooked'), and processes (√*hud* 'burn', √*k'*^{w}*əł* 'spill out', √*łač'* 'go out (fire)'). In all of these cases, the single actant of the monovalent radical is not exactly a PATIENT; it might better be characterized as belonging to the more general class of UNDERGOER (in the sense of Foley and Van Valin 1984). The transitive counterparts of these radicals are bivalent expressions which include an AGENT or CAUSER acting on that UNDERGOER to bring about the

[8] Additional data in tables not included in the print version of this article (for reasons of space) can be found appended to the online version of this paper.

endstate expressed by the radical. For these radicals, it seems less necessary to postulate the presence of an implicit AGENT/CAUSER in conceptual structure than it does for verbs such as √*łič'* 'be cut with a knife'. Similarly, there is a very large class of radicals that express one-participant events where the single semantic actant is more like an AGENT or an ACTOR than a PATIENT or an UNDERGOER (table 2 [in online appendix]). These might (loosely) be termed "unergative" (see Gerdts 1988). The majority are verbs of volitional motion (e.g., √*ʔəx̌'* 'come', √*kʷatač* 'climb') or activity (√*p'ayəq* 'carve canoe', √*tay* 'go raiding').

Although the majority of Lushootseed radicals are monovalent, the corpus contains 17 bivalent radicals. All are syntactically intransitive except for √*łəgʷł* 'leave sth', which is a syntactically transitive verb:

(11*a*) *gʷəl* *ʔacił* *čəd* *łu=**łəgʷəł**-bicid*
SCONJ for.a.while 1SG.SUB IRR=leave-2SG.OBJ

'and I will leave you for a while' (Hess 2006:32, line 242)

(11*b*) *gʷəl* *tu=**łəgʷł**-b* *∅* *əlgʷəʔ* *ʔə* *tiʔəʔ* *diʔəʔ*
SCONJ PAST=leave-PASS 3SUB PL PR PROX here

sč'istʷ-s
husband-3PO

'they were left by her husband' [AW Basket Ogress, line 2]

Here we see the bare radical taking a direct object that triggers object agreement (11*a*) and undergoes passivization (11*b*).

Six bivalent radicals realize their second semantic actants as nominal predicate complements rather than as direct objects (see table 3 [online appendix]).

(12) *łu=təxʷ* *čəd* *səpləl*
IRR=buy 1SG.SUB bread

'I'm going to buy some bread' (Bates et al. 1994:224)

Unlike direct objects, nominal predicate complements are not amenable to passivization, nor do they take determiners or modifiers, and they seem to have only indefinite or generic referents in discourse. Other syntactic properties distinguish them from objects as well, but further exploration of this topic would take us well beyond the scope of this paper.

The remainder of the bivalent radicals subcategorize for oblique objects introduced by the preposition *ʔə* (see table 4 [online appendix]):[9]

(13) *qada* *čəx*^{w} *ʔu* ***ʔə*** *tə* *sduuk*^{w}
steal 2SG.SUB INT PR INDEF knife
'did you steal the knife?' (Bates et al. 1994:172)

Most of these radicals, like the transitive radical √*łəg*^{w}*ł* and those radicals that take nominal predicate complements, do not combine with causative affixes to produce alternations like that shown in (10) above, and so seem clearly not to be—semantically or syntactically—unaccusatives.

4. Causative affixes. A consequence of the prevalence of monovalent radicals in Lushootseed is that what are plain transitive verbs in most other languages consist of a radical plus one of the valency-increasers (Hess 1973, Hukari 1976, and Beck 1996; 2000*a*; 2000*b*), generally one of those analyzed here as causatives. The nature of these morphemes and their cognates in other Salishan languages has—like the nature of the verbal radical—been controversial, the debate revolving around the issue of whether these suffixes are inflectional or derivational. The position taken here is that the valency-increasers are derivational. One reason for this is that their formal properties are not those normally expected of inflectional morphemes: taken as a set, they are not paradigmatically related to each other, nor are they in complementary distribution in terms of the radicals they combine with. Analyzing affixes such as the *-t* suffix (realized as [-d]) shown in (10) above as transitive inflection required by a verb taking an agentive argument (see Gerdts 2006) also runs into problems because these affixes behave quite differently from the more familiar transitive inflections seen in languages such as Nishnaabemwin (Valentine 2001) or Nuxalk (Nater 1984). In these languages, transitive inflection indicates the membership of stems in inflection classes based on inherent transitivity, individual stems consistently requiring tran-

[9] Two of these radicals, √*caq'* 'be speared by sth' and √*pus* 'be hit by sth (missile)', belong to a class of events which involve an INSTRUMENT in their conceptual structure. It may turn out that other radicals such as √*č'ax*^{w} 'be clubbed' and √*łič'* 'be cut with knife', thought to be monovalent based on the corpus to date and the available lexicographic information, can also express INSTRUMENTS and other implicit (nonagentive) event-participants as oblique objects. Unlike the nonexpression of AGENTS with bare radicals, which has been tested extensively in elicitation, the paucity of oblique INSTRUMENT phrases may be an artifact of textual (in)frequency, and the class of bivalent intransitive radicals could well be much larger (Gerdts 2006 reports that 7% of Halkomelem radicals follow this pattern). This would not substantially affect the arguments advanced here, although it might require the discussion of "monovalent" verbal radicals to be reformulated in terms of "agentless" radicals.

sitive or intransitive inflection rather than having it or not depending on the presence of an AGENT/subject in syntax.

In Lushootseed, the issue is complicated by the fact that all valency-increasers can radically alter the meanings of their bases in lexically determined ways. As seen throughout this paper, even though the semantic and syntactic effects that the valency-increasers have on most radicals are regular and predictable, there are also many cases where these effects differ for individual bases or small subsets of radicals that must be specified in the lexicon. Furthermore, the effect of adding the valency-increasers to many verbal bases is to add a semantic actant that is not present in that base's basic meaning (e.g., √*cək'*^{w} 'be straight' > √*cək'*^{w}*əd* 'straighten sth', √*qəɬ* 'be awake' > √*qəɬəd* 'wake sby up'). These cases seem more like the creation of a new lexeme than the creation of a word-form belonging to the same lexeme as its base. Treating the Lushootseed valency-increasers as derivation is thus more in keeping with their combinatorial properties and allows direct comparisons with such morphemes in other languages, which are usually considered derivational (Mel'čuk 1993–2000:2:318ff.).

4.1. Internal causative *-t*. The most prolific of the valency-increasers, in terms of the number of stems of which it forms a part, is *-t* 'internal causative'. The affix has two common allomorphs, [-t] and [-d] (as well as a third suppletive form, [-š]), and, as a direct causative suffix, it adds to the valency of its base a semantic actant expressed as a syntactic subject:

(14*a*) *ʔu-**č'ax**^{w}* *čəd*
PFV-be.hit.with.stick 1SG.SUB
'I got hit (by a branch in the thicket)'

(14*b*) *ʔu-**č'ax**^{w}**a-d-∅*** *čəd*
PFV-be.hit.with.stick-ICS-3OBJ 1SG.SUB
'I clubbed him' (Bates et al. 1994:69)

(14*c*) *ʔu-**č'ax**^{w}**a-d*** *∅* *ti* *sq*^{w}*əbayʔ*
PFV-be.hit.with.stick-ICS 3SUB DEF dog
'he/she/they clubbed the dog' (Hilbert and Hess 1977:11, line 124)

As in (10*a*), the radical in (14*a*) is intransitive and monovalent, the expression of an AGENT requiring the addition of *-t* ([-d] word-finally), as in (14*b*) (Hess 1973). In (14*c*), the AGENT is expressed as a paradigmatic zero third-person subject clitic (cf. *ʔuč'ax*^{w}*ad čəd ti sq*^{w}*əbayʔ* 'I clubbed the dog').[10]

[10] This position is argued for in detail in Beck (2000*a*).

Matters are complicated by the fact that an overt NP subject is disallowed in transitive clauses such as (14*c*) where there is an overt object NP (Hess 1973 and Beck 2000*a*).[11] Thus, a single nonoblique NP accompanying a transitive verb is the direct object and is never interpreted as AGENT (Gerdts 1988), unless the verb has overt marking, as in (15*a*):

(15*a*) *ʔu-**č'axʷa-t**-sid* *ti* *č'ač'as*
PFV-be.hit.with.stick-ICS-2SG.OBJ DEF boy
'the boy clubbed you'

(15*b*) *ʔu-**č'axʷa-t**-eb* *čaxʷ* *ʔə* *ti* *č'ač'as*
PFV-be.hit.with.stick-ICS-PASS 2SG.SUB PR DEF boy
'you were clubbed by the boy'[12] (Hess 1973:93, exx. 37 and 38)

As in (15*b*), the object of an internal causative stem becomes the passive subject.

In most cases, *-t* follows the pattern in (14), adding an AGENT/syntactic subject to the semantic valency of the verb. Stems that show this pattern (table 5) fall roughly into three principal groups, based on the semantics of their radicals. The first group includes stems with radicals expressing events high on the scale of transitivity, such as *ʔiǰʷid* 'throw sth away' (√*ʔiǰʷ* 'be thrown to'), *č'axʷad* 'hit sth with a stick' (√*č'axʷ* 'be hit with a stick'), and *pusud* 'throw at sth' (√*pus* 'be hit by sth (missile)'). All of these express events in which a PATIENT is affected by the action of an agentive event-participant implicit in the basic meaning of the radical. The second group consists of stems formed from radicals that either express states or state-like events—e.g., *dᶻiǰid* 'break sth down' (√*dᶻiǰ* 'be broken apart'), *qʷibid* 'prepare sth' (√*qʷib* 'be ready')—or locative states of affairs—*ʔaʔəd* 'put sth there' (√*ʔa* 'be there'), *dəgʷad* 'put sth inside (√*dəkʷ* 'be inside'). These radicals have no inherent causation in their basic meaning; their *-t* form expresses an event in which the AGENT/subject acts directly through physical contact with the semantic endpoint to achieve the endstate.

Intermediate between these groups are a number of stems based on radicals, such as *bapad* 'pester sby' (√*bap* 'be busy'), *bəčad* 'set sth down' (√*bəč* 'be lying'), or *łač'əd* 'put out sth (fire)' (√*łač'* 'go out (fire)'), whose basic meaning does not necessarily include causation, but which express endstates that are easily construed as being caused by an AGENT. In all three groups, the internal causative stem expresses a unitary event (in the sense of

[11] The same pattern is also found, perhaps less rigidly, in a number of other Salishan languages (e.g., Gerdts 1988 and Kinkade 1990).

[12] Hess (1973) glosses this sentence in the active voice, although he acknowledges (personal communication) that it is syntactically passive.

Langacker 1987) in which the AGENT's involvement is either implicit to the meaning of the radical, is easily construed from the radical's meaning, or consists of direct physical participation in the event—hence, the term "internal causative," used here as a way of indicating that the *-t* suffix expresses a type of causation in which the AGENT is integrated with or internal to the event.

However, not all radicals that form their transitive counterparts with *-t* conform to this pattern. There are many internal-causative stems formed on radicals with subjects that are AGENT-like in that they undergo endstates which require no external impetus—e.g., *dᶻalqəd* 'turn sth around' (√*dᶻal* 'turn around'), *x̌'iqid* 'take sth out' (√*x̌'iq* 'emerge'), or *təǰəd* 'roll sth' (√*təč* 'roll off'). Here the role of the added AGENT/subject is to cause the endstate that, in the meaning of the radical, is the result of the spontaneous or deliberate action or the radical's single semantic actant. This is also true of stems like *dᶻək'ʷud* 'lead sby astray' (√*dᶻək'ʷ* 'travel') and *q'pud* 'gather sth up' (√*q'əp* 'form a lump'), which, in addition to being causativized, have undergone an idiomatic shift in meaning. Lexicalized forms such as these lend weight to the claim being made here that *-t* is a derivational rather than an inflectional suffix: lexicalized meanings require the treatment of the affixed form of the radical as an entirely new, derived lexeme, rather than as an inflected word-form of the same lexeme with predictable meaning.

The situation is further confounded by a not insignificant number of stems in which *-t* acts as a valency-increaser other than a causative.[13] In several forms, the effect of *-t* on the radical is that of an applicative (table 6)—that is, rather than treating the added semantic actant as a subject, that actant is realized as a direct object. Such verbs are based on monovalent intransitive radicals with AGENT-like subjects, such as √*ʔil* 'sing' in (16):

(16*a*) ***ʔil***=*əxʷ* *tiʔəʔ* *qaw'qs*
sing=now PROX raven
'now Raven sings' (Hess 1998:57, line 38)

(16*b*) *x̌'ub*=*əxʷ* *ʔu*-***ʔili***-***t***-*əb* *ʔə* *tsiʔiɬ* *x̌ənimulic'aʔ*
okay=now PFV-sing-ICS-PASS PR DIST:FEM name.of.Crow
kʷi *sqəlalitut-s*
REM spirit.power-3PO
'*x̌ənimulic'aʔ* ought to sing to her spirit power' (Hess 1998:61, line 25)

[13] Technically, this would require us to treat these *-t* as different morphemes; however, all uses of *-t* are discussed here—both for descriptive convenience and to underline the contention that *-t* cannot be treated as inflection but must instead be treated as a (set of diachronically related) derivational suffix(es).

The semantic role of the applied object varies according to the meaning of the base: verbs of speaking (*cut* 'speak to sby' [√*cut* 'speak']) or speech-like actions (*ʔulud* 'sing to sby' [°√*ʔul* 'sing']) have an added HEARER, while other verbs have new roles such as MOTIVE (*x̌ʷaq'ʷad* 'worry about sth' [√*x̌ʷaq'ʷ* 'be worried']), PERCEPT (*k'ʷilid* 'peer out at sth' [√*k'ʷil* 'peer']), or BENEFACTIVE (*ɬild* 'give food to sby' [√*ɬil* 'give food']).[14] Note that *šulud* 'pass beneath sth' (√*šul* 'be under') contrasts with other stems expressing location (e.g., *t'agʷtəd* 'put sth on top' [√*t'agʷt* 'be on top']) in that here *-t* adds an object expressing a locative point of reference, rather than a CAUSER that places the semantic actant corresponding to the subject of the base radical. This example highlights the difficulty in maintaining the inflectional analysis of *-t* by appealing to semantic features of radicals to explain its variable effects on their semantic valency and government pattern.

Other idiosyncratic uses of *-t* include those where the suffix acts simply as a syntactic transitivizer, making a bivalent intransitive radical transitive without changing the semantic valency (table 7). The internal causative suffix also appears to be part of some more complex transitive stems whose synchronic analysis is uncertain (e.g., *c'əɬqiwsəd* 'cut sth up', *xʷak'ʷabičəd* 'get sby dirty'). A few intransitive verbs also appear to contain *-t*, based on the shape of their apparent radicals or on the morphophonemics of the stem. These include a small set of verbs for making noise (*tukʷud* 'thump', *k'ʷx̌ʷiqid* 'make noise', *sx̌ʷid* 'make swishing sound'), the verbs *ƛ'čabəd* 'double self over' and *gʷəx̌'ələd* 'stop', and the bivalent intransitive verb *ʔəɬəd* 'feed on sth'. This last form has an attested bound radical, °√*ʔəɬ* 'eat' found in other forms such as *ʔəɬtxʷ* 'feed sby' and *sʔəɬəd* 'food'; however, *ʔəɬəd* itself is intransitive, and so it is not possible to analyze this form synchronically as containing the internal causative. The fact that *-t* appears in so many lexicalized forms and that, in addition to being a transitive causative, it can also be an applicative and a syntactic transitivizer is strong evidence that the Lushootseed *-t* is a derivational rather than an inflectional suffix.

4.2. External causative *-txʷ*. The external causative *-txʷ* is a direct causative that adds a semantic actant expressed as a subject, demoting the displaced subject to direct object:

(17*a*)	*ʔu-**ʔux̌ʷ***	*čəd*
	PFV-go	1SG.SUB
	'I went'	(Hess 1995:6, ex. 1)

[14] In the last case, and a few others, the applied object in the derived form expresses an implicit participant in the event expressed by the radical.

(17*b*) *łu=ʔuǰʷ-tu-bš* *čələp* *ʔu*
IRR=GO-ECS-1SG.OBJ 2PL.SUB INT
'will you guys take me?' (Hess 1995:41, ex. 7)

(17*c*) *ʔu-ʔuǰʷ-tu-b* *čəd* *ʔə* *ti* *č'ač'as*
PFV-GO-ECS-PASS 1SG.SUB PR DEF child
'I was taken by the boy' (Hess 1995:33)

The object of external causative verbs controls object marking (17*b*) and undergoes direct-object-centered syntactic processes such as passivization (17*c*).

The forms in (17) are based on a radical expressing motion, *ʔuǰʷ* 'go'. Many such radicals combine with *-txʷ* to form verbs of taking and bringing (table 8). In these forms, the radical expresses the type of motion undergone by the THEME while *-txʷ* adds an AGENT responsible for causing that motion, creating from a radical meaning 'X does R' a bivalent stem meaning 'Y causes X to do R'. A number of other radicals also show the same type of semantic shift (table 9). With the unergative radicals in this group (e.g., √*kiis* 'stand up' > *kiistxʷ* 'stand sth up', √*ƛ'aǰʷ* 'grow' > *ƛ'aǰʷtxʷ* 'raise sby'), the added AGENT/subject of the derived stem is the initiator of the event, but it does not actually perform the action expressed by the radical, and so in some sense is external to the event. With stative radicals such as √*həliʔ* 'be alive' > *həliʔtxʷ* 'cure sby', the endstate achieved by the UNDERGOER does not inherently necessitate an AGENT/CAUSER, and the action taken by the initiator to cause the endstate in the causativized event is not specified. As noted by Hess and Bates (1998), a number of *-txʷ* forms express psychological states (e.g., *saʔtxʷ* 'dislike sth' (lit., 'cause sth to be bad in one's mind') [√*saʔ* 'be bad']). These are based for the most part on radicals expressing valuations or property concepts. The causation here is admittedly metaphorical, but *-txʷ* nevertheless increases semantic valency by adding a subject, creating the expression of an event in which the experience of the subject (in these cases, a PERCEIVER) is somehow external to or separate from the experience of the THEME.

This separation or lack of integration in the event is the principal semantic distinction between the internal and the external causative. Radicals high on the scale of semantic transitivity expressing events with implicit CAUSERS/AGENTS tend to take the internal causative, as do radicals that express endstates easily construed as caused. Radicals that have more AGENT-like subjects, on the other hand, tend to form their transitive counterparts with the external causative (see Gerdts 1988). Such radicals have no causation inherent in their meaning, and the causation expressed by the derived stem has to be treated as conceptually separate and nonspecific, conforming

to Langacker's (1987) proposal for the canonical morphological causative. Thus, in the clearest cases, the internal causative is used with radicals expressing events in which the AGENT/CAUSER is a more integrated participant, and the external causative is used to derive stems expressing events in which the AGENT/CAUSER is less so integrated (Beck 1996 and Hess and Bates 1998).

Because the potential role of an added agentive event-participant depends on the radical's meaning, most radicals tend to select only one or the other of the internal or external causative; however, a number do combine with both (table 10). These verbs form a rather heterogeneous set, and the semantic contrast between the external and internal causative stems varies from case to case. For some pairs, the distinction follows the expected pattern, contrasting an event in which the AGENT/CAUSER is directly involved versus one where it is more removed from the endstate expressed by the radical. The contrast between *čəbaʔəd* 'backpack sth' vs. *čəbaʔtx*^{w} 'make sby backpack sth' (√*čəbaʔ* 'be burdened with sth') and *ʔaʔed* 'place sth' vs. *ʔatx*^{w} 'cause sth to be in a place' (√*ʔa* 'be there') is that between a prototypical semantically transitive event initiated by an AGENT and a causative event in which the action of the AGENT/CAUSER is unspecified. The pair *q'ilid* 'load sth aboard' vs. *q'iltx*^{w} 'take sth by canoe' are based on different senses of the radical √*q'il*, which can mean either 'be aboard (conveyance)' (> *q'ilid* 'cause sth to be aboard') or 'ride in a canoe, go by canoe' (> *q'iltx*^{w} 'cause sth to go by canoe'). The sense of the radical with the more AGENT-like subject is the basis of the *-tx*^{w} form, which resembles the stems based on verbs of motion shown in table 8 (online appendix).

A slightly different contrast is provided by *ʔup'ud* 'seat sby on one's own lap' and *ʔup'tx*^{w} 'seat sby on another person's lap'. Here, the distinction is between the involvement of the AGENT in the endstate of the event itself, the subject of *ʔup'ud* being directly involved and that of *ʔup'tx*^{w} being outside of it. Another idiosyncratic contrast is found in the pair *k'*^{w}*iltx*^{w} 'cause sby to peer out', a canonical causative, vs. *k'*^{w}*ilid* 'peek at sth' (both based on √*k'*^{w}*il* 'peer out'), a form in which *-t* functions as an applicative. As expected of a causative, *k'*^{w}*iltx*^{w} expresses an event in which an AGENT/CAUSER takes some unspecified action to cause the PATIENT to perform the action (peering out) expressed by the radical; *k'*^{w}*ilid*, however, is an idiosyncratic use of *-t* as an applicative. The pair *łidtx*^{w} 'tie to sth' vs. *łidid* 'tie sth up' (√*łid* 'be tied') illustrates the opposite pattern, with *-t* creating an ordinary transitive stem while *-tx*^{w} forms an applicative. This last example also illustrates another factor that distinguishes some internal and external causative forms: the *-tx*^{w} stem expresses an event in which there is less affectedness of the PATIENT than there is in the event expressed by the *-t* stem—thus, we have

pairs like *hik^{w}tx^{w}* 'respect sby' vs. *hig^{w}əd* 'support sby' (√*hik^{w}* 'big'), *duk^{w}tx^{w}* 'make sby angry/disgusted' vs. *duk^{w}ud* 'change sth, transform sth' (√*duk^{w}* 'be abnormal'), and *x̌aʔx̌aʔtx^{w}* 'forbid sth (act)' vs. *x̌aʔx̌aʔəd* 'deny sby permission'. In these cases, the *-tx^{w}* forms express an event lower on the scale of semantic transitivity than that expressed by *-t* forms.

In other pairs, the difference between the internal and external causative forms seems to be lexicalized (e.g., *daʔtx^{w}* 'name sth (spirit power)' vs. *daʔad* 'name sby', *ɬik'^{w}tx^{w}* 'kidnap sth' vs. *ɬik'^{w}id* 'hook sth'). There are also cases, like *čaʔk^{w}tx^{w}* 'take sth out to sea' vs. *čag^{w}əd* 'take sth out to sea', where—judging by their glosses and contextualized uses—the forms seem to be synonymous, or at least to overlap greatly in their potential to describe particular events.[15] The distinction being proposed here between the two causatives, resting as it does on the scalar notion of semantic transitivity, will inevitably become blurrier toward the center of the scale, making it more difficult to predict which particular events will be treated as having integrated/nonintegrated AGENTS and which affix will be used to derive the transitive form of a particular radical.

Like *-t*, *-tx^{w}* also has lexicalized effects on the valency and government pattern of a number of stems. As noted by Hess and Bates (2004), there is one group of radicals with which *-tx^{w}* functions as an applicative rather than a causative (table 11). The majority of these are verbs of speech or communication in which *-tx^{w}* adds a direct object with the semantic role of HEARER or PERCEIVER (e.g., *t'ilibtx^{w}* 'sing to sby' [√*t'ilib* 'sing']). *-tx^{w}* also appears in several unanalyzable forms, including *g^{w}əƛ'əltx^{w}* 'strand sby, stop sby', *g^{w}əƛ'əbək'^{w}tx^{w}* 'quiet sby', and *p'aʔx^{w}əx^{w}əbtx^{w}* 'disfavor sby'. In addition, there are stems like *ʔalalustx^{w}* 'do to sby' (√*ʔalalus* 'happen') and *ʔistaʔtx^{w}* 'do the same to sby' (√*ʔistaʔ* 'be the same') in which the direct object expresses some other semantic role than that expressed by the subject of the radical (Hess and Bates 1998). These uses of *-tx^{w}* conform to the definition of causative used here in that they add an AGENT/subject to their bases, but the distortion of the basic meaning of the radical is such that the effect of the affix goes beyond simple causativization.

4.3. Diminished control *-dx^{w}*. The suffix *-dx^{w}* 'diminished control' is a direct causative suffix which, like *-t* and *-tx^{w}*, adds an actant to the semantic

[15] There are also a number of radicals which have *-tx^{w}* forms found primarily with the stative aspectual prefix *ʔas-* (Hess, p.c.) but which have (near-)synonymous counterparts formed with *-t* that are usually inflected for perfective aspect. This seems consistent with the link between perfectivity and higher semantic transitivity noted by Hopper and Thompson (1980). See Beck (1996) for some discussion.

valency of its base, this actant being expressed as the syntactic subject; however, in *-dx*^{w} forms the AGENT is in less than complete control of the event (Hess 1995).[16] Consider the forms in (18):

(18*a*) *ʔəs-**bəč*** ∅ *ʔəs-ǩa-ǩaq•šəd*
STAT-lie 3SUB STAT-DSTR-wrapped•leg
'he lies with his feet wrapped' [ML Mink and Tutyika I, line 80]

(18*b*) *ʔu-**bəč-du**-bš* *ti* *sq*^{w}*əbayʔ*
PFV-lying-DC-1SG.OBJ DEF dog
'the dog accidentally knocked me over' (Hess 1995:41, ex. 4b)

(18*c*) *ʔu-**bəč-du**-b* *čəd* *ʔə* *ti* *sq*^{w}*əbayʔ*
PFV-lying-DC-PASS 1SG.SUB PR DEF dog
'I was accidentally knocked over by the dog' (Hess 1995:41, ex. 4a)

In (18*a*), the bare radical is shown with its basic meaning, 'be lying down'. The addition of *-dx*^{w} in (18*b*) creates a verb meaning 'accidentally knock sth over'—that is, 'accidentally cause sth to be lying down'. The displaced subject of the radical is treated syntactically as a direct object, controlling object markers (18*b*) and being subject to syntactic processes such as passivization (18*c*).

Transitive stems formed with *-dx*^{w} (table 12) express events in which the control of the AGENT/CAUSER over the event is reduced in one of two ways: either the action is performed accidentally (*qəɬdx*^{w} 'accidentally awaken' [√*qəɬ* 'be awake']) or the action is performed with some difficulty (*c'əldx*^{w} 'manage to defeat sby' [°√*c'əɬ* 'be defeated']) (Hess 1995 and Beck 1996). Which of the two readings a verb has depends loosely on the meaning of the radical. Stems formed from radicals expressing endstates unlikely to be intended by an ACTOR (*k'*^{w}*əɬdx*^{w} 'spill sth' [√*k'*^{w}*əɬ* 'pour out, spill out']) tend to have accidental readings, while stems formed from radicals that express more desirable endstates or beneficial action by an AGENT (*ǩ'ubil* 'become okay' [√*ǩ'ubil* 'improve']) tend to have the achieved-with-difficulty reading. Similarly, radicals expressing undesirable endstates that might be resisted by a potential UNDERGOER generally take *-dx*^{w} with a reading of difficulty in achievement (*ləx*^{w}*dx*^{w} 'manage to stab sby' [°√*ləx*^{w} 'be cut']). Some verbs of perception (*labdx*^{w} 'see sth' [√*lab* 'appear']) and mental states (*p'alildx*^{w} 'bring around' [*p'alil* 'regain consciousness']) also take (or are used exclu-

[16] Morphemes with similar meanings are attested in many languages of the family (Thompson 1979 and Czaykowska-Higgins and Kinkade 1998:27–28).

sively with) *-dx*^{w}, reflecting the lack of direct conscious control we have over perceptual stimuli and mental processes.

Ultimately, however, the source of the diminished control is context-dependent. Compare, for example, the sentences in (19):

(19*a*) *ʔu-**č'ax**^{w}**-dx**^{w}* ∅
PFV-clubbed-DC 3SUB

'he finally got a "lick" in [with his switch]'

(19*b*) *ʔu-**č'ax**^{w}**-du**-buɬ* ∅
PFV-clubbed-DC-1PL.OBJ 3SUB

'he accidentally hit us with a stick' (Bates et al. 1994:69)

Although the verb stems in the two sentences are the same, the glosses (based on the context of utterance) are entirely different with respect to the locus of the diminished control. In the first case, the AGENT is not in control due to the resistance of the PATIENT not wanting to be switched; in the second case the diminished control comes from the inadvertent nature of the act. This type of context-dependent localization of diminished control is extended even further in (20):

(20) *g*^{w}*ə=haw'əʔ* *x̌*^{w}*ul'* ∅ *ʔu-**ɬəg**^{w}**ɬ-dx**^{w}* *tsiʔəʔ*
SBJ=PTCL only 3SUB PFV-leave.behind-DC DIST:FEM

čəg^{w}*as-s*
wife-3PO

'it would seem [Heron] just left his wife behind' (Hess 2006:12, line 42)

This sentence comes from a story in which Heron leaves his wife, Little Diver, at home (with no great difficulty) to go fishing (deliberately) for a particular food that she has requested. The diminished control arises from the fact that Heron has no choice but to leave his wife (who is feigning illness) alone—and that, when he does so, his wife's lover comes to visit her, making Heron's diminished control of the situation the central point of this part of the narrative. Thus, *-dx*^{w} seems to be unselective about the locus of diminished control, requiring only that the AGENT not be fully in command of some salient aspect of the situation.

Although the forms in table 12 (online appendix) are based on monovalent radicals, a few stems formed with *-dx*^{w} have bivalent bases. In the case of *ɬəg*^{w}*əldx*^{w}, shown in (20) (based on the transitive radical √*ɬəg*^{w}*ɬ* 'leave sth'), *-dx*^{w} has no effect on valency; it merely serves to mark diminished control. When the base is bivalent intransitive, the diminished control suffix acts as a syntactic transitivizer, promoting either an oblique object (e.g.,

ƛ̓'aldx^{w} 'manage to get sth on' [√*ƛ̓'al* 'put sth on']) or a nominal predicate-complement (*laǩdx*^{w} 'remember sth' [√*laǩ* 'remember sth']) to direct object, as well as adding the notion of diminished control. On the other hand, the verb *pusildx*^{w} 'throw sth' (based on the bivalent intransitive *pusil* 'throw sth') is transitive but seems to lack the notion of diminished control found in other *-dx*^{w} forms. The same is true for *q'ildx*^{w} 'load sth (canoe)' (√*q'il* 'be aboard (conveyance)'). As Hess (1990) observes, it may be that the glosses are inadequate or somehow deceptive—or it may be that these are phraseologized uses of *-dx*^{w} that have gone down their own particular path of diachronic development.

4.4. Middle causative *-b*. The middle causative suffix *-b* is a nondirect causative that creates a bivalent intransitive verb from a monovalent radical by adding an agentive syntactic subject.[17] The displaced subject is realized as an oblique object:

(21*a*) *dił* *ləs-**q'**^{w}**əl**=as* *g*^{w}*ə=bə=dił=əs*
FOC PROG.STAT-cooked=3SBJ SBJ=ADD=FOC=3SBJ

'it's this that would be cooked if it were that sort of thing' (Bates et al. 1994:195)

(21*b*) *huy* ***q'***^{w}***əl-b**=ax*^{w} *Ø* *əlg*^{w}*əʔ* *ʔə* *tiʔəʔ* *buʔq*^{w}
SCONJ cooked-MDSC=NOW 3SUB PL PR PROX duck

'well then they cook themselves these ducks' (Hess 2006:65, line 547)

The middle causative in (21*b*) focuses the expression on the AGENT's interests in the action rather than the effect of that action on the PATIENT (Hess 1995:29). The AGENT-interest reading conferred by *-b* is also explicit in the

[17] A recurrent theme in the Salishan literature is whether the reflexes of the Proto-Salish morpheme **-m* 'middle' in individual languages constitute, in synchronic terms, a single morpheme (e.g., Okanagan [Mattina 1994], Həl'q'əmín'əm' [Gerdts and Hukari 1998; 2006], and Nuxalk [Beck 2000*b*]) or separate albeit diachronically related morphemes (e.g., Sliammon [Watanabe 2003] and Okanagan [Dilts 2006]). In Lushootseed, the question is whether to distinguish between the middle causative and the valency-neutral middle, seen in the forms in table 13 (online appendix). The latter suffix is generally used to form verb stems denoting activities, processes, and other event-types identified by Kemmer (1993) as belonging to the semantic domain of the middle. Stems containing the valency-neutral middle tend to be highly lexicalized, and the suffix appears in many forms with bound or unattested radicals. It differs from the middle causative in that it is found in the first affixal position immediately adjacent to the radical (e.g., *t'asə**b**il* 'make payment' vs. *qadaʔil**b*** 'steal sth') and, most importantly, it has no effect on the semantic valency of the stem to which it attaches. Thus, even though there are obvious semantic links between the two middles, the position taken here is that in Lushootseed Proto-Salish **-m* has become, for analytical purposes, two separate morphemes.

glosses for a number of the forms given in table 14 (online appendix); in other cases, this reading is not reflected directly in glosses but can be gleaned from the context in which the forms are found.

Additional effects of *-b* on the meaning of a radical can be seen by comparing pairs of forms like *č'aʔəb* 'dig for sth (roots)' vs. *č'aʔəd* 'dig sth up' (°√*č'aʔ* 'be dug up'), where the *-b* form describes a specific kind of action (digging for roots) and construes it as an activity, while the *-t* form is focused on the specific effects (disinterment) of the action on a particular PATIENT. The stem *č'aʔəb* also shows how a specific type of semantic endpoint—while still expressible as an oblique object—often becomes lexicalized as an implicit part of the meaning of the *-b* form. Both aspects of the suffix's semantics—focus on AGENT interests and the activity reading—are consistent with the behavior of what are called middle markers in a wide range of languages and fit with Kemmer's (1993) hypothesis that the middle is a marker of reduced semantic transitivity. On the other hand, the combination of the middle's semantics and the causative's increase in semantic valency is, to my knowledge, unique to Lushootseed and other languages of the family.

4.5. Causative of activity *-alikʷ*. The suffix *-alikʷ* 'causative of activity'—or, as it has been traditionally glossed, 'creative activity' (Hess 1976, Bates et al. 1994, and Bates and Hess 2003)—is a nondirect causative suffix which creates a bivalent intransitive verb from a monovalent base by adding an AGENT expressed as syntactic subject. The derived verb expresses an event in which the AGENT is engaged in an activity affecting a PATIENT or involving a THEME, realized as an oblique object:

(22*a*) *ʔu-**č'aǰʷ*** *čəd*
PFV-clubbed 1SG.SUB
'I got hit [by a branch in the thicket]' (Bates et al. 1994:69)

(22*b*) *x̌'ub=əxʷ* *čəɬ* *ʔu-**č'axʷ-alikʷ*** *ʔə* *tiʔəʔ* *buʔqʷ*
well=now 1PL.SUB PFV-clubbed-ACT PR PROX duck
'we had better get clubbing these ducks' (Hess 2006:76, line 810)

In its bare form, the radical *č'axʷ* 'be hit with a stick' assigns the role of PATIENT to its single argument, expressed as the subject in (22*a*). When *-alikʷ* is added to the radical in (22*b*), the subject of the derived form is an AGENT and the PATIENT is expressed as an oblique object.

In addition to increasing valency, *-alikʷ* adds the notion of a repeated or temporally extended action, frequently creating verbs for culturally important or routine activities (Bates and Hess 2003) (see table 15). In most forms, the additional semantic component of 'activity' or 'creative activity' is obvious from the glosses, as in *xʷšalikʷ* 'sow sth; give sth at potlatch' (°√*xʷš* 'be

thrown; be distributed') or *łač'alik*^{w} 'fight fire' (√*łač'* 'go out (fire)'). In these cases, *-alik*^{w} also converts an expression of an endstate resulting from a telic, possibly punctual, action into an expression of a nontelic activity involving multiple instances of that action (as in repeatedly throwing seeds while sowing or giving over and over at a potlatch) or involving a suite of actions eventually leading to the endstate (as in the various steps involved in fighting a fire, all of which lead up to the fire's extinction). The same distinction is seen in more idiosyncratic stems, such as *bəčalik*^{w} 'bet sth' (√*bəč* 'be lying') or *gəlk'alik*^{w} 'knit' (√*gəlk'* 'be tangled'), where a fairly generic endstate expression has become lexicalized as an expression of a very specific activity involving (literally or metaphorically) bringing some PATIENT or THEME into that endstate. In a few cases, the lexicalized meaning is so specific with respect to a potential PATIENT/THEME that the form is unattested with an overt oblique object (e.g., *łač'alik*^{w} 'fight fire', *t'qalik*^{w} 'make bread; plaster', *d*^{z}*ubalik*^{w} 'dance'). Given that the nature of the THEME of such verbs is inherent in the meaning of the stem, the absence of overt objects with such forms is consistent with *-alik*^{w}'s focus on the AGENT/subject's role in the event.

5. Applicative suffixes. Applicatives in Salishan languages have been the topic of a great deal of literature, an overview of which is provided in Czaykowska-Higgins and Kinkade (1998:30–31) (see also Kiyosawa 2006). For Lushootseed, Hess and Bates (2004) identify four applicatives and acknowledge the presence of a fifth with applicative-like properties, which they exclude from their discussion for morphological reasons—specifically, because its position in the verbal template is more like that of the causative suffixes than the other applicatives. The definition of applicative used here, however, abstracts away from such issues and relies on the syntactic effects of the morpheme on its base. Thus, I begin with the discussion of the suffix set aside by Hess and Bates, the allative applicative (**5.1**), followed by an examination of the two additional productive applicative suffixes, *-yi-* and *-bi-* (**5.2**). The remaining suffixes identified as applicatives by Hess and Bates are too highly fossilized for our purposes here and are set aside for future discussion.

5.1. Allative applicative *-c/-s*. The suffix *-c/-s* 'allative applicative' adds a new semantic actant to the valency of its base (in most cases a GOAL), expressing the new actant as a direct object of the derived stem:

(23*a*)	*huy*	***ʔəx̌'=ax***^{w}	*tiʔəʔ*	*čx*^{w}*əluʔ*
	SCONJ	come=now	PROX	whale

'and then Whale comes' [ML Mink and Tutyika I, line 106]

(23*b*) *g*^{w}*əl* *łu=ʔəx̌'-c-buł* ∅ *əlg*^{w}*əʔ* *čla*
then IRR=come-ALTV-1PL.OBJ 3SUB PL 1PL.COORD

łu=ʔa
IRR=be.there

'then they will come for us and we will be there' (Hess 2006:72, line 712)

(23*c*) *łu=ʔəx̌'-c-əb* *čəł*
IRR=come-ALTV-PASS 1PL.SUB

'we will be come after' [ML Mink and Tutyika I, line 14]

The applied object is an ordinary direct object: it triggers object agreement (23*b*) and is subject to passivization (23*c*).

The allative applicative has two suppletive allomorphs, *-c* and *-s*. The first allomorph [-c] is used with a small, idiosyncratic group of stems with which it interacts morphophonemically (table 16). The second allomorph of the allative, [-s], is found associated with a relatively larger group of stems, all of which end in /il/ (table 17). In some cases, the final sequence /il/ of the base can be analyzed as either the inchoative suffix *-il* (e.g., *č'itis* 'approach sth' [*č'itil* 'draw near' from √*č'it* 'nearby']) or part of the autonomous action suffix *-ag*^{w}*il* (*q*^{w}*cag*^{w}*is* 'slide down after sth' [*q*^{w}*cag*^{w}*il* 'slide down' from °√*q*^{w}*c* 'slide, slip'). Generally, however, the radical without *-il* is unattested, although the meanings of stems with *-il* are compatible with an etymology that posits a root-plus-inchoative combination. Diachronically, the distribution of the *-s* allomorph of the allative applicative may have been morphologically conditioned by the inchoative suffix *-il*, although synchronically this has been reduced to a phonological condition.

5.2. Secondary suffixes. Secondary suffixes are suffixes that combine with another valency-increaser, usually *-t* 'internal causative',[18] to increase the semantic valency of their base by adding some semantic role other than PATIENT. In total, Hess and Bates (2004) list four secondary suffixes: *-yi-*, *-bi-*, *-di-*, and *-i-*. Of these, only the applicatives *-yi-* (**5.2.1**) and *-bi-* (**5.2.2**) appear to be productive and can be associated with unique and fairly consistent meanings. The other two are confined to a few fossilized forms and will not be dealt with here (they are a topic for future discussion).

5.2.1. Dative applicative *-yi-*. The secondary suffix *-yi-* 'dative applicative' is used together with *-t* to derive trivalent transitive verbs with an agentive subject and a BENEFICIARY expressed as a direct object (Hess 1995 and

[18] In fact, there is only one form in the corpus with a secondary suffix followed by a suffix other than *-t*: *cilyialik*^{w} 'dish sth up for sby' (√*cil* 'be dished up'). Bates et al. (1994) also give *tupyib* 'pound sth (food)' and *x̌'al'yib* 'add to sth'.

Hess and Bates 2004). When *-yi-t* is added to a monovalent base, the effect is to increase the valency by two, as in (24):

(24*a*) *ʔu-**kʷəd*** *ti* *ʔiɬ-kʷəlq*
PFV-taken DEF PRTV-other.things

'some (not all) was taken' (Bates et al. 1994:123)

(24*b*) *ʔu-**kʷəd-yi-t**-s* ∅ *ʔə* *ti* *ɬaʔx*
PFV-taken-DAT-ICS-1SG.OBJ 3SUB PR DEF platter

's/he deprived me of the platter' (Hess 1995:42)

(24*c*) *ʔu-**kʷəd-yi-t**-əb* *čəd* *ʔə* *tsi* *č'ač'as*
PFV-taken-DAT-ICS-PASS 1SG.SUB PR DEF:FEM child
ʔə *ti* *k'ʷat'aq*
PR DEF mat

'I had the mat taken from me by the girl' (Hess 1995:36, ex. 13c)

(24*a*) shows the monovalent radical *kʷəd* 'be taken' with a THEME as its subject; when *-yi-t* is added, the verb becomes trivalent (24*b*). The new semantic roles are AGENT—the role normally added by *-t*—and BENEFICIARY. The AGENT is expressed as the subject and the THEME is expressed as an oblique. The BENEFICIARY is the direct object, as shown by the object markers in (24*b*) and its promotion to subject in the passive form in (24*c*).

The dative applicative stems formed on monovalent radicals found in the corpus are given in table 18 (online appendix). Although many have transparent meanings (e.g., *ʔilyid* 'sing sth for sby' [√*ʔil* 'sing']), several are lexicalized (*biqʷyid* 'permit sth to sby' [°√*biqʷ* 'be loose']). Most notable in this regard is *ʔabyid* 'give sth to sby' (°√*ʔab* 'be extended'), which is the most textually frequent of the *-yi-t* forms. There are also three stems which seem to be bivalent rather than trivalent. Two of these, *hudyid* 'make a fire for sby' (√*hud* 'burn') and *łagʷidyid* 'set out a mat for sby' (*słagʷid* 'sleeping mat'), have conventionalized THEMES ('wood' and 'mat', respectively) inherent in the semantics of the stem which may not require overt expression in most contexts. The third bivalent stem, *ʔuǩʷyid* 'go in place of sby' (√*ʔuǩʷ* 'go'), is based on a monovalent radical of motion, and the absence of a third syntactic argument may be due to the absence of a plausible semantic role that such an argument might express. In all three cases, however, the overtly expressed semantic role added by *-yi-t* is still BENEFICIARY, which is consistent with its effects on other forms.

The dative applicative is also found with some bivalent bases (table 19). In these cases, the net gain in valency is only one:

(25*a*) *ʔu-**ʔuləx̌*** *ti* *luƛ'* *ʔə* *ti* *bəsq^{w}*
PFV-forage DEF old PR DEF crab

'the old man foraged for crab'[19] (Hess 1995:28, ex. 15b)

(25*b*) *ƛ'al'* *čəd* *g^{w}ə=bə=**ʔuləx̌-yi-d*** *tiʔəʔ* *c'ix̌c'ix̌*
also 1SG.SUB SBJ=ADD=forage-DAT-ICS PROX fish.hawk

ʔə *k^{w}i* *sʔuladx^{w}*
PR REM salmon

'I too can get salmon for Fish Hawk' (Hess 1995:153, line 54)

The government pattern of the derived stem is the same as when *-yi-t* is added to a monovalent radical—that is, the subject expresses an AGENT, the direct object a BENEFICIARY, and the oblique object a THEME.

A similar pattern is found when *-yi-t* is added to the transitive √*łəg^{w}ł* 'leave sth' or to stems formed with one of the causatives. In these cases, as expected with a direct applicative added to a transitive base, the base's direct object is demoted to an oblique in the *-yi-t* form:

(26*a*) *ʔu-**x^{w}uyub-tu**-bš* *čəx^{w}*
PFV-be.sold-ECS-1SG.OBJ 2SG.SUB

'you sold me' (Bates et al. 1994:255)

(26*b*) *ʔu-**x^{w}uyub-tx^{w}-yi-d*** *čəd* *tsi* *d-ʔibac*
PFV-be.sold-ECS-DAT-ICS 1SG.SUB DEF:FEM 1SG.PO-grandchild

'I sold it for my granddaughter' (Bates et al. 1994:255)

In (26*b*), the direct object is no longer the THEME, as it is in (26*a*), but the BENEFICIARY. When it is not elided as in (26*b*), the subject of the radical is expressed as an oblique object of the *-yi-t* form:

(27) *ʔəs-čal* *k^{w}i* *g^{w}ə=dəx^{w}=**ləkʼ^{w}-dx^{w}-yi-d**=s*
STAT-how REM SBJ=ADNM=eaten-ICS-DC-DAT-ICS=3PO

tsiʔəʔ *ʔalš-s* *ʔə* *tiʔəʔ* *sʔəłəd-s*
PROX:FEM sibling-3PO PR PROX food-3PO

'how could he eat his sister's food away from her?' (Hess 1998:56, line 6)

[19] The internal causative form of √*ʔuləx̌* 'forage for sth' without *-yi-* is *ʔuləx̌əd* 'forage for sth', with *-t* acting in this case only as a syntactic transitivizer. None of the other bivalent intransitive stems listed in table 19 (online appendix) combines with *-t* on its own.

Here, the oblique object, *tiʔəʔ sʔəɬəds* 'her food', corresponds to the subject of √*ləkʼʷ* 'be eaten' and the direct object of *ləkʼʷdxʷ* 'manage to eat sth'.

While the basic effect of *-yi-t* is to increase the semantic valency of a verb stem, this valency may not increase beyond the upper limit of three syntactic arguments. If the base is monovalent, its valency is increased by two, as in (24); if the base is bivalent intransitive, its valency is increased by one and the stem is transitivized, as in (25); if the base is already transitive, the valency is increased by one and the government pattern is altered so that what was the direct object of the transitive form becomes an oblique object of the *-yi-t* form, as in (27). The government pattern of the resulting verb is always the same—a trivalent transitive verb with a BENEFICIARY expressed as direct object, a PATIENT/THEME expressed as an oblique, and an agentive subject. For monovalent radicals, the addition of the agentive subject is directly attributable to the presence of the internal causative. With bivalent radicals, however, the syntactic effects of *-t* are either that of an applicative (with bivalent intransitives) or null (with transitive bases). The semantic role associated with *-yi-*, BENEFICIARY, is expressed as a direct object no matter what the starting valency of the base, making *-yi-* itself a direct applicative.

5.2.2. Middle applicative *-bi-*. The second applicative secondary suffix identified by Hess and Bates (2004) is *-bi-*, a direct applicative that combines with *-t* to form transitive stems whose direct object expresses semantic actants in a variety of roles other than PATIENT:

(28*a*) *ʔu-**ʔup'*** *čəd*
PFV-be.seated.on.lap 1SG.SUB
'I sat on a lap' (Bates et al. 1994:22)

(28*b*) *ʔəs-**ʔup'-bi-d*** *čəd* *tiʔiɬ*
STAT-be.seated.on.lap-MAP-ICS 1SG.SUB DIST
'I'm sitting on his lap' (based on Bates et al. 1994:22)[20]

The applied object of a *-bi-t* form controls object agreement:

(29) *x̌'ub* *čəxʷ* ***ʔušəb-bi-t**-s* *čxʷa*
well 2SG.SUB pity-MAP-ICS-1SG.OBJ 2SG.COORD
baɬa-t-s
cure-ICS-1SG.OBJ
'you should take pity on me and shaman-cure me' (Hess 1998:57, line 32)

[20] The form is given in the source as *ʔəsp'up'bid*. Hess (p.c.) agrees that this is probably a typo.

It is also promoted to subject by passivization:

(30*a*) *hay* *x̌ʷul'=əxʷ* *əlgʷəʔ* *ʔəs-**hiq'ʷab-bi-d*** *∅* *tiʔəʔ*
SCONJ only=now PL STAT-covet-MAP-ICS 3SUB PROX

qa *ʔəs-qʷat*
much STAT-laid.out

'well, they covet the many (shells) lying there' (Hess 2006:60, line 439)

(30*b*) *gʷəl* *ʔəs-**hiq'ʷab-bi-t**-əb* *ʔə* *tiʔəʔ* *sbiaw* *tsiʔəʔ*
then STAT-covet-MAP-ICS-PASS PR PROX coyote PROX:FEM

čəgʷas *sx̌aʔhus*
wife sawbill

'then this wife, Sawbill, is coveted by Coyote' (Hess 2006:22, line 12)

Thus, the applied object of stems formed with *-bi-t* is an ordinary direct object.

Unlike *-yi-t*, whose applied object is consistently associated with a single semantic role (BENEFICIARY), the applied object of *-bi-t* stems can express a wide variety of roles (table 20). In several cases, the new semantic role is a LOCATION (*ʔup'bid* 'sit on sby's lap' [√*ʔup'* 'be seated on a lap']), whereas in others *-bi-t* seems simply to add whatever kind of new role might plausibly be associated with a particular event. The common thread linking the different roles associated with *-bi-t* seems to be that the interaction between the AGENT and the endpoint is less semantically transitive than the typical AGENT–PATIENT interaction, where the PATIENT undergoes an internal change of state.[21] This rather abstract notion of reduced semantic transitivity is identified by Kemmer (1993) as being the common thread linking middle forms across a wide range of languages, hence the analysis offered here of *-bi-* as a middle applicative. As with the middle causative, the valency-increasing effect of *-bi-t* is unusual for a morpheme with middle semantics, although with *-bi-t* (which is possibly diachronically related to *-b*) the presence, however fossilized, of the internal causative *-t* offers some clues to the historical origins of the valency-increasing aspect of its behavior.

[21] An exception is *p'ayəqbid* 'carve sth' (√*p'ayəq* 'carve canoe'). Hess (p.c.) suggests that this may stem from the involvement of one's spirit power in the carving of a canoe, where *-bi-* indicates a reduced semantic transitivity that comes either from the AGENT acting through an intermediary or from the primary interaction being between carver and spirit-power and the canoe itself being construed as less directly involved than a prototypical PATIENT.

The reduced semantic transitivity typical of middles is seen quite clearly in a large group of stems in which the semantic role of the applied object is that of MOTIVE (table 21). The majority of these verbs (e.g., *hiiɬbid* 'be happy about sth' [√*hiiɬ* 'be happy'], *x̌əcbid* 'fear sth' [(√*x̌əc* 'be afraid')]) are based on radicals expressing emotional states, the applicative object being the STIMULUS or MOTIVE for the experience. Others (*c'ip'lilbid* 'shut eyes to avoid seeing sth' [√*c'ip'lil* 'shut eyes'], *yabuk'^{w}bid* 'fight over sth' [√*ya-buk'^{w}* 'fight']) are based on radicals expressing concrete actions for which the applied objects are clearly MOTIVES. In no case is the semantic actant expressed by the object necessarily affected by the actions performed or the emotions experienced by the ACTOR.

Another set of *-bi-t* stems is formed in combination with lexical suffixes—bound suffixal morphemes with specific lexical (as opposed to grammatical) meanings (table 22). As with the verbs in the earlier sets, the stems here take a non-PATIENT object, the specific roles played by the objects being rather diverse. These range from PERCEPT (*ləqaladiʔbid* 'overhear sth' [√*ləq* 'listen' + *-al-adiʔ* 'ear']) to GOAL (*dᶻəlax̌adbid* 'visit sby' [√*dᶻal* 'present other side' + *-ax̌ad* 'side']), ADDRESSEE (*ɬadəyʔlucidbid* 'address sby as woman' [√*ɬadəyʔ* 'woman' + *-l-ucid* 'mouth']), or THEME (*x^{w}əbaličbid* 'toss sth (pack) onto back' [√*x^{w}əb* 'toss' + *-alič* 'bundle']). Hess and Bates (2004) note that in these constructions the lexical suffix expresses a body part playing an INSTRUMENT-like role in the event. Verbs expressing action directed toward or involving parts of an AGENT's body are commonly middle forms across languages (Kemmer 1993), and the lowered affectedness of the object (and, hence, the reduced semantic transitivity of the event) is typical of middle semantics.

There is at least one verb form in which *-bi-t*, like *-yi-t*, seems to increase the valency of its base by two rather than by one—*sax^{w}əbid* 'run away with sth of sby's' (√*sax^{w}əb* 'jump, sprint'—cf. *sax^{w}əbid* 'run after sth or up to sth'), in which the semantic role of the applied object is BENEFICIARY. Given the semantic role assigned to the object, we might have expected the form to be **sax^{w}əbyid*; however, this form is unattested. Conversely, *-bi-t* also combines with a small number of bivalent radicals whose valency remains unchanged (table 23). In four of the five cases, *-bi-t* combines with a bivalent intransitive stem to create a transitive verb, and so acts merely as a syntactic transitivizer; in the fifth case it combines with the transitive radical √*ɬəg^{w}əɬ* 'leave sth behind' to form *ɬəg^{w}əlbid* 'leave sby behind'. The semantic difference here seems to reside in the difference between leaving an object (by setting it down) and leaving a human behind (by ordering them to stay or running off).[22] Three of the other four forms—*hiq'^{w}əbid* 'lust after sby'

[22] I am indebted to Igor Mel'čuk for this observation.

(√*hiq'ʷəb* 'lust after sby'), *kʷədabid* 'take sby captive' (*kʷədab* 'capture sby'), and *q'ʷuʔbid* 'be together with sby' (√*q'ʷuʔ* 'be together with sby')—also express actions that most naturally have human endpoints. Even in the remaining instance, *qadabid* 'steal sth' (√*qadaʔ* 'steal sth'), which does not seem to require a human object for semantic reasons, the verb is found with human objects in all but one of its textual attestations.[23] Unfortunately, the number of contextualized examples for the valency-neutral *-bi-t* forms is limited (one each for *hiq'ʷəbid*, *łəgʷəlbid*, and *q'ʷuʔbid*, two for *kʷədabid*, and three for *qadabid*), and three of the bases (√*hiq'ʷəb*, √*łəgʷəł*, and *q'ʷuʔ*) have identical glosses to their *-bi-t* forms and are also attested with human objects. Teasing out whatever semantic distinctions there are here with any certainty will depend on uncovering further textual attestations.

A similar problem arises with at least three forms in which *-bi-t* is added to stems already made transitive by the allative applicative: *lčisbid* 'visit sby and bother them' (*łčis* 'arrive at sth's location' from √*łčil* 'arrive'), *təd͡zisbid* 'have sex with sby' (*təd͡zis* 'go to bed with sby' from √*təd͡zil* 'lie down'), and *xʷakʷisbid* 'tire of sby (person)' (*xʷak'ʷis* 'become fed up with sth tiresome' from √*xʷak'ʷil* 'be tired').[24] The affixation of *-bi-t* has no effect on the syntactic valency of these bases, nor does it have any great impact on the semantic role of the applied object. In one case, *xʷakʷisbid*, *-bi-t* seems to indicate that the applicative object is animate or human. The remaining two verbs, *lčisbid* and *təd͡zisbid*, also necessarily have human objects but differ in other—rather idiosyncratic—ways from their allative counterparts. Clearly, such stems are lexicalized forms and, although not entirely out of step with more transparent middle applicatives, they cannot be treated as synchronically compositional.

In five more stems, *-bi-t* acts as a causative, adding an AGENT/subject rather than an object (table 24). The objects of such *-bi-t* forms are non-PATIENTS and do not undergo an internal change of state as a result of the AGENT's actions: instead, the change experienced by the object of such verbs seems to reside more generally in either its relationship to the AGENT (e.g., *čəgʷasbid* 'take sby as wife', *qəlbidbid* 'discard sth' [lit., 'cause sth to be refuse to one']) or its role as a point of reference—literal (*ʔad͡zqbid* 'meet sby') or figurative (*kʷədbid* 'steal from sby')—for the AGENT's action. This is not atypical of middle forms, one of the common middle meanings noted

[23] The exceptional inanimate object is found with *qadabid* 'steal something' in Harry Moses's telling of "Stealing Daylight" (Hilbert and Hess 1977:18). Even in this case, the thing stolen is a supernatural entity (daylight) rather than an ordinary inanimate object and so might merit treatment as being higher in animacy.

[24] Hess and Bates (2004:11) also give *šuucbid* 'keep an eye out for sth' but provide no context. As this form does not appear in Bates et al. (1994) or the textual corpus to date, it will have to pass here without further comment.

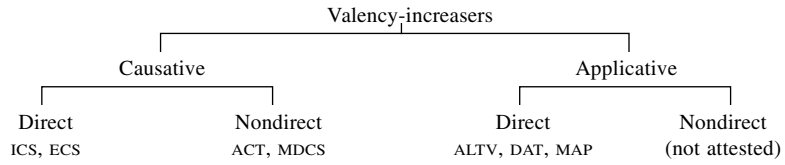

FIG. 1.—Taxonomy of Lushootseed valency-increasers.

by Kemmer (1993) being that action of the AGENT affects the AGENT or the AGENT's interests.

There are also several stems that appear to contain *-bi-t* but are not analyzable. Three of these—*q'itbid* 'store sth (food)', *pək'^{w}ibid* 'snatch sth', and *yičəbid* 'observe sth'—are based on otherwise unattested radicals. Others have free bases but idiosyncratic meanings—for example, *q^{w}ic'bid* 'be unable to do sth' (√*q^{w}ic'* 'be indifferent'), *q^{w}uʔbid* 'mouth waters for sth' (from the nominal radical *q^{w}uʔ* 'water'), and *x̌^{w}il'alcbid* 'lose sth' (√*x̌^{w}il'* 'be lost' + *-alc* 'productive'). The list of such forms is quite extensive, and it seems that while the uses and meanings of the middle applicative *-bi-t* are still more or less easily identifiable in a large number of cases, it is well on its way to fossilization.

6. Conclusions. In spite of their number and abundant idiosyncrasies, the Lushootseed valency-increasing suffixes can be neatly categorized in terms of their most prevalent syntactic behaviors and arranged into a taxonomy, as shown in figure 1. This taxonomy allows us to classify them first as either causatives or applicatives, depending on whether they add a subject or an object to their base, and then to subdivide them according to what type of object relation, direct or nondirect, the displaced subject or applied object takes with the derived stem. Further distinctions among the suffixes—that is, the lowest-level distinctions in the taxonomy—can then be made according to the semantic nuances expressed by each.

The advantages of this approach lie not only in imposing a bit of order on what might seem like an overly complex system of valency-regulating morphology but also in allowing for productive cross-linguistic comparison with valency-altering morphological processes in other languages. As with lexical items, there is no a priori reason to expect the precise meanings of morphemes in one language to match the precise meanings of morphemes in another; however, there is some expectation that cross-linguistically valid generalizations can be drawn based on morphosyntactic behaviors. By abstracting away from the semantic nuances of the Lushootseed suffixes and classifying them in terms of their syntactic properties, we can make more direct comparisons to morphemes with similar syntax in other languages. The

most notable insight this provides is in the case of the internal causative *-t*, which (along with its cognates in other Salishan languages) has been characterized as simply a "transitivizer" or as transitive inflection. By reclassifying *-t* as a causative, we recognize the parallels it presents to more traditional causatives in other languages—indeed, when considered in the light of Dixon's (2000:31) characterization of a causative as adding a CAUSER as a "new A argument" to a clause, we can see that the Lushootseed event-internal causative is only one step away from Dixon's criteria, merely requiring a weakening of the stipulation that the added A be a CAUSER.

Furthermore, the classification of both *-t* and *-tx*^{w} as causatives adds a new element to the discussion of "direct" or "contact" vs. "indirect" or "distant" causation (Nedjalkov and Silnitsky 1973, Masica 1976, Saksena 1982, and Dixon 2000), a distinction drawn in many languages with multiple causatives between events that prototypically involve an AGENT acting on a PATIENT or PATIENT-like CAUSEE, and those that involve an indirect or mediated interaction between an AGENT-like CAUSER and an AGENT-like CAUSEE (Shibatani 2002). In Lushootseed, the prototypical types of "direct" causation are generally lexicalized as *-t* stems, while the more indirect types are encoded by one of the other causatives, most often *-tx*^{w}. However, because Lushootseed does not form causatives of transitive verbs (the cross-linguistically most typical type of "indirect" causative), the direct/indirect distinction plays out differently than it does in many other languages, with Lushootseed differentiating two types of causative (both explicitly marked morphologically) in terms of the relative integration of the AGENT in the event. In this respect, Lushootseed seems to organize its system of causative derivation more along the lines of Tarascan, which Maldonado and Nava L. (2002) argue interprets the direct/indirect distinction in terms of event complexity: the more complex the event is, the more indirect the causation is perceived to be. These authors link the gradations in event complexity marked by the different Tarascan causatives to points on the continuum between Langacker's (1987) prototypes of the semantically transitive and causative event. Under this analysis, the interaction between AGENT and PATIENT in a semantically transitive event is recognized as the most direct form of causation, whereas the most indirect form of causation is that of a CAUSER interacting with an AGENT-like CAUSEE whereby the (unspecified) action of the CAUSER leads to the CAUSEE initiating some subsequent event. The second case is the more complex in that it implies two separate but connected events, whereas the first case is treated as a single (unitary) event and, in most languages, is lexicalized as a monomorphemic verb. In Lushootseed, however, even in these events causation is made explicit by causative suffixes.

Over and above organizing Lushootseed valency-increasing derivation into a single, internally structured system, the taxonomy proposed here offers a way to characterize languages in terms of the kind and degree of articulation

of their systems of valency-regulating morphology. The first- and second-order distinctions made in the taxonomy are those characteristics most directly comparable cross-linguistically—causative vs. applicative, and then direct vs. nondirect.[25] At the lowest taxonomic level are those fine-grained distinctions that show the greatest cross-linguistic variation, semantic distinctions such as internal vs. external causation, control, participant focus, etc. These are the most language-specific. Lushootseed, with a variety of causatives and applicatives giving rise to stems of differing syntactic transitivity, makes both the first- and second-order distinctions, dividing the valency-increasers into direct causatives, nondirect causatives, and direct applicatives. Other languages with less-articulated systems may make only the first-order distinction between causative and applicative: Totonacan languages, for instance, have only direct causatives and direct applicatives (Beck 2004 and MacKay and Trechsel 2008). Other languages, such as Nahuatl (Tuggy 1988), Yidiny (Dixon 1977), Hualapai, and Malay (Shibatani and Pardeshi 2002), may fail to make even this first-order distinction and use the same morpheme to form both causatives and applicatives. Thus, the behavior of valency-increasers can be characterized largely by which of the first- and second-order distinctions on the taxonomic tree shown in figure 1 are made in a particular language. Within each type, there is room for one or more valency-increasers, morphemes of like syntactic type being distinguished by their individual semantic properties. Given that it is the semantics, rather than the syntactics, of the different valency-increasing affixes that is subject to the most language-specific idiosyncrasy, taking this approach seems to offer the greatest opportunity to capture universalist claims about the potentialities of valency-increasing affixes, while at the same time accommodating the particularist aspects of a given language's morphology.

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[25] The existence of morphemes in certain languages that add subjects in nonagentive roles (discussed in n. 3 above) may mean that, in the larger typological context, we want to reconsider the term "causative" as the counterpart to "applicative" in the first level of the taxonomy, replacing it with something that is neutral with respect to the semantic role of the added subject. This would move the agentive/nonagentive distinction into the lowest level of the taxonomy, on a par with the distinction among applicatives between instrumentals, benefactives, etc.

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APPENDIX

A TAXONOMY AND TYPOLOGY OF LUSHOOTSEED VALENCY-INCREASING SUFFIXES

DAVID BECK

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The data in the following tables are drawn from the textual corpus used for this study, supplemented by forms from example sentences in the *Lushootseed Dictionary* (Bates et al. 1994) and other published sources. The glosses provided are the nearest English equivalents with the same semantic valency, as determined by contextualized uses of forms, example sentences with overt syntactic arguments, and lexicographical materials. In some cases, glosses of words differ from those given in the *Lushootseed Dictionary*, which sought to provide more idiomatic translation-equivalents rather than linguistically oriented representations of words. Monomorphemic free verbal radicals are presented with the root sign (√). These are radicals attested in context inflected for aspect, person, and number, but without further derivational morphology. Other forms are marked either as bound radicals (º√), which are unattested in independent form but are productively used in the formation of verb stems, or fossilized forms (*√), which represent radicals that are both unattested as free forms and which do not appear to be productively used as bases for derivation. The semantic valency of the forms is represented in part by the inclusion of the variables Ⓧ, Ⓨ, etc., for semantic actants corresponding to non-subject syntactic arguments of the verb. To save space, the actant corresponding to the subject argument is not so represented, although it should in all cases be understood to be present. Unless otherwise indicated in the caption, these tables are exhaustive listings of the corresponding forms found in the present corpus.

TABLE 1

SOME SEMANTICALLY TRANSITIVE UNACCUSATIVE RADICALS

º√*ʔadᶻq* 'be met'	º√*gʷəlal* 'be hurt'	√*takʷ* 'be bought'
º√*ʔay'* 'be traded'	√*gʷəx̌* 'be untied'	º√*təq'* 'be slapped'
º√*biƛ'* 'be smashed'	º√*k'aw* 'be chewed'	º√*tudəq* 'be enslaved'
√*cil* 'be dished up'	º√*kʷaxʷ* 'be helped'	º√*tup* 'be pounded'
√*c'aʔkʷ* 'be washed'	º√*kʷaʔ* 'be released'	º√*tux̌ʷ* 'be stretched'
º√*c'əl* 'be defeated'	√*kʷəd* 'be held, taken'	º√*tx̌ʷ* 'be pulled'
º√*c'əs* 'be pecked'	º√*ləkʼʷ* 'be eaten'	√*t'q'* 'be patched'
º√*č'aʔ* 'be dug up'	º√*ləxʷ* 'be stabbed, cut'	√*t'uc'* 'be shot'
√*č'axʷ* 'be clubbed'	º√*ɬal* 'taken from fire'	º√*t'ukʷ* 'be measured'
º√*č'ədᶻ* 'be stalked'	√*ɬič'* 'be cut with knife'	º√*xʷac* 'be hoisted
√*daʔ* 'be named'	√*ɬid* 'be tied'	º√*xʷəb* 'be thrown'
º√*c'ix̌* 'be fried'	º√*ƛ'akʷ* 'be stitched'	º√*xʷš̌* 'be thrown'
√*čal* 'be chased'	º√*ƛ'ip'* 'be compressed'	º√*x̌əd* 'be pressed'
º√*dikʷ* 'be advised'	º√*p'ic'* 'be wrung out'	º√*x̌ib* 'be grabbed'
º√*dᶻub* 'be kicked'	º√*puʔ* 'be blown on'	º√*x̌q* 'be wrapped'
º√*gʷəč'* 'be sought'	√*qʷal* 'be marked, be painted'	º√*x̌ʷadᶻ* 'be injured'

TABLE 2

SOME UNERGATIVE RADICALS

√*ʔəƛ'* 'come'	º√*gʷuh* 'bark (dog)'	√*qʷiʔad* 'yell'
√*ʔibəš* 'travel, walk'	√*kiis* 'stand up'	√*qʷuʔqʷa* 'have drink'
√*ʔigʷəɬ* 'climb tree'	√*kʷatač* 'climb'	√*saq'ʷ* 'fly'
√*ʔil* 'sing'	º√*k'ʷəƛ'* 'miss (a shot)'	√*šub* 'disappear'
√*ʔuxʷ* 'go'	√*k'ʷit'* 'go to shore'	º√*tatab* 'speak'
√*cut* 'speak'	√*lab* 'appear'	√*tay* 'go raiding'
º√*c'əb* 'clear land'	√*lax̌* 'recall'	√*təč* 'roll off'
º√*c'ic'əyikʷ* 'wink'	√*ɬaʔ* 'arrive at place'	√*t'igʷ* 'thank; pray'
√*dᶻal* 'turn around'	√*p'ayəq* 'carve canoe'	√*t'uk'ʷ* 'go home'
√*gʷah* 'accompany'	√*p'əq'* 'drift'	√*wiliq'ʷ* 'make enquiry'
√*gʷi* 'make an invitation'	√*q'əlb* 'camp out'	√*yəy'duʔ* 'swing in a swing'

TABLE 3

BIVALENT RADICALS WITH NOMINAL PREDICATE COMPLEMENTS

√*huy* 'be made into ⊗'
√*laxˇ* 'recall ⊗'
√*ƛ'a* 'go to ⊗'
√*šəɬ* 'make ⊗'
√*təxʷ* 'buy ⊗'
√*xʷəɬ* 'lack ⊗'

TABLE 4

BIVALENT RADICALS WITH OBLIQUE OBJECTS

º√*ʔaladᶻ* 'care for ⊗'	√*ƛ'al* 'put sth on ⊗'
√*ʔuləx̌* 'forage for ⊗'	√*qada* 'steal ⊗'
√*caq'* 'be speared by ⊗'	√*q'ʷuʔ* 'be together with ⊗'
√*čəbaʔ* 'be burdened with ⊗'	√*pus* 'be hit by ⊗ (missile)'
√*kʷukʷcut* 'cook ⊗'	√*xʷiʔxʷiʔ* 'hunt for ⊗'

TABLE 5

SOME INTERNAL CAUSATIVE STEMS FORMED FROM FREE RADICALS

ʔaʔəd 'put ⊗ there'	(√*ʔa* 'be there')
ʔiǩʷid 'throw ⊗ away'	(√*ʔiǩʷ* 'be thrown to')
bapad 'pester ⊗'	(√*bap* 'be busy')
bəčad 'set ⊗ down'	(√*bəč* 'be lying, be fallen from standing')
cilid 'dish ⊗ out'	(√*cil* 'be dished up')
c'agʷad 'wash ⊗'	(√*c'aʔkʷ* 'be washed')
čalad 'chase ⊗'	(√*čal* 'be chased')
č'axʷad 'hit ⊗ with a stick'	(√*č'axʷ* 'be hit with a stick')
daʔad 'name ⊗'	(√*daʔ* 'be named')
dəgʷad 'put ⊗ inside'	(√*dəkʷ* 'be inside')
dukʷud 'change ⊗; bewitch ⊗'	(√*dukʷ* 'be a-normal')
dᶻakʷad 'rock ⊗'	(√*dᶻakʷ* 'be shaky, be shaking')
dᶻaƛ'əd 'confuse ⊗'	(√*dᶻaƛ'* 'be confused')
dᶻalqəd 'turn ⊗ around'	(√*dᶻal* 'turn around, turn over')
dᶻək'ʷud 'lead ⊗ astray'	(√*dᶻək'ʷ* 'travel')
dᶻiǩid 'break ⊗ down'	(√*dᶻiǩ* 'be broken down, be fallen apart')
gʷəǩad 'untie ⊗'	(√*gʷəǩ* 'be untied')
kʷədad 'take ⊗'	(√*kʷəd* 'be held, be taken')
lild 'move ⊗ away'	(√*lil* 'be far away')
łač'əd 'put out ⊗ (fire)'	(√*łač'* 'go out (fire)')
łaq'ad 'put ⊗ down'	(√*łaq'* 'be fallen, be lying down')
łič'id 'slice ⊗'	(√*łič'* 'get cut with knife')
łidid 'tie ⊗'	(√*łid* 'be tied')
ƛ'iqid 'take ⊗ out from within'	(√*ƛ'iq* 'emerge')
pədičəd 'dirty ⊗'	(√*pəd* 'be dirty' + *-ič* 'covering')
pusud 'throw at ⊗'	(√*pus* 'be hit by ⊗ (missile)')
qiq'əd 'confine ⊗'	(√*qiq'* 'be confined')
qʷatad 'lay ⊗ out'	(√*qʷat* 'be lying; snow falls')
qʷəcəd 'slide ⊗'	(°√*qʷc* 'slide, slip')
qʷibid 'prepare ⊗'	(√*qʷib* 'be ready')
qʷšabəd 'fog ⊗ up'	(√*qʷšab* 'be foggy')
q'axʷad 'freeze ⊗'	(√*q'axʷ* 'be frozen')
q'ilid 'put ⊗ on board'	(√*q'il* 'be aboard')
q'pud 'gather ⊗ up'	(√*q'əp* 'form a lump')
q'ʷəld 'cook ⊗'	(√*q'ʷəl* 'be cooked, be ripe')

TABLE 5—*continued*

q'ʷibid 'unload ⊗'	(√*q'ʷib* 'be disembarked, be unloaded')
q'ʷuʔəd 'gather ⊗'	(√*q'ʷuʔ* 'be together with ⊗')
šəqəd 'move ⊗ up high'	(√*šq* 'be high')
šubud 'make ⊗ disappear'	(√*šub* 'disappear')
təǰəd 'roll ⊗'	(√*təč* 'roll off, tumble down')
t'agʷtəd 'put ⊗ on top'	(√*t'agʷt* 'be on top')
t'uc'ud 'shoot ⊗ (target)'	(√*t'uc'* 'be shot, fired on')
x̌alad 'write ⊗'	(√*x̌al* 'be written')
xʷəxʷaʔxʷaʔəd 'make ⊗ lighter'	(√*xʷəxʷaʔxʷaʔ* 'be lightweight')
yiq'id 'weave ⊗ (basket)'	(√*yiq'* 'be worked into tight place')

TABLE 6

APPLICATIVE USES OF *-t*

ʔilid 'sing to ⊗'	(√*ʔil* 'sing')
ʔulud 'sing to ⊗'	(°√*ʔul* 'sing'; cf. *ʔuliʔɬ* 'sing lullaby')
bəlx̌ʷəd 'pass ⊗'	(√*bəlx̌ʷ* 'be beyond')
bəq'əd 'swallow ⊗'	(°√*bəq'* 'have in mouth')
cut 'speak to ⊗'	(√*cut* 'speak')
dᶻaqad 'mourn ⊗'	(°√*dᶻaq* 'mourn'; cf. *dᶻaqəbid* 'mourn for ⊗')
gʷiid 'invite ⊗, call to ⊗'	(√*gʷi* 'make an invitation')
gʷuhud 'bark at ⊗'	(°√*gʷuh* 'bark (dog)'; cf. *gʷuhəb* 'bark')
k'ʷaład 'examine ⊗'	(°√*k'ʷałˑ* 'peer'; cf. *k'ʷək'ʷałəb* 'be near-sighted')
k'ʷilid 'peer out at ⊗'	(√*k'ʷil* 'peer out')
luud 'hear ⊗'	(°√*lu* 'hear')
łild 'give food to ⊗'	(√*łil* 'make a gift of food')
qʷuʔqʷad 'drink ⊗ (liquid)'	(√*qʷuʔqʷa* 'have a drink')
q'əlsəd 'steam ⊗'	(√*q'əls* 'cook with steam')
šidᶻəd 'attack ⊗ by stealth'	(√*šidᶻ* 'launch sneak attack')
šulud 'pass underneath ⊗'	(√*šul* 'be in, be under')
tatabəd 'confer about ⊗'	(°√*tatab* 'speak'; cf. *tatabtxʷ* 'talk to ⊗')
wiliq'ʷid 'ask of ⊗'	(√*wiliq'ʷ* 'make an enquiry')
x̌idid 'growl at ⊗'	(°√*x̌id* 'be growling'; cf. *x̌idib* 'growl')
x̌ʷaq'ʷad 'be concerned about ⊗'	(√*x̌ʷaq'ʷ* 'be worried, be preoccupied')
yəcəd 'report ⊗'	(°√*yəc* 'report'; cf. *yəcəb* 'give news')

TABLE 7

TRANSITIVIZING USES OF *-t*

ʔaladᶻiʔłəd 'babysit ⊗'	(*ʔaladᶻiʔł* 'babysit ⊗')
čəbaʔəd 'backpack ⊗'	(√*čəbaʔ* 'be burdened with ⊗')
ƛ'alš 'wear ⊗'	(√*ƛ'al* 'put ⊗ on')
təbəd 'do ⊗'	(√*təb* 'deal with ⊗')
ʔišłš 'paddle ⊗ [canoe]'	(√*ʔišł* 'paddle ⊗ [canoe]')
ʔuləx̌əd 'gather ⊗'	(√*ʔuləx̌* 'forage for ⊗')

TABLE 8

VERBS OF TAKING AND BRINGING FORMED WITH *-tx^{w}*

ʔəƛ'tx^{w} 'bring ⊗'	(√*ʔəƛ'* 'come')
ʔibəštx^{w} 'take ⊗ for a walk'*	(√*ʔibəš* 'travel, walk')
ʔux̌^{w}tx^{w} 'take ⊗'	(√*ʔux̌^{w}* 'go')
čubətx^{w} 'take ⊗ ashore'	(√*čubə* 'go inland')
g^{w}atx^{w} 'take ⊗ along'	(√*g^{w}a* 'accompany, go along')
g^{w}ax̌^{w}tx^{w} 'take ⊗ for a walk'	(√*g^{w}ax̌^{w}* 'take a stroll')
k^{w}atačtx^{w} 'carry ⊗ up a hill'	(√*k^{w}atač* 'climb')
k'^{w}it'tx^{w} 'take ⊗ down to shore'	(√*k'^{w}it'* 'go down to shore')
łaʔtx^{w} 'bring ⊗ to a place'	(√*łaʔ* 'arrive at a specific place')
łaliltx^{w} 'bring ⊗ ashore'	(√*łalil* 'go ashore')
łčiltx^{w} 'arrive with ⊗'	(√*łčil* 'arrive')
q'iltx^{w} 'take ⊗ by canoe'	(√*q'il* 'be aboard')
saq'^{w}tx^{w} 'fly off with ⊗; fly ⊗ (airplane)'	(√*saq'^{w}* 'fly')
sax^{w}əbtx^{w} 'run off with ⊗, kidnap ⊗'	(√*sax^{w}əb* 'jump, sprint')
šədᶻaltx^{w} 'take ⊗ outside'	(√*šədᶻal* 'go outside')
təlawiltx^{w} 'run off with ⊗'	(√*təlawil* 'run')
tuliltx^{w} 'take ⊗ across river'	(√*tulil* 'cross river')
t'uk'^{w}tx^{w} 'take ⊗ home'	(√*t'uk'^{w}* 'go home')

* This form is also 'make ⊗ travel'; with this meaning it belongs in table 9.

TABLE 9

CAUSATIVE STEMS FORMED WITH *-txʷ*

ʔalalustxʷ 'do to ⊗'	(√*ʔalalus* 'happen')
ʔatxʷ 'put ⊗ there'	(√*ʔa* 'be there')
ʔəɬtxʷ 'feed ⊗'	(°√*ʔəɬ* 'be eaten'; cf. *ʔəɬəd* 'feed on ⊗')
ʔistaʔtxʷ 'do the same to ⊗'	(√*ʔistaʔ* 'be the same')
ʔupʼtxʷ 'put ⊗ on other's lap; put on ⊗'s lap'	(√*ʔupʼ* 'be seated on lap')
čəbaʔtxʷ 'pack ⊗ on one's back'	(√*čəbaʔ* 'be burdened with ⊗')
dukʷtxʷ 'get angry with ⊗'	(√*dukʷ* 'be anormal')
gʷədiltxʷ 'sit ⊗ down'	(from *gʷədil* 'sit down)
həliʔtxʷ 'cure ⊗'	(√*həliʔ* 'be alive')
hiwiltxʷ 'go ahead with ⊗'	(√*hiwil* 'proceed')
huygʷastxʷ 'marry ⊗'	(from √*huy* 'be made' + *-gʷas* 'pair')
kiistxʷ 'stand ⊗ up'	(√*kiis* 'stand up')
laǰtxʷ 'remind ⊗'	(√*laǰ* 'recall, remember')
ɬidtxʷ 'tie to ⊗'	(√*ɬid* 'be tied')
ƛ̓aǰʷtxʷ 'bring up ⊗, raise ⊗'	(√*ƛ̓aǰʷ* 'grow')
ƛ̓iqʼačiʔbtxʷ 'make ⊗'s hands sticky	(from √*ƛ̓iqʼ* 'be sticky' + *-ačiʔ* 'hand')
qʼiltxʷ 'put load into ⊗'	(√*qʼil* 'be aboard')'
saʔtxʷ 'dislike ⊗, hate ⊗'	(√*saʔ* 'be bad')
saqʼʷtxʷ 'fly off with ⊗'	(√*saqʼʷ* 'fly')
šəɬtʼəbiɬədtxʷ 'make rope of ⊗'	(from √*šəɬ* 'make ⊗' + √*tʼəbiɬəd* 'rope')
šuɬtxʷ 'show to ⊗'	(√*šuɬ* 'look around, gaze')
təd͡ziltxʷ 'put ⊗ to bed'	(√*təd͡zil* 'go to bed, lie in bed')
təɬtxʷ 'make ⊗ true, speak truth'	(√*təɬ* 'be true')
tʼičibtxʷ 'make ⊗ wade'	(√*tʼičib* 'wade')
tʼucʼiltxʷ 'fire ⊗'	(*tʼucʼil* 'fire weapon' from √*tʼucʼ* 'be shot')
ǰaʔǰaʔtxʷ 'forbid ⊗'	(√*ǰaʔǰaʔ* 'powerful, taboo')
ǰiliǰtxʷ 'make war on ⊗'	(√*ǰiliǰ* 'be at war')

TABLE 10

RADICALS WITH BOTH *-txʷ* AND *-t* FORMS

ʔatxʷ 'cause ⊗ to be in a place'	*ʔaʔəd* 'place ⊗'
ʔupʼtxʷ 'seat ⊗ on a person's lap'	*ʔupʼud* 'seat ⊗ on one's lap'
čaʔkʷtxʷ 'take ⊗ out to sea'	*čagʷəd* 'take ⊗ out to sea'
čaltxʷ 'catch ⊗'	*čalad* 'chase ⊗'
čəbaʔtxʷ 'make ⊗ backpack Ⓨ'*	*čəbaʔəd* 'backpack ⊗'
daʔtxʷ 'name ⊗ (spirit power)'	*daʔad* 'name ⊗'
dukʷtxʷ 'be angry with ⊗'	*dukʷud* 'change ⊗, transform ⊗'
kʼʷiltxʷ 'cause ⊗ to peer out'	*kʼʷilid* 'peek at ⊗'
hədiwʼtxʷ 'bring ⊗ inside'	*hədiwʼd* 'put ⊗ inside'
hikʷtxʷ 'respect ⊗'	*higʷəd* 'uphold ⊗, support ⊗'
ɬidtxʷ 'tie to ⊗'	*ɬidid* 'tie ⊗ up'
ɬikʼʷtxʷ 'kidnap ⊗'	*ɬikʼʷid* 'hook ⊗'
ƛ̓iqʼačiʔbtxʷ 'make ⊗'s hands sticky'	*ƛ̓iqʼid* 'stick ⊗ on'
qiqʼtxʷ 'confine ⊗'	*qiqʼəd* 'confine ⊗'
qʼiltxʷ 'take ⊗ by canoe'	*qʼilid* 'load ⊗ aboard'
sulatxʷ 'bring ⊗ to centre of room'	*sulad* 'put ⊗ in centre of room'
x̌aʔx̌aʔtxʷ 'forbid ⊗ (act)'	*x̌aʔx̌aʔəd* 'deny ⊗ permission'

* This stem, based on a bivalent intransitive radical, is also attested meaning 'back-pack ⊗' (that is, as a synonym to *čəbaʔəd*) in the speech of one speaker (MW).

TABLE 11

APPLICATIVE USES OF *-txʷ*

gʷaagatxʷ 'speak to ⊗'	(√*gʷaagad* 'speak')
qʷiʔadtxʷ 'call ⊗ out'	(√*qʷiʔad* 'holler, yell')
tatabtxʷ 'talk to ⊗'	(°√*tatab* 'speak'; cf. *tatabəd* 'confer about ⊗')*
tʼilibtxʷ 'sing to ⊗'	(√*tʼilib* 'sing')
tʼucʼiltxʷ 'fire ⊗'	(*tʼucʼil* 'fire weapon' from √*tʼucʼ* 'be shot')
wiliqʼʷtxʷ 'ask ⊗ on another's behalf'	(√*wiliqʼʷ* 'make an enquiry')†
x̌ayəbtxʷ 'smile at ⊗'	(√*x̌ayəb* 'laugh')
yəcəbtxʷ 'tell ⊗ to Ⓨ'	(*yəcəb* 'report on ⊗' from °√*yəc* 'report on ⊗')
yəhubtxʷ 'recite legend for ⊗'	(°√*yəhub* 'tell legend'; cf. *syəhub* 'myth, legend')

* Cf. *tatabəd* 'confer about ⊗', where the internal causative also acts as an applicative.

† Cf. *wiliqʼʷid* 'ask ⊗', in which the internal causative also acts as an applicative.

TABLE 12

TRANSITIVE STEMS FORMED WITH *-dx^{w}*

ʔadᶻqdx^{w} ‘happen to meet up with ⊗’	(º√*ʔadᶻq* ‘be met’; cf. *ʔadᶻqbid* ‘meet ⊗’)
ʔaʔildx^{w} ‘manage to put ⊗ there’	(*ʔaʔil* ‘get there’ from √*ʔa* ‘be there’)
ʔuq’^{w}dx^{w} ‘be vulnerable to ⊗’	(º√*ʔuq’^{w}* ‘be unplugged’; cf. *ʔuq’^{w}ud* ‘unplug ⊗’)
bək’^{w}dx^{w} ‘manage to get all of ⊗’	(√*bək’^{w}* ‘all, completely’)
caq’šadx^{w} ‘lead ⊗’	(*caq’šad* ‘step’ from √*caq’* ‘be speared’ + *-šad* ‘leg’)
c’ədx^{w} ‘manage to defeat ⊗’	(º√*c’əl* ‘be defeated’; cf. *c’əld* ‘defeat ⊗’)
čaldx^{w} ‘catch up to ⊗’	(√*čal* ‘be overtaken’)
č’ax^{w}dx^{w} ‘manage to hit ⊗ with a stick’	(√*č’ax^{w}* ‘be hit with a stick’)
dik^{w}dx^{w} ‘instruct ⊗’	(º√*dik^{w}* ‘be advised’; cf. *dx^{w}dig^{w}id* ‘advise ⊗’)
duk^{w}ildx^{w} ‘be dissatisfied with ⊗’	(*duk^{w}il* ‘become strange’ from √*duk^{w}* ‘be a-normal’)
həliʔdx^{w} ‘save the life of ⊗’	(√*həliʔ* ‘be alive’)
huydx^{w} ‘manage to do ⊗’	(√*huy* ‘be done, be made, be finished’)
k’awdx^{w} ‘collide with ⊗’	(º√*k’aw* ‘be bumped’; cf. *k’awqid* ‘bump head’)
k^{w}aʔdx^{w} ‘manage to let go of ⊗’	(º√*k^{w}aʔ* ‘be released’; *k^{w}aʔd* ‘release ⊗’)
k^{w}ax^{w}dx^{w} ‘manage to help ⊗’	(º√*k^{w}ax^{w}* ‘be helped’; cf. *k^{w}ax^{w}ad* ‘help ⊗’)
k^{w}ədx^{w} ‘manage to take ⊗’	(√*k^{w}əd* ‘be held, be taken’)
k’^{w}əɬdx^{w} ‘spill ⊗’	(√*k’^{w}əɬ* ‘pour out, spill out’)
labdx^{w} ‘see ⊗’	(√*lab* ‘appear’)
laǩdx^{w} ‘remember ⊗’	(√*laǩ* ‘recall, remember’)
lək’^{w}dx^{w} ‘manage to eat ⊗’	(√*lək’^{w}* ‘be eaten’)
ləx^{w}dx^{w} ‘manage to stab ⊗’	(º√*ləx^{w}* ‘be stabbed, be cut’; cf. *ləx^{w}ud* ‘stab ⊗’
lildx^{w} ‘draw away from ⊗’	(√*lil* ‘far’)
ƛ’ubildx^{w} ‘manage to improve ⊗’	(√*ƛ’ubil* ‘improve’ from √*ƛ’ub* ‘good, well’)
pusdx^{w} ‘manage to hit ⊗ with missile’	(√*pus* ‘be hit by ⊗ (missile)’)
p’alildx^{w} ‘revive ⊗’	(*p’alil* ‘regain consciousness’)
qəɬdx^{w} ‘accidentally awaken ⊗’	(√*qəɬ* ‘be awake’)
šudx^{w} ‘catch sight of ⊗’	(√*šuɬ* ‘look around, gaze’)
təqdx^{w} ‘block ⊗’s path’	(º√*tq* ‘closed’; cf. *tqad* ‘close ⊗, block ⊗ off’)
ǩəɬdx^{w} ‘injure ⊗’	(√*ǩəɬ* ‘be sick’)
ǩ^{w}al’dx^{w} ‘get the better of ⊗’	(√*ǩ^{w}al’* ‘be unable, fail, lose’)

TABLE 13

MONOVALENT INTRANSITIVE STEMS FORMED WITH *-b*

ʔaʔəb 'be in a certain place'	(√*ʔa* 'be there')
baqʷuʔb 'snow'	(√*baqʷuʔ* 'be snow-covered')
ckʷab 'be taut'	(√*cikʷ* 'be straight, be tautened')
čagʷəb 'be at sea'	(√*čaʔkʷ* 'seaward')
dxʷbəčəb 'sink'	(√*bəč* 'be lying, be fallen from standing')
dᶻaƛ'əb 'get confused'	(√*dᶻaƛ'* 'be confused')
gəqəb '[sun] shines'	(°√*gəq* 'shining'; cf. *gəqil* 'clear up [weather]')
haʔləb 'be nice [weather]'	(√*haʔɬ* 'good')
hədʔiw'b 'go inside'	(√*hədʔiw'* 'be inside a house')
k'ʷalč'əb 'bend self backwards'	(°√*k'ʷalč'* 'be bent backwards')
luƛ'əb 'age'	(√*luƛ'* 'be old')
p'iləb 'go flat'	(√*p'il* 'be flat')
p'q'adᶻəb 'be rotting [log]'	(√*p'q'ac* 'rotten log')
qʷcab 'slip'	(√*qʷc* 'slide, slip')
šabəb 'dry out'	(√*šab* 'be dry')
yaƛ'əb 'carry water'	(°√*yaƛ'* 'be dry'; cf. *yaƛ'ad* 'scoop up ⊗ (water)')
yəcəb 'report on ⊗'	(°√*yəc* 'report on ⊗'; cf. *yəcəd* 'report ⊗')

TABLE 14

BIVALENT INTRANSITIVE STEMS FORMED WITH *-b*

č'aʔəb 'dig for ⊗ (roots)'	(°√*č'aʔ* 'be dug up'; cf. *č'aʔəd* 'dig ⊗ up')
gʷəč'əb 'seek ⊗ for self'	(°√*gʷəč'* 'be sought'; cf. *gʷəč'əd* 'look for ⊗')
kʷədəb 'take ⊗ for self'	(√*kʷəd* 'be held, be taken')
ɬič'ib 'cut ⊗ (cattails) for mats'	(√*ɬič'* 'get cut with knife')
ƛ'agʷəb 'make ⊗ (mat)'	(°√*ƛ'akʷ* 'be stitched'; cf. *ƛ'agʷəd* 'stitch ⊗ (mat)')
qədəb 'have illicit sex with ⊗'	(°√*qəd* 'fornicate'; cf. *dxʷqədid* 'cuckhold ⊗')
q'ilb 'put ⊗ into own canoe'	(√*q'il* 'be aboard')
q'ʷəlb 'cook ⊗ for oneself'	(√*q'ʷəl* 'be cooked, be ripe')
yiq'ib 'make ⊗ (baskets)'	(√*yiq'* 'be worked into tight place')

TABLE 15

STEMS FORMED WITH *-alik^{w}*

ʔabalik^{w} 'give ⊗ out as in potlatch'	(º√*ʔab* 'be extended'; cf. *ʔabəd* 'extend ⊗')
ʔilalik^{w} 'interpret ⊗'	(√*ʔil* 'sing')
bəčalik^{w} 'bet ⊗, wager with ⊗'	(√*bəč* 'be lying, be fallen from standing')
caq'alik^{w} 'spear ⊗, impale ⊗'	(√*caq'* 'be speared, be impaled')
cilalik^{w} 'dish ⊗ (food)'	(√*cil* 'be supported, be dished up')
cilyialik^{w} 'dish up ⊗ (food) for Ⓨ'	(√*cil* 'be supported, be dished up')
c'əlalik^{w} 'defeat ⊗'	(º√*c'əl* 'be defeated'; cf. *c'əld* 'defeat ⊗')
c'ixalik^{w} 'fry ⊗'	(º√*c'ix* 'be fried'; cf. *c'ixid* 'fry ⊗')
c'salik^{w} 'peck at ⊗'	(º√*c'əs* 'be pecked'; cf. *c'əsəd* 'peck ⊗')
č'aʔalik^{w} 'dig for ⊗ (edible roots)'	(º√*č'aʔ* 'be dug up'; cf. *č'aʔəd* 'dig ⊗ up')
č'ax^{w}alik^{w} 'hit ⊗ with stick'	(√*č'ax^{w}* 'be hit with a stick')
č'əd^{z}alik^{w} 'stalk ⊗ (prey)'	(º√*č'əd^{z}* 'stalked'; cf. *č'əd^{z}əd* 'sneak up on ⊗')
d^{z}ubalik^{w} 'dance'	(º√*d^{z}ub* 'be kicked'; cf. *d^{z}ubud* 'kick ⊗')
gəlk'alik^{w} 'knit ⊗'	(√*gəlk'* 'be wound, be tangled')
g^{w}əč'alik^{w} 'habitually seek ⊗'	(º√*g^{w}əč'* 'be sought'; cf. *g^{w}əč'əd* 'look for ⊗')
g^{w}əlalalik^{w} 'kill ⊗, slaughter ⊗'	(º√*g^{w}əlal* 'be hurt'; cf. *g^{w}əlald* 'kill ⊗')
g^{w}iʔalik^{w} 'ask for ⊗'	(√*g^{w}i* 'make an invitation')
huyalik^{w} 'make ⊗, create ⊗'	(√*huy* 'be completed, be finished')
k^{w}ədalik^{w} 'take ⊗ over and over'	(√*k^{w}əd* 'be held, be taken')
k'awalik^{w} 'chew ⊗'	(º√*k'aw* 'be chewed'; cf. *k'awad* 'chew ⊗')
k'^{w}ɬalik^{w} 'serve ⊗ (liquid)'	(√*k'^{w}əɬ* 'pouring out, spill out')
ɬač'alik^{w} 'fight fire'	(√*ɬač'* 'go out (fire)')
ƛ'aɬəbalik^{w} 'salt ⊗'	(√*ƛ'aɬəb* 'be salty')
p'ť'alik^{w} 'save ⊗'	(º√*p'ť'* 'be stored'; cf. *p'ť'ad* 'store ⊗')
q^{w}alcalik^{w} 'can ⊗'	(√*q^{w}alc* 'be boiling')
q̓italik^{w} 'hang ⊗ (fish) up to dry'	(º√*q̓it'* 'be hung'; cf. *q̓it'id* 'hang ⊗')
subalik^{w} 'smell ⊗'	(º√*sub* 'have odour'; cf. *subud* 'smell ⊗')
šabalik^{w} 'dry ⊗ (food)'	(√*šab* 'be dry')
tag^{w}əlik^{w} 'buy ⊗'	(√*tak^{w}* 'be bought')
tsalik^{w} 'hammer ⊗, pound ⊗'	(º√*ts* 'be punched' cf. *təsəd* 'punch ⊗')
tux̌^{w}alik^{w} 'stretch ⊗'	(º√*tux̌^{w}* 'be stretched')
t'qalik^{w} 'make bread; plaster'	(√*t'q* 'be thick')
x̌ƛ'alik^{w} 'bite into ⊗'	(º√*x̌ƛ'* 'be bitten'; cf. *x̌əƛ'əd* 'bite ⊗')
x^{w}šalik^{w} 'sow ⊗; give ⊗ at potlatch'	(º√*x^{w}š* 'be thrown'; cf. *x^{w}əšəd* 'throw ⊗')
x̌^{w}ad^{z}alik^{w} 'slaughter ⊗'	(º√*x̌^{w}ad^{z}* 'be injured'; cf. *x̌^{w}ad^{z}ad* 'punish ⊗')

TABLE 16

STEMS FORMED WITH *-c*

ʔəƛ̓c come after ⊗'	(√*ʔəƛ̓* 'come')
ʔəƛ̓cbid 'come after ⊗'	(√*ʔəƛ̓* 'come')
ʔigʷəɬaac 'climb after ⊗'	(√*ʔigʷəɬa* 'climb tree') (Sk)
ʔuǩʷc 'go to ⊗'	(√*ʔuǩʷ* 'go')
baliic 'forget about ⊗'	(√*bali* 'be forgetful')
cuuc 'speak to ⊗'	(√*cut* 'speak')
čubaac 'go inland after ⊗'	(√*čubə* 'go inland')
day'ay'c 'run out of ⊗'	(√*day'* 'only')
həd?iw'c 'go inside after ⊗'	(√*həd?iw'* 'be inside a house')
k'ʷəƛ̓c 'miss ⊗ (target)'	(°√*k'ʷəƛ̓* 'miss'; cf. *k'ʷəƛ̓gʷasbid* 'miss meeting')
laǩc 'think of ⊗'	(√*laǩ* 'recall, remember')
ləqc 'listen to ⊗'	(√*ləq* 'listen') (Sk)
luuc 'listen to ⊗'	(°√*lu* 'hear'; cf. *luhəladi?* 'hear ⊗')
qʷiʔaac 'call out to ⊗'	(√*qʷiʔad* 'yell')
q'ʷəlilc 'warm stones to cook ⊗'	(√*q'ʷəl* 'be cooked, be ripe' + *–ilc* 'round object')
šuuc 'look at ⊗'	(√*šuɬ* 'look around, gaze')
tayc 'come after ⊗ in raid'	(√*tay* 'go raiding')

TABLE 17

STEMS FORMED WITH *-s*

ʔusis 'dive after ⊗'	(√*ʔusil* 'dive')
c'ip'əlis 'ignore ⊗'	(√*c'ip'lil* 'shut eyes')
č'itis 'approach ⊗'	(*č'itil* 'draw near' from √*č'it* 'nearby')
gʷəcis 'wade after ⊗'	(√*gʷəcil* 'wade')
gʷədis 'sit down next to ⊗'	(√*gʷədil* 'sit down')
həliʔis 'live on ⊗'	(*həliʔil* 'heal' from √*həliʔ* 'be alive')
hiwis 'approach ⊗, go after ⊗'	(√*hiwil* 'proceed')
lis 'go over to ⊗'	(√*lil* 'be far away')
łalis 'go ashore after ⊗'	(√*łalil* 'go ashore')
łčis 'arrive at ⊗'	(√*łčil* 'arrive')
qadils 'come up behind ⊗'	(*qadil* 'get behind' from √*qad* 'behind')
q'ilagʷis 'catch a ride with ⊗'	(*q'ilagʷil* 'get aboard' from √*q'il* 'be aboard')
qʷcagʷis 'slide down after ⊗'	(*qʷcagʷil* 'slide down' from °√*qʷc* 'slide, slip')
təd͡zis 'go to bed with ⊗'	(√*təd͡zil* 'go to bed, lie in bed')
təlawis 'run after ⊗'	(√*təlawil* 'run')
tud͡zis 'bend over to get ⊗'	(√*tud͡zil* 'bend forward')
xʷakʼʷis 'get tired of ⊗'	(√*xʷakʼʷil* 'be tired')
xʷtʼagʷis 'climb down after ⊗'	(*xʷtʼagʷil* 'climb down' from °√*xʷitʼ* 'lowered')
x̌aƛ'is 'defend from ⊗'	(√*x̌aƛ'il* 'argue')
x̌ʷubis 'be quiet about ⊗'	(√*x̌ʷubil* 'be quiet')

TABLE 18

STEMS FORMED WITH *-yi-d* ON MONOVALENT BASES

ʔabyid 'give Ⓧ to Ⓨ'	(°√*ʔab* 'be extended'; cf. *ʔabəd* 'extend Ⓧ')
ʔayid 'put Ⓧ there for Ⓨ'	(√*ʔa* 'be there')
ʔilyid 'sing Ⓧ for Ⓨ'	(√*ʔil* 'sing')
ʔuǩʷyid 'go in place of Ⓧ'	(√*ʔuǩʷ* 'go')
biqʷyid 'permit Ⓧ to Ⓨ'	(°√*biqʷ* 'loose'; cf. *biqʷid* 'loosen Ⓧ; allow Ⓧ')
cilyid 'serve Ⓧ to Ⓨ'	(√*cil* 'be dished up')
hudčupyid 'put Ⓧ into fire for Ⓨ'	(√*hud* 'burn' + *-čup* 'fire')
hudyid 'make a fire for Ⓧ'	(√*hud* 'burn')
huyid 'make Ⓧ for Ⓨ'	(√*huy* 'be completed, be finished')
kʷədyid 'take Ⓧ from Ⓨ'	(√*kʷəd* 'be held, be taken')
ləc'yid 'step on Ⓧ affecting Ⓨ'	(°√*ləc'* 'come down on'; cf. *ləc'əd* 'step on Ⓧ')
ləkʷ'yid 'eat Ⓧ away from Ⓨ'	(°√*ləkʷ'* 'eat'; cf. *ləkʷ'dxʷ* 'manage to eat Ⓧ')
łagʷidyid 'set out a mat for Ⓧ'	(*słagʷid* 'sleeping mat')
łčilyid 'arrive with Ⓧ for Ⓨ'	(√*łčil* 'arrive')
łilyid 'give Ⓧ (food) to Ⓨ'	(√*łil* 'make a gift of food')
pqʷyid 'break off a bit of Ⓧ for Ⓨ'	(°√*pkʷ* 'be broken off leaving a larger piece')
sulayid 'set Ⓧ before Ⓨ'	(√*sula* 'be in the middle of a room')*
ǩədyid 'set Ⓧ aside for Ⓨ'	(°√*ǩəd* 'be pressed'; cf. *ǩədəd* 'push Ⓧ')
ǩqičyid 'bind Ⓧ into a pack for Ⓨ'	(°√*ǩq* 'be wrapped, be tied' + *-ič* 'bundle')

* This radical can also mean 'be at the front of a theatre or auditorium'.

TABLE 19

STEMS FORMED WITH *-yi-d* ON BIVALENT BASES

ʔaladᶻiʔlyid 'babysit ⊗ for Ⓨ'	(º√*ʔaladᶻ* 'care for ⊗' + *-iʔɬ* 'child')
ʔəy'dxʷyid 'find ⊗ for Ⓨ'	(º√*ʔəy'* 'be found' + *-dxʷ* 'DC')
ʔuləx̌yid 'gather ⊗ for Ⓨ'	(√*ʔuləx̌* 'gather ⊗, forage for ⊗')
cildxʷyid 'serve ⊗ to Ⓨ'	(√*cil* 'be dished up' + *-dxʷ* 'DC')
haydxʷyid 'find out about ⊗ for Ⓨ'	(º√*hay* 'be known' + *-dxʷ* 'DC')
hiq'ʷəbyid 'covet ⊗ from Ⓨ'	(√*hiq'ʷəb* 'covet ⊗, lust after ⊗')
huydxʷyid 'set up ⊗ for Ⓨ'	(√*huy* 'be completed' + *-dxʷ* 'DC')
kʷədabyid 'make ⊗ captive'	(√*kʷəd* 'be held' + *-b* 'CSM')
kʷukʷcutyid 'cook ⊗ for Ⓨ'	(√*kʷukʷcut* 'cook ⊗')
lək'ʷdxʷyid 'manage to eat ⊗ of Ⓨ's'	(º√*lək'ʷ* 'be eaten' + *-dxʷ* 'DC')
łčiltxʷyid 'bring ⊗ for Ⓨ'	(√*łčil* 'arrive' + *-txʷ* 'ECS')
łəgʷlyid 'leave ⊗ for Ⓨ'	(√*łəgʷɬ* 'leave ⊗')
pusilyid 'throw ⊗ for Ⓨ'	(√*pus* 'hit by ⊗ (missile)' + *-il* 'INCH')
qadadyid 'steal ⊗ for Ⓨ'	(√*qada* 'steal ⊗' + *-t* 'ICS')
qʷuʔqʷadyid 'drink ⊗ (drink) of Ⓨ's'	(√*qʷuʔqʷa* 'have a drink' + *-t* 'ICS')'
təxʷtxʷyid 'buy ⊗ for Ⓨ'	(√*təxʷ* 'buy ⊗' + *-txʷ* 'ECS')
xʷuyubtxyidʷ 'sell ⊗ for Ⓨ')	(º√*xʷuyub* 'be sold' + *-txʷ* 'ECS')

TABLE 20

APPLICATIVE USES OF *-bi-d*

ʔəɬdiluɬbid 'go to eat off of ⊗'	(*ʔəɬdiluɬ* 'go out to eat')
ʔup'bid 'sit on ⊗'s lap'	(√*ʔup'* 'be seated on a lap')
gʷahbid 'accompany ⊗'	(√*gʷah* 'accompany, go along')
laqbid 'be behind ⊗'	(√*laq* 'be last')
laxbid 'remember ⊗'s story'	(√*lax̌* 'recall, remember')
ław'tbid 'be new for ⊗'	(√*ław't* 'be new')
p'ayəqbid 'hew ⊗, carve ⊗'	(√*p'ayəq* 'carve canoe')
saxʷəbid 'run after ⊗ or up to ⊗'	(√*saxʷəb* 'jump, sprint')
sulabid 'be in middle of room relative to ⊗'	(√*sula* 'be in the middle of a room')
šuɬbid 'expect ⊗, look out for ⊗'s arrival'	(√*šuɬ* 'look around, gaze')
təlčbid 'miss ⊗ (throwing)'	(√*təlč* 'be wide of mark')
t'q'abid 'put stickum on ⊗'	(√*t'q'* 'be patched')
xʷak'ʷilbid 'become disaffected with ⊗'	(√*xʷak'ʷil* 'be tired')
x̌əčbid 'intend ⊗'	(√*x̌əč* 'think, feel, use one's mind')
x̌ʷal'bid 'be unable to manage ⊗' ,	(√*x̌ʷal'* 'be unable, fail, lose')
wačbid 'watch ⊗'	(√*wač* 'keep watch')
yayusbid 'work on ⊗'	(√*yayus* 'do work')
yəyəhubid 'tell ⊗ a traditional story'	(*yəyəhub* 'tell a traditional story')

TABLE 21

APPLICATIVE STEMS FORMED WITH *-bi-d* EXPRESSING MOTIVE

ʔukʷukʷbid 'make fun of ⊗'	(√*ʔukʷukʷ* 'play, have fun')
ʔušəbid 'feel pity for ⊗'	(º√*ʔušəb* 'feel pity')
cʼadᶻaxbid 'be bothered by ⊗'	(º√*cʼadᶻax* 'annoyed'; cf. *cʼadᶻaxtxʷ* 'bother ⊗')
cʼipʼlilbid 'shut eyes not to see ⊗'	(√*cʼipʼlil* 'shut eyes')
dxʷcutəbid 'catch on to ⊗'	(*dxʷcutəb* 'think sth' from √*cut* 'speak')
dᶻaƛʼbid 'be confused by ⊗'	(√*dᶻaƛʼ* 'be confused')
dᶻaqəbid 'mourn for ⊗'	(º√*dᶻaq* 'be in mourning'; cf. *dᶻaqad* 'mourn ⊗')
hiiɬbid 'be happy about ⊗'	(√*hiiɬ* 'be happy')
ǰuʔilbid 'be happy for ⊗'	(º√*ǰuʔ* 'be glad' + *-il* 'inchoative')
pitəbid 'pay attention to ⊗'	(√*pitəb* 'pay attention, be aware')
qʼalbid 'be fooled by ⊗'	(º√*qʼal* 'be fooled'; cf. *qʼalad* 'fool ⊗')
x̌ayəbid 'laugh at ⊗'	(√*x̌ayəb* 'laugh')
x̌əcbid 'fear ⊗'	(√*x̌əc* 'be afraid')
x̌ix̌ibid 'be ashamed of ⊗'	(√*x̌ix̌iʔ* 'be ashamed')
x̌ʷaqʼʷbid 'be concerned about ⊗'	(√*x̌ʷaqʼʷ* 'be worried, be preoccupied')
yabukʼʷbid 'fight over ⊗'	(√*yabukʼʷ* '(to) fight')

TABLE 22

STEMS FORMED WITH *-bi-d* AND LEXICAL SUFFIXES

cʼicʼəyikʷalusbid 'wink at ⊗'	(º√*cʼicʼəyikʷ* 'wink' + *-alus* 'eye')
dᶻalqʷusbid 'look over shoulder at ⊗'	(√*dᶻal* 'present other side' + *-us* 'face')
dᶻəlax̌adbid 'visit ⊗'	(√*dᶻal* 'present other side' + *-ax̌ad* 'side')
dᶻəlulčbid 'turn towards ⊗'	(√*dᶻal* 'present other side' + *-ulč* 'belly')
ləqaladiʔbid 'overhear ⊗'	(√*ləq* 'listen' + *-al-adiʔ* 'ear')
ɬaʔačiʔbid 'touch ⊗ with hand'	(√*ɬaʔ* 'arrive at place' + *-ačiʔ* 'hand')
ɬadəyʔlucidbid 'address ⊗ as woman'	(√*ɬadəyʔ* 'woman' + *-l-ucid* 'mouth')
tubšlucidbid 'address ⊗ as man'	(√*tubš* 'man' + *-l-ucid* 'mouth')
xʷəbaličbid 'toss ⊗ (pack) onto own back'	(√*xʷəb* 'toss' + *-alič* 'bundle')
yəlačiʔbid 'use both hands on ⊗'	(º√*yəl* 'pair' + *-ačiʔ* 'hand')

TABLE 23

STEMS FORMED WITH *-bi-d* AND BIVALENT RADICALS

hiq'ʷəbid 'lust after ⊗'	(√*hiq'ʷəb* 'lust after ⊗')
kʷədabid 'take ⊗ captive'	(*kʷədab* 'capture ⊗')
łəgʷəlbid 'leave ⊗ behind'	(√*łəgʷəɬ* 'leave ⊗ behind')
qadabid 'steal ⊗'	(√*qada?* 'steal ⊗')
q'ʷu?bid 'be together with ⊗'	(√*q'ʷu?* 'be together with ⊗')

TABLE 24

CAUSATIVE USES OF *-bi-d*

?adᶻqbid 'meet sth'	(º√*?adᶻq* 'be met')
čəgʷasbid 'take sby as wife'	(*čəgʷas* 'wife')
kʷədbid 'steal from sth'	(√*kʷəd* 'be held')
qəlbidbid 'discard sth'	(*qəlbid* 'garbage')
suxʷtəbid 'recognize sth'	(º√*suxʷt* 'be recognized')