

Lexical Transfer between Southern Interior Salish and Molalla-Sahaptian

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Speakers of Montana Salish and Nez Perce have long been in close cultural and social contact. In this paper, we investigate the effects of these contacts on the vocabularies of the two languages. Whenever possible, we broaden our focus to encompass the Southern Interior Salish (SIS) and Molalla-Sahaptian (Mol-Sah) families generally, building on previous work by Haruo Aoki and Bruce Rigsby. Most of the shared lexical items fall into six broad categories—inanimate nature, flora, fauna, cultural items, ethnonyms, and onomatopoeic forms—with a residue of miscellaneous items. Both nominal and verbal elements are represented. Some sets are restricted to Montana Salish-Spokane-Kalispel and Nez Perce; others are widespread in both families and likely very old. The great majority of the loans appear to predate the palatalization of velars in Montana Salish and Coeur d'Alene, which occurred approximately 150 years ago. Structural influences between SIS and Mol-Sah are also briefly examined.

In his important 1975 paper 'The East Plateau linguistic diffusion area', Haruo Aoki first discusses cultural and structural areal features and then lists and analyzes twenty-three definite and possible shared lexical items, focusing on Southern Interior Salish and Nez Perce. In this paper we extend Aoki's list with additional lexical items and expanded analyses. Wherever possible, we also move beyond this Sahaptian focus to consider Molalla as well; there is now substantial evidence to support the proposal that Sahaptian and Molalla are related (Pharris 2005), and this extension helps in the effort to determine the source language, or family, for some of the shared lexical items. However, we have only investigated Nez Perce systematically; we have not yet fully exploited the available Sahaptian and Molalla data. Like Aoki's, our analysis is preliminary. Some of the comparisons are phonologically and/or semantically problematic, and in some cases the direction of borrowing cannot be established with any confidence. We are more confident than Aoki seems to be, however, about the inclusion of sound-symbolic words in the list (cf. Aoki, p. 191): sound-symbolic words often have clear etymologies within a given language family, no matter how obvious their imitative quality may seem.

Aoki's description of a cultural background that can reasonably be supposed to have promoted diffusion within the East Plateau over a long period of time, but perhaps especially starting early in the 19th century, is wide-ranging

and cogent. We will add just one anecdote to fill out the picture a bit more. Aoki emphasizes the frequency of intermarriage between members of Southern Interior Salishan tribes and the Nez Perce, and the evidence for bilingualism among some members of both groups (pp. 185-187). Some years ago, while working with a group of Montana Salish elders—including both Bitterroot Salish (or Flathead) speakers and Pend d'Oreille speakers—Thomason asked what other languages they could understand. Spokane, they said immediately, and Kalispel: those are almost like our language. Colville, harder, but still possible, and even Coeur d'Alene. And then they added Nez Perce to the list.

Now, Montana Salish and Spokane and Kalispel are all dialects of the same language, so it's hardly surprising that they would be mutually intelligible; and Colville and Coeur d'Alene, though definitely separate languages, are still closely related to Montana Salish, so some degree of mutual intelligibility isn't surprising there either. But any perceived intelligibility between Montana Salish and Nez Perce has to be due to bilingualism, because these languages are not known to be related at all. It may be that some elders had heard a Nez Perce-influenced variety of Salish from a Nez Perce relative and thought it was Nez Perce itself, or possibly they'd heard that certain relatives could understand Nez Perce. (At least two of the ten or so elders who have worked regularly with Thomason over the past twelve years have Nez Perce grandparents and/or great-grandparents.) In any case, their belief that they can understand Nez Perce attests to the closeness of the connection between the tribes.

The list of certain and possible shared lexical items below is roughly organized by semantic domains. For completeness, we include Aoki's words as well as the new ones we have come up with, and we have added example words and analytic suggestions to most of these. Items listed with plain-type numerals are also in Aoki's list or in Rigsby 1965, or both; those with bold-face numerals are new. Salishan forms are given first, followed by Molalla-Sahaptian forms. For most examples we have used forms from entries in Kuipers 2002, and we cite the pages in that work; but we have added Montana Salish forms (which are generally lacking in Kuipers 2002), and for some languages (especially Kalispel, Spokane, and Colville-Okanagan) we have made slight alterations and/or added clarifying comments, so that the match with Kuipers' entries is not exact.¹ In

¹ Abbreviations used in this paper are: A75 = Aoki 1975; R65 = Rigsby 1965; R96 = Rigsby 1996; PS = Proto-Salish; IS = Interior Salish; SIS = Southern Interior Salish; NIS = Northern Interior Salish; CS = Coast Salish; BC = Bella Coola, Cb = Columbian; CdA = Coeur d'Alene; Ch = (Upper) Chehalis, Cv = Colville-Okanagan; ESh = Eastern Shuswap; Ka = Kalispel; Kut = Kutenai; Li = Lillooet; MTSa = Montana Salish (Bitterroot Salish (a.k.a. Flathead) + Pend d'Oreille); Se = Sechelt; Sh = Shuswap; Sp = Spokane; Th = Thompson Salish; Tw = Twana; Mol-Sah = Molalla-Sahaptian; NP = Nez Perce; Mol = Molalla; Sah = Sahaptin; Yak = Yakima; Kwa = Kwakiutl; Nt = Nootka (Nuuchahnulth); Nit = Nitinat.

Sources are as follows: MTSa words are from Thomason's dictionary files, Sp words from Carlson & Flett 1989 and Kuipers 2002, Ka words from Vogt 1940 and Kuipers 2002, Cv words from Mattina 1987 and Kuipers 2002, Mol words from Pharris's database (ultimately from Frachtenberg n.d. and Jacobs n.d.), NP words from Aoki 1994, Sah words from Aoki 1994 and Beavert & Rigsby 1975. Other words, except where

our concluding section, we sum up the results of our lexical analysis and add some comments about shared structural features that may also turn out to be due to diffusion between Interior Salishan (especially Southern Interior Salishan) and Molalla-Sahaptian (especially Nez Perce) languages.

In analyzing the words below, we are assuming that the two viable options are borrowing and coincidence. We have not considered the possibility that Salishan and Molalla-Sahaptian languages inherited one or more items from a common ancestor. This is not because we think such a relationship is impossible—of course it's possible—but because the forms are in most cases similar enough, both phonologically and semantically, that it seems relatively unlikely that they are relics of a distant relationship, especially as few if any of them would appear on a list of the most basic vocabulary. (That is: if the two families are related, shared lexical items should be more frequent in the basic vocabulary, e.g. on a 100- or 200-word Swadesh list, than outside it.)

In order to avoid repetition in the individual entries, we note here two recurring phonological differences between Molalla-Sahaptian forms and Southern Interior Salish forms in the list. First, neither Nez Perce nor Molalla has surface labialized dorsal consonants (although labialized dorsals are posited as underlying segments in Nez Perce in order to explain certain vowel alternations). This means that a labialized Salish dorsal will be replaced by a nonlabialized dorsal in a word borrowed into Nez Perce. Proto-Sahaptian probably did have labialized dorsals, but the Molalla evidence suggests that even those may have arisen from nonlabialized dorsals next to rounded vowels.

Second, Salish ejectives are often borrowed as plain stops and affricates in Sahaptian. This may seem surprising, since ejectives do occur in these languages. But an examination of Proto-Sahaptian as reconstructed by Aoki (1962) suggests that ejectives are historically marginal in Sahaptian. For instance, Aoki reconstructs 60 words with **p* and just one with **p'*, and 83 with **t* but only five with **t'*; **k'* similarly rests on only three sets. There are no *q' : q'* correspondence sets for Nez Perce and Sahaptian in Aoki's data (his reconstructed **q'* is based on three examples of a *k' : q'* correspondence, but these probably represent sound symbolism in one language or the other). We suspect, in fact, that Proto-Sahaptian might have lacked ejectives entirely. If this is correct, then it would be unsurprising if old loanwords from Salish into Proto-Sahaptian turned out to have plain stops in place of Salish ejectives.

1 Shared lexical items between Salishan and Molalla-Sahaptian

A Inanimate nature

1. 'snow (on the ground)': Kuipers (2002:172-173, modified): IS **mək^w* 'snow' (cited by Kuipers only for Shuswap, tmuk^wtm'/m 'snow on

noted, are (as indicated) from Aoki 1975, Rigsby 1965, and Kuipers 2002. Where glosses are omitted, the gloss matches that of the PS or IS root cited from Kuipers 2002; if no root from Kuipers 2002 is cited, the gloss matches the semantic heading at the top of the entry.

trees')—SIS has a root **mak*^w: MTSa *mék*^w: *s-mék*^w-*t* 'snow on the ground', Ka *səmeq*^wət 'snow' (this is Vogt's gloss, but the citation in Vogt 1940:163, to his text IX, makes it clear that the reference is to snow on the ground), Sp *smek*^wt 'snow on ground', Cv *s-mik*^w-*t* 'snow on the ground', Cb *smak*^wt 'snow on ground', Cr *mik*^w 'snow' — NP *mé:qe?* 'snow' (R65:214, A75:191).

Aoki includes a set of non-Interior Salish forms here as well, e.g. Cowichan and Musqueam *méqe* 'snow on the ground', but comments that Laurence Thompson and Dale Kinkade, p.c. say that the Interior Salish forms are not cognate with the Coast Salish forms; he speculates that the NP form may be a borrowing from 'the prototype of forms which have been replaced in the Interior Salish languages' (p. 191). In this context, it is interesting to note that a variant MTSa form was recorded just once, *sméq*^wt; possibly this is not a mere transcription error (especially given the Ka entry with *q*^w rather than *k*^w). Aoki also cites Krueger's form for Flathead as *səməq*^w et/səmeik'ut (1960).

Because this word is widespread in SIS and confined to NP within Sahaptian, Aoki's hypothesis that NP is the receiving language and Salish the source language(s) seems most reasonable here.

2. 'level land': Kuipers (2002:72, modified): PS **pal* 'thin, flat': CdA *spilem* 'level land', Cb *pəl* 'flat', Cv *pil* 'flat', *spilm* 'flat country', Sp *pil* 'thin', Li *spāləm* 'prairie, flat land', Sh *spelm* 'prairie' — NP *pi:nem* 'clearing', Mol *pilint* 'prairie'.

This word is widespread, with similar meanings, in both Salishan (CS as well as IS) and Molalla-Sahaptian. The presence of n instead of l in the NP form is not a problem, because of rather frequent l/n alternations in NP. The final -m in the NP form looks like the ubiquitous Salishan "middle" suffix -m; if it is, then the direction of borrowing must be Salishan to Mol-Sah—quite possibly independent borrowings into NP and Mol, but unfortunately we have virtually no information that would shed light on old Molalla/Interior Salish contacts. In fact, it looks as if the term must have come into NP from CdA, because only CdA and Cv have *i* as the root vowel in this word (though Sp has the root, in a different meaning), and only CdA has *e* in the second syllable. The lack of *s-* in NP is not unexpected, because NP completely disallows word-initial consonant clusters. This explanation will not work for Molalla, however, where *sp* is an allowable (and not uncommon) initial cluster. Mol -(i)nt is a nominalizer.

3. 'water': Kuipers (2002:102, modified): PS **səɫ*^w, **səw* 'to flow; wetness, dew': MTSa *séwl* 'water', Ka *séulk*^w id., Sp *nsewlk*^wm 'be in the water', Cv *siw*'st 'drink', *siwlk*^w 'water', Cb *sawlk*^w 'water', Cr *saɫ*^w 'flow' Li *səwsuw*t 'dew, wetness of vegetation after rain', Sh *tswsuw*'t 'dew', *séwlk*^we 'water', Th *susúwt* 'wet, dewy', *suɫs?éw* 'get wet fr. dew' (and CS forms having to do with wetness) — NP *sisé:w* 'drip, leak', Mol *saw-in-p* 'creek'.

As with 'level land', this word appears in both families. If it was borrowed just once, either from Mol-Sah to Salishan or vice versa, it must have been an ancient borrowing; if it was borrowed the other way, it was likely two independent borrowings into NP and Mol, because only two borrowing events would be needed, as opposed to several and/or spread throughout Salishan languages if the borrowing was Mol-Sah to Salishan. But again we have no sociolinguistic evidence to support a hypothesis of Salish-to-Molalla borrowing. Words of similar form and meaning extend beyond the two families examined here: note, e.g., Nisenan (Maiduan) *sew* 'river' (Eatough 1999).

4. 'ravine, draw': Kuipers (2002:188-189, modified): IS * IS **təq*^w 'to get dented, arched, hollow in mountains': MTSa *es-tóq*^w 'ravine, draw', Sp *hes-tóq*^w 'it's a hole, pocket, bottomland', *itoq*^w 'small hollows in mountains', Cr *tətaq*^w 'gulch, hollow', Li *təq*^w 'get dented', ESh *cx(təq^w)tuq*^w 'indented, arched', Th *tq^wəp* 'get dented', *stq^waw^s* (geogr.) 'a low gap beyond Kanaka mt.' — NP *tóqo(χ)* 'canyon, bluff, rockshelter, cave'.

NP lacks the nominalizing prefix *es-* of the full words with the closest meanings in MTSa and Sp, so the only hint about direction of borrowing is the fact that the word is found beyond SIS, in IS more generally. Our guess, therefore, would be Salishan to NP.

B Flora

5. 'whitebark pine/white pine/juniper': Kuipers (2002:27, modified): PS **s-c'ik*/*k* 'fir or pine cone, acorn, nut': MTSa *cč'éy* 'whitebark pine', Sp *cč'=éy*/*lp* 'white pine' (a different tree from whitebark pine), and cf. possibly Cv *s-k'w-k'w'=ilp* 'white-bark pine' (a different word from Cv 'white pine') — NP *cik'é:yelx* 'juniper'.

The NP word has no Sahaptian etymology; the Sahaptin word for 'juniper' is *púuš* (cognate to NP *póhos* 'mountain mahogany, hardwood'). The Salishan languages have different words for juniper. The semantics here is rather puzzling, because it seems unlikely that anyone could mistake a whitebark pine for a juniper, or vice versa. In any case, the direction of borrowing was presumably Salishan to NP.

6. 'Indian potato/cous root/edible root': Kuipers (2002:85, modified) PS **s-qawc* '(Indian) potato': MTSa *s-qá-qw=cn* 'Indian potato', Sp *sqaqwcn*, Cv *sqáqaw'cn*, CdA *sqigwc*, Li *sqawc*, and cognates outside IS — NP *qá:ws* 'peeled and dried cous root (*Lomatium cous*)', Sah *χawš* 'cous', Mol *qaws* 'edible root' (cf. also Qui, Noo *qá:wac* 'potatoes').

These words look old in both families, and they are also so similar in form and meaning that a historical connection seems likely. We see no phonological or morphological means of guessing the direction of borrowing, if any.

7. 'Douglas onion, wild onion': MTSa *séhč* 'Douglas onion', Sp *séhč* 'pink-flowered wild onions (*Allium douglasii*, *A. macrum*, *A. acuminatum*), Cv *saxk* 'Douglas' onion, Geyer's onion (*Allium douglasi*, *A. geyeri*), Cb (Wenatchee) *safk* 'onion' (cited in Rigsby 1965:211) — NP *sé:x* 'wild onions', *ca:xcá:x* 'small wild onions', Sah *šaak*, *šišaak*, *šišaak* '*Allium*' (R65:211).

This word does not appear in Kuipers 2002. If it is indeed confined to SIS, it may be a borrowing from Mol-Sah, because it looks as if it's old in that family. If it is originally a Sahaptian word, it is interesting to note that the Salish languages that have borrowed it have retained (in various guises) a consonant, probably **h*, that survives only as vowel length in the two modern Sahaptian languages.

8. 'arrowleaf balsamroot', etc.: MTSa *táq^wo?*, ?Cv *tq^w: táq^wa?* 'sticky geranium, cinquefoil' — NP *tá:qo?* /*táqo?* 'weed that grows in wet meadows, abt. three ft. tall', ?Sah. *taχús* 'Indian hemp, foxtail'.

This word too seems to be confined to SIS (assuming that the MTSa and Cv words are indeed the same basic lexical item, in spite of the semantic difference), and since it probably occurs in both NP and Sah, we tentatively class it as a NP-to-Salishan borrowing.

C Fauna

9. 'Lewis's woodpecker': MTSa *ciwcu*, Cb *ciciw* — NP *ci:wciw*, Sah *siwsiw* (A75:192).

This word is found in Salish only in MTSa and Cb, as far as we have been able to discover. Aoki declines to guess at the direction of borrowing, and that may be the safest choice.

10. 'osprey': Kuipers (2002:33, modified): PS **c'ix^w-c'ix^w* 'osprey, fishhawk': MTSa, Sp, Cv *c'ix^w-c'x^w* 'osprey', CdA *c'ix^wc'əx^w*, Cb *c'ix^wc'ix^w*, Li *c'ix^wc'i/əx^w*, Sh *cix^wc'əx^w*, Th *c'ix^wc'e/əx^w*, and Salishan cognates outside IS too — NP *sá:χsaχ* (A75:192); cf. also Mol *tyuktyuk*.

If these words are historically connected, the direction of borrowing would be Salishan-to-NP, since the form is widespread in Salish. Kuipers compares the Salish forms with Kut *c'o:c'o*: 'fish hawk'. Aoki suggests that sound symbolism may be responsible for independent creations of this word, citing also Karok *čú:kču:k*; we too are skeptical about the status of this item, and like Aoki we are inclined to think that this one is independently derived in the two families.

11. 'mink; squirrel': Kuipers (2002:163, modified): **c'əχəlacn* 'mink': MTSa *c'χl'é* 'mink', Sp *c'χlecn*, Cv *c'χlicn*, CdA *c'əχyú?c'n*, Cb

c'əxəl'icn, Li *c'əxyacn*, Sh *c'əxlecn*, Th (borr.) *c'əxlecn* — NP *c'i:χlu* 'squirrel'.

We have no explanation for the meaning difference between the Salishan words and the NP word. If this is a case of borrowing, the direction was presumably Salishan to NP, given the fact that the word is so widespread in IS. In the NP form, *-lu* (which alternates with *-nu*) is an animal-name suffix. On the whole, however, our confidence in this set is not terribly high.

12. 'pika (a.k.a. rock rabbit)': Kuipers (2002:165, modified): IS **s-k'il/n* 'hoary marmot, Rocky Mountain pika': MTSa *sč'in* 'pika, rock rabbit', Cb *sk'in*, CdA *sč'im*, Li Th *sk'il*, Sh *skik'l* — NP *?isk'i:l* 'rock mouse, rock rabbit'.

Here too the direction of borrowing is likely Salishan to NP, both because the form is widespread in IS and because the NP form preserves the Salishan nominalizing prefix *s-* (with an epenthetic *?i-* added to avoid two onset consonants). The NP *-l* is unsurprising, given the common *l ~ n* alternation in NP and the lability of this consonant in Salish.

13. 'heron': Kuipers (2002:69; modified): PS **s-məq^w-a?* 'crane, heron': MTSa *s-móq^w=e?* 'heron', Sp Sp *s-móq^w=e?*, Ka *səmóq^we?*, Cb *smúq^wa?*, Li *sməq^wa?*, Th *smúq^we*, and cognates in CS and Bella Coola — NP *mú:q'e / múq'e* 'heron', Sah *múq'a* 'great blue heron' (cited in Aoki 1994:460), ?Mol *wú:qł* 'heron'.

As Aoki says (1975:192), the fact that this word is so widespread in Salishan languages makes it likely that the direction of borrowing here too was Salishan to Mol-Sah. It is worth noting, however, that in this case (unlike #12, 'pika') the Sahaptian languages lack the Salishan nominalizing prefix. They also lack labialization, as expected (see the discussion in the Introduction above; Sahaptin sometimes shows delabialization adjacent to round vowels). Both NP and Sah have an *m ~ w* alternation, so the presence of *w* in the (uncertain) Molalla cognate here is not so surprising; the final *-l* of the Molalla form is a somewhat rare nominalizing suffix. If the Mol form does belong here, again we must reckon either with an ancient borrowing, into Proto-Mol-Sah, or with two independent borrowing events. Aoki also lists Sahaptin *q^wásq^waš* 'crane', but we believe he included it merely for the sake of completeness, and did not intend it to form part of the comparison (though, as an interesting side note, *q^wásq^waš* has itself been borrowed into Molalla). Finally, the fact that Kwa also appears to have this same word indicates that it's a well-traveled word in the Northwest generally.

14. 'Steller's jay, bluejay': Kuipers (2002:183, modified): IS **q^wasq^way* 'bluejay': MTSa *q^wásq^wiy* 'Steller's jay' (the root is *q^wáy* 'blue'), Sp *q^wásq^wi?* 'bluejay, Steller's jay', Cv *q^wásqi?*, Cb *q^wásq^way*, CdA *q^wasqn*, Th *q^wáq^wsq^wi* (in myths only), Sh (Dog Creek) *sq^wéq^wsq^we*, (Canim Lake) *q^wéq^wsqe*, (Enderby) *q^wesqy*, and probable cognates in

CS, Clallam *kwáškwaš*, Skagit *wášwaš* — NP *quyé:squyes* ‘bluejay’, Sah *χ^wásχ^way* ‘bluejay’; cf. also Nt *x^wiš*, *x^weš* ‘cry of Blue Jay Society’, Nit *xwi:šxwiš*, Chinook *qisqis* (R65:200-1, A75:192, R96:5).

All of these terms likely refer primarily to Steller’s jay (*Cyanocitta stelleri*), as bluejays in the strict sense (*C. cristata*) are only rare visitors to the Northwest. As Aoki suggests, there are problems with this set of words, in particular the initial stop vs. fricative, but also the vowels. The direction of borrowing is obscure. Compare also Mol *ktwa:s*; like the word for ‘heron’, this one seems to be a widespread regional word. That said, the Cb and Sah forms are a near-perfect match, especially when the shift of **q* to *χ* in Sah is taken into account.

15. ‘prairie chicken’: MTSa *sq^wox^wlú?* ‘prairie chicken, fool hen’, *sq^wó* ‘prairie chicken, sharp-tailed grouse’ (a truncated form, almost certainly a short version of the longer MTSa word), *q^wél:* *s-q^wáq^wl’=l’q^w* (*s-q^wχ^wl=ú?*) ‘quail (black with white spots)’, Cv *q^wl:* *s-q^wa-q^wl-lq^w* ‘prairie chicken’ — *q’áχno* ‘prairie chicken, sharp-tailed grouse’, Sah *q’áχnu* ‘prairie chicken’.

This word is not in Kuipers’ dictionary (unless it is connected with his IS **q^wəχ^w* in **q^wəχ^w-min-a?* ‘dipper (bird), water ouzel’ [p. 185]). This looks like a borrowing from Sahaptian because the word is confined to SIS within Salishan, and because the Sahaptian animal-name suffix *-nu* appears not only on the NP and Sah words but also, if we allow for the common Sahaptian *n ~ l* alternation, on the MTSa word and one variant of the Sp word.

16. ‘American dipper’ (a bird species): Kuipers (2002:185, modified): IS **q^wəχ^w-min-a?* ‘dipper bird’: MTSa *q^wox^wom’in’e* ‘dipper’, Sp *q’χ^w-m’in* ‘dipper bird’, Ka *q’oxom’in’e?* ‘bluejack, a fishing bird’, *q’χ^wmine?* ‘dipper bird’ Th *sq^wox^wmimne?*, Sh *sq^wəχ^wmem’nək* — NP *qó:qox* ‘raven, dipper’, Sah *χúχux* ‘raven’.

Here the Salishan forms differ significantly from the NP and Sah words formally and, in part, semantically. The Sah word in particular looks onomatopoeic. As is typical, NP lacks labialization and glottalization on the stop in this word. We suspect that this is not a case of straight borrowing, but rather that, in NP, the meaning of the word was extended to a different bird under the influence of the partly similar word in one or more SIS languages.

17. ‘gopher, ground squirrel/badger’: Kuipers (2002:185): IS **sik* ‘gopher, ground squirrel’: MTSa, Sp, Ka *síč’* (with reduplication of the initial consonant; the root is *síč’*), CdA *sič’*, Sh *sisk’* — NP *si:ki?* ‘badger’, Sah (Riv.) *šiki* ‘badger’.

Formally, these two sets of words are quite close; semantically, though the both refer to ground-dwelling non-huge mammals, they differ sharply. If they are indeed connected, the most likely route (given that the

Salishan word occurs outside SIS) is borrowing from Salishan into Proto-Sahaptian. This is one of the shakier items in the list, on semantic grounds.

18. 'fish': Kuipers(2002:192): IS **s-wal* (red.) 'fish' (with reduplication): MTSa *sw'éw'l*, Sp *s-w'éw'l*, Ka *suw'éʔul* 'fish', Li *swáwlam* 'fish (esp. trout) occurring in waters at high location', Th *swew'l* '(small) fish (other than salmon, sturgeon)', *wéwleme* 'to fish for small fish in creek, lake (as opp. to river fishing)', Sh *swewl* 'fish (generic)', *wewlm* 'to fish (in any way, w/ net, rod, etc.)', [*sɬʷiɬʷle* 'lake trout, "steelhead"'] — NP *waw'á:lam* 'cutthroat trout'.

This appears to be a Salishan borrowing in NP: the NP form has the characteristic Salishan "middle" suffix *-m*, which is present in NIS but not in the MTSa-Sp-Ka dialect complex, since as far as we can tell this word is not used as a verb in this language). The lack of *s-* and of glottalization on the first *w* is unsurprising in NP, which disallows both initial consonant clusters and initial glottalized resonants. The shift of *e* to *a* carries diminutive significance in NP.

19. 'American bittern/snipe/rail?': MTSa *χawitχo* 'American bittern', *χawitχawit* 'snipe' (Mengarini et al. 1877-79, II:355), ?Sp *n-hew=étkʷ=eʔ* 'rail (bird)' — NP *χawi:tχawit* 'snipe'.

The characteristic Sahaptian type of reduplication in this word makes borrowing from Nez Perce into MTSa the most likely direction. We do not (yet) have evidence for the existence of the word (or any word) for 'snipe' in modern MTSa, but the 19th-century Jesuit dictionary is identical to the NP word in both form and meaning (though we can't be quite certain about the form, since there is some indeterminacy in the 19th-century spelling). The modern MTSa word for bittern is a close formal match, though with an odd truncation pattern (since the usual truncation rule applies immediately after the stressed vowel). It's possible that the semantic difference between 'bittern' and 'snipe' is due to the fact that data collection of modern MTSa bird names was too late to draw on truly expert knowledge. Bitterns and snipe are very different birds, resembling each other mainly in that they are both hard to see but easy to hear (both making peculiar though quite different sounds); they do, however, occupy rather similar habitats. Rails are different again, but they also occupy similar habitats. The Spokane word may well be unconnected, but alternations between /h/ and /x/ are not unknown in MTSa and Sp, and the Sp vowel /e/ would be expected if an initial /χ/ were replaced by initial /h/. The lack of reduplication and the addition of a prefix *n-* 'in' and the suffix =*étkʷ* 'water', plus another suffix of indeterminate meaning, make the Sp word doubtful as a borrowing from NP. If the Sp word is indeed connected, the direction of borrowing was probably Salishan to NP after all.

20. 'moose': MTSa/Sp *s-χás=əlqs* 'moose' (lit. 'good nose') (cf. Kuipers [2002:198]: IS **χás(-t)* 'good': MTSa/Sp/Ka/CdA *χés* '(feel) good', Cv *χas* 'good', and cognates in NIS as well) — NP *sá:slaqs* 'moose' (A75:192).

No doubt about this one: it is a borrowing from SIS into NP. The root is widespread in IS, and the whole word is analyzable in MTSa and Sp but not in NP. We have not found this word for ‘moose’ in Salishan outside MTSa-Sp(-Ka)—Cv, for instance, has a different word for ‘moose’. But we haven’t been able to check CdA or Cb, so it’s likely but not absolutely certain that MTSa or Sp is the source of the NP word. The lack of χ in the NP word is due to the fact that NP disallows initial consonant clusters.

D Culture

21. ‘rattle’: MTSa *c'al'é* ‘rattle made of deer rawhide with rocks inside’, Sp *c'al* ‘sound made by falling sticks or spurs’ — NP *c'al'á:kstin* ‘rattlers made from dried dewclaws of deer’.

This too is a clear case of borrowing from Salish, presumably MTSa, into NP, because the NP word is analyzable in Salish but not NP. This is especially interesting as Sp seems not to have the full word at all and MTSa exists in the modern language only as a truncated form (and is not attested in Mengarini et al.). This means that only NP shows what the original word looked like: it must have had the lexical suffix =*ekst* ‘hand’ and the instrumental suffix *-tin* (the *e* of =*ekst* has shifted to *a* in NP under vowel harmony). Moreover, the fact that NP has *k* in this word means that the word must have been borrowed before MTSa underwent the palatalization change, in which all velars became alveopalatals, because as a result of that change the suffix was =*ečst*, not =*ekst*. This means that the borrowing occurred at least 150 years ago. (It is barely conceivable that the word was borrowed instead from a non-palatalizing SIS language, Cv or Cb; but we have no evidence that this word existed in either of those languages. We don’t know whether CdA has it or not; CdA is also a palatalizing language.)

22. ‘canoe’: Kuipers (2002:65): PS **ʔay/ʔyaʔ* ‘(river-)canoe’: MTSa *ʔ'iyéʔ* ‘big canoe, boat’, Sp *ʔ'yeʔ*, Ka *ʔ'iyéʔ* ‘bark-canoe’, Cv *ʔ'ʔiʔ*, CdA *t'édeʔ*, Cb *ʔ'iyaʔ* ‘birchbark canoe’, Li *ʔ'l'az'*, Sh *ʔ'yeʔ*, and cognates in CS — NP *liy'es* (A75:193).

As Aoki notes, the presence of *ʔ* in this word (a phoneme that NP has only in a few onomatopoeic forms) and the fact that it has a Proto-Salishan etymology makes it likely that NP borrowed the word from Salish. The *-s* at the end of the NP word is a nominalizing suffix.

23. ‘(play) ball’: MTSa *pk'wlémi* ‘shinney game, ball game played with a stick’, Sp *p'k'wlém* ‘he played ball (an old game played with curved, spoon-like sticks like those used in lacrosse)’ — NP *poxpok'ali*: ‘play ball game’, *poxpok'ála* ‘ball made of deer hair and buckskin’, Mol *puqł* ‘ball’.

This is most likely a borrowing from NP (or possibly Mol-Sah) into MTSa-Sp, since it has an etymology in Mol-Sah but does not occur in Salishan outside MTSa-Sp, as far as we know. The NP *l*: Mol *l* correspondence is

regular. The MTSa-Sp root presumably represents a borrowing of an unattested unreduplicated form in NP. But the presence of labialization in MTSa-Sp is not surprising: because these are palatalizing languages and therefore lack nonlabialized velars almost entirely, their speakers may well have applied a correspondence rule, a borrowing routine, in borrowing plain velars as labialized velars (see Thomason 1996 for discussion). The presence of a flanking round vowel in NP would make this an obvious strategy. This root is not in Kuipers 2002.

24. ‘corn husk bag’: MTSa *qqépe?* ‘a bag made from corn husks, Indian purse (often beaded)’, Sp *qqép=e?* ‘cornhusk bag’ (and cf. Kuipers [2002:180]: IS **qap* ‘soft, pliable’: MTSa, Sp *qep* ‘soft’, CdA *čip*, Li *qəpqaq*; *qápan* ‘soften’, Th *qəpqa/ap*; *qépes* ‘soften’, Sh *qəpqaqəpt*, ESh *qəpm* ‘soften hides’) — NP *qeqépe?* ‘corn husk bag’.

This word (though not the root it is derived from) is confined within Salishan to MTSa and Sp, as far as we know, and within Mol-Sah to NP. The suffix *=e?* is a Salishan suffix, however, although it has no known gloss, and it is not a native Mol-Sah suffix; so it seems most likely that the word was borrowed from MTSa or possibly Sp into NP. It’s worth noting that a Salish elder commented several years ago that the Nez Perce people still make these bags, and even have classes to teach young tribal members how to make them.

25. ‘to trap fish’: MTSa *q^wyóχ^w* ‘to trap fish (with a chute made of willows)’, *sq^wyóχ^w* ‘a fish trap (a chute made of willows)’; Sp *q^wyóχ^w* ‘to trap fish’ — NP *q^wóyχc* ‘sockeye salmon’.

These words are isolated in both families: only MTSa-Sp within Salishan, and only NP within Mol-Sah. If they are connected at all—and they may not be, though the forms and meanings are fairly close (especially if the Nez Percés caught salmon with a chute trap)—we cannot make any educated guess about the probable direction of borrowing. The *-c* in the NP form is probably a nominalizer. This root is not in Kuipers 2002.

E Ethnonyms

26. ‘Coeur d’Alene people’: MTSa *Sčícwⁱ*, Spokane *sčícwⁱ* (cf. Kuipers [2002:164, modified]: IS **kic* ‘to reach [destination], come upon’: MTSa, Sp, Ka *číc* ‘arrive’, Cv *kic*, CdA *číc* [also ‘find’], and also cognates in NIS) — NP *?iskí:cu?mix* ‘Coeur d’Alene’.

Even though this word is confined to SIS, it must surely be a Salishan-to-NP loanword, because the NP form is analyzable in Salish and is very close morphophonemically to the MTSa/Sp words: a nominalizing prefix *s-*, with epenthetic *?i-* in NP to break up the initial cluster; and the common Salishan suffix *-mix* (*-miš* in modern MTSa, Sp, and CdA) ‘person’ in the NP word—and in the MTSa-Sp word too, where the final *-i* may be part of the unstressed allomorph of this suffix (but we would expect instead the complete unstressed

suffix, namely, =*iš*, so this may be a different suffix). The relationship between MTSa-Sp *wʷ* and NP *uʔ* is not entirely straightforward, since both are in unstressed syllables, but such alternations are known in MTSa, at least: compare, for instance, =*éwʷs* and =*uʔs*, the stressed and unstressed allomorphs of the lexical suffix meaning ‘middle’. In the present case, Salish retains *wʷ* because it precedes a vowel. The word is likely to be even closer to CdA than to MTSa, however. Mithun (1999:485) gives “Sñchitsu’umshtsn” (presumably *s-n-čicuʔ-mš-cn*) as an equivalent for ‘Coeur d’Alene language’. If, as seems likely, this word is derived from the tribe’s self-name, we would expect (after removing the locative prefix *n-* ‘in’ and the lexical suffix =*cin* ‘mouth’) that the CdA self-name would be *sčicuʔmš*—which matches the NP form perfectly. (We have not yet been able to find the actual self-name.) We believe, therefore, that CdA is the source of this NP word. Finally, this is another example which shows a pre-palatalization Salishan form borrowed into NP: the *k* and the *x* in the source language changed to *č* and *š*, respectively, about 150 years ago. This word is not in Kuipers 2002.

27. ‘Flathead, (Bitterroot) Salish people’: MTSa *Séliš*, Sp *sél=iš* ‘Indians from the Bitterroot area’ — NP *sé:lix* ‘Salish, Flathead’ (A75:186, R96:2).

This is the self-name of the Bitterroot Salish people, and is therefore surely the source of the NP word. Here again, NP must have borrowed the word before palatalization turned the *x* into *š* in MTSa-Sp about 150 years ago. Note that this term properly applies only to the Bitterroot Salish people, not to the Pend d’Oreilles; it therefore refers to just half of the dialects subsumed under the label MTSa. This ethnonym may be etymologically connected with Cv *n-silx-cin* ‘Colville-Okanagan language’. This word is not in Kuipers 2002.

28. ‘Blackfoot, Blackfeet’: MTSa *sčqʷéy*, *sčqʷí*, older *sčqʷéyšn* (Mengarini et al. 1877-79) ‘Blackfeet Indians’, Sp *s-č-qʷí=šn=i*, *s-č-qʷáy=šn* ‘Blackfoot Indians’ (and cf. Kuipers [2002:95-96, modified]: PS **qʷal/y* ‘to scorch, (burn to) ashes, black; roast, ripe(n); berry’: MTSa-Sp-Ka *qʷáy* ‘black’, Cv *qʷáy* ‘black’, Cb *qʷíy* ‘black’, CdA *qʷed* ‘be black’, and cognates in NIS and CS) — NP *ʔisqʷóyxnix* ‘Blackfoot Indians’.

This is certainly a Salishan-to-NP borrowing. The root occurs throughout Salishan, with varying (but related) meanings, and the NP word is fully analyzable as a Salish-derived form: the initial *ʔi-* breaks up the cluster, the Salishan locative prefix *č-* ‘on, to’ disappears to avoid an initial cluster, the *qʷoy* corresponds to Salish *qʷal/qʷey/qʷí* (with a rounded vowel in NP instead of labialization), the suffix =*xn* is the old Salish suffix for ‘foot’, and the final *-ix* is the old unstressed allomorph of the suffix =*mix* ‘person’. Both affixes show that this too is an old borrowing, before palatalization in MTSa and Sp. It is striking that even the untruncated 19th-century MTSa word lacks the final suffix; either that suffix was lost by the time the Jesuits compiled their dictionary, or MTSa

never had it and NP in fact borrowed the word from another Salishan language that did have it. Given the word's referent, the former seems more likely. It's possible that the longer Sp form, in spite of the odd stress, retains a vestige of the original =*mix* suffix. Culturally, it makes sense that this would be an originally Salishan word, since MTSa territories were between the NP and the Blackfeet and the MTSa tribes were therefore more closely acquainted (to their sorrow) with the Blackfeet. This word is not in Kuipers 2002.

29. 'white man, white person': Kuipers (2002:194): IS **s-wyap-mx/x*^w 'white person': MTSa, Ka *suyápi*, Sp *suyépi*, Cv *suyápix*, CdA *su:yépmš*; *snwyépmšcn* 'English language', Cb *suyápanəx*^w; *snwiyapanəx*^w*cinnm* 'English language', Sh *swyepmx* 'white person, Frenchman' — NP *so:yá:po:*, Sah (Yakama) *šuyápu* 'white man' (A75:194-5).

This word is widespread in SIS, it occurs in one NIS language, and it seems to have the Salishan nominalizing prefix *s-*. Nevertheless, its form and etymology are rather opaque in Salishan. They are similarly opaque in Sahaptian: NP *-po:* is the vowel-harmonic allomorph of the NP ethnonym suffix *-pu:*, but the Sah form is probably borrowed from NP, since the normal correspondent to NP *-pu:* is Sah *-pam*. Sah has no *o*, so the substitution of Sah *u* for NP *o* is unsurprising. The presence of *s-* suggests that Salish may be the source of the NP word, but we have little confidence in this directional guess.

F Onomatopoeia

With all the onomatopoeic words in this section, it is quite possible (as Aoki notes for certain words) that independent innovation rather than a direct historical connection accounts for the similar Salishan and Mol-Sah words. We include here only forms that are so close formally and semantically that a historical link seems likely.

30. 'burn': MTSa *c'áχ*^w 'burn', *c'áχ*^w*c'χ*^w*t* 'charcoal, coal, hot ashes' (and perhaps compare MTSa-Sp *c'áχχχ* 'sound of food frying'), Cv *c'íχ*^w-*c'χ*^w-*t* 'charcoal' — NP *c'ó:χ* 'sizzling sound of burning hair'.

The close formal and semantic match of these Salishan and NP words strongly suggests a historical connection. The word is slightly more widespread in SIS than in Mol-Sah, so we tentatively suggest a direction of borrowing from Salish to NP. This root is not in Kuipers 2002.

31. 'cough': Kuipers (2002:22, modified): PS *ʔəχ*^w*u?* 'to cough': MTSa (*ʔ*)*ohó?* 'cough', Sp *hec-hóʔi*, *hec-hoʔhóʔi* 'a cough (from a cold)', Cv *həhu?* 'catch cold', *sʔ'áhaʔ* 'id.', CdA *ohiʔt* 'have a cold', Cb *ʔəh*^w*a?* 'have a cold, cough', Li *ʔəχ*^w*ʔun*; *ʔəχ*^w*ʔunám* 'have a cold', Th *χ*^w*ʔəp*, Sh *χ*^w*əχ*^w*u?* 'a coughing cold', and cognates in BC and CS — NP

ροχορόχα ‘cough’ (A75:194); cf. also Sah. (Riv.) *aq’úwi* ‘cough’, Mol *aqu-n* ‘cough’.

If all these words are historically connected, borrowing is most likely link, but the direction is hard to guess at; probably fewer independent borrowing events must be posited if we assume a Salishan to Mol-Sah direction.

32. ‘sound of a drum’: MTSa *púm*, *i púmpúmpúmpúm* ‘the sound of a drum (big or small)’, Sp *púm* ‘sound of drum beat’ — NP *pim* ‘sound of small drum’.

We have no guess as to the direction of borrowing, and we also don’t feel particularly confident that these words are connected historically. This root is not in Kuipers 2002.

33. ‘blow’: Kuipers (2002:76-77, modified): PS **paw*, **puh*, **pu/ax^w* ‘to blow, breathe, swell’: MTSa *púx^w* ‘blow’, *n-púx^w-m* ‘he blew a horn (or other instrument)’, Sp *púx^w-m* ‘he blew on something’, Ka *pux^w-n* ‘I blow on him’, Cv *púx^w-m* ‘blow’, CdA *pex^w* ‘wind-blown’, Cb *púx^w-n* ‘blow on st.’, and cognates in NIS and CS — NP *pux* ‘sound of blowing on s.t.’ (A75:194).

This similarity between NP and Salishan may well be accidental. If they are historically connected, however, it is most likely that borrowed the word from Salish, because it is very widespread in Salishan languages.

34. ‘sound of fire crackling’: MTSa *t’ák^w* ‘sound of wood crackling in a fire’, *i t’ák^wk^wk^wk^w* ‘wood popping sound (firecrackers, or wood in a fire)’, ?Sp *t’ák^w* ‘sound of breaking loose, sound of bursting (e.g. a balloon)’ (and possibly cf. Kuipers [2002:109]: PS *t’ək^w/q^w* ‘to explode, burst open; slap, strike’) — NP *t’áqaqaq* ‘sound of fire crackling’.

Both the MTSa and the NP reduplicative formations are productive for sound-symbolic words, so if these words are historically connected—as seems likely—the borrowing could have been either MTSa to NP or vice versa.

35. ‘crunching sound’: MTSa *χάw=k^w* ‘crunch (in eating) ice or snow’, Sp *χάw* ‘sound of biting into something’, *χάwχάwχάw* ‘sound of chewing’ — NP *χaw* ‘sound of (Raccoon) crunching (crawfish)’, ?Mol *qaw-* ‘eating, biting’.

If these words are shared because of borrowing, we have no guess as to the direction. This root is not in Kuipers 2002.

36. ‘rattling or clattering noise’: Kuipers (2002:170, modified): IS **lay* ‘to clatter, rattle’: MTSa *i láy* ‘a noise like the sound of a car door closing’, *i láy’i?i?i?* ‘a noise like a wagon going along, the rattle of the wheels’, Sp *lay* ‘a single tinny sound, like a tin pan hitting the floor’, *lay’i?i?* ‘sound of many tin objects hitting the floor’, CdA *lay-m-st-m* ‘rattling noise’ (and Kuipers also includes Sh *clay* ‘eager, excited’, especially in negative expressions: *ta?wəs k sclayəs* ‘he doesn’t care a

hoot', which doesn't look as if it really belongs here) — NP *láy* 'with a resounding noise', Sah *layláy* 'hoof rattles'.

These words (minus the implausible Sh example) match closely in both form and meaning except for the MTSa-Sp *l* vs. CdA and Sahaptian *l*. Since NP *l* does not normally correspond to Sah *l*, we believe that this word was borrowed from CdA into the two Sahaptian languages independently.

G Miscellaneous

37. 'trot': MTSa *cilš=lš* 'trot' — NP *cilcil* 'trot'.

This word has no Salishan or Mol-Sahaptian etymology, and it is confined to one language in each family, so we have no way of guessing which language has the original form. The forms don't match precisely, so possibly they are unconnected after all; but they are close enough that, with the semantic identity, they seem likely to be historically linked.

38. 'bull': Kuipers (2002:160, modified): IS **s-culm* 'bull': MTSa-Sp-Ka, Cv, ESh *s-cúl-m* 'bull', Cb *scúl-m* 'bull, bull elk', CdA *cúlum* 'buffalo', Nicodemus *scúl-m* 'bullock', Li *culm* 'red deer skin' — NP *cú:lim* 'bull, steer' (R65:201-2, A75:191).

As Aoki points out, the combined Salish-Nez Perce buffalo hunting expeditions make it unsurprising that the two groups would share a word for bull (bison bull, that is). The form indicates that NP borrowed this word from Salish, as the NP word has the Salishan suffix *-m*; the absence of the nominalizing prefix *s-* in NP is most likely due to the fact that an initial *sc-* cluster would be disallowed.

39. 'arrive/meet': Kuipers (2002:164, modified): IS **kic* 'to reach (destination), come upon': MTSa *čic* 'arrive', *č-čicn-m* 'he met someone by chance', Sp *čic(š)* 'arrive', *t-čic-n* 'I met someone', Ka (*k^wət-*)*čic* 'arrive', *čicn-* 'meet (someone)', Cv *kic*; *skicəc* 'visitors', CdA *čic* 'reach, come upon' (also 'find'); *sčic* 'visitors', Cb *kicu?sn* 'meet', Th *kices*, Sh *kicns*; *kicx* 'arrive', ESh *skicəc* 'visitors' — NP *kica?i* 'meet'.

If these words are connected historically, they surely represent a borrowing from Salish into NP, given the fact that the root and derivatives are widespread in IS. We cannot explain the apparent NP suffix *-a?* in this word, however; it is not (as far as we know) a suffix in NP (the final *-i* in the citation form is unproblematic, as it actually represents a suffix *-n* that is common in NP verbs of motion). This is probably an old borrowing, before palatalization, because the languages with which NP has been in closest contact are palatalizing languages.

40. 'band, ring; encircle': Kuipers (2002:42, modified): * PS **k'ənp* 'to clasp (together), encircle, squeeze': MTSa *es-č'inp* 'a solid object, like a strap, that's put around something to hold it together', *č'np'qéy* 'a

wedding ring or engagement ring', Sp *č'inp'* 'it's banded', *č'np'*=*qin*=*čst* 'a ring', Cv *k'np'*=*iw's-tn* 'strap, round band, belt', *k'np'*=*qin*=*ks-tn* 'ring, band', CdA *č'enp'* 'clasp, encircle', Cb *sklk'anp'cənakst* 'bracelet', *sk'an'p'qən'uskst* 'ring', Sh *kənip'* 'hemmed in', *knp'ekst* 'fingerring', *knp'éne* 'earring', Th *k'n'əp* 'encircled tightly', and apparent cognate(s) in one CS language — NP *ci:lp* 'encircle', ?Mol *t'ulp-s* 'ring'.

This looks like a borrowing from Salishan into NP and possibly also into Mol. The NP form is a good phonological fit with the Salishan forms: *n* and *l* alternate frequently in NP, and the loss of glottalization in NP is not uncommon. The timing of the borrowing must be later than for some other examples, because it followed palatalization in MTSa and other palatalizing SIS languages—hence the initial affricate in the NP word.

41. 'calf': MTSa *č'lk^wl'k^wl'é* 'calf (bison or cow)', Sp *k^wl'k^wl'*=*él'x^w* 'cow calf', Ka *č'il-kulkul*=*é(lx^w)* 'calf', Cv *k^wl'*=*álx^w* 'calf' (the MTSa-Sp-Ka and Cv forms all have a root *k^wil* 'red' followed by a lexical suffix meaning 'skin, covering, hide'), Cb *k^wəl'k^wəl'ál'x^w* 'calf' (lit. 'warm skin' or 'red skin') — NP *kulkul'é:lx* 'bison calf, domestic calf' (A75:192).

According to Aoki (1975:192), CdA has a form that is quite similar to those of the other SIS languages. Since parallel Salishan forms occur in all the SIS languages, then, and since the root and the suffix are readily analyzable in Salishan but not in NP, Aoki is surely right in saying that NP borrowed the word from a Salishan language. This word is not in Kuipers 2002.

42. 'cut': Kuipers (2002:167, modified): IS **k'ət'* 'to break off, crack, cut': MTSa *č'it'* 'cut (something) off', *čt'-nt-és* 'he cut a piece off', Sp *č't'* 'cut off', Cv *k't'a-p* 'get cut', CdA *č'et'* 'cut off completely', Cb *k'ə/it'n* 'break string', *klk'ət'p* 'come off (as button)', *sk'ət'mix* 'chop wood', Li *k'it'* 'to creak, crack (when st. is going to break)', Sh *kt'ep* 'come off (as button)', *kit'm* 'tear off w/ force' — NP *k'it'* 'break, split, cut; decide', *k'ət'* 'clip, snip; make decorative cuts in buckskin'.

This word is widespread in IS and confined to NP within Mol-Sah, so it is presumably a borrowing from SIS into NP.

43. 'one': Kuipers (2002:71, modified): PS **naqs* 'one': MTSa *čná(qs)* 'one person', Sp *čnáqs, čanáqe?s* 'one person', Ka *činá(qs)* 'one (talking about persons), another', Cv *náqs* 'one, another, one thing', Cb *naqs* 'one', Tw *dáqs* 'one' — NP *ná:qc* 'one' (also *naxc-*, *nexc-* in combining forms), Sah *náχš*, ?Mol *naŋa* 'one', *naŋq* 'all', and cf. also Cayuse *ná:* and Klamath *Na:s* (both 'one') (A75:194, 197, R96:2).

Aoki argues that Salishan *náqs* is likely to be a loanword from Sahaptian, borrowed at a time when CdA was not yet an immediate neighbor of Sahaptian. Kroeber (1999:426) This seems likely, given the restriction of the word to SIS, with the notable exception of Twana; we have no explanation for

the presence of this form in Twana. It is noteworthy that another word for ‘one’ is much more widespread in Salishan languages, including SIS languages: see Kuipers (2002:70-71), PS **nak*’, **nk’-u?* (IS **nk^wú?*) ‘one, another’, and a long list of cognates in all Salishan branches (except BC) there. In MTSa-Sp-Ka, at least, *náqs* is restricted to people—hence the prefix *č-* ‘person’. The usual word for ‘one’, including compounds involving people, is *nk^wú?* in MTSa-Sp-Ka. Cv, in contrast, uses the root *nk^w-* only in compounds; its usual word for ‘one’ appears to be *náqs*. If *náqs* is a loanword from Mol-Sah into SIS, it is probably old, unless it was borrowed independently from different SIS languages (and possibly from one of those into Twana?). Kuipers’ proposed Proto-Salishan etymology, however, strikes us as quite dubious, in spite of its presence in Twana.

44. ‘nose, pick one’s nose, snot’: Kuipers (2002:71, modified): PS **nis* ‘blow one’s nose’: MTSa *nós-m* ‘he picked his nose’, *s-nós* ‘snot’, Sp *s-nós* ‘snot’, Ka *nós* ‘to be snotty’, *sə́nós* ‘snot’, Cv *nʕas-m* ‘blow the nose’, *s-nʕas* ‘snot’, CdA *snos* ‘snot’, Cb *nism*; *snis* ‘snot’, Li *nisqsam*; *nusəs* ‘breathing loud through nose’, Sh *χ^wnism*; *sχ^wnis* ‘snot’, Tw *dísad* ‘pick one’s nose’, Se *n@st* id. — NP *nú:snu* /nusnu/ ‘nose, beak, bill, muzzle’, Sah *núšnu* ‘nose’.

Nasals in words having to do with the nose are so common that accidental similarity must be considered here. The presence of a pharyngeal in Cv may indicate that the word is old in Salish (though its presence in just two CS languages makes a PS etymology somewhat doubtful); and an earlier labialized pharyngeal would account for the *o* vowel in MTSa-Sp-Ka and CdA. Alternatively, the Sahaptian vowel *u* (especially if it was after a pharyngeal, which would lower it) could have influenced the vowel in MTSa-Sp-Ka and CdA, even if the words are otherwise similar only by accident. (But the Cv pharyngeal could also be intrusive, not old, in this word.) If the word is borrowed, its presence in NIS and (marginally) in CS as well as SIS makes SIS the most likely source and Proto-Sahaptian the recipient. There are no morphological clues to the source language here; the Salishan words have Salishan affixes, and the Sahaptian words may have a Sahaptian suffix *-u* (gloss unknown, but in NP this apparent suffix is found on a number of body-part words: *pé:yu* ‘hoof’, *silu* ‘eye’, *k’assáyno* ‘elbow’, *mac’áyo* ‘ear’).

45. ‘white, light-colored; fade’: Kuipers (2002:75, modified): PS **pəq* ‘white’: MTSa *piq* ‘white’, *pá(q)* ‘light brown, fade, become white’, Sp *piq* (*paq*) ‘white’, Ka *piq* ‘white’, *paq* ‘fade, get white’, Cv *piq* ‘white’, *n-paʔq=cín* ‘dawn’, CdA *peq* ‘white, bleached, silver’, *paq* ‘be made white’, Cb *paʔq* ‘faded’, *payq* ‘white’, Li *pəq*; *pəqpaq* ‘light of color’, *paʔq* ‘red-hot’, Th *páqes* ‘bleach’, *ʔestpiq* ‘white’, Sh *piq*; *peqm* ‘get mouldy’, *xpəqcin* ‘dawn’, and cognates in CS — NP *pá:q* /pa:q/ ‘brown, light bay’, Sah. *lá-paaxi* ‘faded by the sun’.

There is no morphological evidence here to support a directional hypothesis for borrowing, but the widespread presence of this root in Salishan languages makes it more likely that the word was borrowed from Salish (probably SIS) into Sahaptian (probably into Proto-Sahaptian). One phonological fact may also support this hypothesis: the alternations in the root vowel and the presence vs. the absence of a glottal stop are also widespread in Salishan, and this suggests that the root is old. In some of the languages, e.g. MTSa, two root alternants have been lexicalized with slightly different meanings; in other languages this seems not to have happened.

46. 'spill solids; powder': Kuipers (2002:75, modified): PS **pəq*^w/*k*^w (CS), **p'əq*^w (IS) 'to scatter; powder': MTSa *póq*^w 'spill solids; powder', *espók*^w 'powder, dirt (spilled)', *pq*^w*min* 'I dumped it (solid things) out', Sp *p'oq*^w 'powder is spilled', *np'iq*^w*min* 'gunpowder', Cv *pq*^w-*aq*^w 'pour small objects, spill solids', Cb *nap'əq*^w*n* 'pour dry substances', *np'əq*^w*min* 'gunpowder', CdA *p'aq*^w 'powder', Li *np'əq*^w*min**tn* 'black (gun)powder', Th *np'ə/q*^w*min* 'gunpowder', *p'iq*^w*es* 'crumble up st.', Sh *xpq*^w*um* 'load a gun', (n)*pəq*^w*min* 'gunpowder', and cognates in BC and CS — NP *poxpoxs* 'ashes', *poχpóχs* 'gunpowder', *pux* 'dust', ?Sah. *lá-pχ*^w*t* 'dust' (perh. also Mol *puqp* 'dust', though this is likely a nominalization of *puq* 'be gray' instead).

These sets of forms are sufficiently different in the two families that they might well not be connected historically, but the formal and semantic similarities still warrant their inclusion in our list. We have no evidence to support a directional hypothesis, except to note that the time depth for Proto-Sahaptian is presumably shallower than the time depth for Proto-Salishan, so that borrowing from SIS into Proto-Sahaptian is less of a stretch than borrowing from Proto-Sahaptian into Proto-Salishan. The difference between root-final Salish *q*^w and NP *χ* is not a problem here; NP /*q*/ surfaces as [χ] word-finally and very often before consonants as well. As for the NP word with *x* here, NP /*q*/ and /*k*/ (which surface as [χ] and [x] in the relevant environment) are in a sound-symbolic relationship. NP /*q*/ and /*χ*/ both correspond regularly to Sah /*χ*/.

47. 'spill, pour round objects/loosen, scatter': Kuipers (2002:72, modified): PS **pək*^w/*q*^w 'to spill, pour': MTSa *púk*^w 'put/pour round objects', *es-púk*^w 'round things are piled up', Sp *hec-púk*^w 'round objects are piled up', *pk*^w-*nt-én* 'I piled it (round objects) up', *y-ec-pk*^w*ú-m* 'I'm scattering them', Ka *pk*^w*əntén* 'I shake them off, throw them down', Cv *pk*^w-*min* 'pour solids', Li *pək*^w*ən* 'spill', *p'úk*^w*un* 'pour solids into st.', Th *pək*^w*tés* 'dump out solids', Sh *pk*^w*um* 'pour dry substances, scatter', Se *pəq*^w*s* 'fall overboard', Tw *spáq*^w*at* 'waterfall', Ch *pəq*^w- 'spill' — NP *puk* /*pik*^w/ 'loosen, scatter'.

Only the IS etymology looks solid to us here. The Se and Tw forms that Kuipers includes in this set seem dubious on both phonological and

semantic grounds, and the Ch form could easily be a variant of the PS entry we discussed just above (#46). Even if this is strictly an IS word, however, it seems most likely to be a loanword from Salish into NP, as it does not occur in either Sah or Mol. There is no good argument from phonology here: a plain NP velar would likely be borrowed into MTSa, and by extension into other palatalizing SIS languages, as either *kʷ* or (less likely) *q* (see Thomason 1996); and a SIS labialized velar would be borrowed into NP as a plain velar.

48. 'snow(drift)': Kuipers (2002:76-77): PS **paw*, **puh*, **pu/axʷ* 'to blow, breathe, swell': MTSa *pxʷtni* 'snow is drifting', CdA *pexʷ* 'wind-blown', Sh *pxʷntem* 'snowdrift', and cognates meaning 'blow' and the like throughout Salishan (see #33 above) — NP *póhoy* /*pohoy*/ 'snow, fine snow', Sah *púuy* 'snow'.

The root of this set is very widespread within Salishan, but the meanings related to snow are not. If the Salishan and Sahaptian sets are historically connected via borrowing, we cannot guess the direction. It is worth noting that alternations between *h* and *xʷ*, at least in MTSa, are frequent (see Thomason 2002), so there is no phonological barrier to grouping these Salishan and Sahaptian sets. The Sahaptian words could be connected with Molalla *paŋ* 'snow' instead, but the phonological correspondences involved are problematic.

49. 'old; parent, godparent, elder': MTSa *p'χʷót* 'parent, godparent', *p'χʷp'χʷó(t)* 'parents; old (age)', Sp *p'χʷp'χʷú-t* 'he is old, parent, ancestor, grandparent', Ka *p'oxút* 'parent', *p'oxp'oxút* 'parents' — NP *poχpóqc* 'great-grandparent, great-grandchild' (A75:192-3).

This is presumably a borrowing from Salishan into NP, in spite of the fact that the Salishan word occurs only in MTSa-Sp-Ka. The reason is phonological: it would be surprising if a plain NP stop were borrowed as an ejective in Salish, but, as we noted in our introductory remarks, it is common for a Salish ejective like *p'* to be borrowed as a plain stop in NP. This root is not in Kuipers 2002.

50. 'aunt (mother's sister)': MTSa *qáχe?*, Sp *qáχ=e?*, Ka *qáχe?*, Cb *qáχa?*. — NP *qé:qe?* 'maternal aunt (vocative)', Sah *χáχa* 'mother's sister (vocative)' (R65:210, A75:193, R96:3).

This word occurs only in SIS—it is not in Kuipers 2002—and it is, as Aoki notes, reconstructable for Proto-Sahaptian. It actually occurs only in two of the SIS languages, MTSa-Sp-Ka and Cb. Aoki also suggests that the similarity between the two sets might be coincidental, but the semantic identity and the formal similarity are so close, and the fact of intermarriage so well established, that coincidence seems unlikely to us. We are therefore less cautious than Aoki in positing a Sahaptian (probably NP) to SIS borrowing route here. NP /*q/* corresponds regularly to Sah /*χ/*, so in that respect the phonology is straightforward, and the presence of two fricatives in Sah is explained. But we cannot explain the fact that Salish has a stop and a fricative in this word while NP has two stops; it is possible that NP was originally like the Salish forms and

that the medial fricative assimilated to the initial stop at some time after the word was borrowed into Salish. Alternatively, if NP reflects the original form of the word, the Salish languages might have borrowed a form transitional between NP and Sah, in which the medial stop had fricativized but the initial stop had not yet done so. NP *-eɫ*, Sah *-a* is a vocative suffix used on kin terms.

51. 'drunk, be crazy': Kuipers (2002:184, modified): IS **q^waɫ*, **q^waɫ^w/w* 'silly, crazy, drunk': MTSa *q^wéw* 'be crazy, drunk', *čn q^woq^wé* 'I'm crazy', Sp *q^wew* (*q^waw*) 'drunk, crazy, silly', Ka *q^wew(u)* 'crazy, foolish, drunk', Colville *q^waɫ^w* 'drunk, silly, crazy', N. Okanagan *q^waɫ* 'drunk, silly, crazy', CdA *q^weɫ^w*, Sh *stq^wɫq^weɫs* 'w/ blurred vision' — NP *qeqé:wi* 'be drunk, delirious, out of one's mind'.

This is clearly a SIS-to-NP borrowing. Since (as discussed in our introduction) NP has no surface labialized dorsals, the lack of labialization is expected in NP, but if NP were the source language, we'd expect nonlabialized uvular stops in Salish. Also, of course, the Shuswap form indicates a wider distribution within Salishan, beyond SIS. This may be another example of a borrowed verb, though it's not an active verb.

52. 'to braid; tie, wrap around': Kuipers (2002:186, modified): IS **sətk* 'to twist': MTSa *sitč* 'braid', *sitč-m* 'he braided something', Cv *c-sitk* 'curved, crooked, twisted', *stk-m-st-im* 'twist something, give spasms', CdA *setč*, Cb *sətkn*, Li *sitkm* 'make a net', Sh *sətsətkelp* 'peavine' — NP *ciik* 'wind, lace, intertwine', *sitk* 'wrap around, tie, lace', *stak* 'tie, fasten', *stik* 'tie, wind around', Sah root *stk* ~ *štik* 'tie'.

This word looks old in both families, but the two sets also seem clearly to go together: coincidence is not an appealing hypothesis. We have no guess as to the direction of borrowing, from (say) Proto-SIS into Proto-Sahaptian or vice versa, with later spread from SIS into Shuswap. NP *s* ~ *c* is a common sound-symbolic alternation, as is Sah *s* ~ *š*.

53. 'know, recognize': Kuipers (2002:101, modified): PS **sux^w* 'to recognize, identify, understand, know': MTSa *súx^w-m* 'he knows/recognizes something', Sp *sux^w* 'know, understand, be acquainted with', *súx^w-n* 'I recognize him', Ka *sux^w* 'understand', Cv *sux^w* 'recognize, know', Cb *sux^wtn* 'recognize', CdA *sux^w* 'be acquainted with, know', Li *sux^wtn* 'recognize', Th *súx^wtes* id., Sh *sux^wm* id., and a few (very few) cognates in CS — NP *cú:kwe* 'know, have knowledge, understand' and/or NP *suki* 'find, know, recognize', Sah (Yakama) *šúka* 'know', (River) *šúk^wa* id. (A75:193).

Aoki comments that this word is reconstructable both for PS and for Proto-Sahaptian, and therefore suggests that it may be a very old loan. If so, given the different time depths, borrowing into Proto-Sahaptian seems somewhat more likely. But borrowing from Sahaptian into Proto-Interior Salish, with later spread to two or three CS languages, is also a possibility; it is least likely to be a borrowing from Sahaptian into Proto-Salishan. The difference

here between Sahaptian stops and Salish fricatives is explained by the fact that Proto-Sahaptian almost certainly lacked an *x* phoneme (most instances of [x] in NP reflect underlying /k/ or sound-symbolic alternations with /χ/). Since Salish does of course have velar stops, and since velar stops are not known to be borrowed as fricatives in palatalizing Salishan languages, this difference makes us lean toward a Salishan source for this word.

54. 'no': MTSa *tá* 'no', *tám* 'not', Sp *tá* 'no', *tam* 'not', Ka *tá(m)* 'negation', Cv *ta uyá?* 'it's not true' (an idiom; *uyá?* is an interjection meaning, roughly, 'listen'; but the usual Colville negator is not *ta*), Sh *ta?* 'no' — NP *ʔo:tá*: 'no (in Salish)' (A75:186).

This may not count as a loanword at all. According to Aoki, it is said by Porcupine, who is said to be half Salish, in a story; Aoki observes that this usage shows that the storytellers and their audience knew at least some SIS words. (See also #61 below.) This root is not in Kuipers 2002.

55. 'fight, warfare': MTSa *tiy'á?*, *tiyáq^wt* 'fight', Sp *tyáq^w-t* 's/he battled', Ka *tiyáq^wt* 'to fight with blows', Cv *tyq^w*: *s-tyáq^w-t-x* 'person fighting' — NP *tiy'e-* 'in warfare'.

This word is narrowly distributed in Salishan—it occurs in just two SIS languages, MTSa-Sp-Ka and Cv—and in Sahaptian as well. It seems very likely that the two sets are connected historically, and our best guess, though tentative, is that NP borrowed the word from SIS. This root is not in Kuipers 2002.

56. 'make a (little) movement': Kuipers (2002:54, modified): PS **lax^w*, **x^wal* 'to shake, hurry': MTSa *x^wál* 'make a little movement', *x^walmím* 'shiver', Sp *x^wel* 'flutter, wave in the breeze', *x^wrip* 'shake', Ka *χ^wa:lip* 'tremble', Cv *x^wrap* 'shake, quiver, tremble, shiver', CdA *x^war* 'tremble, quiver', Cb *x^wərp* 'shake', *x^wərrpm* 'nervous', Li *x^wʔal* 'be anxious to', Th *x^wʔal* 'hurried', , Sh *x^wʔal* 'hurry', and two possible cognates outside IS, one in BC and one in Ch — NP *xú:l* 'suddenly, gently, noiselessly'.

The direction of borrowing in this case is probably SIS to NP, both because the root is widespread in IS and because initial /x/ is rare in NP (where [x] is mostly an allophone of /k/). Kuipers' Proto-Salishan etymology seems doubtful to us, given the phonological and semantic differences between his IS forms and his only two non-IS forms, but the root is well attested in both SIS and NIS and is therefore reconstructable for Proto-IS.

57. 'go': Kuipers (2002:196, modified): IS **x^wuy* 'to go': MTSa, Sp, Ka, Cv, Cr *x^wúy* 'go', Li *nx^wuytm* 'go ahead', Th *x^wuy*, Sh *x^wuyt* 'to exit' — NP *xuyi:* 'emerge'.

This too looks like a borrowing from Salishan to NP, for the same reasons as in #56.

58. 'clear, day(light)': Kuipers (2002:55, modified): *li/aχ 'clear, bright, light; intelligence, mind': MTSa χál 'clear, day(light)', nχál 'clear water', χlip 'dawn broke', Sp χál '(day)light', nχál 'clear liquid', χlip 'tomorrow', Ka χal 'daylight', Cv χal 'clear, glittering', χlap 'tomorrow', ksχlap 'daylight', nχfal 'clear water', tχlʔasq 't 'bright', χel 'be clear, bright, light', χal 'redhot', ?laχ 'lightning, be electric', and numerous cognates outside SIS (all directly from Kuipers' *li/aχ, as opposed to the metathesized SIS forms) — NP χaláp 'uncover, open (eyes, doors), be clear (of vision)'

Given its wide distribution throughout Salishan, this seems like a clear instance of SIS-to-NP borrowing. This hypothesis is further supported by the presence, in the NP form, of the Salish inchoative suffix *-p*.

59. 'scrape; to skin': MTSa χép, k^w lχép 'you scraped yourself' — NP χá:p 'scrape (esp. bark)', χa?p 'loosen, tear off, peel, slice off', ?Sah χapilmi 'knife', Mol qap-s 'piece of skin, fish scale'.

As far as we know, MTSa is the only Salishan language that has this root, unless possibly it is metathesized from Sp paχ 'scratch', Cv paχ 'scrape, shave (something)'. The root is not in Kuipers 2002, but it is reconstructable for Proto-Molalla-Sahaptian, so we believe it is a borrowing from NP into MTSa.

60. 'bruise; dark red?': MTSa yús 'bruise', i čn yús 'I'm bruised', ?Cv yus 'dark red' — NP yo:s 'blue, gray'.

These words may not be connected historically at all. Phonologically, the MTSa and Cv words are very close, and the Cv and NP words have to do with colors (albeit different colors) that might appear in a bruise. The root is not in Kuipers 2002. If the Salish and NP forms are connected historically, we can't guess the direction of borrowing.

61. 'true, real, yes': MTSa uné(x^w) 'true, real, yes', Sp λunéx^w 'yes, it is true', Ka unéx^w 'really, indeed', Cv wx^w, wnix^w 'sure, truly, real, really, surely' — NP λu:né: 'yes (in Salish)' (A75:186).

Like the word for 'no' (see #54 above, where its usage is described), this one may not count as a loanword in NP. This root is not in Kuipers 2002.

62. Finally, a mystery word: NP λickum 'kum 'é:lx 'calf (of domestic cow)'.

This must be a loanword from Salish into NP, because it has the Salish lexical suffix =élx^w 'skin, cover, clothes, hide' (with the expected delabialization in NP). But we cannot find a source language or a source form for this word in SIS, or elsewhere in Salish. We are hoping that someone at this year's ICSNL will be able to identify the source of the word!

Several things should be noted about the data we have analyzed above. First, the number of shared lexical items is substantial, even if some ultimately turn out to be incorrect. Moreover, there is no reason at all to assume that we have discovered all the shared vocabulary between Salishan and Molalla-Sahaptian, especially as our focus has been on MTSa-Sp-Ka and NP; in particular, we have little data on CdA, which seems likely to be as important as MTSa-Sp-Ka in Mol-Sah contacts.

Second, the vast majority of the borrowings seem most likely to be from Salishan (usually or always from SIS) to Mol-Sah (usually NP), not from Mol-Sah to Salishan. Most of the evidence is of two kinds: distributional range within Salishan and Mol-Sah, and phonological evidence pointing to Salishan as the source. There is also morphological evidence in a number of instances.

Third, with two probable exceptions—the words for ‘prairie chicken’ (#15) and ‘maternal aunt’ (#50)—all the analyzable morphologically complex forms in our data are in Salish-to-NP borrowings (see #2, #12, #20, #21, #24, #26, #28, #29, #38, #41, #58, #62).

Fourth, the vast majority of the loanwords in our data are nouns, as is typical (though not universal) in lexical borrowing worldwide. Nonetheless, we also have a nontrivial number of borrowed verbs in our data: #23, #31, #37, #39, #40, #47, #51, #52, #53, #57.

Fifth and finally, almost all of the Salish-to-NP borrowings containing original nonlabialized velar consonants have velars in NP, not alveopalatals (or plausible equivalents to alveopalatals). This means that those borrowings, and no doubt many others whose age is harder to determine, must be at least 150 years old—that is, they must have been borrowed into NP before the palatalization change eliminated all nonlabialized velar consonants in palatalizing SIS languages. The sole clear exception is ‘band, ring; encircle’ (#40). ‘Blackfoot, Blackfeet’ (#28) is ambiguous: the locative prefix **k*- could have been borrowed as an alveolar and then merged with the preceding *s* in NP, or it could have been borrowed as a velar and merged with the following *q*’.

This preliminary study of Salish/Molalla-Sahaptian contacts has focused on possible and definite shared vocabulary. The next step in the comparison is to search for shared structural features that can be assigned to this contact situation, specifically (or at least primarily) to SIS-NP contact. Here we will mention just a few promising shared structural patterns.

Kroeber (1999) lists two main syntactic features that may show influence by Sahaptian languages on SIS languages. First, the SIS languages have lost distinctive conjunctive verbal inflection in subordinate clauses; this accords with the Sahaptian languages, which use indicative inflection in subordinate clauses (422-24, 431-32).

Second, in all SIS languages except Cb, subjects of transitive clauses are frequently marked differently from subjects of intransitive clauses; in MTSa-Sp-Ka, this case marking is obligatory (425). This phenomenon also trends in

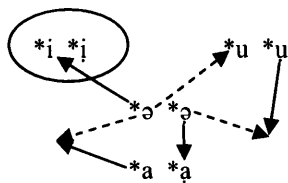
the direction of the Sahaptian languages, which have a three-way case distinction for core arguments, though the instantiation of this distinction is quite different in the two families: a preposition in Salish (*t* in Cv-Ok and MTSa-Sp-Ka; *ʔə* in CdA) vs. case suffixes in Sahaptian. Perhaps concomitant with overt case marking, Kroeber notes that constituent order is freer in SIS than in other branches of Salish; constituent order is quite free in Sahaptian as well.

We have found mutual influence between SIS and Sahaptian to be more salient in the phonological system. Nez Perce appears to have borrowed two phonemes, /ʔ/ and /h/, from neighboring Salish languages, as these do not represent regular reflexes of any Proto-Sahaptian phoneme (Aoki 1962). The /ʔ/ phoneme is extremely rare, being found only in two onomatopoeic forms; /h/ is only somewhat more common and is mostly restricted to onomatopoeia, affective forms, and borrowings from Salish.

Finally, there is a striking parallelism in the development of the vowel systems of NP and MTSa-Sp-Ka. Proto-Salish and Proto-Sahaptian may be reconstructed with essentially the same vowel system: a set of full vowels /*i *a *u/ and a reduced vowel /*ə/, each with a retracted counterpart (/ḭ *a̰ *ṵ *ə̰/). Modern MTSa-Sp-Ka and modern NP each distinguish five vowel qualities /i e a o u/ (/e/ in NP is phonetically [æ]). What is more, the changes leading from the proto-system to the modern system are essentially identical:

1. *i, *ḭ > i (*i* and *ḭ* may not have been distinct in Proto-Sahaptian);
2. *a > e (phonetically [æ] in NP);
3. *u > o;
4. *ə > o adjacent to labiodorsals, a (merging with *a) elsewhere (NP. sometimes shows *i* as a reflex of *ə);
5. *ə > u adjacent to labiodorsals, e adjacent to uvulars, i elsewhere.

The only major difference between the two is that in NP, original full vowels lengthen under stress, while original reduced vowels do not. The changes outlined above are summarized in the chart below; conditioned changes are shown by dashed arrows, unconditioned and “elsewhere” changes by solid arrows:



Perhaps the most obvious conclusion is that this contact situation deserves more systematic attention than it has received to date.

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