

The transitive linker in Upper Chehalis (Salish)¹

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1 Introduction

Upper Chehalis (q^way'áyitq') belongs to the Salish family and is the best-studied language of its Tsamosan branch. It was formerly spoken in central Washington State, USA. Most information about this language comes from the work of M. Dale Kinkade (see references). Like all Salish languages, Upper Chehalis is predominantly suffixing and has a rich system of transitive suffixes. The morphological structure of predicates is illustrated below.²

- (1) *s-tač'-áx^w-n* 'get home', INTR CONT (no. 855)
CONT-return-house-3S.CONT
prefix-root-lexical.suffix-grammatical.suffix

¹ I owe thanks to Prof. Aert Kuipers and Hank Nater for their comments on an earlier version of this paper. Any errors and misinterpretations remain my responsibility.

The transcription used in this paper follows the Americanist tradition and includes the following symbols: *c* = voiceless coronal affricate, *š, č* = voiceless palato-alveolar fricative and affricate, respectively, *ɬ'* = glottalised lateral affricate, *t* = voiceless lateral fricative, *q* = postvelar plosive, *x, x̣* = velar and postvelar fricatives, respectively, *y* = palatal glide, superscript ^w = labialisation and apostrophe ' = glottalisation. 'C' stands for any consonant and 'V' for a (full) vowel. Apart from plain and glottalised sonorants, the complex consonantal inventory of Upper Chehalis contains voiceless obstruents: plain and glottalised and/or velarised stops, plain or glottalised affricates, fricatives, laryngeal stop ʔ and fricative *h*. The vocalic phonemic inventory consists of *i, u, a, ə*. Mid vowels *e, o* occur marginally, generally as allophones of high vowels. Vowel length is distinctive.

² Unless otherwise indicated, the Upper Chehalis examples data come from Kinkade (1991). Numbers refer to the dictionary page (e.g. 1991: 367), to the dictionary item number (e.g. 1991: no. 1962), to the number in the lexical suffix list (e.g. 1991: LS 182) or the number in the grammatical affix list (e.g. 1991: GA 36). Forms with superscript ^{FB} have been attributed in the dictionary to F. Boas. Unless otherwise stated, examples involve 3SG.S/3O forms. The abbreviations are as follows: DETR = detransitive, DRV = directive, FREQ = frequentative, INDIR = indirective, (IN)TR = (in)transitive, MDL = middle, (N)CONT = (non-)continuative, (N)CTRL = (non-)control, O = object, PASS = passive, PL = plural, REC = reciprocal, REFL = reflexive, SG = singular, S = subject and TOP.O = topical object. Roots and lexical suffixes are underlined.

Lexical affixes, i.e. root-like affixes found in Salish, Chemakuan, Wakashan, Tsimshian and Eskimoan languages as well as in Tarascan (isolate, Mexico), carry specific (conceptual or concrete) lexical meanings. Grammatical affixes express a variety of grammatical notions, such as non-control, voice, transitivity, subject, object, possessive or number.³

Upper Chehalis exhibits vowel-zero alternations in various positions in the word. Kinkade (1993 and 1998, among others) proposes a phonological account of these by means of a typologically rather odd rule of vowel deletion which applies only in closed syllables. In Rowicka (2001*a*) and in this paper, I suggest that vowel-zero alternations in Upper Chehalis in fact involve several distinct patterns that are due to various phonological and morphological factors. In what follows, I focus on the appearance of the vowel *i* (in bold print) exemplified in (2).

(2)	‘watch’	(no. 485)	<i>č’áč-n</i>	TR NCONT
			<i>s-č’áč-i-t-n</i>	TR CONT
	‘boil’	(no. 227)	<i>cəq-staq-n</i>	TR NCONT
			<i>s-cəq-staq-i-t-n</i>	TR CONT
	‘work for’	(no. 2517)	<i>yús-š-n</i>	INDIR CONT
			<i>s-yús-š-i-t-n</i>	INDIR CONT

In previous work on Upper Chehalis, including the (1991) dictionary, the alternating vowel is spelled out as part of the preceding root or suffix. I will argue that it should instead be analysed as a separate TR linker suffix with cognates in other Salish languages. In this paper it is therefore always separated from the preceding morpheme by a morpheme boundary ‘-’.⁴

This paper deals with vowel-zero alternations in Upper Chehalis. However, similar alternations have been reported in Cowlitz, a closely related Tsamosan Salish language, and Kinkade’s (2004: 223) analysis of the phenomenon in this language is analogous to his account of Upper Chehalis. Since the two languages resemble each other strongly in terms of the relevant aspects of the grammar, I predict that the present analysis is applicable

³ For a good overview of the structure of Salish languages, see Czaykowska-Higgins & Kinkade (1998*b*). For a more recent collection of papers on Salish languages, see also Gerdts & Matthewson (2004).

⁴ Under this analysis, most Upper Chehalis roots end in a consonant and have a CVC form, which is in accord with the fact that the canonical root shape in Salish languages is ‘CVC’. Thanks to Prof. Kuipers for reminding me of this fact.

to Cowlitz as well.⁵

Below I will first present evidence for the predictability of the vowel's presence and quality, which a vowel deletion account cannot explain, and identify the morphological and phonological factors that determine its presence or absence. Subsequently, a plausible historical source of the linker vowel will be considered, namely, *-n, the Proto-Salish CTRL marker.

2 Facts

2.1 Preliminaries: CONT VS. NCONT aspect

Aspect distinctions are crucial for all Salish languages, the major division being between CONT and NCONT (or perfective and imperfective). In comparison with other Salish languages, the morphological trademark of Upper Chehalis is the use of **S suffixes** in CONT as opposed to **S clitics** in NCONT, as exemplified below (Kinkade 1991: 367).⁶

- (3) a. *ʔit ʔil'n čn* 'I sang'
 b. *s-ʔil'an-anš* 'I am singing'

2.2 Roots and the linker vowel

Consider the pattern of appearance of the vowel *i* (in bold print) in the TR paradigm below (Kinkade 1991: 367).

- | | | |
|------------------------|------------------------------|-------|
| (4) a. | NON-CONTINUATIVE | |
| <i>ʔit č'áč-c</i> | 's/he watched me' | |
| <i>ʔit č'áč-i-ci</i> | 's/he watched you (SG)' | |
| <i>ʔit č'áč-n</i> | 's/he watched him/her/it' | |
| <i>ʔit č'áč-i-tulʔ</i> | 's/he watched us/you (PL)' | |
| <i>ʔit č'áč-i-cš</i> | 's/he watched him/herself' | REFL |
| <i>ʔit č'áč-i-tm</i> | 's/he was watched' | PASS |
| <i>ʔit č'áč-twali</i> | 's/he watched the other one' | TOP.O |
| <i>ʔit č'áč-tuš</i> | 'they watched each other' | REC |

⁵ On the other hand, Quinalt, another Tsamosan Salish language, does not resemble Upper Chehalis and Cowlitz in the relevant ways: it does not exhibit vowel-zero alternations of the type discussed here, which may be related to the fact that it has a different pronominal system (cf. Rowicka, to appear).

⁶ Following Kinkade (1991), CONT predicates are given here with the prefix *s-*. However, the function of the prefix is uncertain. Since it is often missing in texts, Kinkade (1994) suggests that it may involve a quotation marker, rather than an aspect marker.

b.	CONTINUATIVE	
<i>s-č'áč-i-cal-n</i>	's/he is watching me'	
<i>s-č'áč-i-ci-n</i>	's/he is watching you (SG)'	
<i>s-č'áč-i-t-n</i>	's/he is watching him/her/it'	
<i>s-č'áč-i-tul-n</i>	's/he is watching us/you (PL)'	
<i>s-č'áč-i-cš-tn</i>	's/he is watching him/herself'	REFL
<i>s-č'áč-i-stš</i>	's/he is being watched'	PASS
<i>s-č'áč-twal-n</i>	's/he is watching the other one'	TOP.O
<i>s-č'áč-twal-n</i>	'they are watching each other'	REC

An examination of this paradigm leads us to the following generalisations:

- the linker vowel is absent between the root and 1SG.NCONT.O *-c* or 3SG.NCONT.O *-n*
- the linker vowel is absent between the root and the TOP.O or REC suffix
- the linker vowel is present between the root and other O suffixes, REFL and PASS suffixes

More examples below, unfortunately involving only 3SG.S/3O forms, confirm this pattern.

(5)	TR NCONT	TR CONT	
'stretch a skin'	<i>q^wanax-n</i>	<i>s-q^wanax-i-t-n</i>	(no. 1650)
'help'	<i>tal'ič-n</i>	<i>s-tal'ič-i-t-n</i>	(no. 1878)
'bake in ashes'	<i>ʔacaq^w-n</i>	<i>s-ʔacaq^w-i-t-n</i>	(no. 7)
'kill'	<i>tix^wn-n^{FB}</i>	<i>s-tix^wn-i-t-n</i>	(no. 1963)

Recall from above that the absence of the linker vowel in 3SG.S/3O TR NCONT forms (the left-hand column) is **not** representative for the rest of the NCONT paradigm.

There are also several roots, exemplified below, that do not take the linker vowel at all. See the TR CONT forms below.

(6)	TR NCONT	TR CONT	
'tell'	<i>cún-n</i>	<i>s-cún-t-n</i>	(no. 270)
'give'	<i>čát-n</i>	<i>s-čát-t-n^{FB}</i>	(no. 426)
'scatter'	<i>híc'-n</i>	<i>s-híc'-t-n</i>	(no. 890)
'thank, greet'	<i>c'éw-n'</i>	<i>s-c'éwi?-t-n</i>	(no. 386)

2.3 Linker *i* vs. linker *a*

Riepl (2000) discovers significant regularities in the appearance and quality of the linker vowel. Although the linker vowel between roots and O suffixes

is usually *i*, there are also roots that are followed by *a* instead. Riepl observes that *a* appears only with C \acute{a} C- roots, i.e. biconsonantal roots containing *a*. See the examples below.

(7)	INTR NCONT	TR CONT	
‘release’	<u>ʔáć’-t</u>	<i>s-ʔáć’-a-t-n</i>	(no. 15)
‘rub’	<u>ʔáp’-t</u>	<i>s-ʔáp’-a-t-n</i>	(no. 42)
‘be sewed, sew’	<u>cán-t</u>	<i>s-cán-a-t-n</i> ^{FB}	(no. 202)
‘get sore’	<u>c’áq-t</u>	<i>s-c’áq-a-t-n</i>	(no. 318)

CiC-, CúC- roots and longer roots are followed by *i*, as exemplified below.⁷

(8)	INTR NCONT	TR CONT	
a. CiC-			
‘dig’	<u>cíq^w-t</u>	<i>s-cíq^w-i-t-n</i>	(no. 250)
‘stick under’	<u>ʔ’íx^w-t</u>	<i>s-ʔ’íx^w-i-t-n</i>	(no. 1006)
‘stir up’	<u>míq^{mw}-t</u>	<i>s-míq^{mw}-i-t-n</i>	(no. 1108)
‘lift’	<u>q’íl-t</u> ^{FB}	<i>s-q’íl-i-t-n</i>	(no. 1543)
b. CúC-			
‘put up’	<u>c’úq^{mw}-t</u> ^{FB}	<i>s-c’úq^{mw}-i-t-n</i>	(no. 405)
‘wrinkled’	<u>húm-t</u>	<i>s-húm-i-t-n</i>	(no. 910)
‘swell up’	<u>pús-t</u>	<i>s-pús-i-t-n</i>	(no. 1311)
‘be free, release’	<u>ʔac-tún-t</u>	<i>s-tún-i-t-n</i>	(no. 1985)
c. C \check{V} CC-			
‘accompany’	<u>ʔáy’šn</u>	<i>s-ʔáy’šn-i-t-n</i>	(no. 75)
‘kill’	<u>tíx^wn</u>	<i>s-tíx^wn-i-t-n</i>	(no. 1963)
‘stretch a skin’	<u>q^wánx̃</u>	<i>s-q^wánx̃-i-t-n</i>	(no. 1650)
‘tree falls, fell’	<u>pánp</u> ^{FB}	<i>s-pánap-i-t-n</i>	(no. 1240)

The examples in (9) show that no vowel at all appears after C \acute{a} C- and C \acute{a} CC- roots.⁸

⁷ As pointed out to me by Prof. Kuipers, a small number of roots exhibit variation in the quality of the linker vowel, e.g. *šəni-* ‘husband’ vs. *šaná-* ‘marry’ (no. 1829). This is arguably due to the (stress-related) variation in the preceding root vowel.

⁸ *ɔ* ~ *a* alternations in such forms are discussed in Kinkade (1998) and Rowicka (2001a).

(9)	TR NCONT	TR CONT	
‘clear up’	<u>c'am-én</u>	s-c'ém-t-n	(no. 357)
‘see’	<u>ʔax̣-én</u>	s-ʔáx̣-t-n	(no. 92)
‘tear’	<u>c'ətq^w-n</u>	s-c'ətq ^w -t-n	(no. 219)
‘clean’	<u>ʔəyq-n</u>	s-ʔəyq-t-n	(no. 96)
‘discuss’	<u>č'ən'x̣-n</u>	s-č'ən'x̣-t-n	(no. 460)

Riepl proposes to analyse the appearance of *a*, instead of *i*, as ‘vowel echoing’, following the account of a similar phenomenon in Coast Salish languages in Urbanczyk (1999) (see §3 below).

2.4 Lexical suffixes and the linker vowel

No complete TR paradigm with a lexical suffix is available from the (1991) dictionary. However, the 3O and 3S forms listed there indicate that TR predicates containing lexical suffixes conform to the pattern established above, namely:

- the linker vowel is absent between the lexical suffix and 3NCONT.O -n,
- the linker vowel is present between the lexical suffix and 3CONT.O -t-.

Riepl (2000) observes that, unlike roots, lexical suffixes cannot ‘echo’ their vowels, irrespective of their quality. The following examples show that the linker vowel following lexical suffixes is invariably *i*.

(10)	TR NCONT	TR CONT	
‘boil’	<u>c'əq-staq-n</u>	s-c'əq-staq-i-t-n	(no. 227)
‘fall crosswise’	<u>tíms-yaq-n</u>	s-tíms-yaq-i-t-n	(no. 1951)
‘go after in a canoe’	<u>mát-wil-n</u>	s-mát-wil-i-t-n	(no. 1059)
‘wrap up sth long’	<u>məlk^w-ísaq-n</u>	s-məlk ^w -ísaq-i-t-n	(no. 1082)

As in the case of roots, some stems with lexical suffixes, exemplified below, are not followed by a linker vowel or are listed both with and without it.

(11)	TR NCONT	TR CONT	
‘smother’	<u>c'áč-tnal-n</u>	s-c'áč-tna(l)-t-n	(no. 343)
‘dope, poison’	<u>čín-tnal-n</u>	s-čín-tna(l)-t-n	(no. 467)
‘wash the eyes’	<u>c'ax^w-ális-n</u> ^{FB}	s-c'ax ^w -ális-t-n	(no. 370)
‘wash one’s face’	---	s-c'ax ^w -ús-i-t-n/ s-c'ax ^w -ús-t-n ^{FB}	(no. 370)

2.5 No linker vowel in intransitives

The occurrence of the linker vowel is restricted to TR predicates. Neither

roots nor lexical suffixes are followed by a linker vowel in INTR forms. Consider the paradigm below (cf. Kinkade 1991: 367). In none of the forms in (12) is the root followed by a linker vowel. (12b) also illustrates vowel-zero alternations of another type in between root-final consonants. Such alternations, independent of the presence or absence of the linker vowel, are discussed in Rowicka (2001*b*) and are also briefly considered later in this paper.

(12) a.	NON-CONTINUATIVE
<i>ʔit ʔil'n čn</i>	'I sang'
<i>ʔit ʔil'n č</i>	'you (SG) sang'
<i>ʔit ʔil'n</i>	'he/she sang'
<i>ʔit ʔil'n čł</i>	'we sang'
<i>ʔit ʔil'n čalp</i>	'you (PL) sang'
<i>ʔit ʔil'n yamš</i>	'they sang'
b.	CONTINUATIVE
<i>s-ʔil'an-anš</i>	'I am singing'
<i>s-ʔil'an-š</i>	'you (SG) are singing'
<i>s-ʔil'an-n</i>	'he/she is singing'
<i>s-ʔil'an-stawt</i>	'we are singing'
<i>s-ʔil'an-<u>alp</u></i>	'you (PL) are singing'
<i>s-ʔil'an-<u>it</u></i>	'they are singing'

More evidence that roots in INTR predicates take no linker is presented below.

(13)	INTR NCONT	INTR CONT	
'steal'	<i>ʔik^w tq</i>	<i>s-ʔik^w taq-n</i>	(no. 101)
'bake in ashes'	<i>ʔácq^w</i>	<i>s-ʔácq^w-n</i>	(no. 7)
'snow'	<i>ʔášq</i>	<i>s-ʔášq^w-n</i>	(no. 50)
'cross a river'	<i>tíwt</i>	<i>s-tíwat-n</i>	(no. 1960)

Similarly, no linker vowel follows lexical suffixes in INTR forms:

(14)	INTR NCONT	INTR CONT	
'be surprised'	<i>šap-ínuwt</i>	<i>s-šap-ínuwat-n</i>	(no. 2315)
'dry land'	<i>šəp-áy-tmš^{FB}</i>	<i>s-šəp-áy-tmaš-n</i>	(no. 2315)
'become dry'	<i>šəp-ivq</i>	<i>s-šəp-ivyaq-n</i>	(no. 2315)
'become pregnant'	<i>nəx^w-ł'č</i>	<i>s-nəx^w-ł'ač-n</i>	(no. 1188)
'work on a canoe'	<i>yo·s-uf^{FB}</i>	<i>s-yo·s-wił-n</i>	(no. 2517)

‘sneeze’	<u>ʔáw-q̣s</u>	<i>s-ʔáw-q̣s-t-n</i>	(no. 54)
‘end’	<u>ná-m’-s</u>	<i>s-ná-m’-s-t-n</i>	(no. 1161)

To recapitulate, the evidence adduced in §2 shows that both the presence and the quality of the linker vowel is generally predictable in Upper Chehalis. The linker vowel is restricted to the TR paradigm. It follows the stem consisting of the root with or without a lexical suffix. It is present in most forms of the TR paradigm, except for 1SG.S/3O in NCONT and TOP.O or REC forms in both aspects. The quality of the linker vowel is generally *i*, except after CáC-roots, when the linker ‘echoes’ the root vowel and appears as *a*.

In the following section I develop an analysis of the linker vowel as a TR linker morpheme.

3 The analysis: *-i-* as a TR linker

Given the predictable appearance of the linker vowel, its restriction to TR predicates and its location between the stem and O suffixes, I argue that it is best analysed as a TR linker morpheme, and not part of the root or the suffix that precedes it.

Comparative Salish data add support to this approach. The *i* ~ ‘echo’ *a* ~ \emptyset alternations parallel the behaviour of the vowel in the TR suffix *-Vt-* in Coast Salish languages (cf. Urbanczyk 1999).⁹ Consider the examples from Mainland Comox below, where the default TR suffix vowel is *a*, rather than *i*. Unlike the Upper Chehalis linker vowel, the Comox TR suffix vowel ‘echoes’ any short non-schwa vowel after CVC- roots, not only *a*, and longer schwa-only roots are treated differently than CáC- roots.

(15) Mainland Comox (cf. Kroeber 1989: 110)

a.	echo vowel:	<u>t’ot^θ-ot</u>	‘shoot it’
		<u>ʔep’-et</u>	‘wipe it’
		<u>č’ag-at</u>	‘help him’
b.	no vowel:	<u>səp’-t</u>	‘club it’
		<u>pəx̣-t</u>	‘tear it’
		<u>t’əs-os-t</u>	‘punch him in the face’
c.	<i>a</i> :	<u>č’əp̣x̣-at</u>	‘make it dirty’
		<u>še:p’-at</u>	‘sort it’ (from <u>šəyp’-</u>)

⁹ Echo vowels are not only found in the TR suffix in Coast Salish. Urbanczyk (p.c.) also mentions that echo vowels occur with the MDL suffixes in Lushootseed and Squamish as well as with the PL infix in Comox.

Given the existing parallels, the vocalic alternations in Upper Chehalis could also involve a TR suffix *-Vt-*, analogous to the Mainland Comox suffix in (15) above. Observe that the Upper Chehalis linker vowel is generally followed by *t* or a coronal obstruent at the beginning of O suffixes (cf. (4) above). Such a *t* can be re-analysed as part of the TR suffix, rather than as part of the following O suffix, as has been done so far. The absence of *t* before coronals can be attributed to consonant fusion (cf. Kroeber 1998) or to coronal cluster simplification, attested independently in several Salish languages (cf. Blake 2000).¹⁰ This implies a morphological re-analysis of the TR forms illustrated below.

- (16) *s-č'áč-i-t-n* = *s-č'áč-it-∅-n* 'he is watching him/them'
 CONT-watch-TR-3O-3S
s-č'áč-i-cal-n = *s-č'áč-it-sal-n* 'he is watching me'
 CONT-watch-TR-1SG.O-3S

Such a re-analysis of the Upper Chehalis data entails two claims: for one, *t* is postulated to function as (part of) a TR suffix, separate from any of the O suffixes, and two, the linker vowel and *t* are interpreted as a unit morphologically. As far as the first claim is concerned, this is the diachronic scenario assumed, for instance, in Kroeber (1998). In order to verify its synchronic validity, an in-depth examination of the behaviour of coronal clusters in Upper Chehalis would be necessary and, ideally, of native speakers' intuitions about the morphological composition of TR forms – which is no longer possible. I therefore refrain from making claims here about the synchronic morphological status of *t* as a TR suffix in Upper Chehalis.

As to the second claim formulated above, viz. that the linker vowel and *t* constitute one morpheme, an argument against it is readily available: TOP.O and REC forms (cf. (4) above) do contain suffix-initial *t*, but no preceding linker vowel. If TR *t* can occur with or without a linker vowel, the two do not apparently function as one morpheme. I therefore opt for an analysis of the

¹⁰ Most Upper Chehalis O suffixes listed in Kinkade (1991) begin with *t* or *c*. Kroeber (1998: 426) interprets these suffix-initial consonants as a historical result of the coalescence of TR *t* and the original O suffix-initial *s*. Kinkade (2004: 237) assumes the same interpretation for *c* in the cognate O suffixes in Cowlitz. On the other hand, Nater (p.c.) proposes to reconstruct *c* initially in O suffixes, independently of preceding TR *t*, since *c*, rather than *s*, occurs initially in such suffixes in Salish languages, whether (originally) preceded by TR *t* or not. In this paper I refrain from taking a stand on this issue, while (non-crucially) transcribing the relevant O suffixes with initial *s*, as in (16).

linker vowel as a morpheme independent either of the preceding root or lexical suffix or of the following suffix *t*.

The function of the TR linker vowel no longer seems transparent. It clearly is restricted to TR predicates, but it is not obligatory for all TR forms. Few pairs of alternative forms with or without the linker are available (such as the last example in (11)), but no semantic or functional differences between them have been reported. If *t* itself is a TR suffix, it is problematic to identify the (sometimes) co-occurring linker as another TR suffix. I have therefore chosen to label it a ‘TR linker’ vowel, a linking morpheme occurring in TR forms, without any morphologically transparent function.

In the following section I suggest a plausible historical source of the Upper Chehalis TR linker vowel, namely the Proto-Salish CTRL suffix **-n*. The loss of the CTRL category in Upper Chehalis accounts for the obliteration of the function of the linker vowel.

4 The source of the TR linker

4.1 (N)CTRL in Proto-Salish

Since Thompson (1979), (N)CTRL has been recognized as an important grammatical category in Salish languages, closely interacting with, among others, transitivity. Thompson & Thompson (1992: 51) explain the difference between CTRL and NCTRL predicates as follows. In the former, “the agent functions with usual average capacities in keeping things under control”, while the latter involve “not only unintentional, accidental acts, but also intentional, premeditated ones which are carried out to excess, or are accomplished only with difficulty, or by means of much time, special effort, and/or patience, and perhaps a little luck”.

Researchers trace the distinction back to Proto-Salish, where TR suffixes carried information about the (N)CTRL status of the agent. It is usually assumed that TR **-nəw* implied its NCTRL status, while the agent’s CTRL status was expressed by the CTRL marker **-n* followed by TR **-t* (cf. Thompson 1976 and Czaykowska-Higgins & Kinkade 1998*b*, among others). On the other hand, Kuipers (p.c.) is of the opinion that it was **t* that functioned as the CTRL marker.¹¹ In this paper I, non-crucially, adopt the former analysis. Reflexes of both suffixes can fairly convincingly be identified in many present-day Salish languages, although their current function and meaning are not always transparent. CTRL **-n* can be shown to have given rise to

¹¹ As van Eijk (this volume) observes, Salish languages may differ in the precise function of the CTRL category, which maybe one of the reasons behind controversies among linguists.

vocalic alternations reminiscent of the Upper Chehalis alternations under consideration in this paper.

Below I will briefly review some relevant facts of present-day Thompson Salish (Interior Salish) and Upriver Halkomelem (Central Salish), before returning to the Upper Chehalis data.

4.2 Thompson Salish (Interior Salish)

Thompson has a CTRL marker referred to as ‘directive’ (DRV) and represented as //*-n-*//. It appears in front of the TR suffix *-t-* which itself is unmarked for CTRL. DRV surfaces as *n* or *e*, as illustrated below:

- | | |
|--|--|
| (17) <i>kic-n-e</i>
<u>visit-DRV</u> -1SG.S(+3O)
‘I visit him/her’ | <i>səlk-e-t-éne</i>
<u>turn-DRV-TR</u> -1SG.S(+3O)
‘I turn it’ |
|--|--|

Although the CTRL distinction is being lost in the language and analogical developments tend to unify paradigms (cf. Thompson & Thompson 1992), the following generalisations can be made about the distribution of DRV.

- DRV appears as *n*:
 - after (accentually) strong roots ending in vowels throughout the paradigm (cf. (18a)),
 - after other strong roots in 1SG.S-3O and in 2SG.S-3O (cf. (18b));
- DRV appears as *e*:
 - after strong roots in the rest of the paradigm (including **REFL and REC**; cf. (18c)),
 - after weak CəCC- roots throughout the paradigm (cf. (18d))
 - regularly in **REFL and REC** forms after weak CəC- roots (cf. (18e));
- DRV is absent:
 - in the rest of the paradigm after weak CəC- roots (with frequent alternate pronunciations possible; cf. (18f)),
 - after ‘root stems’, mostly with an inherent CTRL semantics, e.g. *kən-* ‘help’, *nés-* ‘take sb somewhere’ (cf. (18g)); of **REFL and REC** forms, only ones with ‘root stems’ show optional variants with or without DRV (cf. (18h-i)).¹²

Examine the following examples (from Thompson & Thompson 1996).

¹² REFL and REC are formed on transitive stems, but take intransitive pronominal enclitics. This can be related to their deviant behaviour with respect to the DRV.

(18)	a.	<i>ʔiʔe-n-e</i>	‘I sing a lullaby to him/her’	p. 549
	b.	<i>kíc-n-x^w</i>	‘you-SG visit him/her’	” ” ”
	c.	<i>kíc-e-t-m</i>	‘we visit him/her’	” ” ”
	d.	<i>səlk-e-t-éne</i>	‘I turn it’	” ” ”
	e.	<i>xəc-e-t-wáx^w</i>	‘bet with one another’	p. 420
	f.	<i>xəc(-e)-t-és</i>	‘bets with someone’	” ” ”
	g.	<i>kən-t-éne</i>	‘I help him/her’	p. 548
	h.	<i>kən(-e)-t-wáx^w</i>	‘help each other’	p. 90
	i.	<i>kən(-e)-cút</i>	‘help oneself’	” ” ”

While there are several differences between the distribution of DRV in Thompson and the TR linker in Upper Chehalis, there are also some significant similarities, namely:

- the general absence of the TR linker and DRV after C3C- roots
- the tendency for REC (and REFL, in Thompson) to exhibit special behaviour...
- ... although in the opposite direction: DRV is usually present in those forms in Thompson, while in Upper Chehalis the TR linker is absent.

The *n* ~ *e* alternation in Thompson reflects a more general process of nasal-to-vowel shifts, which takes place, roughly speaking, in consonantal clusters. They are attested diachronically in Interior Salish languages and still synchronically active in some of them (cf. Kinkade 1982, Carlson 1976a, Czaykowska-Higgins & Kinkade 1998b and other references therein).

4.3 Upriver Halkomelem (Central Salish)

The relevance of the (N)CTRL category and the special behaviour of REC (and REFL) forms is also evident in Upriver Halkomelem. According to Galloway (1993), all TR verbs in this language are marked for (N)CTRL. Information about the degree of the agent’s CTRL over the action is expressed by TR suffixes, including CTRL TR *-(ə)T* ~ *-əT* ~ *-á(·)T* ~ *-é(·)T* ‘do purposely to sb/sth’, cognate to the Mainland Comox suffix *-Vt-* considered earlier in this paper.

Interestingly, no TR suffixes co-occur with either the REFL or REC suffixes. Galloway observes that there are two REFL suffixes that can be argued to differ with respect their (N)CTRL status. Examples containing one are consistent with NCTRL semantics, while most (but not all) predicates with the other suffix have CTRL semantics.

In other words, suffixes such as REFL or REC could either have inherent (N)CTRL properties that made additional marking by means of specialised

suffixes superfluous, or they contained such suffixes.¹³ With the (N)CTRL distinction being lost nowadays, the logic behind the use of overt (N)CTRL marking in TR predicates is also becoming obscure.

4.4 (N)CTRL in Upper Chehalis

Tsamosan Salish languages, including Upper Chehalis, seem to have lost the Proto-Salish NCTRL.TR suffix **-nəx^w* completely (cf. Kinkade 1993). The PASS suffix *-tač̥i* has been identified as NCTRL in Upper Chehalis, but other than that, hardly any role of the (N)CTRL category can be recognised.

Thompson (1976) observes that what looks like aspect-related allomorphy of Upper Chehalis INTR suffixes resembles the contrast in terms of CTRL elsewhere in Salish. However, Kinkade (1993) points out a problem in trying to analyse the Upper Chehalis data along the same lines as Thompson Salish. The *n ~ e* alternations in Thompson, illustrated in (18) above, could be attributed to a more general nasal vocalisation process, well attested in Interior Salish languages. However, there is no independent evidence for such a process in Tsamosan languages. Hence nasal vocalisation affecting CTRL **-n* can hardly be argued to be the source of the Upper Chehalis TR linker *-i-*.

In the following section I propose a historical scenario according to which the TR linker *-i-* could have developed from CTRL **-n* by a process other than nasal vocalisation.

4.5 The source of *-i-*: Proposal

I suggest that the appearance of the vowel and the loss of the nasal consonant in the Upper Chehalis reflex of the Proto-Salish CTRL suffix **-n* were due to separate processes. The former, I propose, involved vowel epenthesis to break up a consonantal cluster at a stem edge, while the latter was a case of coronal cluster simplification.

In Rowicka (2001*b*), I argue that many vowel-zero alternations in roots as well as lexical suffixes in Upper Chehalis are due to a process of vowel epenthesis at certain morphological junctures, both in TR and INTR predicates. Consider first the INTR forms in (19) below. The alternating vowels are in bold.

¹³ As Nater (p.c.) points out, the CTRL category is fairly well preserved in Bella Coola (Nuxalk), the northernmost Salish language. Nater (1984) mentions a *-t/-n* distinction in TR marking, with *-t* indicating more control than *-n*; *t* and *n* occur initially in many suffix pairs that differ in terms of CTRL, including REFL *-tmax^w* vs. *-nmax^w*.

(19)	NCONT	CONT	
‘sing’, 1SG	<i>ʔit ʔil'n čn</i>	<i>s-ʔil'an-anš</i>	(1991: 367)
‘sing’, 2SG	<i>ʔit ʔil'n č</i>	<i>s-ʔil'an-š</i>	(1991: 367)
‘be surprised’	<i>šap-ínuwt</i>	<i>s-šap-ínuwat-n</i>	(no. 2315)
‘become dry’	<i>šəp-iyq</i>	<i>s-šəp-iyaq-n</i>	(no. 2315)

Word-finally, roots and lexical suffixes in the NCONT forms in (19) end in consonantal clusters. These clusters are broken up by a vowel (with few exceptions, *a*) when the same morphemes are followed by S suffixes in CONT. Similar epenthesis is attested in roots and lexical suffixes in TR predicates.

(20)	INTR NCONT	TR NCONT	TR CONT	
‘bake in ashes’	<i>ʔácq^w</i>	<i>ʔácaq^w-n</i>	<i>s-ʔácaq^w-i-t-n</i>	(no. 7)
‘stretch a skin’	<i>q^wánx̄</i>	<i>q^wánaš̄-n</i>	<i>s-q^wánaš̄-i-t-n</i>	(no.1650)
‘boil’	---	<i>cəq-staq-n</i>	<i>s-cəq-staq-i-t-n</i>	(no. 227)
‘fall crosswise’	---	<i>tíms-yaq-n</i>	<i>s-tíms-yaq-i-t-n</i>	(no.1951) ¹⁴

In the above examples, vowel epenthesis affects lexical morpheme-final clusters when grammatical suffixes follow: 3O *-n* in NCONT forms or the TR linker *-i-* in CONT forms.

In Rowicka (2001*b*), such epenthesis is proposed to be triggered by a prosodic well-formedness condition. It imposes a certain syllabic shape on the base to which grammatical morphemes, such as S suffixes, are attached in Upper Chehalis. The base contains lexical morphemes, i.e. the root and lexical suffixes, if any.¹⁵ It is preferably required to end in a well-formed ‘CVC’ syllable. Base-final clusters are therefore split up by an epenthetic vowel.¹⁶ Epenthesis is activated only in the presence of the following grammatical morpheme. Word-finally, when no overt suffixes follow the lexical base, clusters remain intact.¹⁷

¹⁴ For a vowelless form of the same lexical suffix, see (19).

¹⁵ For the significance of the distinction between lexical vs. grammatical morphemes in Salish and a discussion of the phonological and morphological domain structure, see Czaykowska-Higgins (1998).

¹⁶ The requirement holds on the structure of the base that **enters** suffixation, which can differ from the surface syllable structure, depending on whether the suffix attached begins with a vowel or a consonant.

¹⁷ Evidence for similar prosodic well-formedness conditions, requiring the affixation base to have a certain syllabic shape or a specific stress pattern, has been found in a large number of the world’s languages. They can be activated by classes of morphemes or by individual affixes. Within the framework of Optimality Theory, these

In this paper, I suggest that a similar epenthesis process affected CTRL **-n*, resulting in *-Vn-*, when TR **-t-* and O suffixes followed. It was triggered by an analogous requirement on the suffixation base, to which TR **-t-* was attached, to end in a ‘CVC’ syllable. This is schematically represented below, where ‘[]’ mark the edges of the relevant prosodic domain.¹⁸ 2SG.O suffix *-ci* results from fusion of TR **-t-* with the original 2SG.O suffix **-si* (see, however, fn. 10 above).

- (21) $\check{c}'á\check{c}-i-ci$ ‘he watched you (SG)’
 [ROOT-CTRL]-TR-2SG.O
 [.....-n]-t-si
 ↓ ↓ vowel epenthesis, consonant fusion
 ...Vn-ci

This line of analysis can account for the presence of a full vowel, referred to as the TR linker in this paper, between the lexical morpheme(s) and (TR+)O suffixes.

The disappearance of the nasal consonant of the CTRL suffix before O suffixes, I suggest, could be due to an independent process, namely, coronal cluster simplification. Such a process is synchronically attested in several Salish languages and usually affects coronal consonants in grammatical morphemes in morphologically derived environment, i.e. across morphological boundaries (cf. Blake 2000). Since TR **-t* and the relevant O suffixes all contain coronal consonants, their suffixation after CTRL **(V)n-* would always produce the context for the application of coronal cluster simplification in Upper Chehalis. It is unfortunate that, with no native speakers left, it is hardly possible to study the behaviour of coronal clusters in Upper Chehalis and find evidence in favour of the proposed scenario for the historical development of the TR linker vowel.

An interesting issue concerns the quality of the TR linker vowel. Recall that the vowel epenthised into lexical morphemes is generally *a* (cf. (19) above). On the other hand, the TR linker, which has also been argued to re-

conditions have been formulated as ALIGNMENT constraints (cf. McCarthy & Prince 1993).

¹⁸ A predicate with a CVCC- root followed by CTRL **-n* and TR **-t-* plus O suffix, e.g. *s-ʔácaq^w-i-t-n* ‘bake in ashes’ (cf. (20)), would have a nested domain structure, i.e. [s [[[ʔácaq^w] n] t-n]]. The requirement on domain-final ‘CVC’ would apply twice and result in double epenthesis: *a* between the root-final consonants *c* and *q^w* (triggered by the presence of **-n*) and *i* before CTRL **-n* (triggered by following TR **-t-*).

sult from epenthesis, is *i*. This difference may reflect an asymmetry between lexical and grammatical morphemes in Upper Chehalis. Other languages of the world have also been reported to use more than one vowel quality for epenthetic vowels under specific conditions (cf. Rowicka & van de Weijer 1994 on Polish). In Upper Chehalis, epenthesis under stress results in an as yet different vowel quality, namely ə (cf. Kinkade 1998 and Rowicka 2001a). The above proposal predicts that other vowels epenthesised into grammatical morphemes in Upper Chehalis will also be *i*.

An alternative explanation for the *i* quality of the TR linker vowel is available under a theory of segmental structure that assumes the same set of elements to describe both consonantal and vocalic melody, such as Government Phonology or Dependency Phonology. Within such frameworks, the coronal place of articulation is represented by the same element 'I' that defines the vowel quality *i*. The deletion of the coronal nasal in CTRL $*(V)n$ -delinks this element and makes it available for re-association to the epenthesised vowel. The latter approach predicts that a deleted consonant can determine or influence the quality of the neighbouring epenthetic vowel.

The choice between the two approaches requires additional study that goes beyond the scope of this paper. I therefore leave it for future research.

4.6 Forms without *-i-*

The primary context where the TR linker is systematically missing involves schwa-only roots. I suggest that vowel epenthesis is blocked in such contexts in order to avoid an infelicitous situation where (lexically determined) stress falls onto the root schwa in the presence of a full (epenthesised) vowel, which would make a better peak, in the same domain. This is related to the prosodic deficiency of schwa compared to full vowels, evidence for which can be observed throughout the Salish language family.¹⁹

The TR linker vowel is also regularly absent in REC and TOP.O forms in Upper Chehalis. REC (and REFL) forms have been observed to exhibit deviant behaviour in this respect in Thompson Salish and Upriver Halkomelem (cf. §4.2 and §4.3 above). For Upriver Halkomelem, Galloway suggests that REC and REFL suffixes carried (N)CTRL meaning, which made additional overt (N)CTRL markers superfluous. I propose an analogous explanation for REC and TOP.O forms in Upper Chehalis. They lack the TR linker vowel because

¹⁹ The deficient stress behaviour of schwa as opposed to full vowels can be traced back to Proto-Salish. See the distinction between 'strong' roots with full vowels and 'weak' roots with schwa, pointed out in Thompson (1979: 721).

they historically lacked CTRL *-*n*. The REC and TOP.O suffixes followed TR *-*t*- alone because they themselves carried CTRL meaning.²⁰

As far as the absence of the TR linker vowel in 1SG.NCONT.O and 3SG.NCONT.O is concerned, I opt for a phonological explanation. The fact that the linker vowel is present in CONT forms but absent in NCONT forms in the same persons undermines the plausibility of a morphological account. Consider first the 3SG.NCONT.O form (*?it*) *č'áč-n* 'he watched him/them'. It ends in the suffix -*n* that has synchronically been re-analysed as the 3O marker. The suffix in fact goes back to CTRL *-*n*. Such 3O forms contained neither an overt O marker nor TR *-*t*- at all. Since no suffixes followed CTRL *-*n*, the conditions were not met for vowel epenthesis before *n* and no linker vowel is attested synchronically. The CTRL marker itself, -*n*, has been reinterpreted as the 3O marker.

The absence of the TR linker vowel in 1SG.NCONT.O forms, such as (*?it*) *č'áč-c* 'he watched me', is more difficult to account for. In forms like this, I propose, CTRL *-*n* was present in the morphological structure of the word, but deleted altogether due to cluster simplification. The deletion of coronal *n* could occur before the coronal consonants *t* (the TR marker) and *s* (1SG.NCONT.O) (cf. §4.5 above). What remains unexplained is the lack of vowel epenthesis before such *n* even though it was followed by grammatical suffixes that should trigger it. I suggest that the fusion of TR *t* and 1SG.NCONT.O *s* to *c* (cf. §4.5 above) was the crucial factor that changed the context and blocked vowel epenthesis. Once the two consonants fuse, the CTRL marker *-*n* is followed by only one consonant. 1SG.NCONT.O forms are the only constructions where this is the case. The application of vowel epenthesis involved the formation of a phonological domain which included lexical morphemes and the CTRL marker *-*n*, but excluded whatever suffixes followed. In the case at hand, the material left outside the domain consisted of a single consonant *c* (<**t*+**s*). Other work on Upper Chehalis suggests that leaving such sub-syllabic material outside a phonological domain is avoided (cf. Rowicka 2001*b* and 2002). Therefore, I argue, *c* was treated as part of the same phonological domain instead, and there was no context for vowel epenthesis. The lack of epenthesis combined with *n*-deletion by coronal cluster simplification wiped out any trace of CTRL *-*n* in 1SG.NCONT.O forms.

To recapitulate, in this section I put forward an analysis accounting for the absence of the TR linker vowel in REC and TOP.O forms and 1SG.NCONT.O

²⁰ The historical source of REC and TOP.O suffixes is Proto-Salish CTRL REC *-*awalx*^w (cf. Czaykowska-Higgins & Kinkade 1998*b*: 31).

and 3SG.NCONT.O forms. I suggested that the former two types of forms historically contained no CTRL **-n*, the source of the TR linker vowel. The REC and TOP.O markers themselves carried (N)CTRL meaning, which made the presence of a (N)CTRL marker superfluous. With respect to the other two types of forms lacking the TR linker vowel, I suggested that their morphological structure did contain CTRL **-n*. However, an interaction of phonological processes prevented vowel epenthesis, which is why the forms synchronically exhibit no TR linker vowel.

5 Conclusion

In this paper I discussed the (dis)appearance patterns of a vowel, mostly *i*, in the TR paradigm. I presented evidence in favour of analysing this vowel as an independent morpheme, which I labelled the ‘TR linker’, rather than as part of the preceding morpheme. I have argued that the presence or absence of the TR linker is partially phonologically and partially morphologically determined.

The TR linker vowel has been suggested to go back historically to the CTRL marker **-n*. I have suggested that the vowel was inserted when the CTRL-marked stem (consisting of lexical morphemes and the CTRL marker) was followed by grammatical suffixes. Such vowel epenthesis took place in order to create a well-formed ‘CVC’ syllable at the end of the stem. The epenthesis did not take place when no suffixes or only one mono-consonantal suffix followed. This accounts for the lack of the linker vowel in 1SG.NCONT.O and 3SG.NCONT.O forms. The absence of the TR linker after schwa-only roots has been attributed to the general avoidance of stress on schwa in the presence of a full vowel in the same domain. The general absence of the nasal consonant of CTRL **-n* was suggested to result from a coronal cluster simplification process.

The analysis proposed in this paper presents an explanation for the vowel-zero alternations in Upper Chehalis alternative to two other potential, but problematic, accounts: the vowel deletion approach assumed in Kinkade (1998) and a solution in terms of CTRL **-n*-vocalisation, analogous to the account of DRV suffix in Thompson (cf. Thompson & Thompson 1992).

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