Lushootseed Numerals*

David Beck
University of Alberta

Abstract: This paper presents a synthesis of what we currently know about numerals and counting in Lushootseed, gleaned from existing descriptions and texts. Lushootseed has three numeral series — a plain series for general counting, a reduplicated human series for counting people, and a temporal-iterative series for counting time and repetitions. Numerals are used both to quantify nouns and as sentence predicates, and combine with lexical suffixes to form numeral classifier constructions.

Keywords: Salishan, Lushootseed, numerals

1 Introduction

Aside from lists of forms in dictionaries, passing mention in grammars, and practical lessons in counting elaborated for teaching, there is very little in the literature on Salishan numerals and counting — hence, the modest goal of this paper, which is to synthesize what we know about numerals and numeral phrases in Lushootseed and make it available in a single place. In what follows, I present whatever can be gleaned from the existing descriptive and pedagogical grammars (Hess & Hilbert 1976; Hess 1995, 1998, 2006; Cort 1998), a brief technical sketch (Tweddell 1950), the *Lushootseed Dictionary* (Bates et al. 1994), extant published texts (Hilbert & Hess 1977; Beck & Hess 2014, 2015), and a few forms from as-yet unpublished recordings collected by Vi Hilbert, Thom Hess, and Leon Metcalf (transcribed by Hilbert and Hess) in the current Lushootseed corpus. What emerges is a surprisingly complete picture, a tribute to the quality of earlier documentation of the language, but there are nevertheless some unanswered questions, particularly with regards to the productivity of certain derivational patterns and ordering restrictions in numeral phrases. It is hoped that as work progresses, we will find answers to some of these questions, and the search for answers will be advanced by having what we do know consolidated and synthesized in the pages below. I will begin the discussion by reviewing the three numeral series — plain, human, and temporal-iterative — and discussing how the units for digits, decades, and centuries are combined to form complex numerals. Following this, I will draw on sentences in the corpus to illustrate the uses of numbers and the structure of the numeral phrase, including the attested use of lexical suffixes as numeral classifiers.

2 Numeral series

Lushootseed has three series of words used for counting. The first of these are the general, plain-series numerals for counting non-humans given in Table 1.[1] Several of the forms here are analyzable as consisting of a radical (√) plus the lexical suffix *-ačiʔ* ‘hand’. In both Northern Lushootseed (NL) and Southern Lushootseed (SL), this suffix is used to indicate decades (that is, the interval corresponding to the number of fingers on both hands). The word for 100, *sbək’ʷačiʔ*,

***** Numberless thanks go to Thom Hess, Vi Hilbert, and to the Lushootseed speakers and Elders who gave their time and their words to make this work possible.

[1] Forms in the table are drawn from the full range of sources listed in the references; forms taken from Tweddell (1950) (Southern Lushootseed forms greater than 20) are given in what is now the standardized Lushootseed orthography.

Papers for the International Conference on Salish and Neighboring Languages 55.
D. K. E. Reisinger, Hannah Green, Marianne Huijsmans, Gloria Mellesmoen, and Bailey Trotter (eds.).
Vancouver, BC: UBCWPL, 2020.

appears to contain the radical √*bək'ʷ* 'all', suggesting an etymological source in an expression meaning 'all hands'. The word for eight, *təqačiʔ*, is based on the radical √*tq* 'closed', and means 'closed hands'. According to Hess and Hilbert (1976:28), this is derived from the practice of counting on one's fingers by folding them down over the palm, eight being when all the fingers are closed, leaving only the thumbs. The Southern Lushootseed word for six, *dᶻəlačiʔ*, is based on the bound (º) radical º√*dᶻəl* 'turned, changed', which probably derives from the fact that, when counting on one's fingers, six requires the use of the fingers on the next hand. Of the two forms for 'ten', the Southern Lushootseed *padac* appears to be the reflex of the Proto-Salishan *ʔupán-akis(t) proposed by Kinkade (2002); the origin of the Northern Lushootseed *ʔulub* is unknown. The words for 30, 40, 50, and 100 begin with the nominalizing prefix *s-*.

Table 1: Cardinal numerals — plain series

1	*dəč'uʔ*	90	*x̌ʷəlačiʔ*
2	*saliʔ*	100	*dəč'uʔ sbək'ʷačiʔ*
3	*ɬixʷ*	101	*dəč'uʔ sbək'ʷačiʔ ʔi kʷi dč'uʔ*
4	*buus*	102	*dəč'uʔ sbək'ʷačiʔ ʔi kʷi saliʔ*
5	*cəlac*	110	*dəč'uʔ sbək'ʷačiʔ ʔi kʷi ʔulub* (NL)
6	*yəlaʔc* (NL), *dᶻəlačiʔ* (SL)	111	*dəč'uʔ sbək'ʷačiʔ ʔi kʷi ʔulub ʔi kʷi dč'uʔ* (NL)
7	*c'ukʷs*	120	*dəč'uʔ sbək'ʷačiʔ ʔi kʷi saliʔačiʔ*
8	*təqačiʔ*	200	*saliʔ sbək'ʷačiʔ*
9	*x̌ʷəl*	300	*ɬixʷ sbək'ʷačiʔ*
10	*ʔulub* (NL), *padac* (SL)	400	*buus sbək'ʷačiʔ*
11	*ʔulub ʔi kʷi dč'uʔ* (NL)*	500	*cəlac sbək'ʷačiʔ*
12	*ʔulub ʔi kʷi saliʔ* (NL)	600	*yəlaʔc sbək'ʷačiʔ* (NL), *dᶻəlačiʔ sbək'ʷačiʔ* (SL)
20	*saliʔačiʔ*	700	*c'ukʷs sbək'ʷačiʔ*
21	*saliʔačiʔ ʔi kʷi dč'uʔ*	800	*təqačiʔ sbək'ʷačiʔ*
22	*saliʔačiʔ ʔi kʷi saliʔ*	900	*x̌ə̌l sbək'ʷačiʔ*
30	*sɬixʷačiʔ*	1000	*ʔulub sbək'ʷačiʔ* (NL), *padac sbək'ʷačiʔ* (SL)
40	*sbuusačiʔ*	1001	*ʔulub sbək'ʷčiʔ ʔi kʷi dč'uʔ* (NL)
50	*scəlacačiʔ*	1100	*ʔulub ʔi kʷi dč'uʔ sbək'ʷačiʔ* (NL)†
60	*yəlaʔcačiʔ* (NL), *dᶻəlačiʔačiʔ* (SL)	1900	*ʔulub ʔi kʷi x̌ʷəl sbək'ʷačiʔ* (NL)
70	*c'ukʷsačiʔ*	2000	*saliʔačiʔ sbək'ʷačiʔ*
80	*təqačiʔačiʔ*	3000	*sɬixʷačiʔ sbək'ʷačiʔ*

* Literally, 'ten and one (thing)'. The SL form for eleven is *padac yəxʷ kʷi dəč'uʔ* (Hess & Hilbert 1976), which would have the same literal gloss.

† Tweddell (1950) reports SL 1,100 as *padac sbək'ʷačiʔ yəxʷ kʷi dč'uʔ sbək'ʷačiʔ*; however, this form does not follow the pattern for the other thousand-hundred forms found in the same work and in Hess and Hilbert (1976).

Numbers that combine decades or centuries with digits such as the Northern Lushootseed words for 11 (*ʔulub ʔi kʷi dč'uʔ*), 21 (*saliʔačiʔ ʔi kʷi dč'uʔ*), or 101 (*dəč'uʔ sbək'ʷačiʔ ʔi kʷi dč'uʔ*) use the conjunction *ʔi* 'and' (*yəxʷ* 'and' is used in the Southern Lushootseed equivalents) and a determiner to connect the digits to the remainder of the expression. The choice of determiner is governed by the same considerations of specificity, uniqueness, and deixis that govern determiner choice in other contexts, *kʷi* 'remote/hypothetical' being used as a default when one is counting in the abstract and not enumerating concrete objects. Orders of centuries are

specified by combining words for digits and decades with *sbək'ʷačiʔ* '100', making the Lushootseed numerals between 100 and 10,000 the equivalent of those used in spoken English for numbers (e.g., *cəlac sbək'ʷačiʔ = five hundred, ʔulub ʔi kʷi x̌ʷəl sbək'ʷačiʔ = nineteen hundred*), although in Lushootseed — but not in English — this pattern is extended to the millennia (*ʔulub sbək'ʷačiʔ* 'one thousand' [lit. 'ten hundred']).[2]

Lushootseed has a special human series of numerals used specifically for counting people, given in Table 2. With the exception of the words for one, two, and four people, this series is formed from the plain-series numerals by Type III (-V_1C_2- infixal) reduplication.[3] For numerals between 10 and 20 that combine the first decade with a digit, both numerals are taken from the human series:[4]

(1) ʔululub ʔi diič'uʔ
ʔululub ʔi diič'uʔ
ten$_{HMN}$ and one$_{HMN}$
'eleven people' (Louise Anderson from Beck & Hess 2015:356, line 56)

In Northern Lushootseed, the human series of numerals is only used up to 20, after which plain-series numerals are used. In Southern Lushootseed, the complex numerals for 100 and 1000 people are given in Tweddell (1950:72) with the initial numerals in the corresponding human form, *diič'uʔ bəkʷ'ačiʔ* '100 people' and *padadac bəkʷ'ačiʔ* '1,000 people' (lit. 'ten hundred people'); the higher thousands such as 2,000 and 5,000 use only the plain cardinal forms (i.e., *saliʔačiʔ sbək'ʷačiʔ* '2,000 people' [lit. 'twenty-hundred people'] and *cəlacačiʔ sbək'ʷačiʔ* '5,000 people' [lit. 'fifty-hundred people']).

Table 2: Cardinal numerals — human series

1	*diič'uʔ*	8	*təqqačiʔ*
2	*səsaʔliʔ*	9	*x̌ʷələl*
3	*łixʷixʷ*	10	*ʔululub* (NL), *padadac* (SL)
4	*bəbuʔs*	11	*ʔululub ʔi diič'uʔ* (NL)*
5	*cələlac*	20	*salaʔačiʔiʔ* (SL)
6	*yələlaʔc* (NL), *dᶻələlačiʔ* (SL)	100	*diič'uʔ bəkʷ'ačiʔ* (SL)
7	*c'ukʷukʷs*	1000	*padadac bəkʷ'ačiʔ* (SL)

*The form *padadačiʔ yəxʷ kʷi diič'uʔ* is given for SL by Tweddell (1950: 72), who reports the form *padadačiʔ* 'ten' as being used in compound numbers from 11–19. The form *padadac* is used for 10 and as the initial member of compounds based thereon — e.g., *padadac bəkʷ'ačiʔ* '1000'.

[2] Tweddell (1950:72) also reports the borrowing *ta'wowsəd* [*sic*] 'thousand'.

[3] See Anderson (1999) for a survey of reduplicated numeral forms across the Salishan family.

[4] The abbreviations used in this paper are as follows: 1, 2, 3 first, second, third person; ADD additive; ADNM adjunctive nominalizer; ATTN attenuative; CNTRPT centripetal; CNN connective; DAT dative applicative; DC diminished control; DIST distal; DMA demonstrative adverbial; DSTR distributive; ECS external causative; FEM feminine; FOC focus; HAB habitual; HMN human classifier; ICS internal causative; INCH inchoative; INT interrogative; IRR irrealis; MAP middle applicative; NM nominalizer; PASS passive; PAST past tense; PFV perfective aspect; PL plural; PO possessive; PR preposition; PROG progressive aspect; PROP propriative; PROX proximal; REFL reflexive; REM remote; SBJ subjunctive; SCONJ sentential conjunction; SG singular; SPEC specific; STAT stative aspect; SUB subject. Sentences drawn from texts are cited by the name of the speaker and, where available, a published source.

A third series of numerals, given in Table 3, is used for counting time or iterations. The first of forms in this table, *dəč'axʷ* 'once', is commonly truncated to *č'əʔaxʷ*. The second form *cəbab* 'twice' is based on a bound suppletive form of the radical √*saliʔ* 'two'. It usually appears in combination with certain lexical suffixes. The remainder of the temporal-iterative numerals are formed by combining the plain-series numeral with the lexical suffix *-ał* 'times'. For simple numerals, this suffix is simply added to the stem; for complex numerals, it appears as a suffix on the decade or century (or the century if both are present) rather than on the digits. The same lexical suffix is also used to form the expressions *qahał* 'many (*qah*) times' and *dᶻixʷał* 'first (*dᶻixʷ*) time'.

Table 3: Cardinal numerals — temporal-iterative series[5]

1	*dəč'axʷ*	30	*słixʷačiʔał*
2	*cəbab*	40	*sbuusačiʔał*
3	*łixʷał*	50	*scəlacačiʔał*
4	*buusał*	60	*dᶻəlačiʔačiʔał* (SL)
5	*cəlacał*	70	*c'ukʷsačiʔał*
6	*yəlaʔcał* (NL), *dᶻəlačiʔał* (SL)	80	*təqačiʔačiʔał*
7	*c'ukʷał*	90	*x̌ʷəlačiʔał*
8	*təqačiʔał*	100	*dəč'uʔ sbək'ʷačiʔał*
9	*x̌ʷəłał*	101	*dəč'uʔ sbək'ʷačiʔał yəxʷ kʷi dč'uʔ*
10	*ʔulubał* (NL), *padacał* (SL)	200	*saliʔ sbək'ʷačiʔał*
11	*ʔulubał ʔi kʷi dč'uʔ* (NL)	700	*cukʷs sbək'ʷačiʔał*
12	*ʔulubał ʔi kʷi saliʔ* (NL)	1000	*padac sbək'ʷačiʔał* (SL)
20	*saliʔačiʔał*	1001	*padac sbək'ʷčiʔał yəxʷ kʷi dč'uʔ* (SL)
21	*saliʔačiʔał ʔi kʷi dč'uʔ*	1100	*padac yəxʷ kʷi dč'uʔ sbək'ʷačiʔał* (SL)
22	*saliʔačiʔał ʔi kʷi saliʔ*	2000	*saliʔačiʔ sbək'ʷačiʔ*

The temporal-iterative numeral series is also the basis of a few complex temporal expressions derived using the inchoative suffix *-il* to create verbs indicating the completion of an action a specified number of times:

(2) x̌ʷul' ʔubuusałil tiʔił shuyuds …
x̌ʷul' ʔu-buus•ał-il tiʔił s=huyu-d=s
only PFV-four•times-INCH DIST NM=be.done-ICS=3PO
'just four times she does that …'
(Mary Sampson Willup from Beck & Hess 2015:289, line 131)

(3) ʔal kʷi słixʷałils, huy, kʷədabacdubutəxʷ tiʔəʔ ʔəskikəwič
ʔal kʷi s=łixʷ•ał-il=s huy kʷəd•abac-dxʷ-but=əxʷ
PR REM NM=three•times-INCH=3PO SCONJ take•body-DC-REFL=now
tiʔəʔ ʔəs-C$_1$i-kəwič
DIST STAT-ATTN-hunchbacked
'on the third time, well, the little hunchbacked one caught his body [on the snags]'
(Agnes James from Beck & Hess 2014:578, line 59)

[5] The forms higher than 20 in this table are Snoqualmie-Duwamish forms taken from Tweddell (1950:72) and given here in standardized transcription; "SL" is used in the table where these forms are predicted to be different from the Northern Lushootseed forms, which are so far unattested.

It may be, however, that this particular type of derivation is not limited to temporal-iterative numerals as there are two examples from texts, given in (4) and (5), of inchoative verbs formed with a numeral and a different lexical suffix, *-gʷił* ‘canoe’:

(4) ləcəbagʷiłil tiʔəʔ ʔəsx̌əkʼʷtxʷ əlgʷəʔ ƛ̓ʼəlayʔ

lə=cəb•aʷgʷił-il	tiʔəʔ	ʔəs-x̌əkʼʷ-txʷ	əlgʷəʔ	ƛ̓ʼəlayʔ
PROG=two•CNN•canoe-INCH	PROX	STAT-overturned-ECS	PL	canoe

‘it was coming to be that they had two canoes overturned’

(5) ləłixʷalgʷiłil tiʔəʔ tasx̌əkʼʷtxʷ həlgʷəʔ ƛ̓ʼəlayʔ dəxʷəsaǩʷəbabac

lə=łixʷ•al•gʷił-il	tiʔəʔ	tu=ʔas-x̌əkʼʷ-txʷ	həlgʷəʔ	ƛ̓ʼəlayʔ
PROG=three•CNN•canoe-INCH	PROX	PAST=STAT-overturned-ECS	PL	canoe

dəxʷ=lə=saǩʷəb•abac
ADNM=PROG=jump•body

‘it was coming to be they had three canoes overturned that they were jumping over’

(Harry Moses from Hilbert & Hess 1977:15)

This suggests that the numeral+lexical suffix+inchoative expression may be more productive than its frequency in the corpus indicates, but this will have to remain an open question until further textual analysis brings more examples to light.

Otherwise, numerals in all three series are surprisingly inert in morphological terms. Beyond expressions of the type shown above, numerals seem only to appear as stems in two related sets of compound words formed from the temporal-iterative numerals and the lexical suffix *-dat* ‘day’, shown in Table 4. These seem likely to be recent formations introduced along with the European calendar. The fact that there are a maximum of four forms in each set follows from the naming practices for the days of the week, the remainder of which are *č’itabac* ‘Saturday’ (from *√č’it* ‘near’ + *-abac* ‘body’), *x̌aʔx̌aʔałdat* ‘Sunday’ (*√x̌aʔx̌aʔ* ‘sacred, taboo’), and *bəlǩʷəłdat* ‘Monday’ (*√bəlǩʷ* ‘pass by, come after’). Furthermore, it seems possible that the words in the left-hand column of Table 4 are backformations from the (more morphologically complex) words in the righthand column, given the absence of potential forms for expressing periods of time in days that do not correspond to the Lushootseed names for days of the week that happen to be based on numerals. It should be noted, however, that there are two verbs — *łixʷəłdacut* ‘become three days’ and *buusałdalicut* ‘become four days’ (each attested only once in the corpus) — which appear to be derived from *słixʷəłdat* ‘three days, third day’ and *buusəłdat* ‘four days, fourth day’, respectively. These two verbs are formed through a rather non-transparent use of reflexive morphology (*-cut* consisting of the event-internal causative *-t* and the reflexive marker *-sut*), and it remains to be seen whether they are representative of a more extensive set of older forms or if they are recent coinages.

Table 4: Compound numeral expressions for days and days of the week

cəbdat ‘two days, second day’	*scəbdatil* ‘Tuesday’
słixʷəłdat ‘three days, third day’*	*słixʷəłdatil* ‘Wednesday’
buusəłdat ‘four days, fourth day’	*buusəłdatil* ‘Thursday’ (NL)
—	*scəlacəłdatil* ‘Friday’ (NL)†

*This form is also glossed as ‘Wednesday’ in Bates et al. (1994:147).
†Bates et al. (1994:45) records this form as *scəlacəłdat(il)*, indicating it is also attested without the inchoative suffix but with the same gloss.

3 Numerals and numeral phrases

All three series of numerals are used both as adnominal quantifiers and as clausal predicates. The former use is illustrated in (6)–(8):

(6) hay gʷəl, tusulayitəbəxʷ ʔə tiʔił saliʔ sqʼʷiqʼʷəlaƛ̓ʼəd
hay gʷəl tu=sula-yi-t-b=əxʷ ʔə tiʔił saliʔ sC$_1$i-qʼʷəlaƛ̓ʼəd
SCONJ SCONJ PAST=centred-DAT-ICS-PASS=now PR DIST two ATTN-berry
‘and then he set before him two little berries’
(Edward Sam from Beck & Hess 2014:536, line 21)

(7) xʷuʔələʔ ʔəsʔəx̌id cəlac sləx̌il kʷədiʔ tusaxʷəbtubs
xʷuʔələʔ ʔəs-ʔəx̌id cəlac sləx̌il kʷədiʔ tu=s=saxʷəb-txʷ-b=s
maybe STAT-transpire five day REM.DMA PAST=NM=run-ECS-PASS=3PO
‘maybe it was five days (since) they had been run off with (i.e., kidnapped)’
(Martha Lamont from Beck & Hess 2014:108, line 265)

(8) gʷəl ʔahəxʷ tiʔəʔ səsaliʔ słəładəyʔ ləqaladibid
gʷəl ʔah=əxʷ tiʔəʔ səsaliʔ sC$_1$ə-ładəyʔ ləq•al•adiʔ-bi-d
SCONJ be.there=now PROX two$_{HMN}$ PL-woman hear•CNN•ear-MAP-ICS
‘and there are two women who overhear it’
(Harry Moses from Beck & Hess 2015:298, line 27)

Numerals are most frequently used with the singular form of nouns, as in (6) and (7), although the plural form is an option, particularly when referring to numbers of people, as in (8). Numerals may be used in argument phrases, as in (6) and (8), as well as in predicate complements (7).

The numeral ‘one’, *dəč’uʔ*, can be used to convey a sense of specificity or particularity:

(9) gʷəl huy bəʔəy’ədxʷəxʷ tiʔəʔ qa tiʔił sʔuladxʷ ʔal tiʔił cədił dəč’uʔ stuləkʷ
gʷəl huy bə=ʔəy’-dxʷ=əxʷ tiʔəʔ qa tiʔił sʔuladxʷ ʔal tiʔił
SCONJ SCONJ ADD=found-DC=now PROX many DIST salmon at DIST
cədił dəč’uʔ stuləkʷ
s/he one river
‘and then he found a lot of salmon in this one river’
(Martha Lamont from Beck & Hess 2014:202, line 23)

(10) gʷəl dił xʷuʔələʔ tušac’s tiʔił dəč’uʔ syəyəhub
gʷəl dił xʷuʔələʔ tu=s=šac’=s tiʔił dəč’uʔ syəyəhub
SCONJ FOC maybe PAST=NM=end=3PO PROX one story
‘and I guess that is the end of this one traditional story’
(Martha Lamont from Beck & Hess 2014:236, line 279)

(11) ʔaləxʷ tiʔəʔ sʔahilsəxʷ tiʔəʔ słčils dxʷʔal tiʔəʔ dəč’uʔ swətixʷtəd
ʔal=əxʷ tiʔəʔ s=ʔah-il=s=əxʷ tiʔəʔ s=łč-il=s
at=now PROX NM=be.there-INCH=3PO=now PROX NM=arrive-INCH=3PO
dxʷ-ʔal tiʔəʔ dəč’uʔ swətixʷtəd
CNTRPT-at PROX one tree
‘when (she) got to this one tree’ (Martin Sampson from Beck & Hess 2015:379, line 41)

(12) gʷəl ƛ’ubəkʷədad tiʔił bədəč’uʔ qʷłayʔ
gʷəl ƛ’u=bə=kʷəda-d tiʔił bə=dəč’uʔ qʷłayʔ
SCONJ HAB=ADD=taken-ECS DIST ADD=one stick
‘then she would take another one of her scratching sticks’
(Alice Williams from Beck & Hess 2015:424, line 123)

This use of the numeral is not textually infrequent and finds a very close parallel in its literal English gloss.

Like other adnominal modifiers, numerals have some flexibility as to whether they precede the noun they modify, as in (6) and (8) above, or follow it, as in (13) and (14):

(13) təł čəd ʔuʔəy’dxʷ tiʔił dsqa cəxʷsqatəd səsaʔliʔ ʔal tudiʔ
təł čəd ʔu-ʔəy’-dxʷ tiʔił d-sqa
truly 1SG.SUB PFV-found-DC DIST 1SG.PO-older.sibling
d=dəxʷ=sqatəd səsaʔliʔ ʔal tudiʔ
1SG.PO=ADNM=older.siblings two_{HMN} at DIST.DMA
‘I truly did find my older brothers, my two older brothers over there’
(Martha Lamont from Beck & Hess 2014:172, line 739)

(14) sx̌aʔhus tsiʔəʔ čəgʷas diič’uʔ
sx̌aʔhus tsiʔəʔ čəgʷas diič’uʔ
sawbill PROX:FEM wife one_{HMN}
‘one wife [was] Sawbill’ (Martha Lamont from Beck & Hess 2014:447, line 5)

Post-nominal position for numerals is rare (these are the only two examples in the current corpus) and it is not clear what conditions may apply to this ordering.

Also like other modifiers, numerals can be combined with additional adnominal elements in a single noun phrase:

(15) saʔ saliʔ sqʼʷəlałəd
saʔ saliʔ sqʼʷəlałəd
bad two berry
‘[there were] two measly berries’ (Edward Sam from Beck & Hess 2014:537, line 25)

(16) dəč’uʔ haʔł syəyəhub
dəč’uʔ haʔł syəyəhub
one good story
‘[it is] a good story’ (Harry Moses from Hilbert & Hess 1977:32)

The relative ordering of the numeral with respect to other adnominal modifiers appears to be relatively free, determined by considerations of style or communicative structure.

Numerals are often found as the heads of anaphoric nominal expressions:

(17) kʷədad tiʔəʔ dəč’uʔ
kʷəda-d tiʔəʔ dəč’uʔ
taken-ICS PROX one
‘he took one (berry)’ (Edward Sam from Beck & Hess 2014:537, line 28)

(18) gʷəl bəʔəsgʷədil tsiʔiɬ dəčʼuʔ ʔal kʷi xʷqʷəqʼʷus
gʷəl bə=ʔəs-gʷəd-il tsiʔiɬ dəčʼuʔ ʔal kʷi xʷqʷəqʼʷus
SCONJ ADD=STAT-down-INCH DIST.FEM one at REM cliff
'and one (sister) was sitting on the cliff' [Julia Siddle Basket Ogress, line 74]

These expressions only occur in contexts where the identity of the item(s) being counted is recoverable from discourse. Numerals also head NPs in constructions such as that in (19):

(19) gʷəl ʔəbsqʷəbqʷəbayʔ ʔə tiʔəʔ bəsaliʔ
gʷəl ʔəs-bəs-sC$_1$V$_1$C$_2$-qʷəbayʔ ʔə tiʔəʔ bə=saliʔ
SCONJ STAT-PROP-DSTR-dog PR PROX ADD=two
'and (they) had two dogs, too' (Martha Lamont from Beck & Hess 2014:35, line 24)

This is a usual way of expressing the notion 'X has a certain number of Y' when the fact of possession, rather than the number possessed, is the focus of the utterance.

Perhaps even more frequently than they are found as part of NPs, numerals occur in predicate position as the heads of clauses:

(20) saliʔ kʷi łuʔəƛʼtxʷ čəxʷ čʼƛʼaʔ
saliʔ kʷi łu=ʔəƛʼ-txʷ čəxʷ čʼƛʼaʔ
two REM IRR=come-ECS 2SG.SUB stone
'the stones that you will bring [will be] two'
(Alice Williams from Beck & Hess 2015:418, line 85)

(21) saliʔ tiʔiɬ ʔəskʷədad
saliʔ tiʔiɬ ʔəs-kʷəda-d
two DIST STAT-taken-ICS
'what he is holding [are] two (halibut)'
(Martha Lamont from Beck & Hess 2014:116, line 329)

(22) łixʷixʷ tiʔəʔ caadiɬ təlixʷ suqʼʷaʔ
łixʷixʷ tiʔəʔ caadiɬ təlixʷ suqʼʷaʔ
three$_{HMN}$ PROX they blood.brother younger.sibling
'these full-blood brothers [were] three'
(Martha Lamont from Beck & Hess 2014:226, line 204)

Like other non-verbal predicates, numerals in this context take clitics for mood and tense:

(23) gʷəl gʷətusəsaliʔ əlgʷəʔ
gʷəl gʷə=tu=səsaliʔ əlgʷəʔ
SCONJ SBJ=PAST=two$_{HMN}$ PL
'and there would have been two of them'
(Martha Lamont from Beck & Hess 2014:281, line 151)

There is also one example in the corpus of a numeral taking an aspectual prefix:

(24) ʔəsbuus kʷi tuhuyud əlgʷəʔ
ʔəs-buus kʷi tu=huyu-d əlgʷəʔ
STAT-four REM PAST=make-ICS PL
'what they made [was] four [moccasins]'
(Dora Solomon from Beck & Hess 2015:258, line 373)

However, the fact that there is a single occurrence of an aspect marker on a numeral in the corpus suggests that this is a rather marginal construction. That it occurs on the numeral *buus* 'four' may not be coincidental, given that four is a culturally important numeral in Northern Lushootseed (Hess 1995),[6] suggesting perhaps that *buus* might be a prime candidate for conversion to a verb expressing the notion of making/doing something in fours.

Like any other predicate, numerals can head yes/no interrogatives and can take ordinary matrix-clause subject markers:

(25) səsaliʔ ʔu
səsaliʔ ʔu
two_{HMN} INT
'were there two (children)?' (Martha Lamont from Beck & Hess 2014:77, line 37)

(26) łixʷačiʔəxʷ čəd ʔi kʷi yəlaʔc
łixʷačiʔ=əxʷ čəd ʔi kʷi yəlaʔc
thirty=now 1SG.SUB and REM six
'I'm thirty-six now' (Bates et al. 1994:277)

As shown in (26), complex numerals in predicate position are treated like other multi-word predicate phrases in terms of the placement of subject-markers and other sentence-second clitics.

Numerals in both argument and predicate phrases may be combined with lexical suffixes acting as numeral classifiers:

(27) … tusaxʷəbabacəd tiʔəʔ buusalgʷił ƛ'əlayʔ
tu=saxʷəb•abac-əd tiʔəʔ buus•al•gʷił ƛ'əlayʔ
PAST=run•body-ICS PROX four•CNN•canoe shovel.nose.canoe
'… [they] jumped over the four shovel-nosed canoes'
(Harry Moses from Hilbert & Hess 1977:16)

(28) cəbagʷiłəxʷ kʷi łudəxʷsaxʷəbabacəds əlgʷəʔ
cəb•a•gʷił=əxʷ kʷi łu=dəxʷ=saxʷəb•abac-əd=s əlgʷəʔ
two•CNN•canoe=now REM IRR=ADNM=jump•body-ICS=3PO PL
'now what they were jumping over [was] two canoes'
(Harry Moses from Hilbert & Hess 1977:15)

[6] The number four is also culturally important in a number of neighbouring but unrelated languages, and the form **moos* proposed by Edward Sapir is a plausible early areal borrowing (Lushootseed having changed **m* to /b/ in the mid-nineteenth century). Among the Southern Lushootseed, the numeral is five (Hess 1995).

(29) č’əʔilc ti dtalə
č’əʔ•ilc ti d-talə
one•round SPEC 1SG.PO-dollar
‘I have one dollar’ (Hess & Hilbert 1976:I, 68)

(30) ʔəsɬix^{w}ulč ti dsʔax^{w}uʔ
ʔəs-ɬix^{w}•ulč ti d-sʔax^{w}uʔ
STAT-three•container SPEC 1SG.PO-clam
‘I have three clams’ (Hess 1995:20)

The choice of suffix is largely semantic: lexical suffixes with very concrete, specific meanings are used in counting those objects which they designate, as in (27) and (28), while others are used when counting objects that fit into the general class (in either shape or function) of things expressed by the suffix, as in (29) and (30). Also illustrated by (28) and (30) are the alternate combining forms for the numerals one and two, *č’əʔ-* and ‘one’ *cəb-* ‘two’, mentioned above in the context of the temporal-iterative series of numerals in Table 3. These forms seem to be in free variation with the regular stems, *dəč’uʔ* ‘one’ and *saliʔ* ‘two’ in enumerative constructions.

4 Some final thoughts

Although the coverage of numerals and numeral phrases in the existing descriptive materials on Lushootseed is quite good, making it possible to know the way that large complex numbers were formed and how numerals functioned in syntax, the fact remains that the analyzed corpus is relatively small and there are still some gaps in our knowledge of how numbers work in Lushootseed. One particularly striking thing I noted from the corpus (the 26 texts in Beck & Hess 2014, 2015 and a half dozen others we have digitized so far) is dearth of numeral classifier constructions used in counting/enumeration. Given the richness of the system described for the Halkomelem languages (Gerdts et al. 2002; Shaw et al. 2002), which use about 30 different lexical suffixes for counting objects, the paucity of examples from the texts (there are only four, all using *-g^{w}iɬ* ‘canoe’) is surprising, as is the lack of diversity in the suffixes themselves (there are only seven other suffixes attested with numerals in the descriptive literature). It is hard to know if this an accidental gap, if it is because the system in Lushootseed is simply less elaborate than that of many of its congener languages, or if it is the result of the kind of language attrition Shaw et al. (2002) observe in hən’q’əmin’əm’ — although the last option seems unlikely given that the analyzed corpus contains speech from very fluent, Lushootseed-dominant Elders. If this were the case, it would have had to have been a long-standing process, more contact-induced language change than language loss.

The fact that there are marked differences in numeral forms between the two main dialectal divisions of Lushootseed is also interesting, and hints at early sociolinguistic patterns and the possible borrowing of forms from neighbouring languages. Further comparison with the numeral systems in other languages of the broader family is also in order, and it is to be hoped that in the coming years, a little more attention can be paid to Salishan numerals. They have a complex history, with a surprising heterogeneity of forms and etymologies, and numerals in the three “Mosan” language families of the Central Northwest Coast show the effects of intense language contact and borrowing (see, for example, Kinkade 2002). Their continued study is sure to provide deeper insight into the early Northwest Coast linguistic landscape.

References

Anderson, Gregory D. S. 1999. Reduplicated numerals in Salish. *International Journal of American Linguistics* 65, 407–481.

Bates, Dawn, Thomas M. Hess, and Vi Taqwšəblu Hilbert. 1994. *Lushootseed Dictionary*. Seattle: University of Washington Press.

Beck, David, and Thom Hess. 2014. *Tellings from Our Elders: Lushootseed* syəyəhub*. Volume 1, Snohomish texts*. Vancouver: UBC Press.

Beck, David, and Thom Hess. 2015. *Tellings from Our Elders: Lushootseed* syəyəhub*. Volume 2, Tales from the Skagit Valley*. Vancouver: UBC Press.

Cort, David. 1998. Teaching Lushootseed math. In: *Papers for the 33rd International Conference on Salish and Neighboring Languages*, 85–90.
[http://lingpapers.sites.olt.ubc.ca/files/2018/03/1998_Cort.pdf]

Gerdts, Donna B., Mercedes Q. Hinkson, and Thomas E. Hukari. 2002. Numeral Classifiers in Halkomelem. In: *Papers for the 37th International Conference on Salish and Neighboring Languages*, UBCWPL 9, 147–180.
[http://lingpapers.sites.olt.ubc.ca/files/2018/03/2002_Gerdts_Hinkson_Hukari.pdf]

Hess, Thom. 1995. *Lushootseed reader with introductory grammar, Volume I: Four Stories from Edward Sam*. Missoula: University of Montana Occasional Papers in Linguistics.

Hess, Thom. 1998. *Lushootseed reader with intermediate grammar, Volume II: Four Stories from Martha Lamont*. Missoula: University of Montana Occasional Papers in Linguistics.

Hess, Thom. 2006. *Lushootseed reader with English Translations, Volume III: Four More Stories from Martha Lamont*. Missoula: University of Montana Occasional Papers in Linguistics.

Hess, Thomas M., and Vi Taqʷšəblu Hilbert. 1976. *Lushootseed: An introduction, Books 1 and 2*. Seattle: American Indian Studies, University of Washington.

Hilbert, Vi Taqʷšəblu, and Thomas M. Hess. 1977. Lushootseed. In Barry F. Carlson (ed.), *Northwest Coast texts: Stealing light,* 4–32. Chicago: University of Chicago Press.

Kinkade, M. Dale. 2002. Salish numerals in "Old" Nitinaht, In: *Papers for the 37th International Conference on Salish and Neighboring Languages*, UBCWPL 9.
[http://lingpapers.sites.olt.ubc.ca/files/2018/03/2002_Kinkade.pdf]

Shaw, Patricia A., Susan J. Blake, and Jill Campbell. 2002. Numerals and lexical suffixes in həńq̓əmiṅəm̓, In: *Papers for the 37th International Conference on Salish and Neighboring Languages*, UBCWPL 9.
[http://lingpapers.sites.olt.ubc.ca/files/2018/03/2002_Shaw_Blake_Campbell.pdf]

Tweddell, Colin Ellidge. 1950. *The Snoqualmie-Duwamish dialects of Puget Sound Salish: An outline of phonemics and morphology*. University of Washington Publications in Anthropology 12. Seattle, University of Washington Press.