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1 Introduction

One of the salient characteristics of the morpholexical systems of the Salish languages is the widespread use of reduplication in both derivational and inflectional functions. Salish reduplication signals such typologically common categories as 'distributive/plural', 'repetitive/continuous', and 'diminutive', the cross-linguistically marked—but typically Salish—metaphor of 'out-of-control' (Carlson and Thompson 1982; Krocher 1988; van Eijk 1990), or more restricted categories in particular Salish languages, for example the association of the historically diminutive reduplication pattern with a first singular referent in Shuswap (Anderson 1996). In addition to the above functions, reduplication also plays a role in the numeral systems of the Salish languages. The basic forms of several numerals appear to be reduplicated throughout the Salish family. In addition, correspondences among the various Interior Salish languages suggest the association of certain reduplicative patterns with particular 'counting forms' referring to specific nominal categories. While the developments in the other Salish languages are frequently more idiosyncratic and complex, comparative evidence suggests that the system reconstructible for Proto-Interior Salish may reflect features of the Proto-Salish system itself.

2 Reduplicated Simplicia

Throughout the Salish language family, there are numbers whose basic forms are inherently reduplicated. For example, in the Interior Salish languages numbers for 7, 9, and multiples of 10 are attested in reduplicated base forms in both Northern Interior Salish (e.g. Shuswap (Kuppers 1974) and Thompson River Salish (Thompson and Thompson 1986)) and Southern Interior Salish (e.g. Kalispel (Voge 1944), Spokane (Carlson 1972, Carlson and Flett 1989), Coeur d'Alene (Reichard 1938), and Columbian (Czaykowska-Higgins 1953, Kinkade 1982)), without necessarily having cognate numerals involved.

(1)

Shuswap       cuic'ke?         '7'
Spokane       sispi'el        '7'
Shuswap       tmhik'ul 'Je     '9'
Kalispel      xyan'x         '9'
Coeur d'Alene m'om'asqon'     '400'
cucxw'xtm'qon' '700'
Thompson      xpenqalek'st    '100'
Columbian     xrecakst        '100'

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Other reduplicated simplicia of numerals can be found in the Interior Salish languages as well (2):

(2)  
Shuswap  
Dispose  
'2'  

Columbian  
MUNs  
'M'  

The majority of forms listed in (1) and (2) above appear to be formally of the *CV-type; this is signaled not only by the presence of the (C)V-reduplicated affix but also by the glottalization of resonants in Cœur d'Alene (m>n>m>n) and the deglottalization of obstruents in Shuswap (k->y) that is characteristic of these languages with this reduplicative pattern (Rechard 1939; Kuiper 1974). The relevant reduplicated simplicia in (Moses-Columbian, on the other hand, appear to be formally of the *VC-type.

Other Salish languages likewise exhibit particular numerals whose unmarked forms are reduplicated. For example, in the Coast Salish language Twana (Drachmann 1969), the basic form of '4' is of the *VC-reduplicated shape, while in the Tsleil-Wautsa language Upper Chehalis (Kirkade 1991), one of the words for '1' is historically of the *CV-reduplicated type (3)

(3)  
Twana  
Basas  
'4'  

Upper Chehalis  
Hike's  
'1'  

3 Reduplicated Counting Forms

As is common in many languages of the Pacific rim and adjacent areas, Salish languages possess a highly complicated numeral system with special 'counting forms' for entities of a particular shape/type/class; these can be found in such geographically disparate, genetically unrelated, and typologically different languages as Salish and the Palaeoiberian isolate language Nivkh (Gilyak, Krejnovich 1934). In Interior Salish languages, these generally involve two types of reduplicative affixes, viz. *CV- and *CV-. Both of these are attested in the function of creating 'people' counting forms, while the latter is also used in the creation of counting forms for 'animals'. In Coast Salish languages, *VC-reduplication is also used in the formation of numerals for 'people'. In addition, a range of language-specific reduplicated numeral constructions are sporadically attested throughout the Salish family.

The numerals used for counting 'people' in Interior Salish languages were generally formed with a stressed ('strong') *CVC-reduplicative prefix (and a deictic proclitic in many of the languages).

(4)  
Colville  
Kmcwms  
'4 people'  
Kcilekksi  
'5 people'  

Okanagan  
Kmozm  
'4 people'  

Shuswap  
Tnuwms  
'4 people'  
Tcicikst  
'5 people'
Thompson
mosmə
’S people’
ciyiksts
’S people’
cəxəqšə?
‘7 people’
ƛ’sqƛ’sqomekst
‘6 people’

Moses-Columbian
tk “ink” “inx
‘how many people’

According to Czaykowska-Higgins (1993), in Moses-Columbian *CV*-reduplication, like *-VC and *CV*-reduplication, has become a stressed-syllable targetting process rather than a root-syllable targeting one: thus one finds examples like.

(5) Moses-Columbian
gəxəl-əxil
‘2 people’

In some instances, however, a *CV*-affix seems to have been used rather than *CV*-in

(6) Shuswap
təq’məməksi
‘6 people’

Thompson
səsəye
‘2 people’
pəxə?
‘1 person’
koqəkəs
‘3 people’
təməkəpyə?
‘9 people’

Both of these patterns have parallels in the Coast Salish languages as well, e.g. Squamish (Kuipers 1967), Tsimshian (Edel 1939; Thompson & Thompson 1965), Nooksack (Galloway 1995), Lushootseed (Bates, Hess and Hillbert 1994), Hulkomemem (Galloway 1977) or Curnox (Sapir 1991).

(7) Squamish
təq’əsqəʔ
‘6 people’
čəqaʔ
‘3 people’
nəncəʔʔ?
‘1 person’
təq’əxəʔ “usəʔ
‘7 people’
təqəqəʔ
‘8 people’
c’ərscəʔas
‘9 people’
rəpəxən
‘10 people’
k “ink” “in
‘how many people’

Tillamook
təxəxənət
‘3 people’

(8) Nooksack
nonəʔəʔ?
‘1 person’
nenəʔəʔ?
‘1 person’
Lushootseed

'2 people'

'4 people'

'2 people'

'2 people'

'2 people'

As mentioned above, various Coast Salish languages also utilize *-VC reduplication to create 'people' counting forms, e.g. Lushootseed.

In addition to the 'people' counting forms adduced above, reduplication was also used in the Interior Salish numeral system in the creation of *-VC reduplicated forms for animals. These are attested in all the Northern Interior Salish languages and seem to be generally of the historical *CV- diminutive type.

Lillooet

'1 animal'

Shuswap

'10 animals'

'4 animals'

'how many animals?'

Thompson

'4 animals'

'7 animals'

'6 animals'

'10 animals'

'2 animals'

'3 animals'

In one instance, Thompson River Salish seems to have a doubly *CV- reduplicated pattern for an 'animal' counting form, one application of which is apparently of the regular, productive stress-targeting type that is characteristic of the Northern Interior Salish languages, e.g. *ke?h'ēs > *ke?h'ēh'ēs '3 animals'.

Similar forms can also be found in Coast Salish languages, e.g. Squamish.
Squamish

| c'ic'is | 9 animals (< c'ós) |
| t'a'q'a'č | 6 animals' |
| ḥəญา | 10 animals' |
| t'ax'ʷəxəč | 7 animals' |
| nín'uʔ | 1 animal' |
| k̓'axən | how many animals' |

Some Squamish 'animal' counting forms are marked not only by a *CV* reduplicative prefix, but also by the inflexion of glottal stop into the stem of the numeral. Such 'interior glotinalization' is found in other Coast Salish languages associated with *CV* (or *C*) as well.

(12)

Squamish

cic'itəs

'5 animals'

(13)

In some instances, it is in the reduplicated syllable itself that the inserted glottal stop appears; note that in these cases, however, the function of the reduplication is different than in the Squamish examples above.

Sooke

hiʔ hiʔxʷ*

'3 times'

Lushootseed

səʔəhʔ?

'2 small items'

səʔəhʔ?

'2 children'

biʔəws

'4 little items'

In various Coast and Ts'kanosan Salish languages, there are a range of language-specific functions of reduplication of numeral stems attested. These are all highly restricted in distribution, often limited to just a subset of numbers in a particular Salish language. Like the 'people' counting forms above, which seem to reflect both *CVC*- and *CV*-reduplication, these reduplicated numeral forms may similarly exhibit several different patterns within one and the same language. Note that *VC* reduplication is also frequently involved in these formations as well. Salish languages exhibiting such idiosyncratic formations include Lushootseed (Bates, Hess, and Hilbert 1994), Twana (Drachmann 1969), Sooke (Finn 1969), Squamish (Kuipers 1967), and Upper Chehalis (Kinkade 1991).

(14)

Lushootseed

kəvəs

'4 trees'

suł'saləʔ?

'2 by 2'

dəliʔəʔ?

'1 by 1'

(15)

Twana

cəʔəʔəs

'3 by 3'

cəxətəs

'5 by 5'

(16)

Sooke

hiʔ hiʔxʷ*

'3 times'
(17) Squannish
   ṭok’ *x’ usuč | '7 days'
   taqqat | '8 days'
   ḥepum | '10 days'

(18) Upper Chehalis
   nde’at’o’wtsa | 'once in a while'
   či’xali | '3 by themselves all the time'
   si’xali | '2 by themselves'
   nač’awws | '1 to each'
   čim’ims | '2 to each'
   či’waws | '3 to each'
   si’xali’lil | he has 2 wives (cf. či’wolq' "wife")

In addition, various Coast and Interior Salish languages also show simple diminutive numbers associated with the historical *CV- pattern.

(19) Lushootseed
   saq’alí’ | '2 small items'
   bi’dí’us | '4 little items'
   ci’ck’á’ke | '5 small items'

Spokane
   m’um’as | '4 little ones'
   ci’ck’á’ | '5 little ones'
   t’al’q’ón | '6 little ones'

4 Conclusions

Reduplication was a salient part of the morphological system of Proto-Salish and its daughter languages, including the numeral systems. It is relatively clear that the use of reduplication to form numerals with specific reference to 'people' and 'animals' was available to speakers of dialects of Proto-Interior Salish. The semantic association of *CV- 'diminutive' reduplication with the 'small' counting forms is fairly straightforward, and the formally and functionally cognate patterns attested in both Coast and Interior Salish languages suggest that these may reflect a Proto-Salish feature. What pattern to reconstruct for the 'people' counting forms is less clear. It seems that both *CV- and *CV- were used in Proto-Interior Salish, the latter perhaps conditioned by the phonological nature of a particular numeral stem, or more likely, simply with certain numbers themselves, e.g. 2; again, parallels in both Interior and Coast Salish languages suggest that these may be old features in the Salish family, possibly dating back to Proto-Salish. The *CV- forms found in such Coast Salish languages as Lushootseed probably represent later innovations. The cognate reduplicative patterns in Shiwip and Kalsipel-Spokane in the base forms of '7 and '9 are similarly suggestive of a Proto-Interior Salish feature, but the motivation for the association of *CV- (diminutive) reduplication with these particular
numbers is still unclear, not to mention the fact that cognate morphemes are generally not involved. It's also possible that the unmarked simplicity of certain other numbers may have favored association with particular reduplicative patterns in various dialects of Proto-Salish as well, cf. the correspondence of Columbian Salish *masas* and Twana *bistas* '4', both with *-VC reduplication. Resolving these issues however would await further research.

**References:**


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1. *Out-of-context*—a complex of notions of *low sensitivity*—is used in the Salishanist literature (e.g. Thompson 1991) to refer to a predicate marked by *+VC* reduplication (or various affixes), whose state or result was brought about or achieved accidentally, without the volition of, or otherwise out of the *control* of the referent that might canonically thought of as being in *control* of such things, usually the subject, agent, or in the case of Thompson River Salish (Thompson and Thompson 1992), topic of the predicate. Interior Salish examples include Thompson *k*al thinner, *swap* patkar ‘be spilled’, Cour d’Alene *pa*wam ‘it has come to be bent’ or *Cwktu* (Matting 1993) X’al’al dead (<Cwktu). The use of this reduplicative construction is most common in Interior Salish, but traces of functionally similar *+VC* reduplication can be found in other Salish languages as well (e.g. Twana (Dethlefsen 1969) bxopsw ‘sleep’ and xswalk spill’, Upper Chehalis (Kaskahe 1964) tseppa *slowly* walk back and forth; moccop ‘kneel, bend over’, with *+VC* *-en* construction, for Proto-Salish, van Eijk (1996) isolates two basic functions *out-of-context* and a *communicative* aspect.

2. Salish affixes are grouped into metrical classes according to their behavior in the complex stress assignment systems of the Salish languages; there are two or three groups *strong* or stress attracting, *weak* or neutralized and *variable* or alternately stressed with weak roots and unstemmed with strong ones. As processes of affixation, Interior Salish reduplicative patterns must also be assigned to a given metrical class. Productive *+VC* -distributive/repetitive affix is mostly weak (unstressed) in the Interior Salish languages, except Cour d’Alene where more examples are strong, and Lillooet where *+VC* is variable (with a phonological reorganization of the stress-classes, see van Eijk 1993). In addition to this *VC*-reduplication there was another semi-productive pattern (so-called *attributive* (Baebler 1961), that may have been a strong or variable affix in Proto-Salish (e.g. Thompson *sawwet* (*+VC*) ‘when localized in a *-y* (about) position’). Lillooet *saal* ‘strong'. Okanagan (CCB 1993) *ppwert* ‘speak’ or Coast Salish *tanuch (Montler 1985) *ppwert* ‘talkative’. It seems the formal shape of the *+VC* -reduplication used in the *people* counting forms (i.e. a *strong* affix) are more suggestive of the latter (attributive) type of *+VC*-reduplicative pattern.

3. The formation of reduplicated *people* numerals is quite idiosyncratic with the reduplicated simplicities in Shuswap. *Ng* lacks a *people* counting form altogether, while 7 *people* is formed merely by utilizing the derivational to the base form without further reduplication *skwylek*. 2 *people* is formed by adding the derivational element to an unreduplicated base form with an unmodified glottal stop or glottalization *whele* or *k’ale*.

Note the form with a stress-targeting *+VC*-type infixed reduplicative copy—the synchronically productive reflex of the Proto-Interior Salish *+VC*- (distributive) prefix in the Northern Interior Salish languages, see Anderson (1996).

4. Note that in most of these instances, the second stem consequent is a glide. There is also a possible example of *+VC* reduplication in a Thompson counting form, or at least the stressed-syllable targeting process that is characteristic of Mo-Ne-Columbian and the Northern Interior Salish languages with *+VC* and *-VC* reduplication. In this form, the distinction between *animal* and *people* counting forms has been neutralized (pullo N‘a’ m‘a) ‘2 people/inhabitants’ (Thompson and Thompson 1996).

5. In some instances, however, forms that appear to be *+VC*-reduplicated probably are simply vocalized *+VC*-reduplicated forms (Kuipers 1907: 149-50), e.g. Squamish *cicket* ‘5 people’ (*+VC*?); *gip* ‘4 people’ (<*g*ip). Note the longening of the stem vowel in the reduplicated Tulalip forms, cf. the example in (8) as well.

6. Note the glottal stop that has been inserted in these reduplicated Lushootseed forms. In addition to *+VC*- and *-VC* reduplicated *people* numerals in Lushootseed, there are also distributive forms derived from these.
e.g. *6'z'waxa?72 children' or *6'z'waxa?73 children'. This glottalization also occurs in other Salish
languages, see examples in (12) and (13) below.

*CV- disminutive reduplication is attested in most Salish languages, e.g. Spokane (Carlson and 
'ak 'little skin' or Bella Coola (Newman 1971) q'aq 'little beaver' (with -i diminutive).

Note that in some of these Squamish forms, and throughout the Coast Salish languages, the *CV-
pattern is often more properly analyzed as a CV-reduplication.

For instance '5 cute little ones' > '5 animals'. While the presence of simple diminutive numbers in
Spokane and Lushootseed may indeed represent the earliest system, it is also possible that these are later
parallel developments in these two languages.