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Articles

LEXICAL REPRESENTATION OF SALISH VERB ROOTS:
A Preliminary Examination

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Little attention has been given to lexical representation in Native American languages. In this paper we will examine some of the types of lexical information necessary for verb roots of the domain FALL within several of the Salish languages. Particular attention will be paid to the area of selectional restriction. Bever and Rosenbaum (1971: 590:) state:

> Lexical items are marked as to the ... classes which they share ... these class-markings restrict the kinds of noun-verb-noun combinations that may appear within a clause. Such constraints are referred to as 'selectional restrictions'.

The Salish language family dominated the vast area spanning from the coast of Washington State into western Montana, and from the central Oregon coast to southern British Columbia. The basic word order in all of the languages is verb initial. To the verb root are most often affixed morphemes which convey aspect, transitivity, control and person. The basic lexical unit is, in most cases, the bare root.[1]

The topic of this paper was initially stimulated by field work on the Puget Salish language of western Washington. In speaking with two knowledgable speakers of the Muckleshoot dialect, Bertha McJoe and Eva Jerry, it appeared that a singular/plural distinction was playing a role in the choice between two verb roots meaning 'fall', namely #x^{w}it' and #bi?:

(1) [?ox^{w}íit'itəd ɬək^{w}ay] My plate fell.

(2) [?obi?tiɬ ?Apəls][2] Those apples fell.

By the close of the session, other qualities of the accompanying noun beyond number were also found to determine the verb root. Three roots were preliminarily categorized according to their cooccurance with intransitive subjects:

(3) #d^{z}iǐ is used when the falling object is a building, such as a barn or house;

(4) #x^{w}it' is found with singular objects such as a falling plate, child, book, bobby pin or ribbon;

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(5) #bi? accompanies groups of objects falling together, such as a group of plates, apples or bobby pins.

Thus it appeared that #x^{w}it' is the general root for "fall", #d^{z}iǐ the root used only when the falling object is a building and #bi? the collective plural root.[3]

But the view of #bi? as a 'collective plural root' may be an oversimplification. Evidence for this statement is found in the Twana language, Puget Salish's closest relative. In Twana, like Puget Salish, there is a distinction for certain actions in verb roots. The root may be either a collective or noncollective plural.[4]

(6)	gloss	collective plural	non-collective
a.	die	#c'əx^{w}	#?at
b.	sit	#łaq	#bat
c.	walk	#qul	#wač

A distinction is made in the lexicon for certain actions as to whether they involve (i) one actor, (ii) more than one actor performing individually, or (iii) more than one actor simultaneously or sequentially undergoing the action. For example,

(7)	a.	[?atəbəddəx^{w}]	He died.
	b.	[ta?atəbəddəx^{w}]	They died (in unrelated accidents).
	c.	[c'x^{w}alaldəx^{w}]	They died (together).
(8)	a.	[?assətadbət]	She is standing.
	b.	[?astəsətadbət]	They are standing (in different places.
	c.	[?asc'əlap]	They are standing (together).

In (7b) and (8b) the same root appears as in (7a) and (8a), respectively. In the former examples it has undergone reduplication to express plurality. However, in (7c) and (8c) the root differs altogether and specifically expresses the collective plural.

Parallel to the above examples (6-8) are the roots #hak^{w} and #q'^{w}iy. They both appear with the category of tall, thin and upright nouns, which includes tree and fence post. The root #hak^{w} is used when the objects of this class fall unrelatedly as either a singular or reduplicated plural. By contrast, #q'^{w}iy is used when an object of the same

class is caused to fall by the wind, an animal (most usually a beaver) or a human (with the traditional technique of burning, or with newer equipment such as an axe or a saw). Thompson (1979) lists the following examples:

(9) [ʔashák^{w}] It [a tree, bush or post] fell.

(10) [q'^{w}eʔáw] It [a tree] was felled.

Additionally, #q'^{w}iy is also used with nouns of the class BUILDING.

To express the collective plurals for the classes of BUILDING and tall, thin and upright objects, the reduplicated stem of the root #q'^{w}iy is used. Again from Thompson (1979):

(11) [biq'^{w}iəq'^{w}éʔaw] The [e.g. trees] are falling.

Thus, the root #q'^{w}iy is used with two different classes of nouns. When placed in a reduplicated stem it expresses the collective plural for not only actions which would otherwise require #q'^{w}iy but also those which would take #hak^{w}. Therefore, at least in Twana, the expression of the collective plural need not be limited to a verb root which is used exclusively for that purpose. Rather, it can also be expressed through the reduplication of one of the verb roots within the domain.

In attempting to formulate the selectional restrictions for Puget Salish #dᶻiǰ it is obvious that some characterization of the environment is necessary. A mere listing of all the words for types of buildings for this and all like roots is too lengthy. The list would include:

(12)

ʔiʔɬdaltx^{w}	burger stand[5]
k'^{w}ədicutaltx^{w}	church
ʔalʔal	house
ǰalali	post office
ʔaʔalʔal	hut
ʔəɬədaltx^{w}	restaurant
ǰalaltx^{w}	school
wuǰtəd	sweathouse
labaltx^{w}	tavern
silaltx^{w}	tent

g^{w}ig^{w}i?altx^{w}	potlatch house
x̌əɬaltx^{w}	hospital
g^{w}alaytx^{w}	cattail mat house
pig^{w}idaltx^{w}	smokehouse
x^{w}uyubaltx^{w}	store

A suffix common to many of the nouns in (12) is +altx^{w}.[6] This type of suffix is termed a 'lexical suffix' in Salishan literature. Hess (1976:xv) defined it as:

> A suffix having relative concrete meaning, e.g., -ači? hand, lower arm, -i?ɬ baby, -čup fire, firewood. Typically, the lexical and an independent word of the same or similar meaning are mutually exclusive. One may say either ?uɬíč'ači? čəd or ?uɬíčid čəd tə dčàləs both I cut my hand ... It is not grammatical to say *?uɬíč'ači? čəd tə dčàləs.

As a suffix, a lexical suffix can substitute for a class of lexical items; here +altx^{w} represents the class BUILDING. The following are etymologies of some of the words shown in (12):

(13)	restaurant	?əɬəd 'eat' + altx^{w} 'building'
	tent	sil 'cloth' + altx^{w} 'building'
	hospital	x̌əɬ 'sick' + altx^{w} 'building'
	tavern	lab 'alcohol' + altx^{w} 'building'

The suffix +altx^{w} appears as well in productive nouns and verbs with cooccurance restrictions similar to those outlined above; for example,

(14) /q^{w}əq'^{w}altx^{w}/ white building

It is interesting that the same class of nouns which can be signified by the suffix +altx^{w} is also the same class which selects for the verb root #d^{z}iǐ. Rather than attempting to write out the semantic features of BUILDING in the selectional restrictions of all verb roots in Puget Salish where it must be specified, it may be possible to use the suffix +altx^{w} instead. Clearly, the semantic features of BUILDING would already be fully specified in the lexicon under +altx^{w}.[7]

However, the use of a lexical suffix in marking verb selectional restrictions makes a claim: the nouns which select a given root will be a category of nouns which is identical to those nouns which the suffix can

replace. Furthermore, it suggests that this correspondence is no accident but rather a systematic way in which the language operates with regard to the classification of nouns. A one to one correspondence between the noun classes which appear in selectional restrictions and those which can be replaced by lexical suffixes would allow for simplification of the lexical representation in Puget Salish.

In an effort to check the preliminary descriptions of the verb roots (3-5) obtained in the field session, a search of the literature was conducted. The most comprehensive Puget Salish dictionary to date, Hess (1976), contains the following verb roots and stems, each exclusively within the domain FALL. They may be summarized as:

(15) #x̌ət'ab - used for a person falling into the water from a canoe,

e.g. ʔuxt'ábčəd tul'ʔal tə dƛ'əlàɁ

'I fell out of my shovel-nose canoe.'

(16) #xʷit'- used for a falling object such as food, a person the sun, a bottle or basket,

e.g. ʔuxʷít'il tə biác dxʷʔal tə hud

'The meat fell into the fire.'

(17) #biʔ - used for river banks washing away,

e.g. ləbíʔtəb 'The river banks are being washed away.'

(18) #dᶻaq' - used for the falling of an upright object, e.g. a tree or a person,

e.g. dᶻáq'dxʷ 'He fell.'

ʔudᶻáq'ič 'It [a tree] fell on it.'

(19) #x̌iƛ' - used for the felling of a tree,

e.g. ƛ'uxíƛ'id tiʔəʔ diʔəʔ swətíxʷtəd

'He [a beaver] fells the tree(s).'

(20) #t'əbaʔ - used for a person falling into the water,

e.g. tucucčəd gʷəxʷíʔəs gʷəsuk'ʷìt's dxʷʔal təstùləkʷ, gʷəl kʷi t'əbt'əbáʔ

'I told him not to go to the river, he might fall in.'

(21) #d^{z}iǐ - used for the falling of a bridge,

e.g. ʔəsd^{z}íǐ 'It [a bridge] has collapsed.'

- also used for the falling apart of a mechanical devise,

e.g. ʔəsd^{z}íǐ 'It [the machine] is broken.'

While the earlier analyses of #x̌^{w}it' and #biʔ are upheld, the selectional restrictions of the root #d^{z}iǐ must be expanded to include other classes of nouns beyond buildings, namely those which contain 'bridge' and 'machine'. The lexical suffix +šəd SUPPORT includes 'bridge' as one of its referents. It is not known if there is a lexical suffix which contains 'machine'; it might resemble +adəč EQUIPMENT, GEAR.

Other distinctions are made in the lexicon beyond selectional restrictions. Roots used as predicates will be characterized 'according to the number of "arguments" that they take.' (Fillmore 1971:375) While there may be flexibility in the number of arguments a given root may take, the root #ǐiƛ' is the only one of those listed (15-21) which must take at least two arguments.

Individual roots can in fact be categorized according to complexity. The most simple contain only one primitive component; for example,

(22) #x^{w}it' [FALL]X

At the other end of the spectrum is a root such as #ǐəṭ'ab, meaning 'to fall overboard'. The case relations are more or less fixed by presuppositions: the Source (or where something moves from) must be a type of boat, while the Goal (where it moves to) must be some type of body of water. Neither of these is necessarily explicit in a given sentence however.

Rather than claiming that only selectional restriction noun categories are identical to lexical suffix replacement noun categories, a stronger claim is that all nouns within the semantic representation of roots are also identical to them as well. What this would indicate is that nouns are divided into certain specific and non-alterable categories. By 'specific', it is meant that the categories are defined within the grammar - clearly each lexical suffix must be defined for its semantic features. Additionally, a category cannot change its composition (i.e. those nouns which make up that category cannot alter) in varying environments. This possible relationship is expressed in (23):

(23) Noun Category Restriction

Where N_1, N_2 and N_3 are each a set of noun categories, and

N_1 appears within Selectional Restrictions,

N_2 can be replaced by Lexical Suffixes, and

N_3 appears in the Semantic Representations;

$N_1 = N_2 = N_3$

Earlier we noted a one-to-one correspondence between one category within N_1 and one within N_2, that of buildings. If there is an equivalence between N_2 and N_3, there should be a lexical suffix for each noun category found in examples (15-21). There are in fact lexical suffixes for most of these:

(24)

human	+abəš	
water	+q^{w}u	
canoe	+g^{w}iɬ	
tree	+ac	
animal	+ay	
collective plural	+bix^{w}	
bridge	+šəd	(SUPPORT)
food	+iɬəd	
bottle, basket	+ulč	(CONTAINER)

Verb roots (25) through (28) are examples of ones which come under the domain FALL when they are not marked as having the action taking place under control. With control, the meaning refers most often to a body position:

(25)

Root	Lack of Control	Control
#pix^{w}	fall off, drop	shake out, shake off, brush off
	e.g. ʔupix^{w}il	'It[a pine cone or leaf] fell.'
	ʔupix^{w}id	'Knock it off!, Shake it off!'

Root	Lack of Control	Control
#k'ʷəq	fall on back	lay on back
#bəč	fall down	lay down
#taǰ	fall on front	lay on front

Given that 'fall' is associated with all of the lack of control cases but that the reference when the action is under control varies from root to root, it is most likely that the latter group contains the primary semantic reference.

In order to validate our observation for lexical restrictions in Puget Salish, we conducted field work in a distantly related Salish language - Lillooet, a language of southeastern British Columbia. Our source for all Lillooet data is Mary Lagasca, one of few remaining speakers of the Skookumchuck dialect.

Skookumchuck has at least six verb roots which can be categorized within the domain FALL. Like Puget Salish #xʷit' (examples 16 and 22), there is a root which contains only one semantic primitive:[8]

(26) #kʷiš [FALL]X

e.g. kʷiš ti šqaǰA?A 'The dog fell down.'

This verb root enjoys broad, general usage and is most often used with singular objects such as a falling person, animal, wig, ash, star, rock or ribbon. In unreduplicated form, #kʷiš can be utilized in plural constructions if the falling objects are animate.

Other verb roots meaning 'fall' in Lillooet are:

(27) #kUǰəp - used for groups of small objects that fall simultaneously or in succession. These small objects range from rice, snow, hair and pine needles up to *apples*.

e.g. kUǰəp ?i mAqenə 'The hairs are falling out.'

(28) #zikt - used with an upright object such as a tree, fence post or even an upright, hand-held tape recorder;

e.g. zikt ti šurapə 'The tree fell.'

(29) #zIl?əqʷ - used for a building which falls down or falls apart;

e.g. zIl?əq^{w} ti čitx^{w}ə 'the house fell down.'

(30) #lE?aẃə - this root is selected for stacked or nailed together objects that fall, fall apart or become disjoined. These objects include furniture, household appliances, machines and fences.

e.g. lE?aẃə ti q'el?Iq'E 'the chair fell apart.'

(31) #pUq^{w} - multiple objects which fall out of a container require this verb root. If it is a singular object, it must be animate, such as a dog or kitten; plural objects may be either animate or inanimate, solid or liquid, but in all cases capable of rapid movement, such as rice, flowers, books water or puppies. Even gravel from a dump truck occurs with this root; however, if only one piece of gravel falls the root used will be #k^{w}iš.

e.g. pUq^{w} ti layšə 'the rice is falling.'

Thus it appears that #k^{w}iš is the general term for FALL, #kUx̌əp is the collective plural used with small objects, #zikt appears with tall, upright objects, #zIl?əq^{w} is used with buildings, #lE?aẃə appears with objects made up of components and #pUq^{w} is selected for objects which are falling from a container.

During our evaluation of Puget Salish, we posited a one-to-one correspondence between the category N_1 (noun categories used in the selectional restrictions of verb roots) and N_2 (the nominal categories of surface forms which can be replaced by lexical suffixes). The example used (6) was one in which N_1 = BUILDING and the nouns for buildings could be replaced by the lexical suffix +altx^{w}. Can this same claim be made for Lillooet? Apparently it can.

In Lillooet, the root #zIl?əq^{w} appears with members of the noun class BUILDING. There are, however, two lexical suffixes which replace nouns in that category:

(32) +Alč - it can refer to any single building, especially one that can be lived in; it can also substitute for barn, restaurant and chicken coop.

e.g. čəq^{w}čEq^{w}Alč 'a red building or house', which

equals: čəq^{w}čEq^{w} čitx^{w} 'a red house';

šilElč 'tent'

(33) +Aɬx^{w} - can be used for any building, whether known to the speaker and hearer or not; also used for the plural "houses"

e.g. szikAɬx^{w} 'a log building'

lIpAšk^{w}ihAɬx^{w} 'bakery'

čəq^{w}čEq^{w}Aɬx^{w} 'red building', not equal to čəq^{w}čəq^{w} čix^{w} 'red house'.

Apparently, the distinction between these two suffixes is such that +Alč ('house') is a subset of +Aɬx^{w} ('building'). The noun groups which they refer to are not mutually exclusive, nor do they differ with regard to selectional restrictions. Thus, in equating a lexical suffix with the category BUILDING which selects the root #zIl?əq^{w}, the suffix +Aɬx^{w} will be used.

Correlations between the categories of nouns which figure in the selectional restrictions of verb roots within FALL (N_1) and those which can be represented by a lexical suffix (N_2) are shown in (34) below:[9]

(34) Correlation between N_1 and N_2

verb root	N_1 category	N_2 category	lexical suffix
#k^{w}iš	-----	-----	-----
#kUx̌əp	SMALL	SMALL	+alt
#zikt	TALL, UPRIGHT	TALL, UPRIGHT	+alaq^{w}
#zIl?əq^{w}	BUILDING	BUILDING	+Aɬx^{w}
#lE?aẇə	ASSEMBLED	MECHANICAL	+alux^{w}
#pUq^{w}	CONTAINER	CONTAINER	+ələwiɬ

In this analysis, chart (34), there is strong evidence to support a one-to-one correspondence between various categories in N_1 and N_2, as proposed earlier.

However, the selectional restrictions of verb roots are not so easily defined. When the Lillooet language is examined more closely, a different picture emerges which argues against selectional restrictions as we have presented them thus far. This revision is due to a greater flexibility in the cooccurances between verb roots and noun categories.

By using the selectional restrictions previously stated for Lillooet, the noun 'smokehouse' would require the root #zIl?əqʷ within the domain FALL. But this view is too simplistic. If the smokehouse falls apart piece by piece, the root #lE?aẃə is used instead. The root #zikt is used if the smokehouse is pushed over. Or, when the smokehouse falls off a cliff, the root #kʷiš is required.

The example above is not unique. Further examples of this phenomenon are shown below:

(35) table: selects #zIl?əqʷ when it falls apart all at once,

#lE?aẃə if it falls apart piece by piece,

#kʷiš if it falls from a height (e.g. out of a window),

and #zikt if it just falls over or is forced over.

(36) mountain: selects #zIl?əqʷ when it falls apart,

and #lE?aẃə if it is blasted.

(37) airplane: selects #kʷiš when it falls out of the sky,

#zIl?əqʷ if the undercarriage gives way and the plane falls onto the runway,

and #lE?aẃə if the pieces of the plane gradual-fall off piece by piece.

(38) fence: selects #lE?aẃə if the entire fence falls apart,

#zikt if it is forced (e.g. wind-blown),

and #zIl?əqʷ if it falls apart all at once.

(39) water: selects #kʷiš when raining, for example,

and #pUqʷ if it falls out of a bucket.

(40) tape recorder: selects #zikt if it falls over when set upright,

#kʷiš when it falls when laid flat,

#lE?aẃə when its internal parts fall apart,

and #pUqʷ if it falls out of a box.

(41) apple: selects #kʷiš if a single apple falls,

#kUx̌əp if more than one are forced down (e.g. by shaking),

#kʷIškʷiš if more than one and by natural random course,

and #pUqʷ if they fall out from a basket.

Further mention must be made of the distinctions between the verb root #kUx̌əp and the reduplicated form of the root #kʷiš, namely #kʷIškʷiš. First, #kʷIškʷiš requires that the falling objects are small, but generally no smaller than an apple; whereas #kUx̌əp requires that the objects be the size of, or smaller than, an apple.

The second distinction involves the contrast between collective plural and non-collective plural. Again, as in Puget Salish and Twana, a distinction is made in the lexicon for certain actions as to whether they involve (42a) one actor, (42b) more than one actor performing individually (non-collective), or (42c) multiple actors, simultaneously undergoing the action (collective). Here this distinction is between inanimate objects:

(42) a. The apple fell. kʷiš ti ʔApəlsə

b. The apples fell. kʷIškʷiš ʔi ʔApəlsə

c. The apples fell. kUx̌əp ʔi ʔApəlsə

In (42c) the apples have been forced down, either by wind or by shaking, and have thus undergone the action concurrently. The distinctions made in (42) are the same as in the Twana examples (6-8).

We still maintain that to a native speaker there is a primary usage assigned to the selection of verb roots. If a speaker is asked how a building falls, the general reply indicates that #zIlʔəqʷ is used, as in (29). In the same way, an airplane will #kʷiš and a fence will #lEʔaẃə. Therefore, we must posit that selectional restrictions are ordered for individual verb roots within the lexicon.

The ranking of selectional restrictions is largely dictated by pragmatic considerations. For instance, houses collapse (#zIlʔəqʷ) more often then they fall over a cliff (#kʷiš). By contrast, a car is more likely to go over a bank (#kʷiš) than it is to collapse (#zIlʔəqʷ). The following chart depicts three grades of selectional restrictions. The symbol -X- signifies primary usage, X secondary usage and (X) limited, but acceptable, usage of the verb root.[10]

(43) A Ranking of Selectional Restrictions.

noun category	verb root				
	#kʷiš	#kUXəp	#zikt	#zIlʔəqʷ	#lEʔaẘə
SMALL	X	-X-	X		(X)
UPRIGHT	X		-X-	X	X
BUILDING	(X)		X	-X-	X
ASSEMBLED	X		X	X	-X-

Since the appearance of Bever and Rosenbaum (1971), theoretical linguistics has moved away from the depiction of selectional restrictions in the lexicon, preferring to leave it to pragmatics instead. The correlation throughout this paper between selectional restrictions and pragmatic considerations supports such a shift. This approach, however, argues against the categories of nouns termed herein N_1 (see chart 23).

Another trend in recent theoretical linguistics is the listing of all words in the lexicon. For unwritten languages such as those in the Salish family, where morphological manipulation is so productive, this would fail to allow for the grammaticality of many novel word utterances. The linguist should not list all possible morpheme combinations based on the possibility they might be said. However, native speakers are able to productively do such manipulation.

In Twana, a speaker can combine morphemes into descriptive terms which are novel to them. For example, Louisa Pulsifer provided the following two words to describe hand:

(44) /dəxʷ-tas-ad-bəd/ 'what you hit with'

dəxʷ- ... -bəd instrument

#tas 'hit'

-ad transitive, control

(45) /dəxʷ-xʷac-ad-bəd/ 'what you lift with'

#xʷac 'lift'

Lexical suffixes in Twana can be used in place of corresponding nouns:

(46) a. [ʔasc'əp' ti čaləš] My hand is in the water.

b. [ʔəsc'p'ači] (same meaning)

The stem #q'ʷiɬ can also combine with the suffix for 'nose' in the same manner:

(47) a. [ʔəsq'ʷeɬuc' təd bəqsəd] My nose is dirty.

b. [ʔəsq'ʷeɬuc'qsId] (same meaning)

In fact, #q'ʷiɬ can combine with a number of suffixes:

(48) [ʔəsq'ʷiɬuc'či] My hand is dirty.

[ʔəsq'ʷiɬuc'qʷəd] My head is dirty.

[ʔəsq'ʷiɬuc'iʔIs] My eye is dirty.

[ʔəsq'ʷiɬuc'aɬəɬ] My tongue is dirty.

[ʔəsq'ʷiɬuc'x̌əd] My elbow is dirty.

However, there are certain objects which will only be grammatical with this root when expressed through a noun phrase and not a lexical suffix:

(49) a. [ʔEsq'ʷiɬuc' tə suxʷtalčId] My back is dirty.

b. */as-q'ʷiɬuc'-ičad/ (same meaning)

(50) a. [ʔəsq'ʷeɬuc' tə č'atas] My rock is dirty.

b. */as-q'ʷiɬuc'-ilas/ (same meaning)

If the lexicon is productive, rather than limited through a comprehensive listing of words and possible words, "back" and "rock" must differ in their relationship to the stem #q'ʷiɬuc' from the other nouns expressed in (47-48). That stem appears to have a primary association with nouns which refer to body parts and specifically body parts which are localized. "Back" and "rock" are outside of this definition. As such, they require overt mention in the sentence rather than the use of a corresponding lexical suffix.

The aspects of Twana grammar outlined above argue against a lexical listing of all words in a language. The data suggest that pragmatics is not the sole determinant of verb root selection. In Salish languages, lexical information needs to incorporate the notion of the collective/non-collective distinction and a hierarchy of noun category association.

NOTES

1 The symbol # is used to designate a root. Some roots thus identified in this paper are actually stems. Such a generalization in no way effects the discussion.

2 The lax vowels represented as [A, E, I and U] correspond, respectively, to the vowels in the English words 'hat', 'get', 'kit', and 'put'.

3 The choice to gloss these roots as 'fall', rather than giving them more complex meanings (e.g. 'collapse', 'free fall'), is based on translations and definitions of the informants.

4 Kinkade (1977) discusses this phenomenon.

5 These examples have been extracted from Hess (1976), Haeberlin and Gunther (1930) and Snyder (1968a; 1968b), and standardized in terms of orthography.

6 The symbol + indicates a lexical suffix. The Twana language has lexcial prefixes as well.

7 This is a development of a proposal made in Thompson (1981).

8 We take these restrictions, as designated by the speaker (informant), to be the primary restrictions of the verb roots.

9 The following noun group categories were supplied by the Lillooet speaker.

10 The semantic representation serves to define the root as well and can lend itself to analogy. Although a hand is not considered to be a container, by analogy objects such as rice which fall from cupped hands can be said to #pUq^{w}.

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