A taxonomy of Lushootseed valency-increasing affixes*

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Like other Salishan languages, Lushootseed derives the bulk of its verb stems from monovalent radicals designating states and processes using a variety of valency-increasing affixes. This paper proposes a taxonomy of these affixes based on two parameters — the distinction between a *causative*, which adds a subject/AGENT, and an *applicative*, which adds an object/NON-AGENT, and the distinction between a *transitive* and an *intransitive* affix, the former adding a direct object to the valency of the radical and the latter an oblique.

Like other Salishan languages, Lushootseed derives the bulk of its verb stems from monovalent radicals designating states and processes using a large number of *valency-increasing affixes*, affixes that are used to derive transitive and bivalent intransitive stems from monovalent bases. In total, there are six affixes such affixes— *-t* 'internal causative', *-tx*^{w} 'external causative', *-dx*^{w} 'diminished control', *-b* 'causative middle', *-alik*^{w} 'causative of activity', *-c/-s* 'allative applicative' — plus four secondary suffixes (*-yi-* 'dative applicative', *-bi-* 'middle applicative', and the fossilized stem formatives *-di-/-i-*) which combine with another valency-increaser to augment the valency of a stem. This paper will attempt to create a taxonomy of these affixes and show that, in spite of their variety, Lushootseed valency-increasers fit into a neat taxonomy based on two syntactic parameters familiar from typological literature on causative and applicative morphology.

The primary distinction that can be drawn among the valency-increasers is that between *causatives* and *applicatives*. A causative affix is one that adds a new event-participant (*semantic actant*) which is expressed as a syntactic subject. In most languages, the semantic role of this actant is that of CAUSER; however, Lushootseed does not distinguish the role of CAUSER from that of AGENT, and so many (if not most) of the subjects added by Lushootseed causatives express AGENTs. Applicatives, on the other hand, add a new semantic ac-

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tant which is expressed by an object and which is assigned a variety of semantic roles. As in most languages, the semantic roles assigned to applicative objects in Lushootseed are rather diverse, but in general Lushootseed applicatives do not assign the role of PATIENT.

Within the causatives, it is possible to distinguish affixes according to the *government patterns* of the stems they create — that is, according to the different grammatical relations assigned to their syntactic arguments. This leads to a distinction between *transitive causatives*, causatives that create transitive stems that take a direct object, and *intransitive causatives*, causatives that create bivalent intransitive verb stems that take an oblique object. Applicatives can in principle be sub-categorized according to this criterion as well, although all applicative affixes in Lushootseed fall into the category of *transitive applicatives* in that they subcategorize for direct objects. Both types of affix can then be further subdivided according to additional semantic criteria. Lushootseed has, for example, three transitive causative affixes, *-t* 'internal causative', *-tx*^{w} 'external causative', and *-dx*^{w} 'diminished control', all of which have the same syntactic effect on the stem, but which express events with different semantic characteristics. A list of valency-increasing affixes categorized according to the taxonomy proposed here is given in Table 1:

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

Table 1: Lushootseed valency-increasing affixes

Of the affixes listed here, the first eight are well-attested as analyzable parts of a substantial number of lexemes; the last two secondary suffixes are largely fossilized, although they form part of a few high-frequency lexical items. Each of these affixes will be discussed in turn in the following sections.

1 Verbal radicals

The majority of Lushootseed verb stems is built up out of fairly easily-analyzable elements based on monovalent radicals, generally of the phonological shape CVC. A few of these are given in Table 2:

√*ʔa* 'be there, exist'	√*lil* 'be far away'
°√*ʔəɬ* 'be eaten'	√*p'il* 'be flat'
**bis* 'be selected'	°√*qəd* 'fornicate'
°√*c'əl* 'be defeated'	√*q'əls* 'cook with steam'
°√*c'əs* 'be pecked'	√*q'ʷəl* 'be cooked, be ripe'
°√*gəq* 'shining'	√*q'ʷuʔ* 'be together with ⊗'
°√*gʷəč'* 'be sought'	√*šab* 'be dry'
**gʷəd* 'sit'	√*šidᶻ* 'launch sneak attack'
°√*k'ʷalč'* 'be bent backwards'	√*t'agʷt* 'be on top'
°√*kʷaʔ* 'be released'	°√*x̌əd* 'be pressed'
°√*laʔ* 'be located'	°√*xʷəb* 'be thrown'
°√*ləc'* 'have come down on'	°√*yaƛ'* 'be dry'
°√*ləkʼʷ* 'be eaten'	°√*yəc* 'be reported'

Table 2: Regular CVC(C) radicals

A number of these radicals (√) are attested in independent form, appearing in sentences inflected for aspect, person, and number, but without further derivational morphology. Others are bound radicals (°) which are unattested in independent form but are productively used in the formation of verb stems (e.g., °√*c'əl* 'be defeated' — *c'əlalikʷ* 'win out over someone', *c'əld* 'defeat someone', *c'əldxʷ* 'manage to defeat someone').[1] A third group of radicals illustrated in Table 2 are those marked *, which represent radicals that are both unattested as free forms and which do not appear to be productively used as bases for derivation. This category includes forms that appear only as a part of another productive derivational base (e.g., **gʷəd* 'sit', seen in the fossilized inchoative √*gʷədil* 'sit down', itself a productive base for forms such as *gʷədiltxʷ* 'seat someone', *gʷədis* 'sit down next to someone', etc.), and forms which appear in a single stem with an easily-analyzed affix whose meaning is consistent with the meaning or syntactics of the derivational morpheme (e.g., **bis* 'be selected', the historical base of *bisəd* 'select something'). In addition to radicals with the canonical CVC(C) shape, there are a large number of CVCVC (e.g., √*čəbaʔ* 'be loaded down with something', √*p'ayəq* 'carve canoe') and a few CVCV radicals (√*bali* 'be forgetful', √*sula* 'be in the middle'); more complex radicals are also attested (√*ʔigʷəɬa* 'climb tree', √*təlawil* 'run a distance', √*xʷiʔxʷiʔ* 'forage for something'). Many of this last group appear to be fossilizations of diachronically analyzable strings formed through affixation or reduplication.

[1] It is possible that some of the forms marked as bound radicals here may in fact be potentially free elements; radicals are marked as bound if they are not attested as independent forms in the corpus used for the present study or exemplified as independent forms in the *Lushootseed Dictionary* (Bates, Hess & Hilbert 1994). Because of the pragmatically-odd meanings of some of the bare radicals, particularly the patient-oriented radicals (see discussion below), it may be the case that the independent use of some of these forms is possible but textually infrequent (cf. Gerdts 2006, who reports a great deal of success in the deliberate elicitation of previously-unattested bare radicals in Halkomelem Salish).

A few radicals are analyzable as beig underlyingly CC. These surface in independent form and in predictable prosodic contexts as CəC, but do not have the schwa in the presence of potentially stress-bearing derivational affixes:

√*šq* 'be high'	*šəqəd* 'move ⊗ up high'
	šəqlaxadəb 'raise arms'
	šqil 'rise up'
°√*ts* 'be punched'	*təsəd* 'punch ⊗'
	tsalik^{w} 'hammer ⊗, pound ⊗'
√*t'q'* 'be patched (with stickum)'	*t'əq'əd* 'patch ⊗'
	t'q'abid 'put stickum on ⊗'
°√*x̌ƛ̓'* 'be bitten'	*x̌əƛ̓'əd* 'bite ⊗'
	x̌ƛ̓'alik^{w} 'bite into ⊗'
°√*x̌q* 'be wrapped, be tied'	*x̌əqəd* 'wrap ⊗'

Table 3: Regular CC radicals

The first of these radicals, √*šq* 'be high', surfaces as [šəq] when stress is required on the stem (as in *šə́qəd* 'move something up high') and when it is required to break up lengthy consonant clusters, but as [šq] when suffixation provides a full non-schwa vowel to carry stress. A similar pattern is observed with the other forms in the table. There is some variation among speakers as to the treatment of the schwa in some of these radicals, and in some cases the predicted presence/absence of schwa is not found in all of the forms derived therefrom.

Regular CVC(C) radicals show no base-allomorphy when undergoing derivation; however, there is a large group of CVC radicals which undergo a process of final harmonic vowel-epenthesis in the presence of either the internal causative suffix *-t* (Section 2.1) or the causative middle suffix *-b* (2.4). Some of these radicals, along with their *-t* or *-b* forms, are given in Table 4:

√*ʔil* 'sing'	*ʔilid* 'sing ⊗'
√*ʔix̌*^{w} 'be thrown; have thrown to'	*ʔix̌*^{w}*id* 'throw ⊗ away'
√*bap* 'be busy'	*bapad* 'pester ⊗'
√*caq'* 'be speared, be impaled'	*caq'ad* 'spear ⊗'
√*cil* 'be dished up'	*cilid* 'dish ⊗ out'
√*dᶻakʷ* 'be shaky, be shaking'	*dᶻakʷad* 'rock ⊗'
√*daʔ* 'be named'	*daʔad* 'name ⊗'
√*dᶻix̌* 'be broken down, fallen apart'	*dᶻix̌id* 'break ⊗ down, take ⊗ apart'
√*gʷi* 'make an invitation'	*gʷiid* 'invite ⊗, call to ⊗'
√*huy* 'be completed, be finished'	*huyud* 'make ⊗'
√*k'ʷil* 'peek'	*k'ʷilid* 'peek at ⊗'
√*ƛ̓'iq* 'emerge'	*ƛ̓'iqid* 'take ⊗ out from within'
√*łaq'* 'be fallen, be lying down'	*łaq'ad* 'put ⊗ down'
√*łič'* 'get cut with knife'	*łič'id* 'slice ⊗'
√*pus* 'be hit by ⊗ (missile)'	*pusud* 'throw at ⊗'

√*q'ax*^{w} 'be frozen'	*q'ax*^{w}*ad* 'freeze ⊗'
√*q'il* 'be aboard'[2]	*q'ilid* 'put ⊗ on board'
√*q'*^{w}*ib* 'be disembarked, unloaded'	*q'*^{w}*ibid* 'unload ⊗ from conveyance'
√*q*^{w}*at* 'be lying; snow falls'	*q*^{w}*ataš* 'lay ⊗ out'
√*šub* 'disappear'	*šubud* 'make ⊗ disappear; massacre ⊗'
√*šul* 'be in, be under'	*šulud* 'pass underneath ⊗'
°√*tuǩ*^{w} 'be stretched'	*tuǩ*^{w}*ud* 'stretch ⊗'
√*t'uc'* 'be shot, fired on'	*t'uc'ud* 'shoot ⊗ (target)'
√*ǩal* 'be written'	*ǩalad* 'write ⊗'
√*ǩ*^{w}*aq'*^{w} 'be worried, preoccupied'	*ǩ*^{w}*aq'*^{w}*ad* 'be concerned about ⊗'
√*yiq'* 'be worked into tight place'	*yiq'ib* 'make ⊗ (baskets)'

Table 4: Radicals showing harmonic epenthesis

Radicals belonging to this class epenthesize a harmonic copy of the stem vowel before the derivational suffix. Although membership in this class of epenthesizing stems is not predictable, all of them are CVC and none of them has the form CəC. Some CəC radicals also undergo final epenthesis, as shown in Table 5:

√*bəč* 'be lying, be fallen from standing'	*bəčad* 'set ⊗ down'
√*d*^{ʒ}*ək*^{w} 'travel, wander'	*d*^{ʒ}*ək*^{w}*ud* 'lead ⊗ astray, mislead ⊗'
√*g*^{w}*əǩ* 'be untied'	*g*^{w}*əǩad* 'untie ⊗'
√*k*^{w}*əd* 'be held, be taken'	*k*^{w}*ədad* 'take ⊗'
°√*ləx*^{w} 'be stabbed, be cut'	*ləx*^{w}*ud* 'stab ⊗'

Table 5: CəC radicals showing epenthesis

A similar pattern is seen in a small group of CC radicals:

°√*pk*^{w} 'be broken off'	*pq*^{w}*ud* 'break off ⊗'
°√*p't'* 'be stored'	*p't'ad* 'store ⊗, tidy ⊗'
°√*q*^{w}*c* 'slide, slip'	*q*^{w}*əcad* 'slide ⊗'
√*q'p* 'form a lump; cramp up (muscle)'	*q'pud* 'gather up'
°√*q'p'* 'be compensated'	*q'p'ud* 'pay ⊗'
*√*q'ǩ* 'be insulted'	*q'ǩad* 'insult ⊗'
°√*tq* 'be closed'	*tqad* 'close ⊗, block ⊗ off'
°√*tǩ*^{w} 'be pulled'	*tǩ*^{w}*ud* 'pull on ⊗'
°√*x*^{w}*t'* 'be fallen, be descended'	*x*$^{w}_{i}$*t'ad* 'take ⊗ down'

Table 6: CC radicals showing epenthesis

The radicals in Table 5 and Table 6 take an epenthetic /u/ if they end in a bilabial or labialized consonant, and /a/ otherwise. The use of /a/ as an epenthetic vowel with CəC and CC radicals is also seen in certain reduplicative environ-

[2] This radical also refers to the return of anadromous fish.

ments. Once again, final-vowel epenthesis with radicals of this class takes place only in the presence of the internal causative and the causative middle suffixes.

A few radicals show a voicing alternation in their final obstruent:

√*c'a?k*^{w} 'be washed'	*c'ag*^{w}*ad* 'wash ⊗'
√*ča?k*^{w} 'seaward'	*čag*^{w}*əd* 'take ⊗ out to sea'
	čag^{w}*il* 'get out to sea'
	ča?k^{w}*dx*^{w} 'manage to get to sea'
°√*čac* 'be hidden'	*čadᶻil* 'become hidden, hide self'
	čactx^{w} 'hide ⊗'
√*dək*^{w} 'be inside'	*dəg*^{w}*ad* 'put ⊗ inside'
°√*dik*^{w} 'be advised'	*dig*^{w}*id* 'advise ⊗'
	dik^{w}*dx*^{w} 'instruct ⊗'
√*hik*^{w} 'be big'	*hig*^{w}*əd* 'uphold ⊗, support ⊗'
°√*ƛ'ak*^{w} 'be stitched'	*ƛ'ag*^{w}*əb* 'make ⊗ (mat)'
	ƛ'ak^{w}*təd* 'cattail needle'
√*tak*^{w} 'be bought'	*tag*^{w}*š* 'buy ⊗'
√*təč* 'roll off, tumble down'	*təǰəd* 'roll ⊗'
°√*t'uk*^{w} 'be measured'	*t'ug*^{w}*ud* 'figure ⊗ out'
	t'uk^{w}*təd* 'tape measure'
√*x̌*^{w}*əc* 'be sharp'	*dx*^{w}*x̌*^{w}*əd*ᶻ*əb* 'be tart, be strong (coffee)'

Table 7: Radicals showing final voicing alternations

With these radicals, the final consonant is voiceless when in ultimate final position or when followed by a derivational affix other than the inchoative *-il*, the internal causative *-t*, or the middle *-b*. Note that some members of this class also undergo final-epenthesis (e.g., √*c'a?k*^{w} 'be washed' > *c'ag*^{w}*ad* 'wash something', √*dək*^{w} 'be inside' > *dəg*^{w}*ad* 'put something inside').[3] Two of these radicals, √*c'a?k*^{w} 'be washed' and √*ča?k*^{w} 'seaward', also lose the glottal stop following the vowel; the same pattern is observed of the adverb √*ha?k*^{w} 'for a long time', which has the form *hag*^{w}*əx*^{w} 'finally, at last', a lexicalized combination of the radical with the temporal enclitic *=əx*^{w} 'now'.

With only a few exceptions (see Table 10 below), Lushootseed radicals are monovalent and intransitive, and require valency-increasing morphology to form verb stems with a valency of greater than one. One consequence of this that has attracted a good deal of attention in the literature (e.g., Hess 1995; Beck 1996, 2000) is that Lushootseed has almost no underived transitive verbs. What are transitive verbs in most languages are formed by derivation from a very large set of monovalent radicals which Hess (1995) describes as being "patient-oriented" in the sense that their syntactic subject expresses the semantic PATIENT

[3] The schwas in some of the derived forms in Table 7 (e.g., *čag*^{w}*əd* 'take something out to sea', *ƛ'ag*^{w}*əb* 'make something (mat)', *təǰəd* 'roll something') belong to allomorphs of the internal causative or middle suffixes. See Sections 2 and 2.4 below.

or ENDPOINT of a semantically-transitive event rather than the AGENT. Consider the example in (1):[4]

(1) a. ʔuɬičʼ čəd

ʔu–ɬičʼ	čəd
PFV–be.cut.with.knife	1SG.SUB

'I got cut with a knife'

b. ʔuɬičʼid čəd tə sqʷiqʷali

ʔu–ɬičʼi–d	čəd	tə	sqʷiqʷali
PFV–be.cut.with.knife–ICS	1SG.SUB	INDEF	hay

'I started to cut hay (with a blade)'

(Bates, Hess & Hilbert 1994: 146)

In (1a), the verbal radical *√ɬičʼ* 'be cut with a knife' —in spite of expressing an event high on Hopper & Thompson's (1980) scale of semantic transitivity — can take only a single syntactic argument, a subject expressing the PATIENT of the event. In order to express an AGENT, it is necessary to apply a valency-increasing suffix such as the internal causative *-t*, shown in (1b). Thus, a patient-oriented radical in itself is focused on the final state achieved or the change undergone by a PATIENT or ENDPOINT of an event, rather than on the cause of that state or the involvement of an AGENT. A number of patient-oriented radicals are given in Table 8:

°*√ʔadˤq* 'be met'	°*√gʷəlal* 'be hurt'	°*√suxʷt* 'be recognized'
°*√ʔay'* 'be traded'	*√gʷəx̌* 'be untied'	*√takʷ* 'be bought'
°*√ʔəɬ* 'be eaten'	°*√hay* 'be known'	°*√təq'* 'be slapped'
°*√biƛ'* 'be smashed'	°*√kʼaw* 'be chewed'	°*√tudəq* 'be enslaved'
√caq' 'be speared'	°*√kʼaw* 'be bumped'	°*√tul* 'be interpreted'
√cil 'be dished up'	°*√kʷax*ʷ 'be helped'	°*√tup* 'be pounded'
√cʼaʔkʷ 'washed'	°*√kʷaʔ* 'be released'	°*√tux̌*ʷ 'be stretched'
°*√cʼəl* 'be defeated'	*√kʷəd* 'be held, taken'	°*√tx̌*ʷ 'be pulled'

[4] The abbreviations used here are as follows: √ = verbal radical; ° = bound form; = = clitic boundary; – = affix boundary; • = lexical suffix boundary; SMALL CAPS = semantic role; ⊗, ⊘ = semantic actants; 1, 2, 3 = first, second, third person; ACT = activity; ADD = additive; ADNM = adjunctive nominalizer; ALTV = allative applicative; ATTN = attenuative; CNN = connective; CONT = continuous; COORD = coordinative; CSMD = causative middle, CTD = contained; DAT = dative applicative; DC = diminished control; DEF = definite; DIST = distal; DSTR = distributive; ECS = external causative; FEM = feminine; FOC = focus; HAB = habitual; HYP = hypothetical/remote; ICS = internal causative; IMPF = imperfective; INCH = inchoative; INDEF = indefinite; INT = interrogative; IRR = irrealis; MAP = middle applicative; MD = middle; NEG = negative; NM = nominalizer; OBJ = object; PASS = passive; PFV= perfective; PL = plural; PO = possessive; PR = preposition; PROG = progressive; PROX = proximal; PRTV = partitive; PTCL = particle; REFL = reflexive; SBJ = subjunctive; SCONJ = sentential conjunction; SG = singular; SS = secondary suffix; STAT = stative; SUB = subject.

°√*c'əs* 'be pecked'	°√*ləkʼʷ* 'be eaten'	√*tʼqʼ* 'be patched'
°√*čʼaʔ* 'be dug up'	°√*ləxʷ* 'be stabbed, cut'	√*tʼucʼ* 'be shot'
√*čʼaxʷ* 'be clubbed'	°√*lu* 'be heard'	°√*tʼukʷ* 'be measured'
°√*čʼədᶻ* 'be stalked'	°√*ɬal* 'taken from fire'	°√*xʷac* 'be hoisted'
√*daʔ* 'be named'	√*ɬičʼ* 'be cut with knife'	°√*xʷəb* 'be thrown'
°√*cʼix̌* 'be fried'	√*ɬid* 'be tied'	°√*xʷš* 'be thrown'
°√*čac* 'be hidden'	°√*λʼakʷ* 'be stitched'	°√*x̌əd* 'be pressed'
√*čal* 'be overtaken'	°√*λʼipʼ* 'be compressed'	°√*x̌ib* 'be grabbed'
°√*dikʷ* 'be advised'	°√*pʼicʼ* 'be wrung out'	°√*x̌q* 'be wrapped'
°√*dᶻub* 'be kicked'	°√*puʔ* 'be blown on'	°√*x̌ʷadᶻ* 'be injured'
°√*gʷəčʼ* 'be sought'	√*qʷal* 'be marked, be painted'	√*yiqʼ* 'be in tight place'

Table 8: Patient-oriented radicals

With only one or two exceptions, patient-oriented radicals form their transitive counterparts with the internal causative *-t* (Section 2.1); many of them also take the diminished control suffix *-dxʷ* (2.3) and the causative of activity *-alikʷ* (2.4). The same is true of a number of unaccusative radicals whose sole actant is non-agentive, but not entirely or necessarily patient-like. These include radicals corresponding to what are labile verbs in English (e.g., √*hud* 'burn', √*kʼʷəɬ* 'pour out, spill out', √*qʼaxʷ* 'freeze, be frozen'), verbs of location (√*bəlx̌ʷ* 'be beyond', √*čʼit* 'be near', √*dəkʷ* 'be inside'), and some states (°√*ǰuʔ* 'be glad', √*λʼub* 'be okay', √*qəɬ* 'be awake', √*x̌ʷaqʼʷ* 'be worried, be preoccupied'), and processes (√*ɬačʼ* 'go out (fire)', √*λʼiq* 'emerge').

A slightly smaller group of radicals falls into the category of AGENT-oriented verbs whose subjects express semantic AGENTS or agent-like actants:

√*ʔəλʼ* 'come'	°√*gʷuh* 'bark (dog)'	√*qʷiʔad* 'yell'
√*ʔibəš* 'travel, walk'	√*kiis* 'stand up'	√*qʷuʔqʷa* 'have drink'
√*ʔigʷəɬa* 'climb tree'	√*kʷatač* 'climb'	√*saqʼʷ* 'fly'
√*ʔil* 'sing'	°√*kʼʷəλʼ* 'miss'	√*šub* 'disappear'
√*ʔux̌ʷ* 'go'	√*kʼʷitʼ* 'go to shore'	√*šuɬ* 'look around'
√*cut* 'speak'	√*lab* 'appear'	°√*tatab* 'speak'
°√*cʼəb* 'clear land'	√*lax̌* 'recall'	√*tay* 'go raiding'
°√*cʼicʼəyikʷ* 'wink'	√*ɬaʔ* 'arrive at place'	√*təč* 'roll off'
√*dᶻal* 'turn around'	√*pʼayəq* 'carve'	√*tʼukʼʷ* 'go home'
√*gʷah* 'accompany'	√*pʼəqʼ* 'drift'	√*wiliqʼʷ* 'make enquiry'
√*gʷi* 'make an invitation'	√*qʼəlb* 'camp out'	√*yəyʼduʔ* 'swing in a swing'

Table 9: Agent-oriented radicals

The majority of these are verbs of motion (e.g., √*ʔəλʼ* 'come', √*kʷatač* 'climb', √*yəyʼduʔ* 'swing in a swing') or activity (°√*cʼəb* 'clear land', √*pʼayəq* 'carve canoe', √*tay* 'go raiding'). Verbs of the latter type tend to express culturally-important activities and cannot take an object without further derivation. Like

the patient-oriented radicals, agent-oriented radicals take a wide range of valency-increasing affixes to form transitive and bivalent intransitive verbs, although as a set they are less consistent in their derivational possibilities. A number of these form transitive stems with the internal causative (e.g., *√ʔil* 'sing' > *ʔilid* 'sing something', *√dᶻal* 'turn around' > *dᶻalqəd* 'turn something around'); however, more of them form transitive verbs with the external causative *-txʷ* (Section 2.2). This is especially true of the verbs of translational motion (e.g., *√ʔəƛ'* 'come' > *ʔəƛ'txʷ* 'bring something', *√t'uk'ʷ* 'go home' > *t'uk'ʷtxʷ* 'take something home'), though a number of radicals from other semantic classes also appear with this suffix (*√kiis* 'stand up' > *kiistxʷ* 'stand something up', *√laǰ* 'recall, remember' > *laǰtxʷ* 'remind someone'). On the whole, this class of verbs —to the extent that it is a coherent class — is less consistent in terms of its derivational possibilities than the patient-oriented radicals.

It should also be noted that the division into patient-oriented and agent-oriented (or unaccusative and unergative) radicals is by no means exhaustive, nor does it allow for hard-and-fast predictions about which derivational affixes a particular radical will combine with. There are, for instance, verbs of state (e.g., *√hiiɬ* 'be happy', *√ǰəc* 'be afraid', *√t'əbaʔ* 'have fallen in water') that do not pattern with the patient-oriented radicals in taking the internal causative. Indeed, stative verbs expressing property concepts such as *√luƛ'* 'be old' and *√qʷiq'ʷ* 'be strong' do not have transitive forms at all, while other property concept terms (e.g., *haʔɬ* 'be good', *hikʷ* 'be big') combine quite happily with the internal causative. Thus, while there are generalizations to be made about a large number radicals in terms of their combinatorial possibilities, there is a very large class of unpredictable radicals with idiosyncratic derivational patterns.

There are some bivalent verbal radicals, although these are few in number: the 12 found in the textual corpus used here are given in Table 10:

°*√ʔaladᶻ* 'care for ⊗'	*√qada* 'steal ⊗'
√ʔuləǰ 'gather ⊗, forage for ⊗'	*√q'ʷuʔ* 'be together with ⊗'
√čəbaʔ 'be loaded down with ⊗'	*√pus* 'be hit by ⊗ (missile)'
√kʷukʷcut 'cook ⊗'	*√šəɬ* 'make ⊗'
√ɬəgʷɬ 'leave ⊗'	*√təxʷ* 'buy ⊗'
√ƛ'al 'put ⊗ on'	*√xʷiʔxʷiʔ* 'hunt for ⊗, forage for ⊗'

Table 10: Bivalent radicals

The stems in Table 10 are all intransitive except for *√ɬəgʷɬ* 'leave something', which is a true transitive verb, taking a direct object undergoing passivization:

(2) a. ʔuɬəgʷəɬ čəɬ ti kikəwič

ʔu–ɬəgʷəɬ	čəɬ	ti	kikəwič
PFV–leave.behind	1PL.SUB	DEF	ATTN–hunchback

'we left Little Hunchback behind'

[LA Basket Ogress, line 121]

b. haʸ łəgʷəlb, x̌ʷul' ʔəsq'il ʔal tiʔəʔ q'il'bid
hay łəgʷł–b x̌ʷul' ʔəs–q'il ʔal tiʔəʔ q'il'bid
SCONJ leave.behind–PASS only STAT–aboard PR PROX canoe
'and then [his corpse] was left, [it] was just aboard his canoe'
(Hess 1998: 92, lines 37–38)

The remainder of the radicals in Table 10 subcategorize for oblique objects introduced by the preposition *ʔə*:

(3) a. qada čəxʷ ʔu ʔə tə sduukʷ
qada čəxʷ ʔu ʔə tə sduukʷ
steal 2SG.SUB INT PR INDEF knife
'did you steal the knife?'
(Bates, Hess & Hilbert 1994: 172)

b. ləsčəbaʔ ʔə tə hud
ləs–čəbaʔ ʔə tə hud
CONT–back.pack PR INDEF wood
'she's shoulder-packing the wood'
(Bates, Hess & Hilbert 1994: 61)

With the exception of °√*ʔaladᶻ* 'care for something' and √*kʷukʷcut* 'cook something' (the latter a borrowing based on English *cook*), these bivalent radicals are more or less productive bases for derivation, although as a set they do not show any predictable combinatory patterns, other than that none appears with the causative of activity (Section 2.4), which normally serves to derive a bivalent intransitive stem from a patient-oriented radical. The only valency-increasing affixes that appear with two of these radicals, √*qada* 'steal something' and √*xʷiʔxʷiʔ* 'hunt for something, forage for something', are secondary suffixes (Section 4); on the other hand, √*ʔuləx̌* 'gather something, forage for something', √*čəbaʔ* 'be loaded down with something', √*ƛ'al* 'put something on', √*qʼʷuʔ* 'be together with something', and √*pus* 'be hit by something (missile)' each take the internal causative (2.1) and at least one other valency-increaser. The nominal-complement taking radicals, √*šəł* 'make something' and √*təxʷ* 'buy something', both combine with the external causative *-txʷ* (2.2), and √*šəł* 'make something' takes the diminished control causative *-dxʷ* (2.3) as well.

2 Causative affixes

As mentioned above, causative affixes are those valency-increasing affixes that add an agentive semantic subject to their bases. Lushootseed has five such affixes, three transitive causatives (*-t* 'internal causative, *-txʷ* 'external causative', *-dxʷ* 'lack of control causative') which add a direct object to the valency of their base, and two intransitive causatives (*-b* 'causative middle' and

-alik^{w} 'causative of activity') which add an oblique. Each of these affixes will be discussed in turn in the sections below.

2.1 Internal causative *-t*

By far the most prevalent of the valency-increasing verbal affixes is *-t* 'internal causative [ICS]'. This suffix is not only the most frequent in terms of the number of stems of which it forms a part, but it is also the most complex in terms of its allomorphy and morphophonemics, and the most varied in terms of its syntactic effects on the stem to which it attaches. Its primary and most prevalent use is as a transitive causative suffix which changes a patient-oriented monovalent stem expressing a state into a transitive stem by adding a semantic AGENT, realized as a syntactic subject:

(4) a. ʔut'uc' čəd
ʔu–t'uc' čəd
PFV–shot 1SG.SUB
'I got shot'

(Bates, Hess & Hilbert 1994)

b. ʔut'uc'ucid ʔu
ʔu–t'uc'u–t–sid ʔu
PFV–shot–ICS–2SG.OBJ INT
'did s/he shoot (at) you?'

(Hess 1995: 43, ex. 11a)

c. ʔut'uc'utəb čəd
ʔu–t'uc'u–t–əb čəd
PFV–shot–ICS–PASS 1SG.SUB
'I was shot (at)'

(Bates, Hess & Hilbert 1994)

A monovalent patient-oriented radical such as *t'uc'* 'be shot; be the target of a missile' takes the internal causative suffix to form a transitive verb, *t'uc'ud* 'shoot someone; shoot at someone' (or, more literally, 'cause to be shot; cause to be the target of a missile'). While the vast majority of stems formed with *-t* have translation equivalents in most languages which are ordinary transitive verbs, the syntactic effects of this suffix are clearly causative, as are its semantic effects — keeping in mind the basically stative nature of Lushootseed radicals: the radical itself expresses a state while the derived transitive stems expresses an action preformed by an AGENT resulting in a PATIENT coming into that state.[5] This added AGENT, like the CAUSER in typologically more ordinary causatives, is

[5] For further discussion, see Beck (1996). The distinction between the internal causative *-t* and the external causative *-txʷ* will be taken up again in the next section (2.2).

realized as the syntactic subject while the subject of the radical becomes the direct object of the transitive stem, encoded by an object marker, as in (4b). As in (4c), the object of an internal causative stem is an ordinary direct object, amenable to syntactic operations such as passivization. When the derived stem takes an overt NP argument, this argument is obligatorily interpreted as direct object:

(5) ʔuk'ʷəɬəd ti qʷuʔ
ʔu–k'ʷəɬ–d ti qʷuʔ
PFV–poured–ICS DEF water
's/he poured the water'

(Hess 1995: 18, ex. 1a)

This is an interpretative property of all transitive verbs, often referred to as the One-Nominal Interpretation Law (Gerdts 1988) in other Salishan languages.

The internal causative *-t* has four allomorphs — [-t], [-d], [-əd], and [-š]. Of these, [-t], [-d], [-əd] are phonologically conditioned: [-t] is the elsewhere form, while [-d] is restricted to word-final position (that is, last position suffix-string not including bound enclitics) following vowels and approximants (6):[6]

(6)
qʷuʔqʷad 'drink something'	<	√*qʷuʔqʷa* 'have a drink'
ɬild 'give food to'	<	√*ɬil* 'make a gift of food'
qʷ'əld 'cook something'	<	√*qʷ'əl* 'be cooked, be ripe'
šuk'ʷild 'grey someone'	<	*šuk'ʷil* 'turn grey'[7]
ʔaʔild 'put away'	<	*ʔaʔil* 'get caught'
xʷit'ild 'lower something'	<	*xʷit'il* 'climb down'
hədʔiw'd 'bring inside'	<	√*hədʔiw'* 'be inside a house'

[-əd] is also restricted to word-final position but follows obstruents, as in (7):[8]

(7)
ʔaʔəd 'put somewhere'	<	√*ʔa* 'be there'
čəbaʔəd 'backpack something'	<	√*čəbaʔ* ' loaded with something'
ƛ'iq'alusəd 'stick eyes shut'	<	√*ƛ'iq'* 'be sticky' + *-alus* 'eye'
pədičəd 'dirty something'	<	√*pəd* 'be dirty' + *-ič* 'covering'
qiq'əd 'confine someone'	<	√*qiq'* 'be confined'
šəqəd 'move up high'	<	√*šq* 'be high'

[6] Note that there are very few vowel-final radicals in Lushootseed and of these few three are exceptional. Two of them, √*lu* 'be heard' and √*gʷi* 'make an invitation', undergo vowel-lengthening when the internal causative is added to give the forms *luud* 'hear something' and *gʷiid* 'call someone'. The remaining radical, √*ʔa* 'be there' has the transitive form *ʔaʔəd* 'put something in a place', formed by inserting a glottal stop into the coda of the radical and applying the [-əd] allomorph of the internal causative.

[7] However, *šuk'ʷiləd* 'grey someone' is also attested.

[8] An exception to this generalization is *kʷaʔd* 'let go of', which is only infrequently attested as *kʷaʔəd*; note also the verb *cut* 'speak to someone' from the radical √*cut* 'speak', which does not have the expected form **cutəd*.

qʷšabəd 'fog something up'	<	√*qʷšab* 'be foggy'
həliʔəd 'cure someone'	<	√*həliʔ* 'be alive'
xʷəcəd 'remove something'	<	√*xʷəc* 'be removed'
bəlx̌ʷəd 'pass someone'	<	√*bəlx̌ʷ* 'be beyond'

The [-əd] allomorph is replaced by [-t] (rather than [-ət]) in non-final position:

(8) a. ʔabcut (cf. *ʔabəd* 'extend something')
ʔab–t–sut
extend–ICS–REFL
'it extends itself'

(Hess 2006: 50, line 216)

b. x̌əctəb (cf. *xʷəcəd* 'remove something')
x̌əc–t–əb
removed–ICS–PASS
'it was removed'

(Hess 2006: 79, line 896)

c. ƛ̓'iq'ƛ̓'iq'alustəb (cf. *ƛ̓'iq'alusəd* 'stick ⊗'s eyes shut')
ƛ̓'iq'–ƛ̓'iq'–alus–t–əb
DSTR–sticky–eye–ICS–PASS
'their eyes were stuck shut'

[DM Basket Ogress, line 13]

As seen in (8c), the allomorphy of the *-t* form of the internal causative is the same both when it is affixed directly to a radical and when it follows another type of affix such as a lexical suffix.[9]

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[9] The schwa associated with the [-əd] allomorph of the internal causative differs from the epenthetic vowels associated with the internal causative forms of certain radicals discussed in Section 1, which are maintained in the presence of subsequent affixes, as in (i):

(i) a. ʔukʷədad ti sqʷəbayʔ
ʔu–kʷəda–d ti sqʷəbayʔ
PFV–held–ICS DEF dog
's/he grabbed the dog'

b. ʔukʷədatəb ʔə tsi č'ač'as ti sqʷəbayʔ
ʔu–kʷəda–t–əb ʔə tsi č'ač'as ti sqʷəbayʔ
PFV–held–ICS–PASS PR DEF:FEM child DEF dog
'the dog was grabbed by the girl'

(Hess 1995: 22, ex. 5b – c)

The stem in (i-a), *kʷədad* 'take something' is formed from the radical √*kʷəd* 'be taken', a CəC radical that takes an epenthetic /a/ vowel in its internal causative form; this epenthetic /a/ persists even in the passive, *kʷədatəb* 'be taken' (i-b).

The third allomorph of the internal causative, the suppletive form [-š], is restricted to a handful of stems which either require [-š] or have two attested forms, one with [-š] and the other with [-t]. Those stems that are only attested with [-š] are given in Table 11:

ʔišɬš 'paddle ⊗ [canoe]'	(√*ʔišɬ* 'paddle canoe')
ɬalš 'get ⊗ out of fire'	(°√*ɬal* 'be out of fire'; cf. *ɬaldxʷ* 'manage to get ⊗ out of fire')
ƛ'alš 'wear ⊗'	(√*ƛ'al* 'put ⊗ on')
suxʷtəš 'recognize ⊗'	(°√*suxʷt* 'know identity'; cf. *suxʷtil* 'recognize')
tagʷš 'buy ⊗'	(√*takʷ* 'be bought')
təbaš 'crave ⊗'	(*√*təb* 'have a craving')

Table 11: Stems requiring the *-š* allomorph of the internal causative

Four of the six stems in this set depart from the basic internal-causative pattern illustrated in (4), whereby an intransitive radical is causativized by adding a semantic AGENT expressed as a syntactic subject. The verb *ʔišɬš* 'paddle something [canoe]' follows the applicative pattern shown by the set of stems give in Table 11, while the verbs *ƛ'alš* 'wear something', *suxʷtəš* 'recognize someone', and *təbaš* 'crave something' are merely transitivized forms of bivalent intransitive radicals. Two of the stems in Table 11 — *ɬalš* 'remove something from fire' and *təbaš* 'crave something' — have no independently attested radicals and so would have to be treated synchronically as inherently transitive stems.

Another slightly larger set of stems has both [-š] and [-t] forms, choice between the two depending to some extent on dialect (the [-š] form is more frequent in the Skagit dialect than in Snohomish) and on the individual speaker. These stems are given in Table 12:

ʔabš 'extend ⊗, give ⊗'	*ʔabəd* 'extend ⊗, give ⊗'
ʔabš 'give ⊗'	*ʔabad* 'give ⊗'
bəčaš 'set ⊗ down'	*bəčad* 'set ⊗ down'
c'agʷš 'wash ⊗'	*c'agʷad* 'wash ⊗'
dəgʷaš 'put ⊗ inside'	*dəgʷad* 'put ⊗ inside'
ƛ'agʷš 'stitch ⊗ (mat)'	*ƛ'agʷəd* 'stitch ⊗ (mat)')
ɬaq'aš 'put ⊗ down'	*ɬaq'ad* 'put ⊗ down'
p'ṭ'aš store ⊗, tidy ⊗'	*p'ṭ'ad* 'store ⊗, tidy ⊗'
qʷataš 'lay ⊗ out'	*qʷatad* 'lay ⊗ out'
ṭ'agʷtəš 'put ⊗ on top'	*ṭ'agʷtəd* 'put ⊗ on top'
x̌alš 'write ⊗'	*x̌alad* 'write ⊗'

Table 12: Internal causative stems with *-š* and *-t* forms

Like [-t], the [-š] allomorph requires an epenthetic schwa following certain obstruents — specifically, voiceless stops in word-final position (e.g., *ṭ'agʷtəš* 'put

something on top' from *t'agʷt* 'be on top');[10] this contrasts somewhat with the morphophonemic behaviour of [-t], which requires epenthesis after all obstruents in word final position, as in (7) above (cf. *c'agʷš* 'wash something' vs. *c'agʷad* 'wash something', both based on √*c'a?kʷ* 'be washed'). The passives of these verbs are all based on the [-t] form of the stem.

In addition to its morphophonemic interactions with stems and radicals, the internal causative shows a certain amount of variability in terms of its syntactic effects on the valency and government pattern of its base. In the overwhelming majority of cases, the internal causative follows the pattern illustrated in (4) — that of a causative morpheme that adds a semantic AGENT/syntactic subject, augmenting the valency of the verb by one. The forms given in Table 13 are a representative sample of internal causative stems based on radicals attested as free forms:

?a?əd 'put ⊗ there'	(√*?a* 'be there')
?ix̌ʷid 'throw ⊗ away'	(√*?ix̌ʷ* 'be thrown; have thrown to')
bapad 'pester ⊗'	(√*bap* 'be busy')
bəčad 'set ⊗ down'	(√*bəč* 'be lying, be fallen from standing')
bəlx̌ʷəd 'pass ⊗'	(√*bəlx̌ʷ* 'be beyond')
caq'ad 'spear ⊗'	(√*caq'* 'be speared')
cilid 'dish ⊗ out'	(√*cil* 'be dished up')
c'agʷad 'wash ⊗'	(√*c'a?kʷ* 'be washed')
čalad 'chase ⊗'	(√*čal* 'be overtaken')
č'axʷad 'hit ⊗ with a stick'	(√*č'axʷ* 'be hit with a stick')
da?ad 'name ⊗'	(√*da?* 'be named')
dəgʷad 'put ⊗ inside'	(√*dəkʷ* 'be inside')
dᶻakʷad 'rock ⊗'	(√*dᶻakʷ* 'be shaky, be shaking')
dᶻaƛ'əd 'confuse ⊗'	(√*dᶻaƛ'* 'be confused')
dᶻalqəd 'turn ⊗ around'	(√*dᶻal* 'turn around, turn over')
dᶻix̌id 'break ⊗ down'	(√*dᶻix̌* 'be broken down, be fallen apart')
gʷəx̌ad 'untie ⊗'	(√*gʷəx̌* 'be untied')
huyud 'make ⊗'	(√*huy* 'be completed, be finished')
kʷədad 'take ⊗'	(√*kʷəd* 'be held, be taken')
lild 'move away'	(√*lil* 'be far away')
ɬaq'ad 'put ⊗ down'	(√*ɬaq'* 'be fallen, be lying down')
ɬič'id 'slice ⊗'	(√*ɬič'* 'get cut with knife')
ɬidid 'tie ⊗'	(√*ɬid* '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')

[10] This is also seen in *suxʷtəš* 'recognize someone' in Table 11.

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'ʷəld 'cook ⊗'	(√*q'ʷəl* 'be cooked, be ripe')
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')
šuk'ʷild 'grey ⊗'	(*šuk'ʷil* 'turn grey' from √*šuk'ʷ* 'powder')
šulud 'pass underneath ⊗'	(√*šul* 'be in, be under')
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')

Table 13: Internal causative stems formed from free radicals

In addition to transparent forms such as these, there are a number of more or less idiomatic expressions that seem to follow the internal causative pattern such as *dᶻək'ʷud* 'lead astray, mislead' (from √*dᶻək'ʷ* 'travel, wander'), *dukʷud* 'change something; bewitch someone' (√*dukʷ* 'be anormal (e.g., supernatural)'), and *q'pud* 'gather up'(√*q'əp* 'form a lump; cramp up (muscle)'.

There is also a very large set of internal causative stems based on bound radicals, a number of which are given in Table 14:

ʔabəd 'extend ⊗, give ⊗'	(°√*ʔab* 'be extended'; cf. *ʔabačiʔb* 'extend hand')
ʔay'waʔsəd 'exchange ⊗'	(°√*ʔay'* 'be traded' + *-waʔs* 'pair')
bəq'əd 'swallow ⊗'	(°√*bəq'* 'have in mouth'; cf. *bəq'dxʷ* 'taste ⊗'))
biƛ'id 'smash ⊗'	(°√*biƛ'* 'be smashed, be crumbled'; cf. *biƛ'il* 'crumble')
c'əld 'defeat ⊗'	(°√*c'əl* 'be defeated'; cf. *c'əldxʷ* 'manage to defeat ⊗')
c'uqʷud 'suck on ⊗'	(°√*c'uqʷ* 'be sucked'; cf. *c'uqʷačiʔb* 'suck hand')
č'aʔəd 'dig ⊗ (roots)'	(°√*č'aʔ* 'be dug up'; cf. *č'aʔəb* 'dig for ⊗ (roots)')
č'ədᶻəd 'sneak up on ⊗'	(°√*č'ədᶻ* 'be stalked'; cf. *č'ədᶻalikʷ* 'stalk prey')
digʷid 'advise ⊗'	(°√*dikʷ* 'take advice'; cf. *xʷdikʷ* 'advice')
gʷəč'əd 'look for ⊗'	(°√*gʷəč'* 'be sought'; cf. *gʷəč'əb* 'seek ⊗ for self')
gʷəlald 'punish ⊗'	(°√*gʷəlal* 'be hurt'; cf. *gʷəlalalikʷ* 'kill ⊗')
kʷaʔd 'let go of ⊗'	(°√*kʷaʔ* 'be released'; cf. *kʷaʔtxʷ* 'release')
kʷaxʷad 'help ⊗'	(°√*kʷaxʷ* 'be helped'; cf. *kʷaxʷdxʷ* 'manage to help ⊗')
laʔəd 'locate ⊗'	(°√*laʔ* 'be located'; cf. *laʔyid* 'locate ⊗ for Ⓨ')
ləkʼʷəd 'eat ⊗'	(°√*ləkʼʷ* 'be eaten'; cf. *ləkʼʷdxʷ* 'manage to eat ⊗')
łuqʼʷud 'peel ⊗'	(°√*łuqʼʷ* 'be peeled'; cf. *łuqʼʷač* 'be bald')')
ƛ'agʷəd 'stitch ⊗ (mat)'	(°√*ƛ'akʷ* 'be stitched'; cf. *ƛ'agʷəb* 'make mats')
p'ic'id 'wring ⊗ out'	(°√*p'ic'* 'be wrung out'; cf. *p'ic'albixʷ* 'milk (cow)')

p'ť'ad 'store ⊗'	(°√*p'ť'* 'be stored'; cf. *p'ť'alikʷ* 'save ⊗')
taʔəd 'take ⊗ there'	(°√*taʔ* 'be in place'; cf. *ʔəstaʔtxʷ* 'have ⊗ in place')
tqad 'close ⊗'	(°√*tq* 'be closed'; cf. *təqdxʷ* 'block ⊗'s path')
tx̌ʷud 'pull on ⊗'	(°√*tx̌ʷ* 'be pulled'; cf. *təx̌ʷgʷiɬ* 'pull canoe')
t'ugʷud 'figure ⊗ out'	(°√*t'ukʷ* 'be measured'; cf. *t'ukʷtəd* 'tape measure')
xʷacad 'carry ⊗'	(°√*xʷac* 'be hoisted'; cf. *xʷaʔxʷcəb* 'be rock-lifting')
xʷəbəd 'toss ⊗'	(°√*xʷəb* 'be thrown'; cf. *xʷəbagʷil* 'throw oneself')
xʷit'ild 'lower ⊗'	(°√*xʷt'* 'be fallen'; cf. *xʷt'agʷil* 'climb down')
x̌ədəd 'push ⊗'	(°√*x̌əd* 'be pressed'; cf. *x̌ədačiʔb* 'push hands away')
x̌əqəd 'wrap ⊗'	(°√*x̌q* 'be wrapped'; cf. *x̌qagʷil* 'tie oneself down')
x̌ibid 'grab ⊗ by throat'	(°√*x̌ib* 'be grabbed'; cf. *x̌ibigʷs* 'have in hand')
x̌ʷadᶻad 'punish ⊗'	(°√*x̌ʷadᶻ* 'be injured'; cf. *x̌ʷadᶻalikʷ* 'slaughter ⊗')

Table 14: Internal causative stems formed from bound radicals

Although not attested as independent, patient-oriented forms, each of these radicals is attested as part of other stems and interacts with other valency-increasing morphemes in a manner consistent with a monovalent patient-oriented radical.

In addition to synchronically analyzable stems containing the internal causative, there are also many transitive verbs that appear to contain *-t* but which are not based on clearly-attested radicals found in other verb forms:

biq'id 'press ⊗'	(*√*biq'* 'be pressed down')
bisəd 'select ⊗'	(*√*bis* 'be selected')
čədᶻq'ʷəd 'rub ⊗ together'	(*√*čədᶻq'ʷ* 'be rubbed together')
dᶻilid 'despise ⊗'	(*√*dᶻili* 'be despised')
gəq'əd 'open something'	(*√*gəq'* 'be opened')
hilid 'command ⊗'	(*√*hil* 'obey')
k'ʷič'id 'butcher ⊗'	(*√*k'ʷič'* 'be butchered')
ƛ'aq'ʷad 'lie in wait for ⊗'	(*√*ƛ'aq'ʷ* 'be ambushed')
pačad 'lay ⊗ out'	(*√*pač* 'be laid out')
qʷaład 'drive ⊗ (animal); drive ⊗ off'	(*√*qʷaɬ* 'be driven')
q'x̌ad 'insult ⊗'	(*√*q'x̌* 'be insulted')
saxad 'scrape ⊗'	(*√*sax̌* 'be scraped')
səť'əd 'lift ⊗'	(*√*səť'* 'be raised')
təbaš 'crave ⊗'	(*√*təb* 'have a craving')
xʷalusəd 'wave ⊗'	(*√*xʷalus* 'be waved')
x̌ʷuƛ'ud 'chew ⊗ up'	(*√*x̌ʷuƛ'* 'be chewed up')

Table 15: Inherently transitive stems containing *-t*

Aside from analogy with the forms in Table 13 and Table 14, the diachronic presence of the internal causative can also be inferred from the allomorphy shown by the stem-final /d/:

(9) a. łuk'^{w}ič'id čəł ti?iɬ k^{w}ag^{w}ičəd čx^{w}a łut'uk'^{w}tx^{w}

łu–k'^{w}ič'i–d	čəł	ti?iɬ	k^{w}ag^{w}ičəd	čx^{w}a
IRR–butcher–ICS	1PL.SUB	DIST	elk	2SG.COORD

łu–t'uk'^{w}–tx^{w}
IRR–go.home–ECS
'we will butcher that elk and you will take it home'
(Hess 1998: 80, line 67)

b. g^{w}əl huy k'^{w}ič'itəbax^{w} ti?ə? cədiɬ sɬiltəbs

g^{w}əl	huy	k'^{w}ič'i–t–əb=ax^{w}	ti?ə?	cədiɬ
then	SCONJ	butcher–ICS–PASS=now	PROX	he

s=ɬil–t–əb=s
NM=give.food–ICS–PASS=3PO
'well then this food they were giving him was butchered'
(Hess 1998: 86, line 225)

As shown by these examples, the final consonant in transitive stems like *k'^{w}ič'id* 'butcher something' shows the same ultimate-final voicing alternation pattern seen in internal causative forms as those in (8). Unlike bound radicals such as those in Table 14, however, putative radicals such as **√k'^{w}ič'* 'be butchered' are not found as part of other verb forms independent of the internal causative and so are treated separately from these for the purposes of classification.

Although the majority of stems containing *-t* conform to the internal causative pattern described above, there is a not-insignificant number of stems in which *-t* acts as some kind of valency-increaser other than a causative. In the largest set of such forms, the effect of *-t* on the radical is that of an applicative. The stems found to date that follow this pattern are given in Table 16:

?ilid 'sing ⊗'	(√*?il* 'sing')
?ulud 'sing to ⊗'	(°√*?ul* 'sing'; cf. *?uli?ɬ* 'sing lullaby')
cut 'speak to ⊗'	(√*cut* 'speak')
dˢaqad 'mourn ⊗'	(°√*dˢaq* 'mourn'; cf. *dˢaqəbid* 'mourn for ⊗')
g^{w}iid 'invite ⊗, call to ⊗'	(√*g^{w}i* 'make an invitation')
g^{w}uhud 'bark at ⊗'	(°√*g^{w}uh* 'bark (dog)'; cf. *g^{w}uhəb* 'bark')
k'^{w}aład 'examine ⊗'	(°√*k'^{w}aɬ* 'peer'; cf. *k'^{w}ək'^{w}ałəb* 'be near-sighted')
k'^{w}ilid 'peek at ⊗'	(√*k'^{w}il* 'peek')
ɬild 'give food to ⊗'	(√*ɬil* 'make a gift of food')
q'əlsəd 'steam ⊗'	(√*q'əls* 'cook with steam')
šidˢəd 'attack ⊗ by stealth'	(√*šidˢ* 'launch sneak attack')
wiliq'^{w}id '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')

Table 16: Applicative uses of the internal causative

These verbs are based on monovalent intransitive radicals with agentive subjects, and the affixation of *-t* adds a direct object rather than a subject:

(10) a. ʔiləxʷ tiʔəʔ qaw'qs
ʔil=əxʷ tiʔəʔ qaw'qs
sing=now PROX raven
'now Raven sings'

(Hess 1998: 57, line 38)

b. ƛ'ubəxʷ ʔuʔilitəb ʔə tsiʔiɬ x̌ənimulic'aʔ kʷi sqəlalituts
ƛ'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
HYP spirit.power–3PO
'*x̌ənimulic'aʔ* ought to sing to her spirit power'

(Hess 1998: 61, line 25)

The semantic role of the object varies according to the meaning of the base: verbs of speaking (*cut* 'speak to someone') or speech-like actions (*ʔulud* 'sing to someone') add a HEARER, while other verbs add roles such as MOTIVE (*x̌ʷaq'ʷad* 'be concerned about something'), BENEFACTIVE/ MALEFACTIVE (*ɬild* 'give food to someone', *šidᶻəd* 'attack someone by stealth'), or PERCEPT (*k'ʷilid* 'peer out at something'). In addition to the forms listed in Table 16, there are other verbs which seem to follow this pattern but are based on radicals that are not otherwise attested or easily analyzed in other forms.

The *-t* suffix also appears in a number of forms in which it acts simply as a transitivizer, converting a bivalent intransitive base into a monotransitive verb. Verbs that follow this pattern include *ʔaladᶻiʔɬəd* 'babysit someone' (from *ʔaladᶻiʔɬ* 'babysit someone'[= °√*ʔaladᶻ* 'care for someone' + *-iʔɬ* 'child']), *čəbaʔəd* 'backpack something' (from √*čəbaʔ* 'be loaded down with something'), *ƛ'alš* 'wear something' (√*ƛ'al* 'put something on'), *tabəd* 'do something' (√*tab* 'deal with'), *ʔišɬš* 'paddle something [canoe]' (√*ʔišɬ* 'paddle canoe'), and *ʔuləx̌əd* 'gather something' (√*ʔuləx̌* 'forage for'). This set of forms may also include *x̌aƛ'əd* 'favour someone' (°√*x̌aƛ'* 'be desirous of') and *təbaš* 'crave something' (*√*təb* 'have a craving'), although the bare radicals are not attested in the present corpus, making it hard to ascertain their inherent valency.

The internal causative suffix also appears to be part of certain more complex transitive stems whose synchronic analysis is uncertain. These include *c'əɬqiwsəd* 'cut something up' and *xʷak'ʷabičəd* 'get someone dirty'. A few

intransitive verbs appear to contain *-t* as well, based on the shape of their apparent radicals or on voicing alternations in word-final position. These include a small set of verbs for making noise (*tukʷud* 'thump', *kʼʷxʷiqid* 'make noise', and *sxʷid* 'make swishing sound'), the verbs *ƛʼčabəd* 'double self over' and *gʷəƛʼəlad* 'stop', and the bivalent intransitive verb *ʔəɬəd* 'feed on'. Unlike the others in this group, this last form has an attested bound radical, °√*ʔəɬ* 'be eating' found in other forms such as *ʔəɬtxʷ* 'feed someone' and *sʔəɬəd* 'food'; however, verb *ʔəɬəd* itself is intransitive, and so it is not possible to analyze this form synchronically as containing the internal causative morpheme.

2.2 External causative *-txʷ*

The next most frequent valency-increasing affix in Lushootseed is *-txʷ* 'external causative [ECS]'. Like *-t*, this affix is a transitive suffix that is added (with a few exceptions) to monovalent radicals to form a transitive stem expressing an event in which an AGENT causes a PATIENT/THEME to come into the state expressed by the radical; however, the AGENT in *-txʷ* forms is construed as being less directly involved in or affected by the event than it is in stems formed with the internal causative. As with any causative, the new argument is realized as the subject and the erstwhile subject of the base is realized as a direct object:

(11) a. ʔuʔuǩʷ čəd
ʔu–ʔuǩʷ čəd
PFV–go 1SG.SUB
'I went'

(Hess 1995: 6, ex. 1)

b. ʔuʔuǩʷtubš ti čʼačʼas
ʔu–ʔuǩʷ–txʷ–bš ti čʼačʼas
PFV–go–ECS–1SG.OBJ DEF child
'the boy took me'

(based on Hess 1995: 42)

c. ʔuʔuǩʷtub čəd ʔə ti čʼačʼas
ʔu–ʔuǩʷ–txʷ–b čəd ʔə ti čʼačʼas
PFV–go–ECS–PASS 1SG.SUB PR DEF child
'I was taken by the boy'

(Hess 1995: 33)

As shown in (11a) and (b), when *-txʷ* is added to a monovalent radical, it forms a transitive verb in which the AGENT is the subject and the PATIENT or THEME is the direct object. The object of external causative verbs is a true direct object and undergoes the usual direct-object centred syntactic processes such as passivization (11c); note that in the passive, *-txʷ* becomes [-tu-], as it does in the

presence of the object-markers. The affix shows no other type of morphophonemic interactions with its base or with other affixes. When the derived stem takes an overt NP argument, this argument is interpreted as direct object:

(12) ʔuʔuǰʷtxʷ ti č'ač'as
ʔu–ʔuǰʷ–txʷ ti č'ač'as
PFV–poured–ECS DEF water
's/he took the boy'

(Hess 1995: 22, ex. 3b)

The affixation of *-txʷ* does not trigger any alternations in its base, although it does interact with the passive suffix and the object- and reflexive-markers, all of which cause the final /xʷ/ to become /u/. When followed by the reciprocal marker, the external causative is realized simply as /t/.

The forms in (11) are based on a radical expressing motion, *ʔuǰʷ* 'go'. Many such radicals combine with *-txʷ* to form verbs of taking and bringing:

ʔəƛ'txʷ 'bring ⊗'	(√*ʔəƛ'* 'come')
ʔibəštxʷ 'take ⊗ for a walk'[11]	(√*ʔibəš* 'travel, walk')
ʔuǰʷtxʷ 'take ⊗'	(√*ʔuǰʷ* 'go')
čubətxʷ 'take ⊗ ashore'[12]	(√*čubə* 'go inland')
gʷaǰʷtxʷ 'take ⊗ for a walk'	(√*gʷaǰʷ* 'take a stroll')
kʷatačtxʷ 'carry ⊗ up a hill'[13]	(√*kʷatač* 'climb')
k'ʷit'txʷ 'take ⊗ down to shore'	(√*k'ʷit'* 'go down to shore')
łaʔtxʷ 'bring ⊗ to a place'	(√*łaʔ* 'arrive at a specific place')
łaliltxʷ 'bring ⊗ ashore'	(√*łalil* 'go ashore')
łčiltxʷ 'arrive with ⊗'	(√*łčil* 'arrive')
q'iltxʷ 'take ⊗ by canoe'	(√*q'il* 'be aboard')
saq'ʷtxʷ 'fly off with ⊗; fly ⊗ (airplane)'	(√*saq'ʷ* 'fly')
saxʷəbtxʷ 'run off with ⊗, kidnap ⊗'	(√*saxʷəb* 'jump, sprint')
šədᶻaltxʷ 'take ⊗ outside'	(√*šədᶻal* 'go outside')
təlawiltxʷ 'run off with ⊗'	(√*təlawil* 'run')
tulilxʷ 'take ⊗ across river'	(√*tulil* 'cross river')
t'uk'ʷtxʷ 'take ⊗ home'	(√*t'uk'ʷ* 'go home')

Table 17: Verbs of taking and bringing formed with *-txʷ*

In such forms, the radical expresses the type of motion undergone by the THEME while the suffix adds an AGENT responsible for causing that motion. Unlike the

[11] This form also means 'make ⊗ travel'; with this reading, it belongs in Table 18 below.
[12] This form is also attested in the speech of older speakers as *čubəstxʷ*, the *-stxʷ* version of the suffix being an archaic form still attested in some other languages of the family.
[13] This is the gloss of the word as it is used in Skagit. In Snohomish, this verb also applies to climbing trees and ladders, while the Skagit use √*ʔigʷəl* for these latter two activities.

English translation equivalents of many of these stems, there is no inherent telicity or notion of transfer expressed by the verbs themselves, although these notions may be implied by context. As with all *-txʷ* forms, the stems in Table 17 are transitive; if a recipient is involved, it may be expressed as an oblique object introduced by the preposition *dxʷʔal* 'towards', as in (13a):

(13) a. ʔuǰʷtubəxʷ tiʔiɬ sʔuladxʷ dxʷʔal tiʔiɬ sčətxʷəd
ʔuǰʷ–txʷ–b=əxʷ tiʔiɬ sʔuladxʷ dxʷʔal tiʔiɬ sčətxʷəd
go–ECS–PASS=now DIST salmon PR DIST black.bear
'the salmon was taken to Black Bear'
(Hess 1995: 154, line 67)

b. ləɬčil čəd, capaʔ, dxʷʔal dəgʷi
lə–ɬčil čəd capaʔ dxʷʔal dəgʷi
PROG–arrive 1SG.SUB grandfather PR you
'I am coming, Grandfather, to you'
(Hess 2006: 28, line 157)

As shown in (13b), the preposition is the same as that used to express the goal of motion in the non-causativized forms.

In addition to verbs of taking and bringing, *-txʷ* is used to form a wide variety of transitive verbs from intransitive stems:

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')
čəbaʔtxʷ 'pack ⊗ on one's back'	(√*čəbaʔ* 'be loaded down with ⊗')
gʷahtxʷ 'take ⊗ along'	(√*gʷah* 'accompany, go along')
gʷədiltxʷ 'sit ⊗ down'	(√*gʷədil* 'sit down')
həliʔtxʷ 'cure ⊗'	(√*həliʔ* 'be alive')
hiwiltxʷ 'go ahead with ⊗'	(√*hiwil* 'proceed')
huygʷastxʷ 'marry ⊗'	(from √*huy* 'be completed' + *-gʷas* 'pair')
kiistxʷ 'stand ⊗ up'	(√*kiis* 'stand up')
kʷaʔtxʷ 'release ⊗'	(°√*kʷaʔ* 'released'; cf. *kʷaʔd* 'let go of ⊗')
laǰtxʷ 'remind ⊗'	(√*laǰ* 'recall, remember')
ɬidtxʷ 'tie to ⊗'	(√*ɬid* 'be tied')
ƛ'aǰʷtxʷ 'bring up ⊗, raise ⊗'	(√*ƛ'aǰʷ* 'grow')
ƛ'iqʼačiʔbtxʷ 'make ⊗'s hands sticky	(from √*ƛ'iqʼ* 'be sticky' + *-ačiʔ* 'hand')
saqʼʷtxʷ 'fly off with ⊗'	(√*saqʼʷ* 'fly')
šəɬt'əbiɬədtxʷ 'make rope of ⊗'	(from √*šəɬ* 'make ⊗' + √*t'əbiɬəd* 'rope')
šuɬtxʷ 'show to ⊗'	(√*šuɬ* 'look around, gaze')
tədᶻiltxʷ 'put ⊗ to bed'	(√*tədᶻil* 'go to bed, lie in bed')
təɬtxʷ 'make ⊗ true, speak truth'	(√*təɬ* 'be true')

t'ičibtx^{w} 'make ⊗ wade'	(√*t'ičib* 'wade')
t'uc'iltx^{w} 'fire ⊗'	(*t'uc'il* 'fire weapon' from √*t'uc'* 'be shot')
x̌a?x̌a?tx^{w} 'forbid ⊗'	(√*x̌a?x̌a?* 'powerful, taboo')
x̌ilix̌tx^{w} 'make war on ⊗'	(√*x̌ilix̌* 'be at war')

Table 18: Causative stems formed with *-tx*^{w}

As with verbs of taking and bringing, the stems here are formed on intransitive bases. In most instances, these bases are monovalent radicals and adding *-tx*^{w} forms a transitive stem following the pattern illustrated in (11) above; however, in one or two cases the causative is added to a bivalent intransitive base. The effect on the valency and government pattern of the verb in these cases depends on the stem. For example, one of these verbs, *saq'*^{w}*tx*^{w} 'fly off with something; fly something [airplane]', has two possible interpretations, one following the causative pattern of other motion verbs shown in Table 17, the other following a more general causative pattern. With other verbs such as *čəba?tx*^{w} 'pack something on one's back' (from √*čəba?* 'be loaded down with something') and *t'uc'iltx*^{w} 'fire something' (from *t'uc'il* 'fire weapon'), the effect is to transitivize the verb:

(14) a. ləsčəba? ?ə tə hud
ləs–čəba? ?ə tə hud
CONT–be.packing PR INDEF wood
'she's loaded down with wood'
(Bates, Hess & Hilbert 1994: 61)

b. g^{w}əl ?abil'əx^{w} łučəba?tx^{w} əlg^{w}ə? ti?ə? dsx^{w}i?x^{w}i?
g^{w}əl ?abil'=əx^{w} łu–čəba?–tx^{w} əlg^{w}ə? ti?ə?
then perhaps=now IRR–be.packing–ECS PL PROX

d–sx^{w}i?x^{w}i?
1SG.PO–game
'well then perhaps they can backpack my game'
[MW Star Child, line 76]

Here, rather than adding an argument, the external causative promotes an oblique object to direct object. The semantic notion of causation is still inherent in the meaning of the *-tx*^{w} form itself (*čəba?tx*^{w} 'backpack something' ≈ 'cause oneself to be loaded down with something').

In a few other cases, *-tx*^{w} not only transitivizes a bivalent intransitive base but also "shuffles" the basic diathesis of the verb:

(15) a. hay, qədbax^{w} ʔə tiʔəʔ sduk^{w} sč'ətx^{w}

hay	qəd–b=ax^{w}	ʔə	tiʔəʔ	sduk^{w}	sč'ətx^{w}
SCONJ	fornicate–MD=now	PR	PROX	low.life	kingfisher

'so, she [Helldiver] has adulterous sex with that low-life Kingfisher'
(Hess 2006: 21, line 243)

b. g^{w}əl huy qədəbtx^{w}ax^{w} tsiʔəʔ čəg^{w}as ʔə tiʔəʔ sbəq'^{w}aʔ, tsiʔəʔ x̌^{w}uʔx̌^{w}əyʔ

g^{w}əl	huy	qəd–b–tx^{w}=ax^{w}	tsiʔəʔ	čəg^{w}as	ʔə
then	SCONJ	fornicate–MD–ECS–now	PROX:FEM	wife	PR

tiʔəʔ	sbəqʼ^{w}aʔ	tsiʔəʔ	x̌^{w}uʔx̌^{w}əyʔ
PROX	heron	PROX:FEM	helldiver

'and so then he [Kingfisher] seduces the wife of Heron, Helldiver'
(Hess 2006: 12, line 45)

(15a) shows the middle form *qədəb* 'have illicit sex with someone, commit adultery with someone' which takes as its subject the expression of the adulterer (that is, the married person who cheats on their spouse) and as an oblique object the expression of the person with whom they cheat. In the causative form, *qədəbtx^{w}* 'seduce into adultery', the adulterer's sexual partner — the seducer — is the subject and the adulterer is a direct object. Thus, the verb is transitivized but the subject of the intransitive stem becomes the direct object of the transitive verb and the oblique object of the intransitive stem becomes the subject. Rather than being a regular or predictable syntactic operation, however, in this case the source of the change in government pattern is the nature of the event: the proximate cause of adulterous behaviour is (attraction to) the sexual partner, so it follows that in the causative form of this particular verb this event-participant would be expressed as the causer/subject, resulting in an idiosyncratic, lexicalized government pattern. Similar effects of the particular meanings of certain radicals are found with a few other *-tx^{w}* forms.

In addition to verbs such as *qədəbtx^{w}* 'seduce into adultery', whose semantic import seems clearly to be causative but whose syntactic effects are somewhat idiosyncratic, there is another group of stems that contain *-tx^{w}* but do not seem to be causative in either the semantic or syntactic sense of the word. One small group of high-frequency verbs that fit this description are verbs of speech in which *-tx^{w}* functions as an applicative rather than a causative (Hess & Bates 2004), adding a new argument realized as object rather than subject:

q^{w}iʔadtx^{w} 'call ⊗ out'	(*q^{w}iʔad* 'holler, yell')
tatabtx^{w} 'talk to ⊗'	(°√*tatab* 'speak'; cf. *tatabəd* 'confer about ⊗')
yəcəbtx^{w} 'tell ⊗ to Ⓨ'	(*yəcəb* 'report on ⊗' from °√*yəc* 'be reported)
yəhubtx^{w} 'recite legend for ⊗'	(°√*yəhub* 'tell legend'; cf. *syəhub* 'myth, legend')

Table 19: Applicative uses of *-tx^{w}*

With most of these verbs, the effect of *-txʷ* seems to be to increase the valency of the stem by adding a direct object with the semantic role of HEARER:

(16) a. huy, yəcəbaxʷ ʔə tiʔiɬ bibščəb ʔi tiʔiɬ suʔsuqʼʷaʔs, təṭyika
huy yəcəb=axʷ ʔə tiʔiɬ bi–bščəb ʔi tiʔiɬ
SCONJ report=now PR DIST ATTN–mink and DIST

suʔsuqʼʷaʔ–s təṭyika
younger.cousin–3PO Tutyika
'he told of Little Mink and his younger cousin, Tutyika'
(Hess 1995: 141, line 42)

b. yəcəbtxʷaxʷ tiʔəʔ stubš ʔə ti sdaʔ ʔə tsiʔəʔ
yəcəb–txʷ=axʷ tiʔəʔ stubš ʔə ti sdaʔ ʔə tsiʔəʔ
report–ECS=now PROX man PR DEF name PR PROX:FEM
'he told the man her name'
[HM Star Child, line 116]

As shown in (16a), the verb *yəcəb* 'report on something' is a bivalent intransitive stem which takes as its subject the speaker and expresses the topic of speech as an oblique object. As shown by (16b), the *-txʷ* form of the verb is transitive and continues to express the topic of speech as an oblique object.

In addition to having lexicalized effects on the valency and government pattern of particular stems, *-txʷ* appears in a number of synchronically unanalyzable forms. Among these are stems which have no independent attestations or whose apparent radical does not appear as a transparent part of other stems; this would include forms such as *gʷəƛ̓ʼəltxʷ* 'strand someone, stop someone', *gʷəƛ̓ʼəbəkʼʷtxʷ* 'quiet someone', and *pʼaʔxʷəxʷəbtxʷ* 'disfavour someone'. All of these verbs seem to contain the suffix *-txʷ*, but have to be analyzed synchronically as inherently transitive stems. Similarly, the verb *qəliltxʷ* 'stop someone' shares the radical °√*qəl* 'stopped, prevented' with a number of forms, but is (apparently) based on an unattested inchoative stem °*qəlil*, and so can not be treated as an analyzable use of the external causative. There are also a number of stems containing *-txʷ* that are synchronically analyzable but which have lexicalized or idiomatic meanings. These include verbs such as *ɬikʼʷtxʷ* 'kidnap someone' (from √*ɬikʼʷ* 'hooked, snagged'), *dukʷtxʷ* 'make angry, disgust' (√*dukʷ* 'be worthless'), and *tʼilibtxʷ* 'play a radio'(√*tʼilib* 'sing'). Although the meanings in each of these cases are idiosyncratic, the effects of *-txʷ* on the valency and government pattern of the stem are predictable and follow the pattern in (11) above.

The final aspect of the external causative to be discussed here concerns its overlap with the internal causative, *-t*. As noted earlier, the basic semantic distinction between these two causatives is the relative involvement of the AGENT in the event, state, or process expressed by the radical (Beck 1996). With the internal causative, the AGENT is considered to be a more integrated participant in the event either by dint of direct physical contact with the PATIENT or

greater affectedness of the AGENT (or, occasionally, the PATIENT) by the event itself. Many external causative forms, like causatives in many other languages, imply that the change-of-state or process undergone by the PATIENT was caused by a separate (often unspecified) action or event initiated by the AGENT rather than being the result of direct action of the AGENT on the PATIENT itself. As a result, the bulk of radicals select either the internal or the external causative, depending on the nature of the state or process they express;[14] however, there are a number of radicals that have both an internal and an external causative form. Some of these are given in Table 20:

ʔatxʷ 'cause ⊗ to be somewhere'	*ʔaʔəd* 'put ⊗'
ʔupʼtxʷ 'seat ⊗ on another's lap'	*ʔupʼud* 'seat ⊗ on one's lap'
čaltxʷ 'catch ⊗'	*čalad* 'chase ⊗'
čəbaʔtxʷ 'backpack ⊗'	*čəbaʔəd* 'backpack ⊗'
daʔtxʷ 'name ⊗ (spirit power)'	*daʔad* 'name ⊗'
dukʷtxʷ 'make ⊗ angry/disgusted'	*dukʷud* 'change ⊗, transform ⊗'
kʼʷiltxʷ 'cause ⊗ to peer out'	*kʼʷilid* 'peek at ⊗'
kʷaʔtxʷ 'release ⊗'	*kʷaʔd* 'let go of ⊗'
hədiwʼtxʷ 'bring ⊗ inside'	*hədiwʼd* 'put ⊗ inside'
łidtxʷ 'tie to ⊗'	*łidid* 'tie ⊗ up'
ƛʼiqʼačiʔbtxʷ 'make ⊗'s hands sticky'	*ƛʼiqʼid* 'stick ⊗ on'
ƛʼubtxʷ 'get ⊗ fixed'	*ƛʼubəd* 'agree to ⊗'
qiqʼtxʷ 'confine ⊗'	*qiqʼəd* 'confine ⊗'
qʼiltxʷ 'take ⊗ by canoe'	*qʼilid* 'load ⊗ aboard'
wiliqʼʷtxʷ 'ask ⊗ on another's behalf'	*wiliqʼʷid* 'ask ⊗'
sulatxʷ 'bring ⊗ to centre of room'	*sulad* 'put ⊗ in centre of room'
x̌aʔx̌aʔtxʷ 'forbid ⊗ (act)'	*x̌aʔx̌aʔəd* 'deny permission ⊗'

Table 20: Radicals with both *-txʷ* and *-t* forms

In some cases, the glosses of the verb stems make the difference in meaning between the two types of causative clear, as in the case of *ʔupʼud* 'seat someone on one's own lap' vs. *ʔupʼtxʷ* 'seat someone on another's lap', shown in (17):

(17) a. ʔupʼud tsi dsuqʼʷaʔ

ʔupʼu–d	tsi	d–suqʼʷaʔ
seated.on.lap–ICS	DEF:FEM	1SG.PO–younger.cousin

'he seats my younger cousin on his lap'

[14] Note that, because transitive stems are derived from intransitive radicals, there is no potential for the formation of causatives of transitive stems. Except for secondary suffixes (Section 4), Lushootseed disallows combinations of valency-increasing suffixes, thereby excluding the possibility of adding a causative suffix to a transitive stem (which would itself have to have been derived using a causative or applicative suffix).

b. ʔup'txʷ tsi dsuq'ʷaʔ

ʔup'–txʷ	tsi	d–suq'ʷaʔ
seated.on.lap–ECS	DEF:FEM	1SG.PO–younger.cousin

'he seats my younger cousin on another person's lap'

(Hess 1993: 120n)

Other cases, like *hədiw'd* 'put inside' vs. *hədiw'txʷ* 'bring inside' or *sulad* 'put in centre of room' vs. *sulatxʷ* 'bring to centre of room' are less clear and, judging by their glosses, the forms seem to be nearly synonymous — or at least to overlap greatly in their potential to be used to describe particular events. There are also a few forms (e.g., *daʔad* 'name' vs. *daʔtxʷ* 'name spirit power', *čalad* 'chase' vs. *čaltxʷ* 'catch someone') where the difference seems to be lexicalized, at least to the extent that the distinctions seen in the attested uses of these words, do not obviously conform to the more regular semantic nuances expressed by other contrasting uses of these two suffixes.

Another set of radicals also combines with both causatives, but the resulting stems show restrictions on potential aspectual inflections. With these radicals, the external causative forms are largely restricted to the stative aspect and are ungrammatical with the perfective, while the internal causative forms are ungrammatical in the stative aspect. Both the external and the internal causative forms of these radicals are given in Table 21:

ʔəsbəčtxʷ 'have ⊗ laid down'	*bəčad* 'set ⊗ down'
ʔəscaq'txʷ 'have ⊗ impaled'	*caq'ad* 'spear ⊗'
ʔəsciltxʷ 'have ⊗ dished up'	*cilid* 'support ⊗, dish ⊗ up'
ʔəscqʷułtxʷ 'have ⊗ hung on post'	—; (√*cqʷuł* 'post')
ʔəsdᶻaq'txʷ 'have sex with ⊗'	*dᶻaq'ad* 'fell ⊗'
ʔəshudtxʷ 'keep ⊗ (fire) burning'	*hudud* 'burn ⊗'
ʔəshuytxʷ 'have ⊗ prepared'	*huyud* 'make ⊗, complete ⊗'
ʔəsǰiq'txʷ 'have ⊗ immersed'	*ǰiq'id* 'immerse ⊗'
ʔəskəkiʔtxʷ 'have ⊗ in cradleboard'	—; (√*kəkiʔ* 'cradleboard')
ʔəsłič'txʷ 'have ⊗ cut into pieces'	*łič'id* 'cut ⊗ with knife'
ʔəsƛ'altxʷ 'be wearing ⊗'	*ƛ'alš* 'put ⊗ on'
ʔəsqʷatxʷ 'have ⊗ laid out'	*qʷatad* 'lay ⊗ down'
ʔəsqʷibtxʷ 'have ⊗ ready'	*qʷibid* 'prepare ⊗'
ʔəstaʔtxʷ 'have ⊗ in place'	*taʔəd* 'put ⊗ in position'
ʔəst'agʷtxʷ 'rest on top of ⊗'	*t'agʷtəd* 'put ⊗ on top'
ʔəsxʷəctxʷ 'have ⊗ taken off/away'	*xʷəcəd* 'take ⊗ (clothing) off'
ʔəsx̌əkʼʷtxʷ 'have ⊗ overturned'	*x̌kʼʷəd* 'turn ⊗ over'
ʔəsx̌əqyalustxʷ 'have ends of ⊗ wrapped'	*x̌əqəd* 'wind string or cloth around ⊗'
ʔəsx̌qaličtxʷ 'have ⊗ packed up'	*x̌əqəd* 'wind string or cloth around ⊗'

Table 21: External causative forms requiring the stative aspect

In most cases, the basic meaning of the verb stems in the two columns in Table 21 are the same, the exceptions being the idiomatic expression *ʔəsdᶻaq'tx*^{w} 'have sex with' (from $^{\circ}\sqrt{}$*dᶻaq'* 'toppled, fallen') and two forms based on nouns (*ʔəskəkiʔtx*^{w} 'have in cradleboard' from $\sqrt{}$*kəkiʔ* 'cradleboard' and *ʔəscq*^{w}*uɬtx*^{w} 'have hung on post' from $\sqrt{}$*cq*^{w}*uɬ* 'post'). In the remainder of cases the semantic distinction between the forms is purely aspectual, the combination of the stative aspect and the external causative giving the reading of 'have X in the state of' as opposed to the internal causative which has the usual meaning 'cause X to be in the state of'. Of the two forms, the internal causative form seems to be the more widely distributed and, aside from the constraint against appearing in the perfective aspect, seems to be amenable to most other aspectual inflections, including the imperfective (18a) and the progressive (18b):

(18) a. bəčatəbax^{w} tiʔiɬ k'^{w}at'aq dəx^{w}ʔibəš ʔə tiʔiɬ bibščəb ʔi tiʔiɬ su?suq'^{w}as
Ø–bəča–t–əb–ax^{w} tiʔiɬ k'^{w}at'aq dəx^{w}=ʔibəš ʔə tiʔiɬ
IMPF–be.lying–ICS–PASS–now DIST mat ADNM=travel PR DIST

bi–bščəb ʔi tiʔiɬ su?–suq'^{w}a–s
ATTN–mink and DIST ATTN–younger.cousin–3PO
'a cat-tail mat is laid down for Little Mink and his younger cousin to walk on'

(Hess 1995: 142, line 44)

b. g^{w}əl ləbəčatəb ʔal tiʔiɬ q^{w}uʔ
g^{w}əl lə–bəča–t–əb ʔal tiʔiɬ q^{w}uʔ
then PROG–be.lying–ICS–PASS PR DIST water
'then it was being set down in the water'

(Hess 2006: 50, line 204)

It should be noted, however, that although all the forms in the left column of Table 21 are given in the *Lushootseed Dictionary* in their citation form with the stative prefix, and the majority of them are not attested in the present corpus in other aspects, two of them do appear in texts in aspects other than the stative. These are *huytx*^{w} 'have something prepared', which appears in the imperfective aspect (19a), and *x̌qaličtx*^{w} 'have something packed up', which is used in the continuous aspect (19b):

(19) a. bəhuytx^{w}
Ø–bə–huy–tx^{w}
IMPF–ADD–do–ECS
'he prepared it some more'

(Hess 2006: 47, line 137)

b. ɬuhuyud čəɬ čɬa ləsx̌qaličtxʷ čxʷa ɬut'uk'ʷtxʷ

ɬu=huyu–d	čəɬ	čɬa	ləs–x̌q–alič–txʷ
IRR=do–ICS	1PL.SUB	1PL.COORD	CONT–wrapped–bundle–ECS

čxʷa	ɬu=t'uk'ʷ–txʷ
2SG.COORD	IRR=go.home–ECS

'we will prepare it, we are bundling it up and you will take it home'
(Hess 1998: 80, line 68)

Thus, it may be that these and other *-txʷ* forms that seem to be restricted to the stative aspect may in fact appear in other (non-perfective) aspects as well, and their overwhelming preference for the stative aspect may simply reflect pragmatic factors governing their usage rather than formal aspects of their semantics.

2.3 Diminished control *-dxʷ*

Another frequent valency-increasing suffix is *-dxʷ* 'diminished control [DC]'. This causative transitive affix is added to intransitive stems and, like *-t* and *-txʷ*, adds an AGENT/subject to the expression. However, in *-dxʷ* forms the AGENT is in less than complete control of the situation. Consider the forms in (20), based on the radical *√bəč* 'be lying down, be fallen from standing':

(20) a. gʷəl ʔəsbəč, ʔəsx̌aq̌šəd ʔal kʷi ʔudəgʷiɬ ʔə tiʔiɬ qəlalgʷiɬ

gʷəl	ʔəs–bəč	ʔəs–x̌a–x̌aq•šəd		ʔal	kʷi
then	STAT–lie	STAT–DSTR–wrapped•leg		PR	HYP

ʔu–dəgʷ•gʷiɬ	ʔə	tiʔiɬ	qəl•al•gʷiɬ
PFV–middle•canoe	PR	DIST	bad•CNN•canoe

'then he lay with his feet wrapped in the middle of the funeral canoe'
[ML Mink and Tutyika I, line 80]

b. ʔubəčdubš ti sqʷəbay?

ʔu–bəč–dxʷ–bš	ti	sqʷəbay?
PFV–lying–DC–1SG.OBJ	DEF	dog

'the dog accidentally knocked me over'
(Hess 1995: 41, ex. 4b)

c. ʔubəčdub čəd ʔə ti sqʷəbay?

ʔu–bəč–dxʷ–b	čəd	ʔə	ti	sqʷəbay?
PFV–lying–DC–PASS	1SG.SUB	PR	DEF	dog

'I was accidentally knocked over by the dog'
(Hess 1995: 41, ex. 4a)

In (20a), the bare radical is shown with its basic meaning, 'be lying down'. The addition of the diminished control suffix creates a verb meaning 'knock something over' — that is, 'accidentally cause something to be lying down'. Thus, the diminished control suffix adds an AGENT to the expression. This AGENT is expressed as a syntactic subject and the PATIENT (the THEME of the radical) is expressed as a direct object. When the PATIENT is first- or second-person, the verb takes overt object markers, as shown in (20b). The new object is treated syntactically like any direct object, and is subject to object-centred syntactic processes such as passivization (20c). In the passive and in the presence of the object-markers, *-dxʷ* becomes [-du-]. When the derived stem takes an overt NP argument, this argument is interpreted as direct object:

(21) ʔuk'ʷəɬdxʷ ti qʷuʔ

ʔu–k'ʷəɬ–dxʷ	ti	qʷuʔ
PFV–poured–DC	DEF	water

's/he spilled the water'

(Hess 1995: 18, ex. 1b)

Like the external causative *-txʷ*, *-dxʷ* shows some morphophonemic interaction with certain affixes that follow it, most notably the passive suffix and the object- and reciprocal-markers, all of which cause the final /xʷ/ of the diminished control suffix to become /u/. When followed by the reciprocal marker, the diminished control suffix is realized simply as /d/. Unlike *-txʷ*, however, *-dxʷ* triggers schwa epenthesis when it follows a voiceless consonant and is word-final, as in the examples in (22):

(22) *laxədxʷ* 'remember' < °√*lax* 'remember'
t'uc'ədxʷ 'manage to shoot' < √*t'uc'* 'be shot'

(Hess 1967: 12)

This schwa, however, is not recognized in Lushootseed orthography and is not included in any of the published texts, nor will it be included in the examples presented in the remainder of this paper.

Table 22 gives a number of examples of stems formed with the diminished control morpheme, along with the gloss provided for them in the source:

ʔadᶻqdxʷ 'happen to meet ⊗'	(°√*ʔadᶻq* 'met'; cf. *ʔadᶻqbid* 'meet ⊗')
ʔaʔildxʷ 'manage to put ⊗ there'	(*ʔaʔil* 'get there' from √*ʔa* 'be there')
ʔuqʷdxʷ 'be left open to ⊗,'	(°√*ʔuqʷ* 'unplugged'; cf. *ʔuqʷud* 'unplug ⊗')
bək'ʷdxʷ 'manage to get all ⊗'	(√*bək'ʷ* 'be all')
c'əldxʷ 'manage to defeat ⊗'	(°√*c'əl* 'be defeated'; cf. *c'əld* 'defeat ⊗')
čaldxʷ 'catch up to ⊗'	(√*čal* 'be overtaken')
č'axʷdxʷ 'manage to club ⊗'	(√*č'axʷ* 'be hit with a stick')
dikʷdxʷ 'instruct ⊗'	(°√*dikʷ* 'be advised'; cf. *dxʷdigʷid* 'advise ⊗')

həli?dx^{w} 'save the life of ⊗'	(√*həli?* 'be alive')
huydx^{w} 'manage to do ⊗'	(√*huy* 'be completed, be finished')
k^{w}*a?dx*^{w} 'manage to let go of ⊗'	(°√*k*^{w}*a?* 'be released'; *k*^{w}*a?tx*^{w} 'release ⊗')
k^{w}*ax*^{w}*dx*^{w} 'manage to help ⊗'	(°√*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'; cf. *lək'*^{w}*əd* 'eat ⊗')
ludx^{w} 'happen to hear ⊗'	(°√*lu* 'be heard'; cf. *luhəladi?* 'hear ⊗')
lildx^{w} 'draw away from ⊗'	(√*lil* 'be far away')
ƛ'ubildx^{w} 'manage to improve ⊗'	(√*ƛ'ubil* 'improve' from √*ƛ'ub* 'good, well')
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'	(°√*tq* 'closed'; cf. *tqad* 'close ⊗, block ⊗ off')
x̌əɬdx^{w} 'injure ⊗'	(√*x̌əɬ* 'be sick')
x̌^{w}*al'dx*^{w} 'get the better of ⊗'	(√*x̌*^{w}*al'* 'be unable, fail, lose')

Table 22: Stems formed with *-dx*^{w}

As can be seen in the glosses of many of these examples, the diminished control expressed by *-dx*^{w} generally has one of two sources — either the action is performed accidentally (*qəɬdx*^{w} 'accidentally awaken', *k'*^{w}*əɬdx*^{w} 'spill'), or the action is performed with some difficulty (*c'əldx*^{w} 'manage to defeat', *č'ax*^{w}*dx*^{w} 'manage to club, manage to get a lick in'). Which of the two types of reading a verb will have depends loosely on the basic meaning of the radical. Thus, radicals expressing non-desirable states or conditions unlikely to be desired by an actor (°√*k'aw* 'be bumped', √*k'*^{w}*əɬ* 'pour out, spill out') tend to have accidental readings, while radicals that express more desirable states or the endpoints of willful action on the part of an AGENT (°√*k*^{w}*ax*^{w} 'be helped', *ƛ'ubildx*^{w} 'manage to improve') tend to have the achieved-with-difficulty reading. Similarly, radicals expressing undesirable states that might be resisted by a potential undergoer (√*c'əl* 'be defeated', °√*ləx*^{w} 'be stabbed, be cut') generally take *-dx*^{w} with a reading of difficulty in achievement. Many verbs of perception (*labdx*^{w} 'see', *ludx*^{w} 'hear') and mental states (*laǩdx*^{w} 'remember', *p'alildx*^{w} 'bring around') also take (or are only used with) *-dx*^{w}, reflecting the lack of direct conscious control we have over perceptual stimuli and mental processes. However, with most stems the source of the diminished control is ultimately context-dependent. Compare, for example, the glosses of the sentences in (23):

(23) a. ʔuč'ax^{w}dx^{w}
ʔu–č'ax^{w}–dx^{w}
PFV–clubbed–DC
'he finally got a "lick" in [with his switch]'

b. ʔuč'axʷdubuɬ
ʔu–č'axʷ–dxʷ–buɬ
PFV–clubbed–DC–1PL.OBJ
'he accidentally hit us with a stick'

(Bates, Hess & Hilbert 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 the sentence in (24):

(24) gʷəhaw'əʔ x̌ʷul' ʔuɬəgʷəldxʷ tsiʔəʔ čəgʷas
gʷə=haw'əʔ x̌ʷul' ʔu–ɬəgʷɬ–dxʷ tsiʔəʔ čəgʷas–s
SBJ=PTCL only PFV–leave.behind–DC DIST:FEM wife–3PO
'it would seem he only just left his wife behind'

(Hess 2006: 12, line 42)

This sentence comes from a story in which Heron leaves his wife behind in their house (with no great difficulty) to go fishing (deliberately) for a particular food that his wife, Little Diver, has requested. The diminished control in this instance arises from the fact the Heron has no choice but to leave his wife (who is feigning illness) behind — 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 section of the narrative. Thus, *-dxʷ* seems to be singularly unselective about the locus of diminished control, requiring only that the AGENT not be fully in command of some salient aspect of the event under consideration.

A small number of radicals, all motion verbs, form monovalent intransitive stems with *-dxʷ*:

ča?kʷdxʷ 'manage to get to sea'	(√*ča?kʷ* 'seaward')
həd?iw'dxʷ 'manage to get inside'	(√*həd?iw'* 'be inside a house')
ɬalildxʷ 'manage to get ashore'	(√*ɬalil* 'go ashore')
ɬčildxʷ 'manage to arrive'	(√*ɬčil* 'arrive')
šədᶻaldxʷ 'manage to get outside'	(√*šədᶻal* 'be outside')
šulagʷildxʷ 'manage to get in small space'	(*šulagʷil* 'go in' from √*šul* 'be in')
təɬəɬdxʷ 'manage to arrive safely'	(√*təɬəɬ* 'arrive safely')

Table 23: Intransitive stems formed with *-dxʷ*

In each of these cases, the semantic contribution of *-dxʷ* is simply to add the notion of diminished control; it does not add an AGENT or a causer to the stem. This may be due in part to the fact that the radicals themselves are agent-

oriented rather than patient-oriented and do not express states that are typically thought of as being caused by an external AGENT; however, it should be remembered that the analogous forms with *-tx*^{w} 'external causative' (e.g., *ɬaliltx*^{w} 'bring ashore') are in fact transitive verbs of taking and bringing, raising the question of why forms such as *ɬalildx*^{w} 'manage to get ashore' are not glossed as 'manage to bring something ashore'. The answer to this question seems to reside in the fact that most of the AGENTs associated with *-dx*^{w} forms are more akin to the AGENTs associated with the internal causative, *-t*, and are treated as internal to rather than external to the event being expressed by the stem.

Finally, there are a few stems formed with *-dx*^{w} from bivalent bases. When the base is bivalent and intransitive, as in *ƛ'aldx*^{w} 'manage to get something on' (from √*ƛ'al* 'put something on'), the diminished control suffix acts as an applicative, promoting the oblique object of the base to direct object, as well as adding the notion of diminished control. In the case of the transitive radical √*ɬəg*^{w}*ɬ* 'leave something', the base for *ɬəg*^{w}*əldx*^{w} 'manage to leave something behind', *-dx*^{w} has no effect on the valency of the base, merely serving to mark diminished control. Hess (1990) also notes two more stems formed with *-dx*^{w} where this suffix does not function as a causative. The first of these is *pusil* 'throw something', in which the diminished control suffix functions merely as a syntactic transitivizer, promoting an oblique object of a bivalent intransitive stem to direct object without affecting the semantic valency of the stem, as shown in (25):

(25) a. ʔupusil ʔə tiʔəʔ č'ƛ'aʔ

ʔu–pus–il	ʔə	tiʔəʔ	č'ƛ'aʔ
PFV–thrown–INCH	PR	PROX	rock

's/he threw the rock'

(Hess 1990: 174, ex. 5)

b. ʔupusildx^{w} tiʔəʔ č'ƛ'aʔ

ʔu–pus–il–dx^{w}	ʔə	tiʔəʔ	č'ƛ'aʔ
PFV–thrown–INCH–DC	PR	PROX	rock

's/he threw the rock'

(Hess 1990: 174, ex. 6)

Here, the stem without *-dx*^{w} — based on the radical √*pus* 'be hit by something (missile)' plus an idiosyncratic use of the inchoative *-il* — is bivalent, taking the expression of the missile as an oblique object (25a). When *-dx*^{w} is added, the valency of the stem is unaltered but the derived verb is transitive, expressing the missile as a direct object (25b). A similar pattern in seen with the radical √*q'il* 'be aboard', as shown in (26):

(26) a. ʔuq'il dxʷʔal tiʔəʔ sdəxʷiɬ
ʔu–q'il dxʷʔal tiʔəʔ sdəxʷiɬ
PFV–be.aboard PR PROX canoe
'it is aboard the hunting canoe'

(Hess 1990: 174, ex. 7)

b. ʔuq'ildxʷ tiʔəʔ sdəxʷiɬ
ʔu–q'il–dxʷ tiʔəʔ sdəxʷiɬ
PFV–be.aboard–DC PROX canoe
's/he loaded the hunting canoe'

(Hess 1990: 174, ex. 8)

In this case, the oblique locative object subcategorized for by the bare radical becomes a direct object of the *-dxʷ* form. Note, however, that in addition to transitivizing the stem, in this form the affix also changes the semantic valency of the stem: rather than subcategorizing for a THEME (the object aboard the canoe) and a LOCATION (the canoe), as does the bare radical *√q'il*, *q'ildxʷ* subcategorizes for an AGENT and a LOCATION, making this use of *-dxʷ* quite distinct from its normal use as a diminished control causative.

It should also be noted that the forms in (25b) and (26b) seem to lack the notion of diminished control found in other *-dxʷ* forms, at least based on the glosses. It seems possible that the uncertainty of hitting one's target when throwing something might account for the use of the diminished control affix with *pusildxʷ*, although the full-control form *pusud* 'throw at something' exists as well. The use of the suffix in *q'ildxʷ* seems even more mysterious. As Hess (1990) points out, it may be that the glosses are inadequate or in some way deceptive — or it may simply be that these are phraseologized uses of the diminished control suffix that have gone down their own particular path of diachronic development. Until further attestations of these stems are uncovered, these questions will have to be left unanswered.

2.4 Causative middle *-b*

The suffix *-b* 'causative middle [CSMD]' is an intransitive causative suffix added to a monovalent base to create a bivalent intransitive verb stem, increasing the valency of the radical by adding an agentive syntactic subject, while the erstwhile PATIENT of the radical is realized as an oblique object:

(27) a. diɬ ləsq'ʷəlas gʷəbədiɬəs
diɬ ləs–q'ʷəl=as gʷə=bə=diɬ=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, Hess & Hilbert 1994: 195)

b. huy q'ʷəlb=axʷ əlgʷəʔ ʔə tiʔəʔ buʔqʷ

huy	q'ʷəl–b=axʷ	əlgʷəʔ	ʔə	tiʔəʔ	buʔqʷ
SCONJ	cooked–CSMD=now	PL	PR	PROX	duck

'well then they cook themselves these ducks'

(Hess 2006: 65, line 547)

In addition to acting as a causative and adding an AGENT to the diathesis of the verb, the causative middle adds an element of self-interest on the part of the AGENT and focuses the expression on the AGENT's involvement in the action expressed by the verb rather than its effect on the PATIENT. Compare the causative middle form in (27b) with the transitive (internal causative) form in (28):

(28) bəɬčiltxʷyitəb ʔə tiʔəʔ ʔalalš ʔə tiʔəʔ sʔəɬəd ƛ'ushuys kʷi ƛ'usqʷəlds əlgʷəʔ

bə=ɬčil–txʷ–yi–t–əb	ʔə	tiʔəʔ	ʔal–alš	ʔə	tiʔəʔ	sʔəɬəd
ADD=arrive–ECS–DAT–PASS	PR	PROX	PL–sibling	PR	PROX	food

ƛ'u=s=huy=s	kʷi	ƛ'u=s=q'ʷəl–d=s	əlgʷəʔ
HAB=NM=do–3PO	HYP	HAB=NM=cooked–ICS=3PO	PL

'the brothers brought food to her again when they finished cooking it'

(Hess 2006: 45, line 72)

In this example, the focus is clearly on the fact that the food is cooked, and the AGENTs, the brothers, do the cooking on behalf of someone else rather than in their own specific interests.[15]

In other forms, the semantic contribution of the causative middle is less that of self-interest and more one of placing emphasis on the AGENT's activity, backgrounding its effect on a specific PATIENT. This gives us verbal pairs based on the same radical such as *č'aʔəb* 'dig for something (roots)' vs. *č'aʔəd* 'dig something up', where the middle form describes a specific kind of digging and construes it as an activity while the internal causative describes an event and is more focused on the specific effects (the disinterment) of an action on a particular PATIENT. Several of these causative middle forms have lexicalized to the point of explicitly naming culturally salient activities (e.g., *ɬič'ib* 'cut something (cattails for mats)', *yiq'ib* 'make something (baskets)'). Both aspects of the middle's semantics — the self-interest and the activity reading — are quite in line with the cross-linguistic behaviour of what are called middle-markers in a wide range of languages, and fit nicely with Kemmer's (1993) hypothesis that the middle is in general a marker of reduced semantic transitivity.

[15] Note that here I am separating the causative middle from the valency neutral middle *-b*, which, although obviously cognate, has distinctive morphophonemic and morphosyntactic properties, and is less closely associated with the notion of self-interest than the causative middle. See also Watanabe (2003) and Dilts (2006) for similar proposals in Sliammon and Okanagan, respectively.

Table 24 shows a number of forms where the middle marker is added to a monovalent radical to form a bivalent intransitive stem:

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')
łič'ib 'cut ⊗ (cattails) for mats'	(√*łič'* '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'[16]	(√*q'il* 'be aboard')
q'ʷəlb 'cook ⊗ for oneself'	(√*q'ʷəl* 'be cooked, be ripe')
yəcəb 'report on ⊗'	(°√*yəc* 'be reported'; cf. *yəcəd* 'report ⊗')
yiq'ib 'make ⊗ (baskets)'	(√*yiq'* 'be worked into tight place')

Table 24: Bivalent intransitive stems formed with *-b*

As can be seen in the forms in Table 24, the causative middle suffix has two allomorphs, [-b] and [-əb], and interacts morphophonemically with its stem in the same way that the internal causative suffix does (Section 2.1). For many radicals, the distribution of the two allomorphs is conditioned by the preceding segment: the [-b] allomorph appears following vowels and approximants (e.g., °√*yəc* 'be reported' > *yəcəb* 'report', √*q'ʷəl* 'be cooked, be ripe' > *q'ʷəlb* 'cook something'), and the [-əb] allomorph appears following obstruents (√*č'aʔ* 'be dug up' > *č'aʔəb* 'dig for something (roots)'). For another set of radicals, those requiring an epenthetic harmonic vowel with the internal causative, the causative middle also triggers final epenthesis (√*łič'* 'get cut with knife' > *łič'ib* 'cut cattails for mats', *łič'id* 'cut something with a knife'; √*yiq'* 'be worked into tight place' > *yiq'ib* 'make something (baskets)', *yiq'id* 'weave something (basket)'). Similarly, those radicals that epenthesize a lexically-specified vowel with the internal causative add the same vowel before the causative middle (√*kʷəd* 'be held, be taken' > *kʷədəb* 'take something for self', *kʷədad* 'take something').

2.5 Causative of activity *-alikʷ*

The suffix *-alikʷ* 'causative of activity [ACT]' — or, as it has been traditionally glossed, 'creative activity' (Hess 1976; Bates, Hess & Hilbert 1994; Bates & Hess 2003) — is an intransitive causative suffix which, when added to a monovalent base, creates a bivalent intransitive verb by adding an AGENT expressed as syntactic subject. The resultant verbs express an event in which the AGENT is engaged in an activity affecting a PATIENT or involving a THEME. As an intransitive causative, however, the causative of activity creates a stem that expresses the PATIENT/THEME as an oblique, rather than direct, object, as in (29):

[16] This form is also attested as *q'iləb* when the middle suffix is in word-final position.

(29) a. ʔuč'aǰʷ čəd
ʔu–č'aǰʷ čəd
PFV–clubbed 1SG.SUB
'I got hit [by a branch in the thicket]'
(Bates, Hess & Hilbert 1994: 69)

b. ƛ'ubəxʷ čəɬ ʔuč'axʷalikʷ ʔə tiʔəʔ buʔqʷ
ƛ'ub=əxʷ čəɬ ʔu–č'axʷ–alikʷ ʔə tiʔəʔ buʔqʷ
well=now 1PL.SUB PFV–clubbed–ACT PR PROX duck
'we had better use [our paddles] as clubs against these ducks'
(Hess 2006: 76, line 810)

Here, the radical *č'axʷ* 'be hit with a stick' in its bare form assigns the semantic role of PATIENT to its single argument, which is expressed as the semantic subject (29a). When *-alikʷ* is added to the radical, the subject of the derived form is an AGENT and the PATIENT is expressed as an oblique object, as in (29b). As shown in (30), an overt, non-oblique NP is interpreted as the subject rather than the object of an *-alikʷ* form:

(30) c'əlalikʷ tsiʔiɬ ƛ'aǰ'ac'apəd
c'əl–alikʷ tsiʔiɬ ƛ'aǰ'ac'apəd
defeated–ACT DIST:FEM ant
'Ant wins'
(Hess 1995: 145, line 58)

This is an interpretive property of intransitive verbs or what have traditionally been referred to as "agent-oriented stems" (e.g., Hess 1995).

In addition to changing the valency of its base, *-alikʷ* adds the notion of a repeated or temporally extended action (Bates & Hess 2003), frequently creating verbs for culturally important or routine activities. A number of such forms are given in Table 25:

ʔabalikʷ 'give ⊗ out as in potlatch'	(°√*ʔab* 'be extended'; cf. *ʔabəd* 'extend ⊗')
ʔilalikʷ 'interpret ⊗'	(√*ʔil* 'sing')
bəčalikʷ 'bet ⊗, wager with ⊗'	(√*bəč* 'be lying, be fallen from standing')
caq'alikʷ 'spear ⊗, impale ⊗'	(√*caq'* 'be speared, be impaled')
cilalikʷ 'dish ⊗ (food)'	(√*cil* 'be supported, be dished up')
cilyialikʷ 'dish up ⊗ (food) for ⊙'	(√*cil* 'be supported, be dished up')
c'əlalikʷ 'defeat ⊗'	(°√*c'əl* 'be defeated'; cf. *c'əld* 'defeat ⊗')
c'iǰalikʷ 'fry ⊗'	(°√*c'iǰ* 'be fried'; cf. *c'iǰid* 'fry ⊗')
c'salikʷ 'peck at ⊗'	(°√*c'əs* 'be pecked'; cf. *c'əsəd* 'peck ⊗')
č'aʔalikʷ 'dig for ⊗ (edible roots)'	(°√*č'aʔ* 'be dug up'; cf. *č'aʔəd* 'dig ⊗ up')
č'axʷalikʷ 'hit ⊗ with stick'	(√*č'axʷ* 'be hit with a stick')
č'əd͡zalikʷ 'stalk ⊗ (prey)'	(°√*č'əd͡z* 'stalked'; cf. *č'əd͡zəd* 'sneak up on ⊗')

dᶻubalikʷ 'dance'	(°√*dᶻub* 'be kicked'; cf. *dᶻubud* 'kick ⊗')
gəlk'alikʷ 'knit ⊗'	(√*gəlk'* 'be wound, be tangled')
gʷəč'alikʷ 'habitually seek ⊗'	(°√*gʷəč'* 'be sought'; cf. *gʷəč'əd* 'look for ⊗')
gʷələlalikʷ 'kill ⊗, slaughter ⊗'	(°√*gʷələl* 'be hurt'; cf. *gʷəlald* 'kill ⊗')
gʷiʔalikʷ 'ask for ⊗'	(√*gʷi* 'make an invitation')
huyalikʷ 'make ⊗, create ⊗'	(√*huy* 'be completed, be finished')
kʷədalikʷ 'take ⊗ over and over'	(√*kʷəd* 'be held, be taken')
k'awalikʷ 'chew ⊗'	(°√*k'aw* 'be chewed'; cf. *k'awad* 'chew ⊗')
k'ʷɬalikʷ 'serve ⊗ (liquid)'	(√*k'ʷəɬ* 'pouring out, spill out')
łač'alikʷ 'fight fire'	(√*łač'* 'go out (fire)')
ƛ'aɬəbalikʷ 'salt ⊗'	(√*ƛ'aɬəb* 'be salty')
p'ṭ'alikʷ 'save ⊗'	(°√*p'ṭ'* 'be stored'; cf. *p'ṭ'ad* 'store ⊗')
q̓italikʷ 'hang ⊗ (fish) up to dry'	(°√*q̓it'* 'be hung'; cf. *q̓it'id* 'hang ⊗')
subalikʷ 'smell ⊗'[17]	(°√*sub* 'have odour'; cf. *subud* 'smell ⊗')
šabalikʷ 'dry ⊗ (food)'	(√*šab* 'be dry')
tagʷəlikʷ 'buy ⊗'	(√*takʷ* 'be bought')
tsalikʷ 'hammer ⊗, pound ⊗'	(°√*ts* 'be punched' cf. *təsəd* 'punch ⊗')
tuxʷalikʷ 'stretch ⊗'	(°√*tuxʷ* 'be stretched')
t'qalikʷ 'make bread; plaster'	(√*t'q* 'be thick')
x̌ƛ'alikʷ 'bite into ⊗'	(°√*x̌ƛ'* 'be bitten'; cf. *x̌əƛ'əd* 'bite ⊗')
xʷšalikʷ 'sow ⊗; give ⊗ at potlatch'	(°√*xʷš* 'be thrown'; cf. *xʷəšəd* 'throw ⊗')
x̌ʷadᶻalikʷ 'slaughter ⊗'	(°√*x̌ʷadᶻ* 'be injured'; cf. *x̌ʷadᶻad* 'punish ⊗')

Table 25: Stems formed with *-alikʷ*

In the bulk of these forms the additional semantic component of 'activity' or 'creative activity' is obvious from the glosses, as in °√*xʷəš* 'be thrown, be distributed' vs. *xʷšalikʷ* 'sow; potlatch' or √*łač'* 'go out (fire)' vs. *łač'alikʷ* 'fight fire'. In addition to causativizing the radical by adding an AGENT/subject, *-alikʷ* converts an expression of a state resulting from a telic, possibly punctual, action into an expression of a non-telic activity which involve multiple instances of that action (as in the throwing of multiple seeds in sowing or the multiple acts of distribution of goods in a potlatch), or which involve extended activity or a suite of actions eventually leading to the resultant state (as in the various steps involved in fighting a fire, all of which lead up to the fire's extinction). The same type of distinction can be seen in more idiosyncratic pairs such as √*bəč* 'be lying' vs. *bəčalikʷ* 'bet, place a wager with' or √*gəlk'* 'be wound, be tangled' vs. *gəlk'alikʷ* 'knit', where a fairly generic stative expression has become lexicalized as an expression of a very specific activity involving (literally or metaphorically) placing some PATIENT or THEME in that state. In a few cases, the lexicalized meaning is so specific with respect to a potential object that the form is, at least in its attested uses, essentially monovalent (e.g., *łač'alikʷ* 'fight fire', *t'qalikʷ* 'make bread; plaster', *dᶻubalikʷ* 'dance'). Given that the nature of the

[17] Also recorded in the *Lushootseed Dictionary* as *šuʔbalikʷ* (Bates et al. 1994: 28).

THEME of such verbs is inherently specified by the meaning of the stem, the absence of an overtly expressed object with such forms is consistent with the focus of the causative of activity on the ACTOR's role in the event.

There are a few cases where the glosses of the *-alikʷ* form and the radical (or the transitive or middle form of the same radical) appear to be largely synonymous, but the distinction is made apparent by commentary from speakers or investigators on the glosses — as for, instance, with *gʷəlalalikʷ* 'kill, slaughter' and *x̌ʷadᶻalikʷ* 'slaughter' to both of which Bates, Hess & Hilbert (1994) add the comment "for a *pigʷəd* (spirit power ceremony)", or with *k'ʷɬalikʷ* 'serve liquid' to the gloss of which Bates & Hess (2003) add "repeatedly (as to all the guests)". Similarly, to the gloss of *kʷədalikʷ* 'take over and over' Bates & Hess (2003) add "(as in fishing)", the parenthesis indicating a frequent context for usage rather than a part of the semantics of the verb (see, for instance, the use of *kʷədalikʷ* in Martha Lamont's Changer story (Hess 1998: 75, line 261) where the context makes it clear that the verb there has nothing to do with catching fish). Presumably, for the handful of apparently synonymous verbal pairs for which such commentary is lacking, further investigation would reveal similar distinctions.

3 Allative applicative *-c/-s*

In contrast to causative affixes, applicatives add a non-agentive object to the valency of their bases. Of the Lushootseed morphemes that fit this definition, *-c/-s* 'allative applicative [ALTV]' is the most straightforward, the others being secondary suffixes that require the presence of some other morpheme in order to form a transitive stem (Section 4). When attached to a verbal base, the allative applicative adds a new argument, most frequently a GOAL, which is realized as the direct object of the derived verb:

(31) a. huy ʔəƛ'axʷ ti?ə? čxʷəlu?
huy ʔəƛ'=axʷ ti?ə? čxʷəlu?
SCONJ come=now PROX whale
'and then Whale comes'
[ML Mink and Tutyika I, line 106]

b. gʷəl ɬuʔəƛ'cuɬ əlgʷə? čla ɬuʔa
gʷəl ɬu=ʔəƛ'–c–buɬ əlgʷə? čla ɬu=ʔa
then IRR=come–ALTV–1PL.OBJ PL 1PL.COORD IRR=be.there
'then they will come for us and we will be there'
(Hess 2006: 72, line 712)

c. łu?əƛ'cəb čəł
łu=?əƛ'–c–əb čəł
IRR=come–ALTV–PASS 1PL.SUB
'we will be come after'

[ML Mink and Tutyika I, line 14]

The applicative object is a direct object as it is marked by an object suffix (31b) and is subject to syntactic operations such as passivization (31c). When the verb takes an overt NP argument, this argument is interpreted as the direct object:

(32) ?u?əƛ'c ti sqʷəbay?
?u–?əƛ'–c ti sqʷəbay?
PFV–come–ALTV DEF dog
's/he came for the dog'

(Hess 1995: 15, ex. 10c)

Thus, allative applicative stems are ordinary transitive verbs.

The allative applicative morpheme has two allomorphs. The [-c] allomorph is used with a small, idiosyncratic group of stems:

ʔəƛ'c come after ⊗'	(√*ʔəƛ'* 'come')
ʔəƛ'cbid 'come after ⊗'	(√*ʔəƛ'* 'come')
ʔigʷəɬaac 'climb after ⊗'	(√*ʔigʷəɬa* 'climb tree') (Sk)
ʔuǰʷc 'go to ⊗'	(√*ʔuǰʷ* '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'ʷəƛ'c 'miss ⊗ (target)'	(°√*k'ʷəƛ'* 'miss'; cf. *k'ʷəƛ'gʷasbid* 'miss meeting')
laǰc 'think of ⊗'	(√*laǰ* 'recall, remember')
ləqc 'listen to ⊗'	(√*ləq* 'listen') (Sk)
luuc 'listen to ⊗'	(°√*lu* 'be heard'; cf. *luhəladi?* 'hear ⊗')
qʷi?aac 'call out to ⊗'	(√*qʷi?ad* 'yell')
šuuc 'look at ⊗'	(√*šuɬ* 'look around, gaze')
tayc 'come after ⊗ in raid'	(√*tay* 'go raiding')

Table 26: Stems formed with *-c*

When attached to V-final stems, the [-c] allomorph triggers lengthening of the final vowel (e.g., *bali* 'be forgetful' > *baliic* 'forget about something', *ʔigʷəɬa* 'climb tree' > *ʔigʷəɬaac* 'climb after something'). If the final vowel is /ə/, it becomes /aa/ (*čubə* 'go inland' > *čubaac* 'go inland after something'). For an idiosyncratic set of C-final stems, the allative applicative causes vowel-

lengthening as well as syncope of the final consonant (*šuɬ* 'see' > *šuuc* 'look at', *qʷiʔad* 'yell' > *qʷiʔaac* 'call out to').

The second allomorph, [-s], is found associated with a relatively larger group of stems, all of which end in /il/.

ʔusis 'dive after ⊗'	(√*ʔusil* 'dive')
c'ip'əlis 'ignore ⊗'	(√*c'ip'lil* 'shut eyes')
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')
ɬalis 'go ashore after ⊗'	(√*ɬalil* 'go ashore')
ɬčis 'arrive at ⊗'	(√*ɬčil* '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')
xʷakʷis 'get tired of ⊗'	(√*xʷakʷil* 'be tired')
xʷtʼagʷis 'climb down after ⊗'	(*xʷtʼagʷil* 'climb down' from °√*xʷit'* 'lowered')
x̌aƛ'is 'defend from ⊗'	(√*x̌aƛ'il* 'argue')
x̌ʷubis 'be quiet about ⊗'	(√*x̌ʷubil* 'be quiet')

Table 27: Stems formed with *-s*

In a few of these cases, the final sequence /il/ of the base is synchronically analyzable as either the inchoative suffix *-il* or the autonomous action suffix *-agʷil* (which may itself be historically analyzable as containing the inchoative suffix).[18] In the bulk of cases, however, the radical without *-il* seems to be unattested in any environment, although generally the meaning of stems with *-il* are compatible with an etymological analysis that posits a historical root-plus-inchoative combination. Thus, diachronically, the distribution of the *-s* allomorph of the allative applicative may have been due to morphological conditioning by the presence of the inchoative suffix *-il*, although synchronically this seems to have been reduced to a phonological condition on the allomorphy of the allative applicative suffix.

[18] In addition to the forms found in Table 27, there is a form *saxʷəbis* 'run after something', which appears to be based on the unattested stem **saxʷəbil* (from √*saxʷəb* 'jump, run), and *qadis* 'approach something from behind', which seems to be based on **qadil* (√*qad* 'back up').

4 Secondary suffixes

Secondary suffixes are affixes that combine with another valency-increaser, usually *-t* 'internal causative',[19] to form a morphological complex that adds a direct object expressing some semantic role other than PATIENT. In total, Hess & Bates (2004) list four secondary suffixes — *-yi-*, *-bi-*, *-di-*, and *-i-*. Of these, only *-yi-* and *-bi-* appear to be productive and can be associated with unique and fairly consistent meanings; the other two appear to be confined to a few fossilized forms and to have meanings that overlap with those of the more productive secondary suffixes.

4.1 Dative applicative *-yi-*

The secondary suffix *-yi-* 'dative applicative [DAT]' combines with the internal causative suffix *-d* to create trivalent transitive verbs which express an AGENT as subject and a RECIPIENT or BENEFICIARY as direct object. When the morphological complex *-yi-d* is added to a monovalent intransitive base, the effect is an increase in valency of two, as in (33):

(33) a. ʔukʷəd ti ʔiɬkʷəlq
ʔu–kʷəd ti ʔiɬ–kʷəlq
PFV–taken DEF PRTV–other.things
'some (not all) was taken'
(Bates, Hess & Hilbert 1994: 123)

b. ʔukʷədyic ʔə ti ɬaʔx̌
ʔu–kʷəd–yi–t–s ʔə ti ɬaʔx
PFV–taken–DAT–ICS–1SG.OBJ PR DEF platter
's/he took the platter from me'
(Hess 1995: 42)

c. ʔukʷədyitəb čəd ʔə tsi č'ač'as ʔə ti k'ʷat'aq
ʔu–kʷəd–yi–t–əb čəd ʔə tsi č'ač'as
PFV–taken–DAT–ICS–PASS 1SG.SUB PR DEF:FEM child

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[19] In fact, there is only one form in the textual corpus that contains a secondary suffix followed by a valency-increasing morpheme other than the internal causative:

(i) gʷəl lələk'ʷəd ti?iɬ ləcucilyialikʷ s?əɬəd
gʷəl lə–lək'ʷ–əd ti?iɬ ləcu–cil–yi–alikʷ s?əɬəd
then PRG–eat–ICS DIST PROG.STAT–dish.out–DAT–ACT food
'and as he was going along, he was eating the food that was being dished up'
(Hess 1998: 63, line 76)

The *Lushootseed Dictionary* (Bates, Hess & Hilbert 1994: 230) also contains the form *tupyib* 'pound something to prepare as food'. It is not clear to what extent these verbs are fossilized or if they represent derivational possibilities in the synchronic language.

ʔə	ti	k'ʷat'aq
PR	DEF	mat

'I had the mat taken from me by the girl'

(Hess 1995: 36, ex. 13c)

(33a) shows the monovalent radical *kʷəd* 'be held, be taken' which takes a THEME as its subject. When *-yi-d* is added to the radical, the verb becomes trivalent, as in (33b). The new semantic roles added to the radical are AGENT — the role normally added by the internal causative — and BENEFICIARY/MALEFICIARY. Of these two new semantic actants, the AGENT is expressed as the subject and the THEME is expressed as an oblique. The direct object is the BENEFICIARY, which is marked using the *s*-series of object-markers associated with the internal causative (Section 2.1). The direct object of verbs formed with *-yi-d* is a syntactically ordinary direct object and is amenable to syntactic operations such as passivization (33c). An overt, non-oblique NP appearing with a *-yi-d* form is interpreted as the direct object:

(34) ʔuləkʷyid ti luƛ' ʔə ti sʔuladxʷ

ʔu–ləkʷ–yi–d	ti	luƛ'	ʔə	ti	sʔuladxʷ
PFV–eaten–DAT–ICS	DEF	old	PR	DEF	salmon

's/he ate the old man's salmon'

(Hess 1995: 36, ex. 14b)

Thus, despite being trivalent, dative applicatives form ordinary transitive clauses, realizing the third argument of the verb as an oblique.

A number of dative applicative stems formed on monovalent radicals are given in Table 28:

ʔabyid 'give ⊗ to Ⓨ'	(°√*ʔab* 'be extended'; cf. *ʔabəd* 'extend ⊗')
ʔayid 'put ⊗ there for Ⓨ'	(√*ʔa* 'be there')
ʔilyid 'sing ⊗ for Ⓨ'	(√*ʔil* 'sing')
ʔuǰʷyid 'go in place of ⊗'	(*ʔuǰʷ* '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 ⊗')
ləkʷyid 'eat ⊗ away from Ⓨ'	(°√*ləkʷ* 'eaten'; cf. *ləkʷdxʷ* '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')[20]
x̌ədyid 'set ⊗ aside for Ⓨ'	(°√*x̌əd* 'be pressed'; cf. *x̌ədəd* 'push ⊗')
x̌qičyid 'bind ⊗ into a pack for Ⓨ'	(°√*x̌q* 'be wrapped, be tied' + *-ič* 'bundle')

Table 28: Stems formed with *-yi-d* on monovalent bases

A few of these forms have lexicalized meanings that are metaphorical or idiomatic (e.g., °√*x̌əd* 'be pressed' > *x̌ədyid* 'set aside for', °√*biqʷ* 'be loose' > *biqʷyid* 'grant to, permit'). Most notable in this regard is *ʔabyid* 'give to' (from °√*ʔab* 'be extended'), which is the most textually frequent of the *-yi-d* forms. There are also three forms in the table which seem to be only bivalent rather than trivalent — *ʔuǰʷyid* 'go in place of', *hudyid* 'make a fire for', and *łagʷidyid* 'set out a mat for'. Of these, *hudyid* 'make a fire for' and *łagʷidyid* 'set out a mat for' both have conventionalized THEMEs ('wood' and 'mat', respectively) inherent in the semantics of the stem itself. These simply may not bear expression as an NP argument. Whether the overt use of an oblique THEME argument with these forms is possible or whether the absence of such forms in the corpus is merely the improbability of an appropriate discourse context for such an argument must remain an open question. The third bivalent stem, *ʔuǰʷyid* 'go in place of' is based on a monovalent agent-oriented radical and the absence of a third syntactic argument is no doubt a consequence of the absence of a plausible semantic role that such an argument might express. It should be noted in all three cases, however, that the semantic role which is added by *-yi-d* is BENEFICIARY; this is consistent with its behaviour in the other verb forms.

In addition to appearing with monovalent intransitive radicals, *-yi-d* is also found associated with a few bivalent intransitive radicals in verbs such as such as *ʔuləx̌yid* 'gather something for someone' (√*ʔuləx̌* 'forage for something'), *ʔəy'dxʷyid* 'find something for someone' (√*ʔəy'dxʷ* 'find something'), *haydxʷyid* 'find out about something for someone' (√*haydxʷ* 'know something'), and *hiq'ʷəbyid* 'covet something of someone's' (√*hiq'ʷəb* 'covet something'). In these cases, although the net gain in valency is only one, the government pattern of the resulting verb is the same as when *-yi-d* is added to a monovalent intransitive radical:

(35) a. ʔuʔuləx̌ ti luƛ' ʔə ti bəsqʷ

ʔu–ʔuləx̌	ti	luƛ'	ʔə	ti	bəsqʷ
PFV–forage	DEF	old	PR	DEF	crab

'the old man foraged for crab'

(Hess 1995: 28, ex. 15b)

b. ƛ'al' čəd gʷəbəʔuləx̌yid tiʔəʔ c'ix̌c'ix̌ ʔə kʷi sʔuladxʷ

ƛ'al' čəd	gʷə=bə=ʔuləx̌–yi–d	tiʔəʔ	c'ix̌c'ix̌
also 1SG.SUB	SBJ=ADD=gather–DAT–ICS	PROX	fish.hawk

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

?ə kʷi s?uladxʷ
Pr HYP salmon
'I too can get salmon for Fish Hawk'

(Hess 1995: 153, line 54)

In forms like these, the internal causative portion of the *-yi-d* complex does not causativize the verb, but seems merely to indicate that the verb is transitive.[21]

A similar pattern is found when *-yi-d* is added to transitive stems formed with one of the valency-increasing causative morphemes:

(36) a. xʷuyub
xʷuyub
be.sold
'make a sale'

(Hess & Bates 2004: 178, ex. 14)

b. ?uxʷuyutubš čəxʷ
?u–xʷuyu–txʷ–bš čəxʷ
PFV–be.sold–ECS–1SG.OBJ 2SG.SUB
'you sold me'

(Bates, Hess & Hilbert 1994: 255)

c. ?uxʷuyubtxʷyid čəd tsi d?ibac
?u–xʷuyub–txʷ–yi–d čəd tsi d–?ibac
PFV–be.sold–ECS–DAT–ICS 1SG.SUB DEF:FEM 1SG.PO–grandchild
'I sold it for my granddaughter'

(Bates, Hess & Hilbert 1994: 255)

Here, the PATIENT semantic role associated with a valency-increasing affix like the external causative in (36b) is no longer the direct object of the verb formed

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[21] The same holds for *?uləx̌* when combined with the internal causative suffix alone:

(i) ƛ̓'u?uǩʷ čəd čəda ƛ̓'u?uləx̌əd ti?ə? č'itulbixʷ ?al ti?ə? di?ə? sbadil
ƛ̓'u=?uǩʷ čəd čəda ƛ̓'u=?uləx̌–əd ti?ə? č'itulbixʷ
HAB=go 1SG.SUB 1SG.COORD HAB=gather–ICS PROX grass

?al ti?ə? di?ə? sbadil
PR PROX DEM mountain
'I go and I gather this grass on the mountain'

(Bates, Hess & Hilbert 1994: 21)

The effect of the internal causative on this particular stem is that of a simple transitivizer. None of the other bivalent intransitive stems listed above combines with *-t* on its own.

with *-yi-d* (36c), which expresses the BENEFICIARY in this role. When overt, the PATIENT is expressed as an oblique object, as in (37):

(37) ʔəsčal kʷi gʷədəxʷləkʼʷdxʷyids tsiʔəʔ ʔalšs ʔə tiʔəʔ sʔəɬəds
ʔəs–čal kʷi gʷə=dəxʷ=ləkʼʷ–dxʷ–yi–d=s tsiʔəʔ
STAT–how HYP SBJ=ADNM=eaten–ICS–DC–DAT–ICS=3PO PROX:FEM

ʔalš–s ʔə tiʔəʔ sʔəɬəd–s
sibling–3PO PR PROX food–3PO
'how could he eat his sister's food away from her?'
(Hess 1998: 56, line 6)

Here, the oblique object of the verb *ləkʼʷdxʷyid* 'eat something away from someone, manage to get someone's food and eat it', *tiʔəʔ sʔəɬəds* 'her food', corresponds to the PATIENT/direct object of the plain transitive form *ləkʼʷdxʷ* 'mange to eat something'. Once again, the internal causative portion of the *-yi-d* complex seems not to function so much as a valency-increasing affix as it does as a marker of the transitivity of the clause

As these examples show, while the basic syntactic effect of *-yi-d* is to increase the valency of a verb stem, it may not increase it beyond the upper limit of three syntactic arguments. If the verb stem is monovalent intransitive, its valency is increased by two, as in (33); if the form is bivalent intransitive, its valency is increased by one and the stem is transitivized, as in (35); if the stem is already transitive, the valency is increased by one and the government pattern is altered so that what was expressed as the direct object of the transitive form becomes an oblique object of the *-yi-d* form, as in (37). Although the effect on the stems is different, the government pattern of the resulting verb is always the same — a trivalent monotransitive verb with a RECIPIENT/BENEFICIARY expressed as direct object and a PATIENT/THEME expressed as an oblique. A number of bivalent stems that take *-yi-d* are given in Table 29:

ʔaladᶻiʔlyid 'babysit ⊗ for Ⓨ'	(°√*ʔaladᶻ* 'care for ⊗' + *-iʔɬ* 'child')
ʔəyʼdxʷyid 'find ⊗ for Ⓨ'	(√*ʔəyʼdxʷ* 'find ⊗')
ʔuləx̌yid 'gather ⊗ for Ⓨ'	(√*ʔuləx̌* 'gather ⊗, forage for ⊗')
cildxʷyid 'serve ⊗ to Ⓨ'	(√*cil* 'be dished up' + *-dxʷ* 'DC')
haydxʷyid 'find out about ⊗ for Ⓨ'	(°√*hay* 'be known'; cf. *haydxʷ* 'know ⊗')
hiqʼʷəbyid 'covet ⊗ from Ⓨ'	(√*hiqʼʷəb* '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 ⊗')
ləkʼʷdxʷyid 'manage to eat ⊗ of Ⓨ's'	(°√*ləkʼʷ* 'be eaten' + *-dxʷ* 'DC')
ɬčiltxʷyid 'bring ⊗ for Ⓨ'	(√*ɬčil* 'arrive' + *-txʷ* 'ECS')
ɬəgʷlyid 'leave ⊗ for Ⓨ'	(√*ɬəgʷɬ* '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 Ⓨ')	(°√*xʷuyub* 'be sold' + *-txʷ* 'ECS')

Table 29: Stems formed with *-yi-d* on bivalent bases

The forms in this table are built on both bivalent intransitive and bivalent transitive bases. The bulk of the transitive bases contain one of the causative valency-increasing affixes (*-txʷ* 'exernal causative', *-dxʷ* 'diminished control', or *-b* 'causative middle'), although there are two inherently transitive forms — √*ʔəy'dxʷ* 'find something' and √*łəgʷɬ* 'leave something'. The first of these is clearly diachronically derived from a *-dxʷ* form, while the third, √*łəgʷɬ*, is one of the few inherently transitive radicals with no identifiable derivational history. In addition, there is *pusil* 'throw something' which is formed from the radical √*pus* 'be hit by something (missile)' and an idiosyncratic use of the inchoative suffix *-il*. The remainder of the *-yi-d* forms in Table 29 are based on bivalent intransitive radicals. It is also worth noting that the forms *qadadyid* 'steal something for someone' and *qʷuʔqʷadyid* 'drink something of someone's' appear to be based on unattested internal causative stems **qadad* 'steal something' and **qʷuʔqʷad* 'drink something'; in the case of *qadadyid*, there is an attested bivalent intransitive form √*qada* 'steal something'.

4.2 Middle applicative *-bi-*

The secondary suffix *-bi-* 'middle applicative [MAP]' combines with the internal causative suffix *-t* to form transitive stems whose direct object expresses semantic actants in a variety of roles other than PATIENT. The range of semantic roles, and to a certain extent the syntactic effect of *-bi-d* on its stem, is much more variable than it is for *-yi-d*, and the over-arching semantic linkage amongst the different uses of this morphological complex seems to be a rather abstract notion of reduced semantic transitivity (Hopper & Thompson 1980), a notion identified by Kemmer (1993) as being the common thread linking middle forms across a wide range of languages. The parallel is strengthened by the overlap in semantic domain with the valency-neutral middle *-b* in Lushootseed and the cognate *-m* and *-mi* suffixes in other Salishan languages, elements which also cluster in their meanings around the prototypical meanings of the middle.

The feature of *-bi-d* that distinguishes it most clearly from the ordinary middle suffix is its syntactic effects on the stem to which it is attached. Because middles are generally associated with reduced semantic transitivity, their most common syntactic effect cross-linguistically is to detransitivize —or intransitivize — a stem; *-bi-d*, however, most often has the opposite effect on syntactic transitivity, increasing the valency of a stem by adding a direct object:

(38) a. ʔuʔup' čəd
ʔu–ʔup' čəd
PFV–be.seated.on.lap 1SG.SUB
'I sat on a lap'
(Bates, Hess & Hilbert 1994: 22)

b. ʔəsʔup'bid čəd tiʔiɬ[22]
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, Hess & Hilbert 1994: 22)

When the object is first- or second person, it is expressed by object-markers:

(39) ƛ'ub čəxʷ ʔušəbic čxʷa bałac
ƛ'ub čəxʷ ʔušəb–bi–t–s čxʷa bała–t–s
well 2SG.SUB pity–MAP–ICS–1SG.OBJ 2SG.COORD cure–ICS–1SG.OBJ
'you should take pity on me and perform a shaman cure for me'
(Hess 1998: 57, line 32)

Like all direct objects, the argument added to the verb stem by *-bi-d* can be promoted by passivization to become a subject:

(40) a. hay, x̌ʷul'əxʷ əlgʷəʔ ʔəshiq'ʷabid tiʔəʔ qa ʔəsqʷat
hay x̌ʷul'=əxʷ əlgʷəʔ ʔəs–hiq'ʷab–bi–d tiʔəʔ qa
SCONJ only=now PL STAT–covet–MAP–ICS PROX much

ʔəs–qʷat
STAT–laid.out
'well then they just coveted the many (dentalia) that were lying there'
(Hess 2006: 60, line 439)

b. gʷəl ʔəshiq'ʷabitəb ʔə tiʔəʔ sbiaw tsiʔəʔ čəgʷas sx̌aʔhus
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, was coveted by Coyote'
(Hess 2006: 22, line 12)

[22] The verb form is given in the source as *ʔəsp'up'bid*, although the sub-entry heading is the expected form *ʔup'bid*, as is the verb form in the subsequent example. The form *ʔup'bid* is also found in Hess & Bates (2004: 180, ex. 23).

Non-oblique NP arguments with *-bi-d* stems are interpreted as direct objects:

(41) *x̌əcbidəxʷ tsi?ə? čəgʷas*

x̌əc–bi–d=əxʷ	*tsi?ə?*	*čəgʷas–s*
afraid–MAP–ICS=now	PROX:FEM	wife–3PO

'he is afraid of his wife now'

(Hess 2006: 6, line 78)

Thus, like all applicative objects, the object of stems formed with *-bi-d* is a morphosyntactically ordinary direct object.

The most consistent pattern found with *-bi-d* derivations is one where a monovalent intransitive base is transitivized by the addition of a second semantic actant, in Table 30:

?əɬdiluɬbid 'go to eat off of ⊗'	(*?əɬdiluɬ* 'go out to eat')
?up'bid 'sit on ⊗'s lap'	(√*?up'* 'be seated on a lap')
gʷahbid 'accompany ⊗'	(√*gʷah* 'accompany, go along')
laqbid 'be behind ⊗'	(√*laq* 'be last')
laxbid 'remember ⊗'s story'	(√*lax̌* 'recall, remember')
ɬaw'tbid 'be new for ⊗'	(√*ɬaw't* 'be new')
saxʷəbid 'run after ⊗ or up to ⊗'	(√*saxʷəb* 'jump, sprint')
sulabid '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 30: Applicative uses of *-bi-d*

As noted earlier, the specific semantic roles played by the new actants vary quite a bit from verb to verb. In several cases, the new role seems to be locative (e.g., *?up'bid* 'sit on someone's lap', *sulabid* 'be in the middle of a room relative to something') or directional (*saxʷəbid* 'run after something or up to something'), whereas in others *-bi-d* seems simply to add whatever kind of additional role might plausibly be associated with a particular type of event. An interesting contrast is found between the forms *laxdxʷ* 'remember something' and *laxbid* 'remember someone's story, remember the whole situation regarding someone', where the difference seems to be one of thinking specifically about a person versus recalling not so much that person directly as a set of events surrounding the individual. The common thread running through all of these forms is that the

-bi-d object is not directly affected by the action in the way that PATIENT would be — in other words, the interaction between the AGENT and the UNDERGOER/ENDPOINT of the event is less semantically transitive than the typical interaction between an AGENT and a PATIENT, where the PATIENT undergoes some internal change of state.

To a certain extent the less-direct interaction between AGENT and ENDPOINT found with the middle applicative parallels in some ways the less-direct interaction between the AGENT and the GOAL in allative applicative constructions. Two of the radicals in Table 30 have both a *-bi-d* and a *-c* form. One of these is *√šuł* 'look around, gaze', which is the base for *šułbid* 'keep an eye out for someone's arrival' and *suuc* 'look at something'. The contrast in the semantic roles of the objects in these two forms is fairly clear: in the allative applicative form the EXPERIENCER's gaze is directed towards an object which is present and can serve as a specific locus on which his/her attention is focused (i.e., a metaphorical GOAL for one's attention), while in the middle applicative the potential PERCEPT is not present and the EXPERIENCER is not (yet) interacting with it. So the distinction here is both one of difference in semantic role (GOAL vs. non-GOAL) and in semantic transitivity, the *-bi-d* form being much lower on that particular scale. The second stem, *xʷak'ʷilbid* 'become disaffected with something, tire of something due to lack of enthusiasm or energy', contrasts with *xʷak'ʷis* 'become fed up with something tiresome', formed from the radical *√xʷak'ʷil* 'be tired' and the allative applicative. The distinction here seems to be a distinction in the locus of the impetus of the event: in the *-bi-d* form the source of the feeling of disaffection is internal, whereas in the allative form the impetus comes from the nature of the STIMULUS. While this is not easily characterized in terms of a distinction in semantic transitivity, it is consistent with the characterization of *-bi-d* as a middle, given that middles cross-linguistically are associated with the interests of the AGENT/EXPERIENCER/subject and are frequently used to express events in which the impetus for an event is internal to the ACTOR.

Reduced semantic transitivity in the form of the lack of direct-affectedness of the object by the subject in *-bi-d* constructions is seen quite clearly in a rather large group of stems in which the semantic role of the applicative object is that of MOTIVE:

ʔukʷukʷbid 'make fun of ⊗'	(*√ʔukʷukʷ* 'play, have fun')
ʔušəbid 'feel pity for ⊗'	(°*√ʔušəb* 'feel pity')
c'adᶻaxbid 'be bothered by ⊗'	(°*√c'adᶻax̌* 'annoyed'; cf. *c'adᶻaxtx̌ʷ* 'bother ⊗')
c'ip'lilbid 'shut eyes not to see ⊗'	(*√c'ip'lil* 'shut eyes')
dxʷcutəbid 'catch on to ⊗'	(*dxʷcutəb* 'think something' from *√cut* 'speak')
dᶻaƛ'bid 'be confused by ⊗'	(*√dᶻaƛ'* 'be confused')
dᶻaqəbid 'mourn for ⊗'	(°*√dᶻaq* 'be in mourning'; cf. *dᶻaqad* 'mourn ⊗')
hiiłbid 'be happy about ⊗'	(*√hiił* 'be happy')
ǰuʔilbid 'be happy for ⊗'	(°*√ǰuʔ* 'be glad' + *-il* 'inchoative')
pitəbid 'pay attention to ⊗'	(*√pitəb* 'pay attention, be aware')

q'albid 'be fooled by ⊗'	(°√*q'al* 'be fooled'; cf. *q'alad* 'fool ⊗'
x̌ayəbid 'laugh at ⊗'	(√*x̌ayəb* 'laugh')
x̌əcbid 'fear ⊗'	(√*x̌əc* 'be afraid')
x̌ix̌ibid 'be ashamed of ⊗'	(√*x̌ix̌i?* 'be ashamed')
x̌ʷaq'ʷbid 'be concerned about ⊗'	(√*x̌ʷaq'ʷ* 'be worried, be preoccupied')
yabuk'ʷbid 'fight over ⊗'	(√*yabuk'ʷ* '(to) fight')

Table 31: Applicative stems formed with *-bi-d* expressing motive

The majority of the verbs in Table 31 are based on radicals expressing mental states or emotions, the applicative object being the STIMULUS or MOTIVE for the experience. Two of the verbs — *c'ip'lilbid* 'shut eyes to avoid seeing something' and *yabuk'ʷbid* 'fight over something' — are based on radicals expressing more concrete actions; in both cases, the applicative objects are clearly MOTIVEs for the event. In no case is the actant expressed by the object of any of these verbs necessarily affected by the actions performed or the emotions experienced by the ACTOR.

A third set of *-bi-d* stems is formed in combination with lexical suffixes. Several of these are given in Table 32:

c'ic'əyikʷalusbid 'wink at ⊗'	(°√*c'ic'əyikʷ* 'wink' + *-alus* 'eye')
dᶻalqʷusbid 'look over shoulder at ⊗'	(√*dᶻal* 'present other side' + *-us* 'face')
dᶻəlaxadbid 'visit ⊗'	(√*dᶻal* 'present other side' + *-axad* 'side')
dᶻəlulčbid 'turn towards ⊗'	(√*dᶻal* 'present other side' + *-ulč* 'belly')
ləqaladi?bid 'overhear ⊗'[23] (Sk)	(√*ləq* 'listen' + *-al-adi?* 'ear')
ła?ači?bid 'touch ⊗ with hand'	(√*ła?* 'arrive at place' + *-ači?* 'hand')
ładəy?lucidbid 'address ⊗ as woman'[24]	(√*ładəy?* 'woman' + *-l-ucid* 'mouth')
tubšlucidbid 'address ⊗ as man'	(√*tubš* 'man' + *-l-ucid* 'mouth')
xʷəbaličbid 'toss ⊗ (pack) onto own back'	(√*xʷəb* 'toss' + *-alič* 'bundle')
x̌ʷil'alcbid 'lose ⊗'	(√*x̌ʷil'* 'be lost' + *-alc* 'product')
yəlači?bid 'use both hands on ⊗'	(°√*yəl* 'pair' + *-ači?* 'hand')

Table 32: Stems formed with *-bi-d* and lexical suffixes

As with the verbs in the earlier sets, the stems here take a non-PATIENT object — one which is not directly affected by the action of the AGENT by undergoing an internal change of state — and the specific roles played by the objects are rather diverse. These range from PERCEPT (*ləqaladi?bid* 'overhear something') to DIRECTION/GOAL (*c'ic'əyikʷalusbid* 'wink at something', *dᶻəlaxadbid* 'visit someone'), HEARER (*ładəy?lucidbid* 'address someone as woman'), or various types of THEME (*la?ači?bid* 'touch something with hand', *xʷəbaličbid* 'toss something (pack) onto own back', *x̌ʷil'alcbid* 'lose something'). Hess & Bates

[23] Also *ləqəladi?bid.*
[24] Also *sładəy?lucidbid.*

(2004) point out that in these constructions the lexical suffix expresses a body-part playing an instrument-like role in the event. Verbs expressing action directed towards 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-d*, like *-yi-d*, seems to increase the valency of its base by two rather than by one — *saxʷəbid* 'run away with something of someone's' (see the homophonous form *saxʷəbid* 'run after something or up to something' in Table 30):

(42) diɬəxʷ sx̌aab ʔə tsiʔəʔ sɬadəy? ʔusaxʷəbitəb ʔə tiʔəʔ tubəda?s
diɬ=əxʷ s=x̌aab ʔə tsiʔəʔ sɬadəy? ʔu–saxʷəb–bi–t–əb
FOC=now NM=cry PR PROX:FEM woman PFV–run–MAP–PASS

ʔə tiʔəʔ tu=bəda?–s
PR PROX PAST=offspring–3po
'it is thus that the woman whose child was run away with is crying'
[HM Star Child, line 59]

Here, the verb form in question is in the passive, contained inside a subject-centred relative clause modifying *sɬadəy?* 'woman'. The subject of the passive is the MALEFICIARY, corresponding to the direct object of the active form, while the THEME, *tiʔəʔ tubəda?s* 'her child' (lit. 'her former/ex-child') is realized as an oblique object, following the regular pattern for derivations with *-yi-d*. Indeed, given the semantic role assigned to the object, we might have expected the form to be **saxʷəbyid*; however, this form is unattested.

Also like *-yi-d*, *-bi-d* combines with a small number of bivalent bases whose valency remains unchanged:

ʔəƛ'cbid 'come after ⊗'	(√*ʔəƛ'* 'come' + *-c* 'ALTV')
hiq'ʷəbid 'lust after ⊗'	(√*hiq'ʷəb* 'lust after ⊗')
kʷədabid 'take ⊗ captive'	(*kʷədab* 'capture ⊗' from √*kʷəd* 'be taken')
łəgʷəlbid 'leave ⊗ behind'	(√*łəgʷɬ* 'leave ⊗')
qadabid 'steal ⊗'	(√*qada?* 'steal ⊗')
q'ʷuʔbid 'be together with ⊗'	(√*q'ʷuʔ* 'be together with ⊗')

Table 33: Valency-neutral uses of *-bi-d*

In four of these cases (*hiq'ʷəbid* 'lust after someone', *kʷədabid* 'take someone captive', *qadabid* 'steal something', *q'ʷuʔbid* 'be together with someone'), *-bi-d* combines with a bivalent intransitive stem to create a transitive verb, and so acts merely as a syntactic transitivizer. In the remaining two instances (*ʔəƛ'cbid* 'come after someone', *łəgʷəlbid* 'leave someone behind, leave someone's presence'), *-bi-d* combines with a transitive stem without affecting its va-

lency or government pattern. The glosses given for the *-bi-d* forms and their bases are significantly different in only two cases — *kʷədabid* 'take someone captive' and *łəgʷəlbid* 'leave someone behind, leave someone's presence'. In the remainder of the examples, the two forms seem to be nearly synonymous; however, in most of these, the *-bi-d* stems take objects that are human — that is 'someone' rather than 'something'. The bulk of these verbs express actions (e.g., 'lust after someone', 'be together with someone') that most naturally have human endpoints, and even those that do not seem to require a human object for semantic reasons, such as *qadabid* 'steal something', have these exclusively in their textual attestations:

(43) huy, yəcəbaxʷ ʔə tiʔəʔ sqadabitəbs ʔə tsiʔəʔ sxʷəyuqʼʷ tiʔiɬ wiwʼsu
huy yəc–əb=axʷ ʔə tiʔəʔ s=qada–bi–t–əb=s ʔə
SCONJ reported–MD=now PR PROX NM=steal–SS–ICS–PASS=3PO PR

tsiʔəʔ sxʷəyuqʼʷ tiʔiɬ wiwʼsu
PROX Basket.Ogress DIST children
'he told about the stealing of the children by the Basket Ogress'
[ML Basket Ogress, line 54]

In this sentence, the human NP *tiʔiɬ wiwʼsu* 'those children' is the subject of the passive form of the verb, thereby corresponding to the direct object of the active form. Although the number of textual attestations of all of the *-bi-d* forms in Table 33 is limited, they all seem to involve human objects and the semantic roles played by the objects of these forms is consistent with other uses of *-bi-d*: they are not canonically PATIENT-like in that the semantic ENDPOINTS of the events do not undergo any internal change of state. Nevertheless, it should be noted that the bivalent bases for these *-bi-d* forms have the same glosses, and in at least some cases their objects can also be human:

(44) a. xʷiʔ kʷ adsʔəƛʼcubɬ
xʷiʔ kʷi ad=s=ʔəƛʼ–c–buɬ
NEG HYP 2SG.PO=NM=come–ALTV–1PL.OBJ
'don't come to us'
(Hess 2006: 32, line 263)

b. ... tsiʔəʔ bədaʔs səshiqʼʷəbs
tsiʔəʔ bədaʔ–s s=ʔəs–hiqʼʷəb=s
PROX:FEM offspring–3PO NM=STAT–lust.for=3PO
'... his daughter after whom he lusted'
(Hess 1998: 95, line 131)

Thus, it seems that teasing out whatever semantic distinctions there are between the pairs of verb forms in Table 33 will depend on uncovering further textual

attestations; nevertheless, the middle applicative forms themselves — transitive verbs with a non-PATIENT object — are entirely typical of *-bi-d* derivations.

In a few other stems, *-bi-d* seems to act as a causative, adding an AGENT/subject to a monovalent radical rather than adding an object:

ʔadᶻqbid 'meet ⊗'	(°√*ʔadᶻq* 'be met'; cf. *ʔadᶻqdxʷ* 'happen to meet ⊗')
čəgʷasbid 'take ⊗ as wife'	(√*čəgʷas* 'wife')
kʷədbid 'steal from ⊗'	(√*kʷəd* 'be held, be taken')
p'ayəqbid 'hew ⊗, carve ⊗'	(√*p'ayəq* 'carve canoe')
qəlbidbid 'discard ⊗'	(*qəlbid* 'garbage' from √*qəl* 'bad' + *-bid* 'instrument')
suxʷtəbid 'recognize ⊗'	(°√*suxʷt* 'be recognized'; cf. *suxʷtəš* 'recognize ⊗')
yəcbid 'tell about ⊗'	(°√*yəc* 'be reported'; cf. *yəcəd* 'report ⊗')

Table 34: Causativizing uses of *-bi-d*

Although the syntactic effect of *-bi-d* on its base in these forms resembles the effects of a causative morpheme such as *-t*, *-txʷ*, or *-dxʷ*, the true causatives create verbs that express events in which an AGENT acts upon a PATIENT or some other semantic actant in a PATIENT-like semantic role. With the exception of *p'ayəqbid* 'hew something, carve something',[25] the objects of the *-bi-d* forms in Table 34 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 its relationship to the AGENT (*čəgʷasbid* 'take someone as wife', *qəlbidbid* 'discard something' [lit. 'cause something to be refuse to one']) or as a point of reference — literal (*ʔadᶻqbid* 'meet someone') or figurative (*kʷədbid* 'steal from someone') — for the AGENT's action. The reduced semantic transitivity of such forms is clear. The fact that *-bi-d* adds an AGENT/subject in these forms rather than a non-PATIENT object, as it does more regularly, may have to do with the nature of the radicals, which are (with the exception of *čəgʷasbid* 'take someone as wife' and *qəlbidbid* 'discard something', which are based on nouns) "patient-oriented" in the sense that they express states that are the outcome of events involving the interaction of two or more participants, and express the ENDPOINT of the event as their syntactic subject. However, given the relative scarcity of such forms, it seems likely that this is only a diachronic or a post-hoc explanation, and the forms in Table 34 will have to be treated as lexicalized uses of what is otherwise an applicative morpheme.

[25] Thom Hess (p.c.) suggests that the exceptional nature of *p'ayəqbid* 'hew something, carve something' may stem from the involvement of one's spirit power in the carving of a canoe, *-bi-* indicating a reduced semantic transitivity that comes either from the idea that the AGENT is acting indirectly through an intermediary, or that the primary interaction is between the carver and the spirit-power, and the product of the interaction is construed as less directly involved than a prototypical PATIENT.

The secondary suffix sequence *-bi-d* also appears in at least four forms following another valency-increasing affix — specifically, the allative applicative. These forms are given in Table 35:

lčisbid 'visit ⊗ and bother them'	(*ɬčis* 'arrive at ⊗' from √*ɬčil* 'arrive')
šuucbid 'keep an eye out for ⊗'	(*šuuc* 'look at ⊗' from √*šuɬ* 'look around, gaze')
təd^{z}isbid 'have sex with ⊗'	(*təd^{z}is* 'go to bed with ⊗' from √*təd^{z}il* 'lie down')
x^{w}ak^{w}isbid 'tire of ⊗ (person)'	(*x^{w}ak'^{w}is* 'tire of ⊗' based on √*x^{w}ak'^{w}il* 'be tired')

Table 35: Stems formed with *-bi-d* and the allative applicative

In these stems, the affixation of the middle applicative has no effect on the syntactic valency of its base, nor does it have any great effect on the semantic role of the applicative object. Its major effect is to modify the event expressed by the allative stems in more subtle ways. In one of these cases, *x^{w}ak^{w}isbid* 'tire of someone', *-bi-d* seems to indicate that the applicative object is animate or human (cf. some of the valency-neutral forms in Table 33 above). This may also be the case for *šuucbid* 'keep an eye out for someone', although the few attested examples of this form (all of which do have human objects) make it difficult to ascertain if there is any other semantic distinction between this and the plain allative form. The remaining two verbs, *lčisbid* 'visit someone and inconvenience them' and *təd^{z}isbid* 'have sex with someone' also necessarily have human objects, but differ in other — rather idiosyncratic ways — from their allative forms. Clearly, judged by the unusual syntactic and semantic effects of *-bi-d* in these forms, the stems in Table 35 are lexicalized forms and, although they are not entirely out of step with more transparent middle applicatives, they can not be treated as synchronically compositional forms.

Not unexpectedly, there are a number of stems that appear to contain *-bi-d* but are not synchronically transparent or analyzable. Two of these are *q'itbid* 'store something (food)' (apparently based on an otherwise unattested radical *√*q'it* 'be stored'), *pək'^{w}ibid* 'snatch something' (based on *√*pək'^{w}ib* 'snatch something'), and *yičəbid* 'observe something' (based on *√*yičəb* 'observe'). Among the idiomatic forms are *q^{w}ic'bid* 'be unable to do something' (from √*q^{w}ic* 'be indifferent, be lazy about'), *q^{w}u?bid* 'mouth waters for something' (from the nominal radical √*q^{w}u?* 'water'), and *x̌^{w}il'alcbid* 'lose something' (√*x̌^{w}il'* 'be lost' + *-alc* 'productive').

4.3 Other secondary suffixes *-di-*, *-i-*

In addition to *-yi-d* and *-bi-d*, there are two more secondary suffix complexes that can act as applicatives. One of these, *-di-d*, appears as part of four stems, given in Table 36:

dxʷqədid 'sleep with ⊗ (spouse) of Ⓨ'	(*dxʷ-* 'contained' + ᵒ√*qəd* 'fornicate')
punishdid 'punish ⊗'	(Eng. *punish*)
qadadid 'steal ⊗ from Ⓨ'	(√*qada?* 'steal ⊗')
qʷu?qʷadid 'drink ⊗'	(√*qʷu?qʷa* 'have a drink')

Table 36: Stems formed with *-di-d*

Even in this small set of verbs, there is a great deal of variation in the effects of *-di-d* on the valency and government pattern of the base to which it is attached. In two of the cases, *qadadid* 'steal something from someone' and *qʷu?qʷadid* 'drink something', the secondary suffix complex has a clearly applicative effect, adding a direct object to the clause. As noted by Hess & Bates (2004), however, the objects of *-di-d* forms do not consistently express a particular semantic role. The object of *qʷu?qʷadid* 'drink something' is clearly a PATIENT, at least to the extent that a liquid undergoes an internal change of state when it is drunk (otherwise, it is a THEME), whereas the direct object of *qadadid* 'steal something from someone' is a MALEFICIARY. Hess & Bates (2004) point out that the latter form co-exists with a *-yi-d* stem based on the same radical:

(45) a. ʔuqadaditəb čəd ʔə ti dsduukʷ

ʔu–qada–di–t–əb	čəd	ʔə	ti	d–sduukʷ
PFV–steal–SS–ICS–PASS	1SG.SUB	PR	DEF	1SG.PO–knife

'I had my knife stolen'

(Bates, Hess & Hilbert 1994: 172)

b. ʔuqadadyitəb ti luƛ'

ʔu–qada–d–yi–t–əb	ti	luƛ'
PFV–steal–ICS–DAT–PASS	DEF	old

'the old man was stolen from'

(Bates, Hess & Hilbert 1994: 173)

The same verb form in (45b) also appears in examples glossed 'steal for someone', whereas the *-di-d* form in (45a) has only the gloss 'steal from someone', leading to the conclusion that *-yi-d* is more closely associated with the BENEFICIARY/MALEFICIARY semantic role whereas *-di-d* may be (like *-bi-d*) more an indicator of a less-specific non-PATIENT role which is interpreted as MALEFICIARY here because of the nature of the event (an implicit third semantic role in a theft being a victim). However, it should be noted that the form *qadadyid* appears to be based on an unattested stem **qadad*, and so has a more complicated derivational history than most *-yi-d* forms. Thus, the co-existence of *qadadid* and *qadadyid* may have more to do with historical development than with a consistent semantic contrast between the two secondary suffixes.

The remaining two forms are even less helpful in sorting out the meaning and syntactic behaviour of *-di-*d. In the case of *punishdid* 'punish someone', the precise effects of *-di-d* on its base are hard to pinpoint because the "radical"

punish is an English borrowing that would not normally be used on its own in the language and so is of indeterminate valency (for Lushootseed speakers). The verb *dxʷqədid* 'have sex with someone's spouse' is trivalent rather than monovalent, as shown in (46a), and is based on a radical that otherwise only appears with the middle suffix *-b*, as in (46b):

(46) a. dił əw'ə higʷəxʷ ʔudxʷqədidəxʷ tiʔəʔ sʔušəbabdxʷ sbəqʼʷaʔ ʔə tsiʔəʔ čəgʷas x̌ʷuʔx̌ʷəyʔ
dił əw'ə higʷ=əxʷ ʔu–dxʷ–qəd–di–d=əxʷ tiʔəʔ
FOC PTCL big=now PFV–CTD–fornicate–SS–ICS=now PROX

sʔušəbabdxʷ sbəqʼʷaʔ ʔə tsiʔəʔ čəgʷas–s x̌ʷuʔx̌ʷəyʔ
unfortunate heron PR PROX:FEM wife–3PO helldiver
'indeed, it is he who cuckolded poor Heron with his wife, Helldiver'
(Hess 2006: 14, line 77)

b. ʔuqədəb əw'ə ʔə tiʔəʔ cədił sč'ətx̌ tiʔəʔ tushuy ʔə tsiʔəʔ x̌ʷuʔx̌ʷəyʔ
ʔu–qəd–əb əw'ə ʔə tiʔəʔ cədił sč'ətx̌ tiʔəʔ
PFV–fornicate–MD PTCL PR PROX he kingfisher PROX

tu=s=huy ʔə tsiʔəʔ x̌ʷuʔx̌ʷəyʔ
PAST=NM=do PR PROX:FEM helldiver
'what Helldiver did [was] have sex with Kingfisher'
(Hess 2006: 21, line 238)

Once again, attributing a specific effect of *-di-d* on its base in this form is rather difficult as the radical otherwise is attested only as part of a middle form — possibly a causative middle, given that the verb *qədəb* is bivalent. This might lead us to surmise that the radical itself is more amenable to a patient-oriented gloss rather than the agent-oriented gloss 'fornicate'. This would make *-di-d* more like *-yi-d* both semantically and syntactically, as it both causativizes the radical — adding an AGENT — and acts as an applicative, adding a MALEFICIARY. Nevertheless, with only four forms containing *-di-d*, little more can be said of it than that it is a historical relic, probably a remnant of an older secondary suffix used in the formation of some kind of applicative, and whose effects on a particular base are today essentially idiosyncratic.

Hess & Bates (2004) also point to a fourth secondary suffix complex, *-i-d*, which is most robustly associated with lexical suffixes. A number of such forms is given in Table 37:

ʔabucidid 'bring ⊗ lunch'	(°√*ʔab* 'be extended' + *-ucid* 'mouth')
č'əlpačiʔid 'twist ⊗'s wrist'	(√*č'əlp* 'sprain, turn' + *ačiʔ* 'hand')
dxʷcaq'aχadid 'spear ⊗ in the side'	(√*caq'* 'be speared' + *-aχad* 'side')
dxʷpuhigʷədid 'blow on ⊗'	(°√*puʔ* 'be blown on' + *-igʷəd* 'body')[26]
dxʷʔəq'yaχadid 'open ⊗ (door)'	(°√*ʔəqʼʷ* 'be open' + *-y-aχad* 'side')
kʷədaχadid 'take ⊗ by the arm'	(√*kʷəd* 'be held, be taken' + *-aχad* 'arm')
ləχšadid 'light ⊗'s way'	(√*ləχ* 'be light, be bright' + *-šad* 'lower leg')
ƛ'alšədid 'put ⊗'s shoes on him'	(√*ƛ'al* 'put ⊗ on' + *-šad* 'lower leg')
łič'šadid 'amputate ⊗'s leg'	(√*łič'* 'get cut with knife' + *-šad* 'lower leg)'
tq'aʔłdəlid 'slap ⊗ in mouth'	(√*təqʼ* 'slap' + *-aʔłdəɬ* 'mouthpart'
χəqšadid 'bind legs of ⊗'	(°√*χq* 'be wrapped, be tied' + *-šad* 'lower leg')

Table 37: Stems formed with a lexical suffix and *-i-d*

With these verbs, however, the effect of *-i-d* is not applicative but is instead causative, adding an AGENT/subject to its base rather than adding an object. Consider the examples in (47):

(47) a. ʔucaq' čəd ʔə tiʔəʔ sχədiʔac

ʔu–caq'	čəd	ʔə	tiʔəʔ	sχədiʔac
PFV–be.speared	1SG.SUB	PR	PROX	devil's.club

'I got speared by the Devil's Club'

(Bates, Hess & Hilbert 1994: 43)

b. caq'atəbəxʷ ʔə tiʔəʔ caadiɬ tiʔiɬ ʔucutəb ʔə tudiʔ luƛ' sxʷiʔxʷiʔs əlgʷəʔ

caq'a–t–əb=əxʷ	ʔə	tiʔəʔ	caadiɬ	tiʔiɬ
speared–ICS–PASS=now	PR	PROX	they	DIST

ʔu–cut–t–əb	ʔə	tudiʔ	luƛ'	sxʷiʔxʷiʔ–s	əlgʷəʔ
PFV–speak–ICS–PASS	PR	yonder	old	game–3PO	PL

'what was said by that old man to be their game was speared by them'

(Hess 2006: 51, line 224)

c. dxʷcaq'aχadid tiʔiɬ č'ətx

dxʷ–caq'–aχad–i–d	tiʔiɬ	č'ətx
CTD–speared–side–SS–ICS	DIST	kingfisher

'he speared Kingfisher in the side'

(Hess & Bates 2004: 20, ex. 71)

(47a) shows the radical, √*caq'* 'be speared, be impaled', which takes as its syntactic subject the expression of the PATIENT semantic role and which does not

[26] Cf. the internal causative form of this radical, *puʔud* 'blow on something, blow something out', which illustrates the contrast in semantic transitivity of the *-d* and *-i-d* forms.

express an AGENT.[27] In (47b), the internal causative formed from the same radical, *caq'ad* 'spear something', is shown in its passive form; here, its subject is the expression of the PATIENT and the AGENT is expressed as an oblique object. The expression of the AGENT in this sentence is allowed for by the presence of the internal causative suffix *-t*, which creates a transitive verb from an intransitive radical (Section 2). Similarly, the form in (47c) is transitive and takes as its subject the AGENT rather than the PATIENT which is the subject of the radical in (47a). Thus, the effect on the valency and government pattern of the radical of adding *-i-d* is the same as that of adding the transitive causative suffix *-t*.

This raises the issue of what contribution, if any, the secondary suffix *-i-* makes to the meaning of the stem. One possibility is that *-i-* is not a meaningful element at all and that the sequence [id] may simply be an allomorph of the internal causative associated with a lexical suffix (or a particular subset of lexical suffixes). This seems unlikely given that there are abundant internal causative stems containing lexical suffixes such as *c'ag^{w}ačiʔd* 'wash someone's hands' (cf. *č'əlpačiʔid* 'twist someone's wrist' in Table 37) that do not contain *-i-*. Another possibility is that the *-i-* is associated with the possessor-raising seen in sentences like (47c) whereby it is the bodypart that is affected by the action, but the possessor of the bodypart is expressed as the direct object. This, however, still begs the question of why *-i-* is not present in all transitive stems containing lexical suffixes that express affected bodyparts. Contrasts such as those between the stems in (47) may thus be relics of an earlier, more regular verbal affix. Another reason for not dismissing *-i-* as a morpheme entirely, at least from a diachronic perspective, is that it turns up in a few other places as a stem-formative associated with *-t*. One particularly suggestive pair of verbs is *haʔlid* 'make good for someone, make someone comfortable' vs. *halʔad* 'tend to someone', both derived from the radical √*haʔɬ* 'be good'. However, these are the only such contrastive pairs found in the corpus to date, making any analysis of *-i-* as anything more than a vestige of an earlier form that was most likely associated in some way with valency-altering constructions little more than speculation.

5 Conclusions

When it comes to valency-increasing morphology, Lushootseed suffers an embarrassment of riches. However, as the discussion here has shown, in spite of the large number of morphemes involved in verbal derivation, these affixes can be neatly categorized in terms of their syntactic behaviour. In the first instance, all of the affixes (with the exception of the fossilized secondary suffixes) can be clearly divided into causatives and applicatives, depending on what grammatical relation they add to the valency of their base. Each of them can also be characterized in terms of what type of verb stem, transitive or intransitive,

[27] The PP *ʔə tiʔəʔ sxədiʔac* 'by the Devil's Club' expresses an inanimate (or at any rate, botanical) INSTRUMENT rather than an AGENT.

they form. Individual differences among the affixes — that is, the lowest-level distinctions in the taxonomy — can then be attributed to the semantic nuances expressed by each. The advantages of undertaking this classification lie not only in imposing a bit of order on what might seem like an overly-complex system of verbal derivation, 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 other languages; however, there is some expectation that cross-linguistically valid generalizations can be drawn based on syntactic and morphosyntactic behaviours. By abstracting away from the often-exotic semantic nuances of the Lushootseed verbal affixes and classifying them in terms of their syntactics, we are able to make more direct comparisons with morphemes showing similar syntactics in other languages. The most notable insight this provides us is in the case of the Lushootseed internal causative, which (along with its cognates in other Salishan languages) has often been characterized as simply a "transitivizer", ignoring the parallels it presents with more traditional causatives in other languages. By recognizing *-t* as a causative, we provide it with a proper typological context, removing the misapprehension that it is a typological aberration. At the same time, by recognizing it as a causative, we are able to highlight a unique aspect of Lushootseed grammar — the lack of a robust distinction between AGENT and CAUSER. Thus, a proper taxonomy of valency-increasers both brings Lushootseed into line with universalist claims about the potentialities of valency-increasing affixes and underscores the particularist aspects of the Lushootseed system.

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