

Application of the comparative method to Nivkh: Other regular sound correspondences

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The Nivkh language family of Sakhalin Island and the adjacent mainland in Northeast Asia is generally considered to be without known external relatives, and since its internal diversity is relatively shallow—leading some authors to treat it as a single ‘language’ divisible only into ‘dialect’-level varieties—comparative linguistics internal to the family has been neglected. The internal diversity of Nivkh is not, however, as trivial as has been portrayed, and involves at least two (Gruzdeva, 1998) and possibly three (Fortescue, 2016) mutually unintelligible varieties, indicating fertile ground for the application of the Standard Comparative Method within the family. Following up on our previous work (Halm, 2017), in which we examined the synchronic sound correspondences and diachronic sound changes pertaining to vocoid sequences, in the present paper we adduce and examine other sound correspondences and attempt to define their underlying diachronic developments. Our clearest findings include: Proto-Nivkh (PN) /*a/ > Amur Nivkh (AN), West Sakhalin Nivkh (WSN), and perhaps North Sakhalin Nivkh (NSN) /ə/ when adjacent to or tautosyllabic with a velar consonant and not prohibited by vowel harmony or similar adjacency to a post-velar consonant; PN /*i/ > AN, WSN /ə/ | / [t,d]_ + /; PN /*mx, *mχ/ > AN, WSN /ŋk/; PN /*ŋq/ > AN, WSN /ŋk/ morpheme-finally, and probably in all positions; PN /*χ/ > AN, WSN /x/ | /o(C)_/; PN clusters of a palatal and an alveolar consonant generally assimilate to alveolar articulation for both segments, both historically and synchronically, in East Sakhalin Nivkh (ESN) and South Sakhalin Nivkh (SSN); morpheme-initial clusters with a lenis PN initial consonant are shifted to fortis articulation in SSN; PN velar fricatives /*x/ > Nogliki Nivkh (NgN), SSN /χ/ when preceded in a cluster by /c^(h), t^(h)/ (with some other conditioning differing between NgN and SSN); and finally, we confirm some sound changes already observed individually in the literature, and refute or question others. We also briefly discuss the phylogeny of the attested varieties in light of shared historical sound changes.

Keywords: sound change, assimilation, fortition, Nivkh

1. Introduction

As it stands, Proto-Nivkh has been the subject of minimal reconstructive work. The only reconstructed inventory of Proto-Nivkh roots or grammatical morphemes which has been published to date is the very recent Fortescue (2016). This work, however, while it has substantial utility, is difficult to consider as a reconstruction of Proto-Nivkh, per se. Fortescue assembles and compares forms which are probably or certainly etymologically related from all four major Nivkh varieties, as well as in some cases from West Sakhalin Nivkh, and offers a “Proto-Nivkh” form in addition to the attested forms. However, as we have discussed previously (Halm, 2017, p. 14), Fortescue’s aim seems to be less reconstructive than comparative, and while his (2016) is an excellent volume and a turning point for Nivkh studies in that regard, the

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“Proto-Nivkh” forms which he offers therein are perhaps better considered archetypal forms, or heuristic starting points for a more exact reconstruction, than comparatively-reconstructed protoforms, per se.

1.2. Notation. We will generally standardize all Nivkh forms to a single transcriptional scheme, as in (Halm, 2017), although the transcriptions used in the sources vary. The (maximal) consonant inventory of all varieties is shown as we will transcribe it in Table 1, below. SSN differs from this inventory by lacking a contrast between the voiced and the voiceless unaspirated plosive series. All varieties have a six-vowel inventory, which we will transcribe /a, e, i, o, u, ə/, although the phonetic realization of these may be closer to [æ, ie, ɪ, o, u, ʏ] in at least some varieties.

We will use an asterisk to indicate reconstructions, /* φ orm/; double asterisk to represent unattested or banned forms, /** φ oorm/; single tilde to represent predictable phonological or grammatical variation due to known processes, / φ orm ~ p^horm/; double tilde to represent unpredictable or inexplicable variation or doublets, / φ orm ≈ β orm/; hyphen to mark a synchronically productive or otherwise well-understood and uncontroversial morpheme boundary, / φ orm-i/; double hyphen or equals to indicate a conjectural morpheme boundary, /* φ =orm/; square brackets to indicate an uncertain reconstruction or a doubtful transcription, / $[\varphi]$ orm/; parentheses to indicate that a form can or does appear both with and without the enclosed segment or segments, /(φ)orm/; the plus /+/, dollar sign /\$/, and pound sign /#/ , respectively to indicate morpheme juncture, the syllable boundary, and pausal word boundary in specifying the environment of sound laws; and subscript “W” and “S”, respectively, to indicate the weak or alternating as versus the strong or invariant final fricatives or nasals, / φ orm_w/ ≠ / φ orm_s/; and the sign / \emptyset_w / is used to indicate a phonetically elided but morphophonemically detectable weak nasal. The sign /V/ is used to indicate any vowel; the sign /C/ to indicate any consonant; the sign /N/ to indicate any nasal; the sign /W/ to indicate any glide; and the signs /T/ and /Ç/, respectively, to indicate any alveolar and palatal oral obstruent. Outside of slashes, the equals sign is used to indicate that two forms are identical or non-contrastive, or exist in free variation / φ o:rm/ = / φ o β rm/; a not-equals or slashed equals sign is used to indicate that two forms are contrastive and non-identical, / φ orm/ ≠ / φ o β rm/; the question marked equals is used to indicate that the identity or contrastiveness of two forms is uncertain, / φ orm/ = ? = / φ o:rm/; single chevron or shaftless arrow is used to indicate diachronic change, /* φ orm_w/ > / φ or \emptyset_w /; bidirectional chevron or bidirectional shaftless arrow is used to indicate cognacy, WSN / φ orm/ < > AN / φ orm/; bidirectional chevron with a question mark is used to indicate uncertain cognacy, WSN / φ orm/ < ? > AN / φ ərm/; bidirectional chevron with a slash to indicate non-cognacy, WN / $\$/ < \ > ESN / $\$/; double chevron or double shaftless arrow is used to mark synchronic processes, / φ orm_w-kun/ >> [φ ormgun]; and shafted arrow is used to indicate borrowings, Uilta /form/ → WSN / φ orm/. We use the abbreviations AN = Amur Nivkh, WSN = West Sakhalin Nivkh, WN = Western Nivkh (AN and WSN taken as a group), NSN = North Sakhalin Nivkh, ESN = East Sakhalin Nivkh, SSN = South Sakhalin Nivkh, NgN = Nogliki Nivkh, as documented in (Tangiku et al. 2008), and PN = Proto-Nivkh.$$

	Bilabial	Alveolar	Palatal	Velar	Postvelar
Fortis Stop	p ^h	t ^h	c ^h	k ^h	q ^h
Lenis Stop (<i>Non-Contrastive in SSN</i>)	[p]	[t]	[c]	[k]	[q]
Voiceless Fricative	ɸ	ɸ̣	ɸ̣̟	x	χ
Voiced Fricative	β	r	ʒ	ɣ	ʁ
Voiced Stop	b	d	ɟ	g	G
Nasal	m	n	ɲ	ŋ	
Approximant	[w]		j		
Lateral		l			
Voiceless Onset				h	

Table 1. Transcription of the (maximal) Nivkh consonant inventory. All unbracketed phonemes are reconstructed for Proto-Nivkh and attested in all modern varieties, while /w/ is reconstructed for PN but has been lost in the syllable onset in AN, WSN, and NSN. The contrastive voiceless unaspirated (i.e. lenis) stops /p, t, c, k, q/ are present in all varieties except SSN. In the remaining lects, they are in superficially contrastive but underlyingly complementary distribution with the voiced stops /b, d, ɟ, g, G/, both of which correspond to voiced stops in SSN, while the fortis stops /p^h, t^h, c^h, k^h, q^h/ in the other lects correspond to voiceless stops unspecified for aspiration in SSN. The presence or absence of superficially contrastive voiceless lenis stops in Proto-Nivkh is uncertain (see below).

1.3. Nivkh varieties and sources of data. A total of five or six identifiable Nivkh lects might be recognized at a level of differentiation sufficient to speak of separation by regular sound changes: Amur Nivkh (hereafter, AN), spoken on the mainland; West Sakhalin Nivkh (WSN)—historically spoken in the northwestern part of Sakhalin across the narrowest part of the Gulf of Tartary from the mainland (although Soviet-era resettlement policies have relocated most speakers of this and the other Sakhalin varieties)—is very close to AN, but recognized as distinct by at least Fortescue (2016) and Shiraishi; North Sakhalin Nivkh (NSN), historically spoken on the Schmidt Peninsula at the northern tip of the island; East Sakhalin Nivkh (ESN), historically spoken along the northeast coast of the island; and South Sakhalin Nivkh (SSN), historically spoken in isolated pockets in the south and southeast of Sakhalin, separated from the other varieties by areas of primarily Tungusic Uilta-speaking populations. Amur Nivkh and West Sakhalin Nivkh, forming a very tight cluster, may be collectively referred to as Western Nivkh (WN).

To this we would add as a distinct variety the Twenty-first Century lect of the city of Nogliki (NgN), as documented in Tangiku et al. (2008). Nogliki is within the historical sprachraum of ESN, and the variety documented in that source shows the greatest similarity to earlier sources documenting ESN, however, it seems to also show some signs of koineization, showing the application of sound changes which were earlier documented as applying to WN and not to ESN, either uniformly (such as Proto-Nivkh /*#w/ > /*#β/ in the syllable onset, as will be discussed below) or in a lexically restricted distribution.

It has often been reported on an impressionistic basis that the greatest divide is between ESN and SSN on the one hand, and AN (and WSN, for those authorities who recognize this variety as distinct) on the other, with NSN taking an intermediate position. However, this impressionistic assessment has never been supported as a phylogenetic hypothesis in the strict sense with evidence from shared phonological innovations. We will conclude our description of regular sound changes within the family below by briefly considering the phylogenetic interpretation of these sound changes; these will show that from a

phonological point of view, NSN actually forms a clade with WN, while it proves to be a difficult question whether ESN groups more closely with SSN or the NSN–WN clade. Good grammatical and phonological or morphophonological descriptions of attested varieties include Mattissen (2003) and Nedjalkov & Otaina (2013) for AN, Shiraishi (2007) for WSN, and Gruzdeva (1998) for a juxtaposition of these subsystems across the family, especially between AN and ESN.

This study relies on existing published sources for its data: Savel'eva and Taksami (1965; 1970) are the primary source for AN; Shiraishi's work (especially 2007) is the primary source for WSN; Tangiku et al. (2008) is the sole source for NgN; Austerlitz' work (especially 1956; 1983; 1990) is the primary source for SSN; Fortescue (2016) is our only source for NSN, and provides supplementary data quoted from other primary sources for the other varieties. Mattissen (2003) and Gruzdeva (1998) are important for morphological data as well as observations on synchronic phonology, and Austerlitz also provides some synchronic phonological observations pertaining to SSN, while Shiraishi (2007) is certainly the most exact, thorough, and incisive treatment of synchronic phonology in a living variety.

2. Innovations in Western Nivkh

2.1. Consonantal innovations in Western Nivkh

2.1.1. Labial frication. Shiraishi (2007), Mattissen (2003), and Gruzdeva (1998) all mention that WN (i.e., the AN/WSN group) shows the phonetic merger morpheme-initially of ESN /#w/ and /#β/, although they can still be distinguished morphophonemically, in that historical /*#β/ shows the expected initial consonant alternation /β ~ p ~ b/, while historical /*#w/ shows no alternation. Shiraishi (2007, p. 28 ff.) describes the merger as not applying in non-morpheme-initial position, but some of the transcriptions in Savel'eva and Taksami (1965; 1970) seem to imply that in their data it does apply at least under some conditions (perhaps in syllable onset), although these could also be misinterpretations on our part or possibly even just mistranscriptions.

Fortescue (2016) discusses this merger, and asserts (2016, p. 4) that this sound change applies in all positions in AN (he does not discuss WSN separately) except /V_C/. Regarding NSN, he seems to suggest that this merger has not taken place. However, he says that the NSN reflex of PN /*w/ is “variably written either ‘v’ or ‘w’” (which certainly contributes to the apparent irregularity of reflexes of his reconstructed /*w/), but it is not quite clear that this is the correct interpretation of the data;¹ one of his sources for NSN (Nakagawa et al., 1993 *non vid.*) seems to attest only “v” in word-initial and intervocalic position, to the exclusion of “w”, while his other (Peiros et al., 1986 *non vid.*) attests only “w” in these environments, to the exclusion of “v”. The logical conclusion would seem to be that the merger has indeed regularly affected NSN, with the resulting phone transcribed not variably, but merely differently in different sources. The fact that Peiros et al.'s “w” in these positions can reflect PN /*β/ seems to be confirmed by correspondences such as AN /kujβa/ < > NSN “kujwi” < > SSN /gujβa-ŋ/ “ring”; and AN /βiβu-š, βiγβ-š/ “belt” < > NSN

¹ An anonymous reviewer points out that free or conditioned variation [w ≈ v] is found in nearby languages such as Manchu and Mandarin Chinese. If a similar phonetic variation is found in NSN, the combination of this variation together with differing transcriptional practices among primary sources could contribute to misinterpretation of the data.

“wiwř” “belt” < > ESN /βiyβu-ɾ, βiyβə-ɾ/ “belt” < > SSN /βixβ-/ “to tie a belt”, /βixβ-ɾ/ “belt” (all from Fortescue, 2016).

2.1.2. Palatalization. Another consonant change which Shiraishi describes (2007, pp. 23-24) is the palatalization of consonants when followed by the vowels /i/ or /e/. Although the transcriptions in Savel’eva and Taksami (1965; 1970) show this palatalization as leveling the contrast between /*t ~ d/ and /*c ~ ʃ/, at least in morpheme-initial position, with the result of the merger transcribed as though it were /c ~ ʃ/, Shiraishi (2007) describes this palatalization as non-merging, and as an essentially phonetic, rather than phonemic, feature. Further, he clarifies (personal communication, May 3, 2016) that the transcription in Savel’eva and Taksami (1965; 1970) implies a merger which actually has not occurred—or at least not diffused through the entire lexicon—for most living speakers. Shiraishi does, however, assert that this palatalization has leveled the contrast between /n/ and /ɲ/ in this environment in WSN. Data from AN will have to be examined closely to determine to what extent the same merger has acted there.

Fortescue (2016) points out that Cyrillic orthography especially can give a potentially false impression of the merger of alveolars into palatals before the front vowels. But he also asserts, on the basis of a personal communication with Gruzdeva, that at least in modern-day AN and ESN, such a merger has indeed gone through (where not pre-empted in AN by word-final PN /*ti/ > AN /tə/), while he also notes that earlier sources for these varieties, as well as the attestation of the other varieties, guarantees a PN contrast between palatals and alveolars in this environment.

2.1.3. Velarization. The WN group seems to show a consonant shift which has not been documented before, namely: PN /*o(C)[χ,ʁ]/ > WN /o(C)[x,ɣ]/. That is to say that postvelar fricatives are shifted to the corresponding velar after /o/, even across intervening consonants. Examples of the correspondence created by this shift include: the etymon for “stool, feces”, AN /otx/ < > NgN /otχ/; the etymon for “powder, medicine”, AN, WSN /oxt/ < > NgN /oχt/; the etymon for “bark” or “rind”, AN /oɣm ~ o:m/ < > NgN /oβm/; the etymon for “belt, strap, lanyard, cord”, AN /c^hnox/ < > SSN /t^hnoχ/; the etymon for “corner”, AN /coɲx/ < > NSN /toɲχ/ < > SSN /joɲχ/; the etymon for “to feud or quarrel”, AN /ory-la-u-ɟ/ < > NgN /orβ(=)op-t/ (although the segmentation of especially the NgN form here is uncertain); the etymon for “daughter-in-law” or “bride”, AN /joxo/ < > NSN, ESN, SSN /joχ/; and the dative nominal case suffix, AN, WSN /-tox/ < > ESN /-toχ/. This correspondence apparently does not apply to plosives (cf., for example, AN /oq/ < > NgN /oq/ “fur coat; clothes”). Note that as a result of this, the sequences /o(C)χ/ and /o(C)ʁ/ seem, with extremely few exceptions, to have been vacated by this change in AN (based on Savel’eva and Taksami, 1970). By contrast to this, there seem to be a small number of reconstructable PN etyma with /*o[x,ɣ]/, such as /*oɣri/ “back of the head”. On this basis we infer that this correspondence does indeed represent a postvelar-to-velar shift in Western Nivkh, rather than a velar-to-postvelar shift in ESN and SSN.

2.1.4. Velar-postvelar nasal-plosive assimilation. There may be a correspondence between the final cluster /ɲk ~ ɲg/ in WSN and AN, and the final cluster /ɲq ~ ɲG/ in ESN and SSN. There are very few instances of this correspondence, such as AN /p^hlaɲk/ < > SSN /p^hlaɲq/ “leaf”; AN /maɲg-/ < > ESN, NGN

/maŋG-/ “to be strong, frightful, dear”; and AN /aunjk/ < > SSN /a[w]ŋq/ “type of duck” (Fortescue, 2016), (and perhaps also the etymon for “head”, though attestation is problematic). However, AN and WSN seem to show no final clusters at all in /*ŋq, ŋG/, while ESN and SSN attest none in /*ŋk, ŋg/. We would suggest that these clusters should be reconstructed to Proto-Nivkh as /*ŋq/, with WSN and AN being affected by assimilation, in light of the fact that (with these clusters excepted) we have not been able to find any examples of homorganic final nasal-plosive clusters at all, and these are probably historically banned (Halm, *forthcoming*). We note, incidentally, that the variation /ŋg+ ~ ŋk+/ is not phonemic (Shiraishi, 2007, pp. 53-54).

2.1.5. Nasal-fricative clusters. A more solidly evidenced correspondence in final clusters shows another WN innovation, namely PN /*mx+ , mχ+ / > WN /ŋk ~ ŋg/. Examples of the resulting correspondence include AN /ŋəŋg/ < > NgN /ŋamx/ “hair”; AN /ŋaŋg/ < > WSN /ŋaŋk/ < > NgN /ŋemx/ < > SSN /ŋemχ/ “mosquito”; AN /toŋk/ < > NSN /tomχ/ < > NgN /tomχ/ < > SSN /domχ/ “elbow”; and AN /əŋg/ < > NSN /əmx/ < > NgN /amx/ < > SSN /amx/ “mouth” (AN data from Savel’eva and Taksami, 1965, 1970; SSN from Austerlitz, 1983, 1990; NSN from Fortescue, 2016). Note that although the vowel correspondence in “mosquito” shows an irregularity, the other vowel correspondences, including that in “hair”, are regular, assuming (as we are about to argue) that the NSN, NgN, and SSN consonants are original. The correspondence SSN /χ/ < > NgN /x/ in “mosquito” appears to be irregular (NgN /*χ/ would be expected—its absence may reflect the koine nature of NgN), but all the other consonant correspondences here are regular. We conclude that the NgN and SSN forms here preserve the original, PN consonantism, and that the WN forms are innovative, because there are correspondences like those mentioned in the paragraph above, showing SSN, NgN, ESN /ŋq+ / < > WN /ŋk+/, however there are evidently no instances of SSN, NgN, ESN /m[x,χ]+ / < > WN /m[x,χ]+/. In fact, the only instance of /m[x,χ]+/ which we could find in WN is the relatively recent loan /tamx/ “tobacco”. Hence, the correspondences are predictable under the assumption of WN innovation in these clusters, but unpredictable under any assumption of EN innovation, compelling us to adopt the former assumption: PN /*mx+ , mχ+ / > SSN, NgN, ESN /mx+ , mχ+/, WN /ŋk+/. Tentatively, the forms NSN /əmx/ “mouth” and NSN /ŋəŋg/ “hair” given in Fortescue (2016) suggest that NSN has retained the PN forms of these clusters, and has not been affected by this sound change.

We can also to some degree circumscribe the scope of this change and delineate the extent of its applicability fairly precisely, based on other cognate sets. We can see that no similar change has affected PN /*ŋ[x,χ]+/, since these clusters seem to be reflected in AN /coŋx/ < > NgN /coŋχ/ < > SSN /joŋχ/ “corner”; AN /c^hiŋx/ < > NgN /ciŋx/ < > SSN /jiŋx/ “leg, lower leg, shin”; and AN /pəŋx/ < > WSN /pəŋx/ < > NgN /paŋχ/ “soup”. Note that the correspondence NgN /χ/ < > AN /x/ in “corner” is regular, as mentioned above, and as we will discuss further below. However, the same correspondence in “soup” is irregular (in view of the vocalism in this form); the NgN transcription here may potentially be in error. We have not, on the other hand, been able to find any examples of either /*n[x,χ]+/ or /*ŋ[x,χ]+/ in any Nivkh variety, so although these may have simply been gaps which preexisted this WN change, we cannot yet rule out that they may somehow have been affected by a related change.

Finally, we can make some inferences about more or less likely intermediate stages in this change, and also about the timing of this change relative to other sound changes. Of the two possible intermediate stages which suggest themselves as most likely, we can adopt as our hypothesis PN $/*m[x,\chi] + / > /*\eta[x,\chi] + / > WN / \eta k + /$, and rule out the alternative sequence PN $/*m[x,\chi] + / > /**m[k,q] + / > WN / \eta k + /$, because the latter sequence is evidently irreconcilable with the existence of surviving $/mk +$, $/mq + /$ in WN in evidently inherited morphemes, such as AN $/t\text{əm}k/ < > WSN /t\text{əm}k/ < > NgN /t\text{am}k/ < > ESN /t\text{am}k/ < > SSN /d\text{am}k/$ “hand” (ESN & AN in Savel’eva and Taksami, 1970; WSN in Shiraishi, 2007, p. 89; SSN in Austerlitz, 1983); if the latter sequence of changes had occurred, we would instead expect unattested WN $/**t\eta k + /$. Moreover, having adopted this hypothesis, we can see how it integrates with the preceding change: most likely, the sequence of changes can be further elaborated as (1) PN $/*m\chi +$, $m\chi + / > pWN /*\eta\chi +$, $\eta\chi + /$; (2) pWN $/*\eta\chi +$, $\eta\chi + / > pWN /*\eta k +$, $\eta k + /$; and then finally (3) pWN $/*\eta k +$, $\eta k + / > WN / \eta k + /$. This last change also affected pWN final clusters $/*\eta q + /$ reflecting original PN $/*\eta q + /$, accounting for the change and correspondence we discussed immediately above. Furthermore, we can say that at least this last phase of the sequence postdated a vocalic innovation which we discuss immediately below, namely raising of PN $/*a/ > WN /\text{ə}/$ in the environment of a velar consonant, since this has failed to affect forms such as $/p^h\text{la}\eta k/ < PN /*p^h\text{la}\eta q/$ “leaf”; $/m\text{a}\eta g- / < PN /*m\text{a}\eta q- /$ “frightful, dear”; and perhaps $/j\text{a}\eta g/ < PN /*j\text{a}\eta\chi/$ “mosquito”, while regularly affecting forms such as $/\text{ə}\eta g/ < PN /*am\chi/$ “mouth” and $/\eta\text{ə}\eta g/ < PN /*\eta\text{am}\chi/$ “hair”. We can infer that this sequence is historically closed in general by its failure to affect the loan AN $/t\text{am}\chi/$ “tobacco”, and if the exact route of borrowing into Nivkh of this lexeme could be established, a more precise *terminus ante quem* might be posited.

2.1.6. The rhotic and the sibilant. Finally, we would like to correct an oft-reported sound correspondence which apparently does *not* actually exist between these varieties, namely AN $/\text{ś}/ < \backslash > ESN /r/$. There are indeed many lexemes which seem to show this correspondence, but in the overwhelming majority of instances (easily better than 95%, to estimate) the segment in question is final, the lexeme is a noun, and indeed, the segment in question is already recognized as a nominalizing suffix (see Savel’eva and Taksami, 1970; Mattissen, 2003, p. 28 *et alibi*).² These suffixes are not, however, cognate, but rather are merely equivalent in use, and the supposed sound correspondence does not occur anywhere else in the language. In fact, the genuine cognate suffix $/-r/$ does occur analyzably in some AN lexemes reported in Savel’eva and Taksami (1965, 1970), albeit much more rarely than the sigmatic equivalent; there are in short no grounds for positing this as a sound correspondence. The regular sound correspondences are AN $/r/ < > WSN /r/ < > NSN /r/ < > ESN /r/ < > SSN /r/$, and AN $/\text{ž}/ < > WSN /\text{ž}/ < > NSN /\text{ž}/ < > ESN /\text{ž}/ < > SSN /\text{ž}/$ (and likewise with their voiceless counterparts).

Fortescue (2016, p. 5) seems to acknowledge that the identical sound correspondence is more frequent lexically than the non-identical WN $/\text{ś}/ < > ESN$, SSN $/\text{r}/$ (although he never explicitly says so) when he describes exceptions to this rule as “sporadic” and restricted to non-initial positions, positing that “some”

² Mattissen provides AN examples such as $/e\beta\text{-ś}/$ “handle” $\ll /-e\beta- /$ “to take, hold”; $/per\text{-ś}/$ “heavy load” $\ll /per- /$ “[be] heavy”; $/\beta er\text{-ś}/$ “wideness” $\ll / \beta er- /$ “[be] wide”; $/pu\text{ci}\text{-ś}/$ “broom” $\ll /*\text{-}\beta uti- /$ “to sweep”; and $/moq\text{-ś}/$ “piece” $\ll /-moq- /$ “to cut in slices”. Austerlitz, calling it the “agent participle,” (1982, p. 84) gives SSN examples such as $/ba\text{-}\text{r}/$ “binding” $\ll /-ba- \sim -\beta a- /$ “to bind”; $/wi\text{-}\text{r}/$ “going” $\ll /wi- /$ “to go”; and $/ja\text{-}\text{r}/$ “striker” in $/qa\text{ś}\text{-}ja\text{-}\text{r}/$ “drumstick” $\ll /ja- \sim -\text{ža-} /$ “to strike”.

instances of /š ~ ž/ in these positions have developed irregularly from /r̥ ~ r/, without any particular dialectal pattern. Four examples of this are offered, but it seems that at least some of these have better explanations than even sporadic /r̥/ > /š/. For instance, Fortescue offers (2016, p. 5) AN /βaru-ɟ ≈ βazu-ɟ/ “to join” < > ESN /βaru-d/ “to join”. However, the two forms seem to be etymologically separate: both appear to be derived by the addition of the transitivizer and verbalizer suffix /-u-/ (see Nedjalkov & Otaina, 2013 p. 134; Mattissen, 2003, pp. 123, 137; Gruzdeva, 1998, pp. 29, 36; and Savel’eva, 1970, p. 535) from synonymous stems: AN /paṛ ≈ paš/ and ESN /paṛ/, respectively, both meaning “bandage, band”. These two forms in turn seem to be derived using the two separate nominalizers from the verb /*pa-/ “to be together, to bind” >> /pa-š/, /pa-r̥/ “band, bandage”. This verb, although unattested in Savel’eva and Taksami (1965; 1970) in simplex form, is attested in a lexicalized combination with the negative habitual suffix /-kšu- ~ -xšu- ~ -ɣžu-/, as AN /βa = ɣžu-ɟ/ < > ESN /βa = ɣžu-d/ “to separate (v.tr.)”, literally “to make not usually or never be together”, and is attested in simplex form in SSN /-ba- ~ -βa-/ “to bind” (Austerlitz, 1983, p.84). Another of Fortescue’s examples of supposed sporadic /r̥/ > /š/ is AN /c^huž/ “new” beside ESN /c^hiṛ/ “new”. However, the entirely irregular vowel correspondence should raise the question of whether these etyma are actually cognate at all. The answer seems to be “No”; the ESN term appears likely to actually be a borrowing from Ainu /asir/ “new”, with ESN /#š/ > /#c^h/ as required for an intransitive verb. Hence, if there is actually any sporadic or irregular change /r̥/ > /š/ in any variety of Nivkh at all, it is in fact vanishingly rare, and a persuasive case for it has never been made in published literature.

2.2. Vocalic innovations in Western Nivkh

2.2.1. Vowel raising. Among vowel correspondences, we have been able to establish that, as shown in the data reported in Savel’eva and Taksami (1965, 1970), ESN /a/ corresponds normally to AN /ə/ whenever this vowel appears adjacent to or tautosyllabic with a velar, except where it is also adjacent to or consyllabic with a postvelar, lowered subject to vowel harmony, or in a recent borrowing. Examples of this include AN /ɣəru-ɟ/ < > ESN /ɣaru-nd/ “to hold (v.tr.)”; AN /kədr/ < > NSN /kəṛ/ < > ESN /kadṛ/ “back of the body”; AN /kəlmr/ < > ESN /kalmṛ/ “board (n.)”; AN /kəpr-ɟ/ < > ESN /kapr-d/ “to stand”; AN /kər-ɟ/ < > ESN /kar-d/ “to stay”; and AN /cəx/ < > ESN /cax/ “treetop” (all AN & ESN forms from Savel’eva & Taksami, 1965; 1970; NSN form from Fortescue, 2016), though very many others can be found. Note however, that there are a few cases, often doublets, in which this change in AN does not apply, as e.g.: /lax/ “cloud” beside /ləx/ “rain” (Savel’eva and Taksami, 1965); such cases most likely represent intra-Nivkh borrowing between varieties. There may be other correspondences of AN /ə/ < > ESN /a/, but they are relatively fewer, and if they are regular at all, we have not been able to determine what other environments condition them.

2.2.2. Root-final vowel centering. A second possible vocalic development specific to the WN group may be worth noting here, although its exact conditioning environment is difficult to completely define at this stage: Proto-Nivkh /*i/, while still reflected as /i/ in ESN, NgN, and SSN, seems to generally be centralized to /ə/ in WN varieties in the environment /t_+ / in non-initial syllables. This is observable in pairs such as WN /itə/ < > NSN /itə/ < > ESN, SSN /iti/ “mouth”; WN /oŋtə/ < > ESN, SSN /oŋqti/ “buttocks,

anus”; WN /c^hitə/ < > ESN, SSN /c^hati/ “well, spring”; WN /k^hutə/ < > NSN /kuti ≈ k^huci/ < > ESN, SSN /k^huti/ “hole”; and WN /hətə/ < > ESN, SSN /huti/ “center” (listed in Austerlitz, 1983, p. 85, with the AN forms confirmed in Savel’eva and Taksami, 1970, the NSN forms from Fortescue, 2016, and the ESN, SSN forms corroborated in either NgN in Tangiku et al., 2008, ESN in Savel’eva and Taksami, 1970, or both). Austerlitz, however, hypothesizes that these words may all represent compounds with the same second element (meaning perhaps “hole”), so we would add two additional pieces of evidence to bolster the claim for this as a true sound law and not an idiosyncratic change in a single morpheme: Savel’eva and Taksami (1970) also gives AN /patə-βatə-gu-r/ beside ESN /patiŋ-βatiŋ-gu-r̥/ “quietly, secretly”, along with AN /patə=jo-ʃ/ “Hush!” and ESN /patiŋ-d/ “to be quiet”, with Tangiku et al. (2008) corroborating NgN /pati-r̥/, /pati-gu-r̥/ “secretly”, clearly showing this correspondence in a morpheme other than Austerlitz’ hypothetical element. Secondly, although we failed to find any further intra-Nivkh cognate sets showing this correspondence with both WN and ESN or SSN forms reported, we would point out that surveys of large samples of WN data (such as all the examples given in Shiraishi, 2007, for instance), show that /i/ in this environment is extremely rare, while /Cə+ / in non-initial syllables is specifically /tə+ / (or the allophonically equivalent /də+ /) a high percentage of the time, which supports PN /i/ > WN /ə/ in this environment, albeit tentatively and circumstantially. All that being said, there are also remaining ambiguities, since there are at least a small number of cases where instead PN /ti/ > WN /ci/ even morpheme-finally in non-initial syllables, where we would expect this /*i/ > /ə/ to operate instead, such as AN /p^hoci/ < > NgN /p^hoti/ “rope” (Savel’eva & Taksami, 1970; Tangiku et al., 2008). Also, there are at least some cases of WN /a/ rather than /ə/, such as the basic AN verb corresponding to the set given above, reported as /pata-ʃ/ “to be quiet”, rather than the expected /*patə-ʃ/, which would agree with the other reported forms in the same volume.

2.2.3. Optional elision with compensatory lengthening. Finally, the WN group is also characterized by a well-documented sound change which occurs in free variation with the unaffected form: a syllable which has a postvocalic voiced velar or postvelar fricative in the coda may optionally elide this fricative and introduce compensatory vowel lengthening (see, e.g., Shiraishi, 2007 p. 22). This change may also be reflected in a few NgN etyma, such as NgN /pa[:]ž-d/ < > AN /pəyž-ʃ/ “to throw”, reflecting the koine nature of that lect.

3. Innovations in East Sakhalin and South Sakhalin Nivkh

Taking up the subject of South Sakhalin Nivkh, there is one major sound correspondence between SSN and all the other Nivkh varieties which has been mentioned often in the literature, but the history of which is unclear: While all other varieties have five manners of obstruent articulation (viz., aspirated plosive, unaspirated voiceless plosive, voiced plosive, voiceless fricative, and voiced fricative), SSN has only four, lacking an unaspirated voiceless plosive series which contrasts with the voiceless aspirated and voiced series. What has never been addressed, as far as we know, is whether this is the result of SSN having merged the originally separate voiced and unaspirated voiceless series, or whether the development of a distinct voiced articulation is an innovation shared by all the other varieties. Obviously, this distinction holds very major significance for the subgrouping of Nivkh as well as for the reconstruction of PN, but

unfortunately the data at our disposal are extremely scarce, and hence for the present we must remain agnostic.

3.1. Fortition in initial clusters. In addition to these correspondences, we would like to point out two sound changes which appear to be observable in the SSN lect recorded by Austerlitz (1990). Firstly, Austerlitz records that the lect he documents has lost the laryngeal (i.e., lenis-fortis) contrast in the initial obstruent of word-initial obstruent clusters. It seems that the mechanism of this is voicing assimilation: In initial clusters /#CCV/, all Nivkh varieties seem to require that the second obstruent surface as a fricative, and Shiraishi (2007) reports that in WSN, at least, this is always a voiceless fricative, giving /#CF^{-VOICE}V/. In Austerlitz's lect, this environment then creates voicing or fortition assimilation of the initial consonant of the cluster, so that it surfaces as either a fortis plosive or a voiceless fricative, subject to the usual initial consonant alternation. (Note, however, that Savel'eva and Taksami, 1965, 1970, generally transcribe the rhotic in these environments in AN as voiced, contrary to Shiraishi's assertion that in the very closely related WSN variety they should be voiceless; this may reflect an interdialectal difference in phonetics rather than phonemic behavior.) Mattissen (2003, p. 5) asserts that in all Sakhalin varieties, all clusters of plosive plus fricative are voiceless, but it is not perfectly clear what she means by this, since the SSN plosive manner contrast is sometimes reported as being realized as voiceless aspirated versus voiced (e.g., Gruzdeva, 1998) but is elsewhere reported as voiceless aspirated versus voiceless unaspirated (Austerlitz, 1990). Savel'eva and Taksami (1970) seem to suggest by their transcriptions that ESN shows a contrast of fortition or voicing in such clusters, as seen in Table 2 below. However, Tangiku et al. (2008) clearly attest that this shift has also taken effect in NgN, since morpheme-initial consonant clusters in this source always have a fortis initial member.

3.2. SSN and ESN palatal-to-alveolar cluster assimilation. Secondly, Austerlitz (1990) reports that while the variety he describes generally bars homorganic obstruent clusters, a major exception exists for the alveolar point of articulation, within which homorganic clusters are common. Conversely, of the very few heterorganic clusters which he reports as forbidden are all those of the form /ÇT/ or /TÇ/ (i.e., no clusters of an alveolar with a palatal obstruent are permitted). He also reports, regarding the pronominal clitics or bound prefixes, an assimilation /ɲ-/ >> /n-/ and /c^h-/ >> /t^h-/ when the root has an alveolar obstruent or /l/ as its initial segment (all of which is also confirmed by Mattissen as true for SSN). Although this causes Austerlitz's internal reconstruction substantial trouble, the solution seems obvious: SSN has a sound law—still synchronically operational at least in part—shifting all palatal obstruents or nasals to their alveolar equivalents when adjacent to an alveolar obstruent:

$$\begin{aligned} / \text{Ç} , \text{ɲ} / >> / \text{T} , \text{n} / \quad | \quad (+) _ [t^h, d, l] \quad \textit{historically, and synchronically in object/possessor prefixes} \\ / * \text{Ç} / > / \text{T} / \quad | \quad [t^h, d, r, r] _ \quad \textit{historically} \\ / * \text{Ç} / > / \text{T} / \quad | \quad _ [t^h, d, r, r] \quad \textit{historically} \end{aligned}$$

Although this sound law has already been reported as it affects the first- and second-person singular pronominal clitics (see Mattissen, 2003, p. 55, citing in turn Austerlitz as well as Hattori), the fact that it

has also affected clusters internal to a single morpheme is illustrated by several cognates which we were able to find between AN and ESN as recorded in Savel'eva and Taksami (1970) and Austerlitz's material, shown below in Table 2. These cognates also, in fact, suggest that an alveolar nasal can trigger place assimilation in an adjacent original or underlying palatal obstruent / *Ç > T | _n /, and furthermore show that ESN must have, at least to some degree, undergone the same shift, although unlike SSN it retains initial fortition contrast in clusters. The unaffected status of AN is suggested not only by the presence of unshifted cognates, but by the absence of lexemes including /#t^(h)r/ (excluding transparent Russian borrowings). It is worth noting that outside of the object/possessor prefixes, this shift may be a historically closed one (i.e., no longer operating), since Austerlitz reports a Russian loanword which should be subject to it, but evidently has not been affected: /p^hlæçɣ/ "saucer".

Finally, we must add that the data in Tangiku et al. (2008) not only confirm that NgN (perhaps best understood as koineized ESN, as mentioned in Halm, 2017) shares the changes described above, but also allows us to expand what we can say about its applicability to some internal clusters. The PN cluster /*jnt ~ jnd/ is assimilated > NgN /nt ~ nd/ medially, just as in initial position. However, it would seem that PN /*jɳ ~ jɳr/ remains unassimilated as NgN /jɳ ~ jɳr/; note that this distinction between the behavior of /r, ɳ/ in morpheme-internal versus morpheme-initial position actually is not a purely positional variation, since with the exception of recent loans, Modern Nivkh etyma cannot have a fricative as their underlying initial segment, hence examples like /n-ɳu/ "my sled" reflect underlying /nØ_v-t^hu/, to which assimilation >> /nØ_v-t^hu/ is applied first, followed by initial consonant alternation >> /nØ_v-ɳu/. Finally, Tangiku et al. (2008) show that PN /*nš ~ nž/ has been assimilated > NgN /nɳ ~ nr/, while PN /*nc ~ nɳ/ appears to remain unassimilated as NgN /nc ~ nɳ/. Again, this actually does not differ per se from the observable synchronic behavior of the object/possessor prefixes, since there is no prefix /**n-/ which we could observe. More generally, it is worth noting that if the oral obstruents patterned in the same way as the nasals in this regard, (with palatal oral obstruents assimilating to an adjacent alveolar obstruent in *preceding* position when the palatal is a *fricative*, or to an adjacent alveolar in *following* position when the palatal is a *stop*, but not vice versa) would actually be capable of adequately explaining the entire pattern of initial ESN and SSN clusters in /+TT/, but never in /+ÇT/ or /+TÇ/, since the initial member of a word-initial cluster is always a stop, and the second member is always a fricative. Whether this could explain the absence of /ÇT/ and /TÇ/ clusters morpheme-internally, however, is harder to say at our present state of understanding; the exact conditioning of this change in earlier periods must be considered unresolved at present.

Note that our data on this point from Tangiku et al. (2008) are not primarily interpreted based on any substantial number of cognates identifiable in AN or WSN sources for the NgN etyma in Tangiku et al., but rather on which clusters are attested in the corpus and which are unattested. Fortescue (2016, p.4) also explicitly mentions the synchronic sound correspondence here, and again asserts the correct diachronic direction for the shift in his discussion of phonological correspondences. He further adds that /l/ can also count as an alveolar to trigger both this palatal-to-alveolar assimilation and loss of fortition contrast.

AN	ESN	SSN
/c ^h rat/ “wagtail bird”	—	/t ^h rat ^h / “t.o. bird”
/c ^h roβ-š/ “nail”	/t ^h roβ-ɾ/ “nail”	/t ^h roβ-ɾ/ “nail”
/c ^h nox/ “belt, strap, lanyard”	NgN /t ^h noχ/ “whip”	/t ^h noχ/ “t.o. rope”
<i>(Note that this etymon also shows WN /*ox/ > /oχ/)</i>		
—	/traŋi/ “roach (fish), <i>Rutilus rutilus</i> ”	/t ^h raŋ/ “t.o. fish”
/crə/ “path going from village to river”	—	/t ^h ɾəj/ “bridge”

Table 2. Etyma showing initial cluster assimilations in ESN and SSN. The abbreviation “t.o.” is used to stand for “type of.”

3.3. Postvelarization. One final consonantal change which has evidently affected SSN and NgN, but not the older, unadmixed forms of ESN documented in such sources as Savel’eva and Taksami (1965, 1970) and Nakagawa, Sato, & Saito (1993 *non vid.*, reported in Fortescue, 2016), is a shift of the velar fricative /x/ to the postvelar /χ/ in certain clusters following an alveolar or palatal plosive. In both SSN (the following examples are all from Austerlitz, 1990) and NgN, we see that there are no initial clusters of the form /c^(h)x/ or /t^(h)x/ if the following vowel is /a/ or /o/. In fact we can identify a number of cognates with AN, WSN, or unadmixed ESN attesting such a cluster, in which the SSN and NgN forms have shifted /*x/ > /χ/, such as: AN /t^hxərp-c/ < > WSN /t^hxərp-/ (Shiraishi, 2007, p. 56) < > ESN /t^hxərp-t/ < > NgN /t^hχərp-t/ < > SSN /t^hχərp-/ “to forget”; AN /c^hxəmž-ɟ/ < > NgN /c^hχam-d/ “to grip, grasp, squeeze”; ESN /c^hxajφ/ < > SSN /c^hχajφ/ “starfish”; AN /c^hxoqr/ < > NgN /c^hχo[k]ɾ/ “thirty” (in which case we can be confident that the velar fricative is original, based on the forms for “three”); and AN /c^hxopŋ/ < > SSN /c^hχopŋ/ “ski-pole”. Note that for several of these, the AN and WSN data help to confirm an original (or at least not recently changed) velar because this velar has conditioned PN /*a/ > AN, WSN /ə/. Although in SSN this change is restricted to clusters (and possibly to initial clusters) preceding /a/ or /o/, NgN seems to have extended this shift even further, applying PN /*c^(h)x/ > NgN /c^hχ/ regardless of vocalism, as can be seen in AN, WSN, ESN, SSN /c^hxəφ/ < > NgN /c^hχəφ/ “bear (animal)”; and AN, WSN /ŋəcx/ < > NgN /ŋacχ/ < > ESN, SSN /ŋacχ/ “ankle, lower leg, foot”. Note also that we can be rather confident of the direction of this change, since while SSN does not seem to attest /c^(h)x/ or /t^(h)x/ before /a/ or /o/, and NgN seems to attest no clusters of /c^(h)x/ at all, AN and WSN do attest clusters of at least /c^(h)χ/ before /a/ and /o/, such as in AN, NgN, ESN, SSN /c^hχa/ “money, coin” (and its many derivatives); AN /c^hχoj-ɟ/ “to wipe away”; and AN /c^hχoŋdi-ɟ/ “to sink, submerge”, although AN clusters of /t^(h)χ/ are not attested in our data.

We can circumscribe the scope of this sound change with some further evidence: There is evidently no parallel shift of /k/ > /q/, either when preceded by plosives /c, t/, or by fricatives /š, ɾ/, as can be seen in forms such as /maŋk/ “fin”; /maŋk-/ “to pour”; /laŋk-/ “to float or flow”; /nošk-/ “to be narrow”; /mack-/ “to be small”; and /osk/ “front, face” which are each attested across multiple varieties, in both WN (with the shift /*a/ > /ə/ where applicable) and in NgN and SSN.

3.4. The postvelar and the velar. One more sound change which has been reported in the literature, but which appears to be actually incorrect (at least in the strictest sense) is PN /*k^(h)/ > ESN, SSN /q^(h)/ sporadically in the environment of /a/, which Fortescue proposes (2016, p. 5-6). In fact, most of the forms which Fortescue reconstructs which seem to show this correspondence are loans from Ainu, e.g. AN, NSN

/kəj/ “sail (n.)”, ESN /qaj ≈ kaj/ “sail (n.)”, SSN /Gaj/ “sail (n.)”, presumably from Ainu /kaja/ “sail” (Vovin, 1993, p. 24); AN /kəj-re/ “tent flap”, ESN /qaj-re/ “tent flap”, compounded from the same etymon, and hence literally a descriptive compound “sail-door” (i.e., a sail-like door); and AN /kəp/ “bird cherry”, ESN /kap ≈ qap/ “bird cherry”, SSN /q^hap/ “bird cherry” (note also the fortition mismatch in SSN), presumably from Ainu /*-kaop/ attested in /ni:-kaop/ “fruit” (cf. Ainu /ni:/ “tree”). The preponderance of forms in which this change is absent seems to attest that no such sound change as this has ever operated.

4. The origin and loss of the strong and weak contrast in final fricatives

In at least South Sakhalin Nivkh, there exists a phonemic contrast between two distinct classes of fricatives in morpheme-final position, which are referred to as “strong” or “invariant” versus “weak”, “varying”, or “alternating” fricatives, which has been described repeatedly in the literature (Austerlitz, 1956, p. 262 ff.; Mattissen, 2003, p. 40 ff.; Shiraishi, 2007, p. 70 ff.). While the weak final fricatives undergo allophonic variation between voiced and voiceless realizations (voiced when followed across the morpheme juncture by a vowel or a sonorant and voiceless elsewhere), the strong final fricatives are invariantly realized as phonetically voiceless.³ An often-repeated example of a minimal pair is SSN /ŋaφ_s/ “thigh” ≠ SSN /ŋaφ_w/ “nest”; these etyma are homophones in isolation, but differentiated when followed by the interrogative suffix /-i/, as /ŋaφ_w-i/ >> [ŋaβi] “A nest, isn't it?” versus /ŋaφ_s-i/ >> [ŋaφi] “A thigh, isn't it?” (Austerlitz, 1956, p. 262). A second minimal pair reported by Shiraishi is SSN /wax_w/ “hilt” ≠ /wax_s/ “moss”, homophonous in isolation as [wax], but distinguished when preposed as the object of the verb /ŋanɣ-j/ “find”, as /wax_w-ŋanɣ-j/ >> [wayŋanɣj] “find a hilt” ≠ /wax_s-ŋanɣ-j/ >> [waxŋanɣj] “find moss” (Shiraishi, 2007, p. 70-71, citing Hattori), although the SSN etymon for “moss” is transcribed as /waχ/ in Fortescue (2016).

By comparison, this contrast has not been explicitly reported for the other Nivkh varieties (at least in our sources) from direct observation. Mattissen infers its presence in AN from multimorphemic forms given in Savel'eva and Taksami (1965, 1970). However, Shiraishi (2007) specifically tests for the existence of this contrast in the very closely related WSN variety, and finds that it is definitively absent, (with all final fricatives behaving as the weak SSN final fricatives). He attributes the seemingly unpredictable variation in the data used by Mattissen to a combination of possible phonetic free variation in some speakers and inconsistent transcription by Savel'eva and Taksami, an issue which even Mattissen admits undermines her interpretation.

Especially since there is a dispute in the published literature as to whether or not data from AN (the best documented variety lexically) represent the phonemic contrast known to exist in SSN, the list of forms with a final fricative securely assignable to either the weak or the strong class is quite small: Fortescue

³ Another characterization of this contrast (e.g., Mattissen, 2003, p. 40; Shiraishi, 2007, p. 70) is to consider the weak final fricatives to be underlyingly voiced and the strong final fricatives to be underlyingly voiceless, with all fricatives subject to a synchronic rule of devoicing in absolute final position. This is a perfectly reasonable analysis in a purely synchronic perspective, and arguably even a more elegant one than erecting “strong” and “weak” categories which contrast only in morpheme-final position. However, since the voiced–voiceless contrast otherwise occurs only in morpheme-initial position, and since as we show below, the contrast in final fricatives appears to have a separate historical origin from the voicing contrast in initial position, we find it expedient in our diachronic perspective to use separate terminology for the contrast.

(2016) lists just 34, while Shiraishi (2007) adds four more. Fortunately, this very small set provides us with material sufficient to formulate and defend a hypothesis regarding the diachronic origin of this contrast in final fricatives.

Among the 38 etyma are at least two loans: SSN /p^hoś_w/ “cloth, textile”, from a Tungusic source (Fortescue, 2016 offers Manchu *boso* and Ul’ch *busu* “textile” as comparata; see also Vovin, 2018), and SSN /c^haś_s/ “hour”, from Russian *час* [tʃas] “hour, time”. As with the Russian etymon, we can also be quite certain of the direction and period of borrowing for the etymon shared with Tungusic, since the Nivkh varieties show the irregular initial correspondence AN, NSN, ESN /poś/ < > SSN /p^hoś/, rather than the expected AN, NSN, ESN /poś/ < > SSN /**boś/, as well as on the basis of its wide attestation; hence, each of the Nivkh varieties has separately acquired this loan since the breakup of the protolanguage. We observe in this pair that the Russian loan, which has an absolutely final, voiceless fricative in its source, yields a strong final fricative in SSN, while in the Tungusic loan, in which the source has an intervocalic fricative followed by a final vowel, we see that SSN has dropped the final vowel, and yielded a weak final fricative. Based on this pair of examples, we might be provoked to consider the hypothesis that originally final fricatives (which are phonetically voiceless in all Nivkh varieties) have given rise diachronically in SSN to the strong final fricatives, while fricatives in originally nonfinal positions (probably specifically those positions which allophonically voice fricatives synchronically, i.e. in any position except adjacent to a plosive, per Shiraishi, 2007, p. 52 ff.) have given rise to weak final fricatives when the loss of following segments has resulted in them becoming morpheme-final. To consider it from a different point of view, this hypothesis suggests that an originally phonetic contrast between voiced and voiceless fricatives at some diachronic stage became an underlying, phonemic contrast, with the distinction preserved even as the phonetic environment of some fricatives changed, disrupting the original allophony, with underlyingly voiceless fricatives being strong and underlyingly voiced fricatives being weak. This corresponds exactly to the synchronic analysis of the strong-weak contrast expressed in both (Mattissen, 2003) and (Shiraishi, 2007).

This hypothesis finds fairly good support in the corpus of 38 etyma just mentioned, considering its small size. Another highly probable loan is SSN /matawś_s/ “twine”, with the likely source being a Russian etymon with an absolutely final fricative. (Evidently this term has fallen out of use in Russian, but cf. the attestations *mam’yz* {*mat’iz*} “string” and *motuz* “twine” respectively in Belarusian and Ukrainian, Russian’s nearest relatives, as well as *motouz* “string, ribbon” in the more distantly related Czech.) The etymon SSN /waṛ_s/ “blade” may be a compound of /wa/ “sword” and /oṛ/ “edge”, which would suggest that its strong fricative may also have been in absolute final position from a very early date, since all four major varieties attest /oṛ/ with no following segment (Fortescue, 2016).

As far as securely attested weak final fricatives are concerned, a few SSN forms with these segments have cognates in other Nivkh varieties which attest final vowels or sonorants elided in SSN, such as SSN /ŋaφ_w/ < > ESN /ŋaβi/ < > AN /ŋəβi/ “nest”; SSN /aŋχ_w/ “female” beside both SSN /aŋβi/ “wife” and NSN /aŋβej/ “wife”; and SSN /aṛ_w/ < > ESN, NSN /aṛŋa/ “male”. Furthermore, there is at least one weak final fricative for which an original following vowel is not attested, but can probably be etymologically inferred: SSN /wax_w/ “hilt, grip of a knife” is likely a compound of /wa/ “sword” and SSN /gep/ “handle”

(< > AN /kip/ < > ESN /kep/ “handle”), in which case a vowel as well as a consonant following the now-final weak fricative have been elided. Finally, there are several terms with a weak final /φ_w/ which is probably analyzable as the well-documented locative nominalizer, namely /c^hac-φ_w/ “swamp” (AN, NSN, ESN, SSN /c^haχ/ “water”), /da-φ_w/ “house”, /ji-φ_w/ “trail, road”, and /mi-φ_w/ “earth, land, ground” (cf. AN /or-mi/ and /ma-mi/ “clay”, Savel’eva and Taksami, 1970) while there do not seem to be any lexemes with strong final fricatives which could include this suffix, so we can tentatively suggest that this suffix is a phonemically weak fricative in SSN. If this is so, the weakness of the fricative is presumably attributable to an elided following vowel, since it seems quite likely to be etymologically related to the verb AN, ESN, SSN /p^hi- ~ -φi-/ “be at (a place), live at, dwell”.

If we accept this account of the diachronic origin of the strong-weak contrast in final SSN fricatives, then we are led to another question: is the contrast an autapomorphic innovation unique to SSN, which arose after the breakup of Proto-Nivkh? Or had the strong-weak contrast already arisen in PN, with subsequent loss in at least WSN, and perhaps all the other varieties except SSN? Unfortunately, the evidence is entirely unclear. In favor of the latter possibility, we could point out that (as Fortescue, 2016 shows) a majority of the lexemes which are securely attested with weak final fricatives in SSN have perfectly regular cognates in other Nivkh varieties consistently showing no elided segment, with the corresponding fricative uniformly in morpheme-final position. The most parsimonious explanation for this appears to be that the PN antecedents of these etyma already had the fricative in final position, and were already phonemically weak. On the other hand, vowel syncope, although it is generally considered to have played a major role in the diachronic development of Nivkh, both before and following the PN stage, is not at all well understood, and it is possible that these etyma represent a morpheme which did in fact have a final vowel in PN, which has become subject to parallel deletion in all daughter lects. Moreover, if the loss of the strong-weak contrast in final fricatives were a shared innovation of all the non-SSN Nivkh varieties, this would seem to imply that the primary genetic division within the family is between SSN on one side and a “Northern” clade containing all the remaining varieties on the other side—a situation which seems to be belied by the sound change shared by SSN and ESN, but not AN, WSN, or NSN (the place-assimilation of alveolars and palatals in clusters). We might, however, instead posit a wavelike spread of the loss of the strong-weak contrast across the non-SSN varieties, or perhaps even independent innovation, nullifying the classificatory issue. There is simply too little evidence, and the phonological developments since Proto-Nivkh are simply too poorly understood, to defend a conclusion in either direction. For the time being, reconstructions of Proto-Nivkh both with and without the strong-weak final fricative contrast must equally be considered plausible, but provisional.

5. Phylogeny

Now that we have some preliminary understanding of the regular sound changes which have affected various Nivkh varieties, an opportunity is available to see whether we can draw any conclusions regarding the phylogeny of the Nivkh language family.

Clearly, as has been previously observed (e.g. Gruzdeva, 1998; Shiraishi, 2007), AN and WSN are very closely related. They share a number of innovations: palatalization of both the alveolar nasal and alveolar

oral obstruents before front vowels (although there may be a distinction between phonemic, merging palatalization of oral obstruents in AN and purely phonetic, non-merging palatalization of the oral obstruents in WSN); the phonetic but not morphophonemic merger $/*w/ > [\beta]$ in the syllable onset; the shift $/*a/ > /ə/$ in the environment of velars; the shift $/* a, i, u/ > /ə/$ before a glide (Halm, 2017); the shift of PN $/*\chi/ > /x/$ in the coda of a syllable headed by $/o/$; the shift of clusters $/* mx, m\chi, \eta q/ > /\eta k/$; the optional conversion of postvocalic $/\gamma, \varkappa/$ to vowel length; and the centering of PN $/*i/ > /ə/$ after $/t/$ in certain environments.

Although we must speak with severe reservations due to the paucity of data at our disposal, it seems that the North Sakhalin variety shares at least some of these sound changes, but not others. It shares the merger of $/*w/ > [\beta]$, the shift of $/*a/ > /ə/$ in the environment of velars, and the shift $/*a, i, u/ > /ə/$ when followed by a glide. NSN does not appear to have been affected, however, by the shift of $/*mx, m\chi/ > / \eta k, \eta q/$, the shift $/*\chi/ > /x/$ in the coda of a syllable headed by $/o/$, or the optional conversion of postvocalic $/\gamma, \varkappa/$ to vowel length. The data are insufficient at present to determine whether NSN has been affected by the centering of $/*i/ > /ə/$ after $/t/$, or the shift $/*\eta q/ > / \eta k/$. By contrast, there does not seem to be clear evidence that NSN shares any sound changes with ESN or SSN. Hence, we would conclude that NSN is a sister branch to WN—that AN and WSN are more recently diverged from one another than they are from NSN, but that WN and NSN are more recently diverged from one another in turn than they are collectively from ESN and SSN—although again with the caveat that very little NSN data is available to us, and that this conclusion may be subsequently overturned by more and better evidence.

On the other side of the family, we see that ESN (in the strict sense, excluding evidence from NgN) and SSN share at least one innovation, namely the place assimilation of palatals to alveolars in clusters. Contrarily, they are also separated by at least two sound laws which apply only to SSN: the loss of fortition contrast in the first member of morpheme-initial oral obstruent clusters, and the shift of PN $/*x/ > SSN / \chi/$ in the environment $/[c^{(h)}, t^{(h)}] _ [a, o]/$. The evidence, then, seems much less decisive for hypothesizing a branch of Nivkh which would include ESN and SSN to the exclusion of AN, WSN, and NSN: such a branch could be a historical reality, attested by their single shared sound change, but this change could also have spread by diffusion following an earlier divergence.

We must also wrestle with the significance of two differences which set SSN apart from all the other varieties, namely the lack of contrastive voiceless unaspirated plosives in SSN (resulting in four contrastive oral obstruent manner series in SSN, rather than five in all the other varieties), and the attestation of the strong-weak contrast in final fricatives in SSN, compared to its probable non-attestation in all other varieties. These differences seem to suggest *prima facie* that ESN, NSN, and WN all form a “Northern” branch of Nivkh opposed to SSN. However, the evidence is far too murky to strongly support this hypothesis: the former of these two differences is explained just as well by a *loss* of the contrastive voiced unaspirated plosives in SSN as by a shared *development* of this series in the other varieties, and, as discussed just above, the situation of the strong-weak final fricative contrast is amenable of multiple interpretations. Moreover, as we have mentioned, the sound change shared by SSN and ESN would contradict a primary Northern – South Sakhalin split within the family. It seems that we must remain agnostic for the present as to whether ESN is more closely related to SSN, or more closely related to AN, WSN, and NSN, or whether

the primary division of the family is tripartite, and *pari pasu*, as to which of the sound changes in question which would appear to support these groupings might have spread by diffusion.

Finally, it seems that we can say pretty clearly that the NgN variety, as represented in Tangiku et al. (2008), represents a koineized lect based on ESN, sharing phonological isoglosses with all members of the family. This variety shares the merger */*w/ > [β]* in the onset with the Northwestern group (as well as at least occasional loss of a postvocalic back fricative with compensatory vowel lengthening), the assimilation of palatals to alveolars in clusters with older ESN and SSN, and the loss of fortition contrast in the first member of initial obstruent clusters, as well as the shift of PN */*x/ > /χ/* in the environment */[c^(h), t^(h)] _ [a, o]/*, exclusively with SSN, all while failing to show the other sound changes distinctive of AN, WSN, NSN, or ESN.⁴

6. Summary

We have considered evidence for a number of regular sound changes which separate the modern, attested varieties of Nivkh from Proto-Nivkh, as well as some sound changes which have been supposed by previous authors, but turn out to have poor support from the data. We have also considered the status of the strong-weak contrast in morpheme-final fricatives, and finally, briefly discussed the phylogeny of the Nivkh varieties on the basis of shared sound changes; we have concluded that a Western Nivkh branch including the Amur and West Sakhalin varieties is well-supported, as is a broader Northwestern Nivkh branch which encompasses Western Nivkh and North Sakhalin Nivkh as its two divisions. We also have found good support for interpreting the Nogliki variety attested in Tangiku et al. (2008) as a koine based on ESN, but showing a blend of the phonological features of all varieties. We presently remain agnostic with regard to whether the primary split within Nivkh is bipartite with the South Sakhalin variety on one branch, against Northwestern Nivkh and East Sakhalin Nivkh together on the other, or bipartite with Northwestern Nivkh on one side against a South Sakhalin–East Sakhalin branch on the other, or tripartite, with Northwestern, East Sakhalin, and South Sakhalin as its three branches.

We hope that these findings will enable more precise reconstruction of Proto-Nivkh, as well as better identification of lexemes which have been loaned into Nivkh from its unrelated neighbors, or vice-versa. The regular sound changes for which we find evidence sufficient to make adoption as at least a working hypothesis useful include:

Affecting NSN, WSN, and AN (but not ESN or SSN)

PN */*a/ > AN, WSN, NSN /ə/*: *consyllabic with or adjacent to a velar, and not also adjacent to or consyllabic with a postvelar, or prohibited by vowel harmony*

PN */* a, i, u / > AN, WSN, NSN /ə/*: *when followed directly by a glide, and not adjacent to or consyllabic with a postvelar, or prohibited by vowel harmony (see Halm, 2017)*

⁴ Interestingly, however, NgN seems to be relatively more homogenous lexically, attesting */niβyŋ/* “person”, */raŋq/* “woman”, */eβŋ/* “child”, */c^hχaŋ/* “firewood, lumber, timber”, */nin/* “we (exclusive)”, */c^hin/* “you (plural)”, */jaŋ/* “he/she/it”, and */in/* “they”, which are documented elsewhere (Savel’eva and Taksami, 1965; 1970; Gruzdeva, 1998) as restricted to ESN, or to SSN, ESN, and NSN (in the case of the pronouns), exclusive of AN, but seems to lack any comparable representation of distinctively WN lexis.

PN /*w/ > AN, WSN, NSN [β]: *in the syllable onset; also affects NgN*

Affecting WSN and AN (but not ESN or SSN, with uncertain applicability to NSN)

PN /*i/ > AN, WSN /ə/: *following /t/, in at least absolute final position*

PN /*ŋq/ > AN, WSN /ŋk/: *at least morpheme-finally, perhaps in all positions*

Affecting WSN and AN (but not NSN, ESN, or SSN)

PN /* mx, mχ / > AN, WSN /ŋk/: *at least morpheme-finally, and perhaps in all positions; probably through intermediate /* ηx, ηχ / > /*ηk, ηq/*

PN /*χ/ > AN, WSN /x/: *in the coda of a syllable headed by /o/*

PN /*V[γ,β]/ > AN, WSN / V[γ,β] ≈ V: /: *occurring in free variation; also affects NgN at least rarely*

PN /*n/ > AN, WSN /ɲ/: *before / i, e /*

Affecting only AN (and not any other variety)

PN /*t, d/ > AN /c, ʃ/: *before / i, e /, at least orthographically*

Affecting ESN and SSN (but not AN, WSN, or NSN)

PN /* c^h ~ ś, c ~ ʃ ~ ź, ɲ/ > ESN, SSN / t^h ~ ɾ, t ~ d ~ r, n/: *in clusters with an alveolar (see above for exact conditioning); also affects NgN*

Affecting SSN (but not AN, WSN, NSN, or ESN)

PN /*#C^{LENIS}C/ > SSN /#C^{FORTIS}C/: *also affects NgN*

PN /*x/ > SSN /χ/: *in / [c^(h), t^(h)] _ [a, o] /; also affects NgN, where it is also extended to affect any /c^(h) _ /*

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