On the meaning of Thompson resonant glottalization

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This paper examines the shift of meaning imparted by the presence of resonant glottalization, the morpheme described by Thompson and Thompson (1996) as 'Specializing', in Thompson River Salish words. To refine the definition of this morpheme, I suggest Jurafsky's (1996) 'Lambda-Abstraction-Specification' [LAS], effectively 'different from the prototypical case x along the dimension y'. I compare this with a morpheme having an apparently similar meaning in creolized Chinuk Wawa, to reinforce my claim that LAS can ⋅ be a morpheme's meaning. In conclusion I suggest that the LAS definition may help learners overcome observed difficulties in acquiring resonant glottalization, assisting efforts at maintaining endangered Thompson.

1   Introduction[1]

In many cases Thompson (Thompson River Salish, Nɬeʔkepmxcín) shows, like other Salish languages, glottalization of resonants: this apparently bears a meaning formulable aptly but roughly as 'specializing' the sense of a word (Thompson & Thompson 1992's SPZG morpheme, Jimmie 1994:15). I propose that SPZG is well described by Jurafsky's (1996) Lambda-Abstraction-Specialization [LAS], in effect having the meaning 'different from the usual', contra Jurafsky's prediction that only diachronic processes will exhibit LAS. As evidence that a morpheme can have such a meaning, I compare SPZG with creolized Chinuk Wawa reduplication, which incurs a similar shift from the base word's sense. I conclude by suggesting that a LAS definition of Thompson resonant glottalization may offer a remedy for the observed difficulty of acquisition of SPZG, and thus assist in the maintenance of this endangered language by learner-speakers.

2   Form

SPZG changes one or more underlying resonants /ɣ l l̩ m n w y z ʕ ʕʷ/ to glottalized counterparts /ɣ' l̓ l̩̓[2] m̓ n̓ ẃ ẏ z' ʕ' ʕ'ʷ/ respectively (Thompson & Thompson 1992:114, Jimmie 1994:15).[3] Nonreduplicating prefix resonants (always *n*-) are always unglottalized, as in (1), in my corpus of over 400 words with SPZG found in Thompson & Thompson 1996.[4] This contrasts with reduplicative material appearing leftward of (or indeed anywhere in relation to) a root, which is glottalizable as in (2).

(1)   a.   n/k̓m=énk
            LCL-body.surface-belly
            'front of body; hillside, front of hill or mountain, sidehill'

        b.   n/k̓m=én̓k
            LCL-body.surface-belly-SPZG[5]
            'lower fleshy part of fruit'

(2)   a.   nəx̌ʷ·/nóx̌ʷ
            AUG-animal.run
            'animals run around'

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[2] / l̩/ is omitted from lists of phonemes in Thompson & Thompson 1992:3,6 and 1996, but is present in attested forms such as ʔəl̩síkʷ 'turtle' and is discussed in passing in Thompson & Thompson 1992:43.
[3] For similar processes involving other morphemes, see Thompson & Thompson 1992:34-5 and Jimmie 1994:15.
[4] Similarly, '[r]eduplicating prefixes always take the same reductions that roots do, while other [nonreduplicating] prefixes do not reduce vowels...' (Thompson & Thompson 1992:27).
[5] For clarity I always place SPZG rightmost in glosses. Abbreviations and symbols used in this paper are from Thompson & Thompson 1992, as follows: ACL acculturation development/post-contact acculturated usage, AFF affective, AUG augmentative, DIM diminutive, DRV directive, FMV general formative, IM immediate, INS instrumental, IT iterative, LCL localizing, MDL (control) middle, NOM nominalizer, PL plural, RDUP reduplication, RPT repetitive, SPZG specializing, ST stative, TR (control) transitive. Pairs of numbers (sometimes with p 'plural' or s 'singular') in brackets indicate the person (and number) of subject and object, not always in that order. Bullet · shows reduplicating prefix/suffix, brackets with bullet [·] a reduplicating infix; hyphen − a morpheme boundary except that equal sign = shows lexical suffix boundary, -= a regenerated form (see Thompson & Thompson 1992:133ff) and slash / the beginning of a root. The phonemic alphabet used for Thompson comprises ʔ a c č ç e ə ə̣ ɣ ɣ' h i i̯ k k̓ kʷ k̓ʷ l l̓ l̩ ɬ ƛ̓ m m̓ n n̓ o p p̓ q q̓ qʷ q̓ʷ s ṣ t ƛ̓ θ u w ẃ x xʷ x̌ x̌ʷ y ẏ z z' ʕ ʕ' ʕʷ ʕ'ʷ. Multiple words in a morpheme's gloss are separated by periods, alternative glosses by slashes. Glosses and translations are directly from Thompson & Thompson 1992, 1996.

b.   ńəx̌ʷ·/ńóx̌ʷ
       AUG-animal.run-SPZG
       '[of person] creep on all fours'

Rightmost resonant glottalizes in a large majority of words, and in most cases this is the only affected consonant as in (3); thus SPZG normally lands after stress.

(3)   /x̌əq̓-m-=éy̓t
       cross.over-MDL-agent-SPZG
       'ferry operator'

In a minority of words, SPZG also affects another resonant (usually one, and usually without skipping any resonants between) as in (4), or fails to land rightmost (usually then on the penultimate resonant) as in (5), or both.

(4)   /sɣ-ə́[ɣ']m̓
       aspirate-MDL-DIM-SPZG
       '[of Indian doctor] do a little blowing'

(5)   kə·/kíc-ń-cm-s
       AFF-arrive.location-DRV-3-1s-SPZG
       'he haunts me'

3   Distribution

SPZG appears on numerous predicates, both verbal and nominal (together, the majority of words in Thompson) as well as modifiers (much less numerous, and including e.g. adverbs and numbers). No subtype of predicates seems to take SPZG any more or less readily in my corpus. Thus both stative as in (6) and activity verbs as in (2-5), and of the latter equally intransitive, middle and transitive verbs; of perception/cognition as in (7) and otherwise; of any tense, mood, or aspect, are commonly found.

(6)   ʔes/píʕ'ʷ
       ST-open.slit-SPZG
       '[of a cut in flesh, wound] remaining open, split, not healing'

(7)   wə·/wík-m̓
       AFF-see-MDL-SPZG
       'he has hallucinations'

Likewise, as in (8a, b) kin terms and common nouns, count and mass nouns, and singulars as well as plurals are found.

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(8) a. s/cm=éy̌t
         NOM-small.pl-child-SPZG
         'children (often used as polite ref. for adopted children)'

     b. /q̓uʔ=qín̓
         bend.double-head-SPZG
         'tree stump'

Even the phonemic shape of a word is not a major issue, other than that it must contain some resonant other than prefix *n*- (LCL) in order to take SPZG. In other words, as in (3) and (5) above, a root lacking resonants can take SPZG provided that suffixes with appropriate phonemic content are added.[6]

There are however certain environments in which SPZG is known to occur particularly frequently (Thompson & Thompson 1992:89-92, 115-8, 131). Words containing the Diminutive as in (4) above, the Affective as in (5) and (7), the Repetitive as in (9) or the Iterative as in (10) are particularly hospitable to resonant glottalization.

(9) sən·[eʔ]/sén̓-t[7]
     AUG-RPT-fall.over-IM-SPZG
     '[drunk person] staggers, keeps falling'

(10) /nes-ím̓   kn
     go-IT-SPZG   1s
     'I take things repeatedly to another place'

4   Meaning

Previous accounts of the meaning of SPZG are limited to Thompson & Thompson 1992. That authority limits itself to the following statements.

> Glottalization...appears to be the affix in a poorly understood process by which resonants take on glottalization in sporadic derivatives...The words reflect semantic extensions and specializations of various sorts. (op. cit.:114)

Subsequent treatments of Thompson morphology, if they refer to this passage (for example Jimmie 1994:15) do not contradict it. Minimal pairs differentiated only by resonant glottalization let us identify patterns of 'specialization.' As a

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[6] Ewa Czaykowska-Higgins (p.c.) suggests a similarity between SPZG and Chaha palatalization and labialization morphemes (cf. the work of Sharon Rose) in the respect that the latter, too, simply fail to occur on any word lacking appropriate phonemic content.

[7] The presence of the Augmentative along with the Repetitive is usual. No examples were found of RPT with glottalization but without AUG.

rule, SPZG does not cause a word to change its predicate-class membership; nouns remain nouns and verbs remain verbs, as in (11, 12).

(11) a. /kn=éyt
          help-agent
          'helper, assistant'

      b. /kṅ=éẏt
          help-agent-SPZG
          'midwife'

(12) a. /ƛ�axm̓=ép-m
          chop-bottom-MDL
          'chop [trees] off, down'

      b. /ƛ̓m̓=ép-m̓
          chop-bottom-MDL-SPZG
          'chop suckers, shoots from bottom of tree'

Near-minimal pairs show the same constancy of predicate classes, as in (13, 14).

(13) a. /cuɬ-=áqs-e[8]-s
          indicate-nose-DRV-[3-3]
          'point one's finger directly at [baby's] nose [playfully]'

      b. n/cuɬ-=áqs-ṅ-s
          LCL-indicate-nose-DRV-[3-3]-SPZG
          'point one's finger directly at s.o.'s nose [in quarreling]
          (rude)'

(14) a. čəm·/čə́m-e?
          AUG-sharp.point-FMV
          'PLACE Urquhart Mtn., a sharp-peaked mountain of bare rock
          near Sp[u]z[zum]'

      b. s- čəm·/čə́m̓-e?
          NOM-AUG-sharp.point-FMV-SPZG
          'PLACE "pointy peaks" w. and n. of Coquihalla Lake'

Only in a few cases like (15-16), usually involving addition or deletion of verbal morphology, does a SPZG form possibly belong to a different word class than its base form.

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[8] In (13a) and similar instances of DRV the segment e is an allomorph of -n.

(15)   a.   kəs·/kəs=cín
             AUG-fade/dim-mouth
             '[of sound, voice] faint, low, soft, not loud'

      b.   kəs·/kəs=cín̓
             AUG-fade/dim-mouth-SPZG
             '[of singing] soft style, with slow melody'

(16)   a.   /qy=úseʔ
             damp/fresh-berry
             'fresh berries'

      b.   /qy̓=úseʔ-me
             damp/fresh-berry-MDL-SPZG
             'sprinkle water on (dried) berries [to reconstitute them]'

     In the minimal pairs (11, 12, 15), another observable difference is that the SPZG forms have meanings nearly identical to but less general than those of their source forms. Taken in order, (11a) refers to any helper while (11b) denotes a specific sort; (12a) any chopping of trees but (12b) of one part of a tree; and (15a) a quality of singing in general while (15b) is a particular kind of singing which has that quality. It is precisely SPZG which makes it possible to tell the pairs apart. In the same way, resonant glottalization is the crucial difference in avoiding homophony between distinct roots in (17).[9]

(17)   a.   ƛ̓əq̓m-=éyt
             preach-agent
             'preach, teach moral principles, preacher, moral leader
                          ACL preacher, priest'

      b.   ƛ̓əq̓-m-=éy̓t
             cross.over-MDL-agent-SPZG
             'ferry operator'

     In summary, while resonant glottalization may not change a word's meaning by assigning it to a new class, a nuance is indeed conveyed which distinguishes the SPZG form as a particular instantiation of the general case denoted by the plain source form. Similarly but separately, SPZG is available to distinguish any otherwise homophonous pairs, in that case without evidence that the unglottalized member is the more general or more basic. (However, diachronically that may be just the case. It may well be true that moral leaders and the word for them were present before ferry operators were in Thompson-

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[9] In both cases context would also help to some degree in disambiguation. However, the main source of my corpus, Thompson & Thompson 1996, does not present most examples of SPZG in example sentences, so I leave consideration of context for further research with native speakers. Cf. the discussion in §5.

speaking culture. SPZG then would have the same function I claim for it synchronically. The issue of the diachronic versus synchronic reality of SPZG is revisited below.)

5   'Lambda-Abstraction-Specialization' [LAS] (Jurafsky 1996)

In a paper devoted to diachronic changes in diminutive meanings, Jurafsky (1996) proposes that such developments can occur not only via metaphorical extension, inference, and generalization, but also by 'a new mechanism for semantic change: [LAS]...derive[s] second-order predicates' (op. cit.:555). Jurafsky goes on to define LAS.

> Lambda-abstracting takes one predicate in a form and replaces it with a variable. The resulting expression is now a second-order predicate, since its domain includes a variable which ranges over predicates. For the diminutive, this process takes the original concept 'small(x)', which has the meaning 'smaller than the prototypical exemplar x on the scale of size', and lambda-abstracting it to 'lambda(y)(smaller than the prototypical exemplar x on the scale y)'. (loc. cit.)

He gives an example from Cantonese, where the diminutivized word for 'red' has come to mean not 'small red thing' but 'reddish object'. The extension from diminutive to '-ish' meaning, Jurafsky notes, is not by inference ('small red thing' doesn't imply 'reddish object'); not by generalization ('reddish' is not an abstraction from 'small'); and metaphor, he says, is not the causal link from 'small' to '-ish'.[10] Instead, the semantics involved in deriving an 'approximately red' sense from the diminutive is roughly as in (18). The *point x* referred to is 'the prototype or central exemplar of red' (loc. cit.).

(18)   'dim *(point x, scale y)* = lower than *x* on *y*'

5.1   LAS and Thompson Resonant Glottalization

Building on this account, I understand Jurafsky's LAS to be a general process. Lambda-abstraction is frequently invoked in the linguistic literature to explain a variety of phenomena including relative-clause formation, conjunction, and passives (cf. Chierchia & McConnell-Ginet 1990:318-348, Partee et al. 1990:338-367). It is only in its application to diminutives that lambda calculus is novel, and nothing in Jurafsky's account of LAS seems to me inherently limited to diminutives. In fact he considers if only in passing the question whether LAS 'is a general mechanism of semantic change, not just confined to the diminutive' (1996:560). Nor presumably is it applicable only to scalar predicates, narrowly construed: assuming Thompson SPZG is LAS, examples

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[10] My thanks to Su Urbanczyk for suggesting the succinct label '-ish'.

(1-17) include ample support for this observation.[11] The apparent scalarity of LAS in the passages quoted in §5 can be viewed as an epiphenomenon of the process' deployment among diminutives, with what Jurafsky views as the latter's inherent reference to relative quantification (op. cit.:538ff). In application to more predicates than only scalars, it would then be predicted that LAS has a meaning not of 'less' or 'more' but instead the more general 'different', as in (19).

(19)   'SPZG (*point x, relation y*) = different from x with reference to y'

In the case of Thompson, this mechanism's appropriateness as a statement of resonant glottalization meaning can be tested. Given for example a verb referring to imitation (so that *point x* is 'the prototype or central exemplar of imitating'), it is expected that the addition of SPZG will produce the meaning 'to imitate in a particular way y'. The attested forms in (20) seem to bear out that prediction.

(20)   a.   /ƛ́éy-e-s
              imitate-DRV-[3-3]
              'copy s.o., s.t.' [e.g.] cúk^w us k s/ƛ́éy-n-x^w 'don't copy that'[12]

        b.   /ƛ'ey-n̓-s ~ /ƛ'ey̓-n̓-s
              imitate-DRV-[3-3]-SPZG
              'copy, imitate, mimic s.o.; follow s.o.'s example, take after s.o. [one's ancestor], inherit s.o.'s character, personality'

The translations of (20b) suggest, first, specifically that it is a human that one is imitating (y = *humanness*), and second, that one's actions are reminiscent of someone, probably not due to volition (y = *shared nature*). (21) is another example of SPZG orienting to the source form's meaning as a prototype. In this case *point x* 'stirrups', literally 'things for stepping', Specializes with reference to y = *a particular apparatus*.

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[11] It is interesting that there is a morpheme in Thompson, the unproductive Proportional [PRP] -iʔCeʔ-, confined to scalars like 'thin', 'nearby', 'stingy' and so on; all 11 known attestations are listed at Thompson & Thompson 1992:111. PRP has the meaning 'proportional to an implied general norm or average' (loc. cit.). A comparison of PRP and SPZG forms of the same set of roots would be useful in further elucidating the meaning of resonant glottalization. 'Most of the roots involved in proportionals are poorly attested outside this formation', however (loc. cit.). A second observation is that potentially any predicate can be viewed as scalar given a broad enough interpretation of that label, in which case there is even less modification to be made in order to apply LAS to cases other than Jurafsky's examples.

[12] Note the lack of glottalization also in the example sentence's [2s-3] verb form.

(21) a. ǩəw·/ǩw-ét-mn
          AUG-step-TR-INS
          'ACL stirrups' [PL]

      b. ǩuʔ·/ǩẇ-ét-mn[13]
          AUG-step-TR-INS-SPZG
          'ACL pedal(s), treadle'

Clearly the relation y for any occurrence of SPZG cannot be determined by reference to the affected word alone. (20b) obviously has more than one interpretation, as does (21b), and in both instances selection of the appropriate sense must rely on the context in which the word is used. The same point can be made, however, for any number of non-glottalized forms in Thompson as in (22), and thus it is not SPZG but the particular reference of a given word that is inextricably bound to context.

(22) a. təx̌ʷ·/tóx̌ʷ-t
          AUG-straight-IM
          'straight, direct, [e.g. of floor] level, accurate, correct, right,
           straightforward, honest'

      b. /ƛ̓émn
          fur/feathers
          'body hair [of human], fur [of animal], feather(s), plumage
           [of bird]'

Therefore SPZG is a grammatical morpheme rather than a discourse marker. Its use is not that of e.g. a 'metalinguistic hedge' or 'way of eliciting sympathy', though Jurafsky 1996:556-8 allows such functions for LAS. Resonant glottalization has a predictable meaning in Thompson, and that meaning is captured in Lambda-Abstraction-Specification.[14]

5.2   LAS and Chinuk Wawa Reduplication

A morpheme very different in form from SPZG but with similar functions is the productive reduplication [RDUP] in Chinuk Wawa (creolized Chinook Jargon of Grand Ronde, Oregon). I briefly present RDUP as additional evidence that Lambda-Abstraction-Specification can 'be the meaning' of a morpheme.
      Of around 500 morphemes extant in Chinuk Wawa (Grant 2003), I have found some 45 which appear both as simplex and as reduplicated forms.

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[13] In (21b) both $u\,ʔ$ and $\dot{w}$ manifest glottalization of w.
[14] All minimal pairs differentiated by SPZG appear in the Appendix to this paper for the reader's reference.

Reduplication sometimes imparts for example plurality[15], sometimes a sense of thoroughness or completion, sometimes one of dispersal, sometimes continuation, as in (23a-d) respectively.

(23) a. másh-mash[16]
          to.throw-RDUP
          'to throw (multiple objects)'

      b. t's$\acute{\mathfrak{e}}$qhən-t'səqhən
          to.kick-RDUP
          'to work someone over, kick the crap out of them'

      c. q'áyʔwa-q'ayʔwa
          crooked-RDUP
          'all crooked, every which way'

      d. músum-musum
          to.sleep-RDUP
          'to sleep all the time'

To list the distinct senses of RDUP is however to miss the generalization that each reduplicated form has a meaning nearly identical with (remaining within the same predicate class as the source form) but less-general than that of its simplex source, as seen in the morphemic glosses here. A given source form can have more than one meaning when reduplicated, as seen in (24a, b).

(24) a. t'sípi-t'sipi
          to.miss-RDUP
          'to miss repeatedly; miss by a long shot'

      b. ískam-iskam
          to.grab/catch/go.get-RDUP
          'to be grabbing; "feel up" a woman'

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[15] The reduplicative plural of an adjective or intransitive verb is inherently a subject, of a transitive verb the object. This distribution may undermine the prediction of McWhorter 2002 that ergativity will not be found in any creole language, unless it simply represents a universal of transitivity marking. For the latter caveat I am indebted to Su Urbanczyk (p.c.).

[16] Examples from Chinuk Wawa are cited from Zenk & Johnson 2003, in the current practical orthography of the Confederated Tribes of Grand Ronde. I provisionally analyze reduplicated forms as being composed of base + reduplicant, based on the fact that copy 1 of the source is stressed while copy 2 is unstressed (as affixes crosslinguistically tend to be).

But these multiple meanings are derived by the same mechanism. RDUP closely resembles Thompson resonant glottalization in specifying a certain sense from among those covered by a prototypical or central meaning. If this is LAS in Chinuk Wawa as well, the expected result is as in (25).

(25)   'RDUP (*point x, relation y*) = different from x with reference to y'

So for example given the predicate 'good', it is predicted that reduplication will impart a sense 'good in a particular way y'. The attested meaning with RDUP is indeed 'in good order': good according to one's intentions. The same general relation seems to me evident in the other reduplicated examples above, and I conclude from the data that RDUP is a grammatical morpheme having LAS as its meaning.[17]

It should be noted that this LAS morpheme in Chinuk Wawa is not completely identical in function to the one in Thompson. The difference is that RDUP applies only to verbs and adjectives (both possibly equivalent to stative verbs), while SPZG applies to virtually all inflectable words. Such language-specific parameter settings are to be expected, and are a consideration separate from the meaning and mechanism of Lambda-Abstraction-Specialization.

6   Conclusions

The description of LAS's operation in Jurafsky 1996 applies well to the Thompson resonant glottalization data, correctly predicting the attested coherent range of meanings. SPZG is thus a grammatical morpheme in Thompson, and not for example a discourse marker. The data on Chinuk Wawa RDUP suggests to me that that too may be a morpheme with a constant meaning approximated by LAS, and I take this as support for my claims that Thompson resonant glottalization can have such a function.

In coming to these conclusions I build on Jurafsky's claims. While he explicitly allows that LAS may be a general mechanism in languages, as quoted in §5.1, his purview is limited to diachronic semantic change. What is novel in my analysis is the claim that a synchronically present grammatical morpheme having Lambda-Abstraction-Specification as its meaning can exist.

An important implication of my claim to have described the meaning of both SPZG and RDUP is that these morphemes should be learnable by people who are taught the LAS formulation. Naturally that formulation will have to be rephrased in plain English, perhaps as something like 'different from the usual',

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[17] The distinction should be made between the productive morpheme RDUP and at least two kinds of nonproductive reduplication in Chinuk Wawa. First, numerous simplex words have reduplicate form only (for example, kíshkish 'to chase, drive away' and gága 'raven'). These are distinguished in the Grand Ronde orthography by their lack of hyphenation. Second, a tiny number of simplexes in Chinuk Wawa can be reduplicated, but without predictable outcomes since they are not verbs or adjectives (for example, yakwá-yakwa 'here and there' < yakwá 'here' and chúp-chup 'great-grandfather' < chúp 'grandfather'.

and illustrated by examples from actual conversation. In the case of severely endangered languages like Thompson and Chinuk Wawa, making these morphemes learnable (and teachable) might be an important step forward in maintenance efforts. It has been observed (M. Jimmie, p.c. to Su Urbanczyk) that resonant glottalization is precisely one of the fault lines between fluent elder speakers of Thompson and younger learner-speakers. Whether the difficulty in transmitting SPZG to a new generation has to do with its low saliency both of exponence and of meaning (an idea for which I am indebted to Su Urbanczyk; cf. Bird 2004 on St'át'imcets glottalization) or with some other factor, the younger speakers are likely to want to learn how to speak as much like fluent elders as is possible. Similarly, at Grand Ronde a primary goal of the Chinuk Wawa teaching program, reflected in the title of the community's dictionary (Zenk & Johnson 2003), is to replicate the speech of the most fluent elders. Language instructors Johnson & Zenk (p.c.) confirm that passing along the proper use of reduplication is an important part of this mission.

A language's (for example Thompson's) selection of a prototypical case for any given predicate can be quite distinct from that assigned for the nearest counterpart in another language (for example English). Thus, not only linguistic but cultural knowledge will necessarily be used in the ideal lesson on SPZG. Any attempts to teach the use of resonant glottalization should be closely critiqued as a test of the LAS definition of glottalization.

Many structures in endangered languages have been observed to be hard to learn and teach, for example lexical suffixes in Salish (T. Hukari, p.c.) and Wakashan (Goodfellow & Alfred 2002). These too may need close investigation if linguists wish to provide usable definitions of their meaning and operation. In investigating these cases of incipient radical change or even loss of grammatical structures, linguists have the opportunity to perform a valuable service toward repaying the communities who share their languages with us.

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    Grand Ronde.

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