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Department of Linguistics
University of Southern California
University Park
Los Angeles, California 90089-1693

Vergnaud@USCVM.BITNET
Zubizarr@USCVM.BITNET

Squibs and Discussion

Simple Syllables in Spokane Salish

Dawn Bates,
Arizona State University
Barry F. Carlson,
University of Victoria

Bagemihl (1991) argues convincingly that Bella Coola Salish has very simple syllable structure at the phonological level, despite the occurrence of words with long strings of obstruent consonants. Based on data from reduplication and infixation, he shows that Bella Coola lexical syllables consist of an obligatory nucleus (vowel or resonant consonant), an optional single coda consonant, and an onset with a maximum of two consonants (where, if they are both realized, the first must be an obstruent and the second must be a resonant). On his account, what makes Bella Coola typologically unusual is its tolerance for unsyllabified obstruents. Given Bagemihl's important work, it is reasonable to ask whether other Northwest languages that allow long strings of consonants are amenable to a similar analysis. Here we present evidence that Spokane Salish has simple phonological syllables. Further, we argue that Spokane's syllables are even simpler than those of Bella Coola, disallowing clusters in the onset and allowing only vocalic nuclei. Given such a framework, Bella Coola and Spokane can be treated as unexceptional within a universal theory of syllable structure, having maximal CRVC and CVC syllables, respectively.[1]

Like those of Bella Coola, Spokane surface forms seem to defy categorization into traditional syllable types. The form in (1a) shows seven voiceless consonants preceding the single stressed vowel; the one in (1b) shows four voiceless consonants following the stressed vowel.

(1) a. sčkʷkʷx̌kʷx̌ústn
/s-č-CV-CVC-kʷix̌-us-tn/
NOM-on-DIM-PL-come off-eye,face-INSTR
'little eyes'

Spokane data were collected with the support of the Alex Sherwood–Mary Owhi Moses Language Trust. We would like to thank four anonymous *LI* reviewers for helpful comments about both the content and the presentation of this analysis. Our investigations into Spokane morphophonology have benefited from discussions with Pat Shaw, Ellen Kaisse, and Diana Archangeli; errors of course are our own.

[1] The material presented here is limited to support for simple syllables with regard to onsets; Spokane displays suffixal processes corroborating our claim that its codas are also simple, but they are beyond the scope of the present discussion.

b. tšt̓íšɬtx^{w}
/CVC-t̓iš-ɬt-ex^{w}/
PL-sweet-BEN TRANS-you SG
'You sweetened it for them for him/her.'

Most Salishanists would assign the initial long string in (1a) to a complex onset; the word would have two surface syllables headed by the *u* and the final nasal. Similarly, (1b) would be monosyllabic, with an onset of three consonants and a coda of four. Under an account employing Bagemihl's Simple Syllable Hypothesis, quite a different picture emerges. Lexical syllabification applies to create CVC units in an inexhaustive parsing of the consonantism. Onsets are obligatory in Spokane. Unsyllabified segments remain through the derivation, protected from deletion by a revised version of Itô's (1986) prosodic licensing condition. Surface syllabification is, in part, the product of a postlexical rule creating syllabic resonants (nasals, liquids, glides, and pharyngeals) and thus differs from lexical syllabification.

There is a lexical process affecting roots in Spokane that provides crucial support for this view of syllable structure. Words glossed 'repetitive' (REP) have one of two surface forms; either they display an apparent infix *-e-* or this *-e-* is preceded by a copy of the root-initial consonant. Informally, the infix targets an initial unsyllabified root consonant; otherwise, the reduplication occurs. It is our analysis of Spokane onsets that allows this generalization to be stated; uncaptured in previous accounts (cf. Carlson (1980)), it follows automatically from the formal treatment presented here.

Turning to the data, roots of the form CCVC provide a target for the apparent REP infix, as shown in (2). The base on which the repetitive is formed, the root, and a morpheme-by-morpheme translation are provided in all following examples.

(2) a. (sn)p-a-táx̣^{w}m̓n̓
< s-n-p-e-táx̣^{w}-mn < √ptax̣^{w}
NOM-in-REP-spit-INSTR
'spittoon'
b. (sn)q̓-e-sp̓scútn̓
< s-n-q̓-e-sp-ls-cút-min < √q̓sip
NOM-in-REP-long time ago-feeling-REFL-INSTR
'second-hand store'

As illustrated by these data, all resonants are glottalized in repetitive forms, and the infix lowers to *-a-* if a uvular follows in the word. Prefixes are outside the domain of REP formation and other prosodically sensitive rules; note that the prefix *n-* is not glottalized.

The realization of the surface form of the REP morpheme happens late in the derivation of Spokane words, after stress and a regular rule of unstressed vowel deletion. CVC roots, the most common type in the language, may develop unsyllabified initial consonants like those in (2) if stress assignment targets a suffix, triggering deletion of the root vowel. The forms in (3) illustrate this situation; the repetitive *-e-* appears following the first root consonant, in the position of the original vowel.

(3) a. š-e-l̓ntén̓
< š-e-l-nt-én < √šil
REP-chop-TRANS-I
'I chopped it up repeatedly'
b. w̓-e-čm̓tús
< w-e-č-mtús < √wič
REP-see-visions
'having hallucinations'

Given the analysis of syllable structure sketched above, the REP morpheme can be analyzed as prefix CV-, a core syllable (McCarthy and Prince (1986)), with a preattached nucleus /e/, as in (4). Since the present discussion does not bear on the status of the coda consonant, we choose the simplest exposition for the syllable, without reference to its internal moraic structure.[2]

(4) σ_c
|
e

The surface realization of (4) results from unlinked root phonemes associating to the repetitive prefix by the rules of lexical syllabification. The derivation for (2a) proceeds as follows. After the initial syllabification of the root, *tax̣^{w}* forms a syllable (5a) and *p* is unlicensed. The REP syllable is prefixed, as shown in (5b); the phonemic content of the affix and the base appear on separate tiers (see McCarthy and Prince (1990)).

(5) a. σ
p t a x̣^{w}
b. σ σ
| /\
e p t a x̣^{w}
c. σ σ
/\ /\
p e t a x̣^{w}

[2] If /e/ were the unmarked or default vowel in Spokane, the form of the REP prefix would be even simpler, composed of an empty core syllable, as suggested by an anonymous reviewer. However, all available evidence suggests that /i/, and not /e/, is the default vowel at the relevant level of representation. First, /i/ is the epenthetic vowel that appears at the boundary between roots that lose stress to suffixes and suffixes without an underlying vowel like *-p* 'inchoative' (*n-č̓r-ip* 'she/he swam'). Epenthetic /i/ surfaces predictably as [u] adjacent to labialized segments (*ptk^{w}-um* 'pierce, poke it'), [e] next to uvulars (*cq-em* 'place it' < *caq*), [a] adjacent to pharyngeals (*p̓ʕap* 'it burned' < *p̓aʕ*), and [i] elsewhere (*ʕac-im* 'tie it', *č̓np̓im* 'band it' < *č̓inp̓*). Further, /i/ is the vowel that develops in the loss of nasals in certain positions; regular shifts of /n/ to /i/ are detailed in Carlson (1976). Shifts of /m/ to /i/ are also attested in the historical development of **-mix* 'NONPERFECTIVE', which changed to **-mx* to **-ix* to **-i*; the nonperfective morpheme has two surface variants, namely, stressed *mi* and unstressed *-i* deriving from the nasal. The postlexical default vowel is schwa, epenthesized in a rule sensitive to rate of speech.

The last part of this derivation, (5c), shows how the infix effect is derived: the phoneme *p*, which is not already linked to the root syllable, is available to form the onset to the REP syllable.

The derivation for (3a) appears in (6). In (6a) the base is shown after the root vowel has deleted; its syllable node also deletes by parasitic delinking (Hayes (1989)). The prefixation of the REP syllable is shown in (6b), and (6c) illustrates the linking of the initial root segment, rendered unlicensed by the deletion.[3]

(6) a. 

b. 

c. 

This completes our analysis of the apparent infix. When an input form begins with a single consonant, the other form of the repetitive surfaces, with *-e-* preceded by a copy of the first root consonant, as shown in (7).[4]

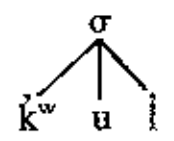
(7) a. k̓ʷ-e-k̓ʷúl̓
< √k̓ʷul̓
REP-make
'made over and over'
b. š-e-šíl̓
< √šil
REP-chop
'chopped repeatedly'
c. l̓-e-l̓úk̓ʷs
< lúk̓ʷ-us < √luk̓ʷ
REP-wood-eye,face
'wooden mask'

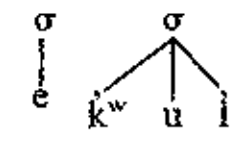
Given the Simple Syllable Hypothesis, the present analysis requires no extra statement to derive the copy of the first root consonant, which is triggered by the absence of unsyllabified consonants in (7). Double linking of the first root consonant applies to satisfy the obligatory onset of the REP syllable. The derivation for (7a) serves to illustrate. In (8a) the root *k̓ʷul̓* is given with its syllabification. (8b) shows the prefixation of the REP syllable. (8c) illustrates that when there are no unlinked phonemes that can attach to the prefixed syllable, it acquires its consonantal content by autosegmental spreading from a

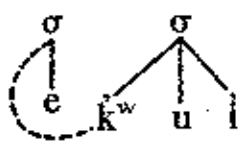
[3] As noted by an anonymous reviewer, the prefixation of the REP morpheme might precede its phonological realization. The affixation could happen early in the derivation, and later unstressed vowel deletion could affect the morpheme's surface form.

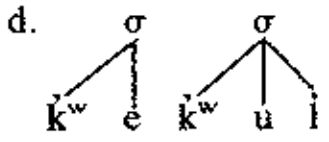
[4] Note that the suffix *-us* 'eye, face' attracts the stress in (1a) but not in (7c). The stress rules are sensitive to root type; the root in (7c) is obligatorily stressed in the presence of suffixes like *-us*, whereas the root in (1a) takes stress only when no suffixes are present (Bates and Carlson (1989)).

linked phoneme. Only the root-initial consonant can link to the prefixed syllable since the linking of other phonemes would involve crossing association lines.[5]

(8) a. 

b. 

c. 

d. 

The present analysis allows for a natural explanation of the seemingly disparate surface variants of the repetitive: *-e-* when there are unsyllabified consonants in the root, C*e-* when there are no unsyllabified consonants. The distribution relies on syllabification and can be accounted for if there is maximally one consonant in the onset of syllables at this level in the phonology.

Crucial test cases for our analysis involve CRVC roots. Recall that Bella Coola allows complex onsets consisting of an obstruent followed by a resonant; Spokane lacks even these. The appropriate examples are rare in the Spokane corpus, but they support our claims; these roots behave like roots that contain two obstruents, and no complex onset is allowed. The following repetitive forms derive from the roots *syen* 'count' and *tyaq̓ʷ* 'fight'; both lose stress to suffixes, but the latter idiosyncratically resists deletion of its root vowel.

(9) a. sns-a-ẏn̓ásq̓tn̓
< s-n-s-e-ẏn̓-asq̓t-tn̓
NOM-in-REP-count-day,sky-INSTR
'calendar'
b. nt-a-ẏaq̓ʷtéẇs
< n-t-e-yaq̓ʷ-t-eẇs
in-REP-fight,battle-DURATIVE-middle
'always fighting'

The forms in (9) pattern like those with initial obstruent clusters, the REP vowel appearing after the first root consonant (cf. (2)–(3)). This shows clearly that the initial consonant is not syllabified and resonant consonants do not form complex onsets

[5] Above, we argued that REP is not an infix, that it is in reality a prefix whose vowel surfaces to the right of the root-initial consonant via regular syllabification. Likewise, we claim that the reduplicative aspect of the REP morpheme is only apparent; the copy of the root-initial segment is a consequence of regular syllabification under the constraint of obligatory onsets in Spokane. The language has several true reduplications, all involving the copying of the base melody, in accordance with standard accounts of reduplication. No copy of the base is involved in REP affixation.

in Spokane; a complex onset in (9a) would produce the ill-formed **snsẏasẏ̓ńásq̓tḥ*, where both onset consonants syllabify with the REP vowel. This could only be blocked by an extra rule (unmotivated except to account for these forms) delinking the first of two onset consonants; such an account would lose the simple syllable generalization.

Turning to the nucleus position, Spokane lexical CVC syllables always have vocalic nuclei; postlexically, in contrast, CRC syllables are allowed by the rule that creates syllabic resonants.[6] Let us return to the forms in (3), which show clearly the difference between surface and lexical syllable structure. The example in (3a) is repeated in (10).

(10) š-e-l̓n̓tén̓
< šl-nt-én < √šil
'I chopped it up repeatedly'

Although resonants like the lateral in (10) are potential surface syllabic nuclei, they must not be syllabic at the point in the derivation where REP formation applies. The input to REP formation is *šlntén*, which has undergone stress and vowel deletion; without REP, this form can surface with a syllabic *l* and the gloss 'I chopped it'. But the resonant cannot head a syllable lexically; otherwise, *š* would form its onset prior to REP affixation. This putative input form would lack a root-initial unsyllabified consonant, and the REP morpheme would take the *Ce*- surface form, yielding ill-formed **šešl̓n̓tén̓* rather than the desired *šel̓n̓tén̓*. The *š* is unlinked in the correct derivation (see (6)) and is available for association to the REP syllable.

One further generalization about Spokane phonology bears on our analysis. Any vowel adjacent to a laryngeal is protected from unstressed vowel deletion (Carlson (1972)). When a root vowel is thus protected, REP always takes the *Ce*- form; a base with a root like *q*ʷ*e*ʔ 'familiar with' in (11) will surface with the *Ce*- variant of the repetitive even when its root is unstressed; this shows that it is syllable structure that is determining the form of the repetitive, rather than a difference in root stress.

(11) qʷ-a-qʷeʔm̓n̓cút
< qʷe-qʷeʔ-min-cút < √qʷeʔ
REP-familiar with-INSTR-REFL
'she/he practiced'

In conclusion, the proposal that Salish syllable structure is maximally simple at the phonological level allows a unified treatment of the repetitive morpheme in Spokane. Here, in a language that allows complex surface syllable structure, this lexical process interacts with the presence or absence of unsyllabified consonants, supporting the Simple Syllable Hypothesis.

[6] Bella Coola lexical syllables allow resonant nuclei. Spokane lexical syllables differ from those of Bella Coola in having only simple onsets and in disallowing resonant nuclei, whereas Spokane surface syllables closely resemble Bella Coola lexical syllables with regard to these points. This does not weaken Bagemihl's general claims; it is reasonable that two related languages might be constrained by simple syllables, but that the realization of those syllables might differ.

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A Note on Quantifier Binding

Peter W. Culicover,
The Ohio State University

1. Consider the following sentences:

(1) a. I introduced to every student$_i$ her$_i$ immediate neighbor.
b. I would reveal to every woman$_i$ the person that she$_i$ was most concerned about.

(2) a. I introduced to her$_i$ immediate neighbor [every woman in the room that I had met]$_i$.
b. I would reveal to her$_i$ enemies [no woman whose safety I was concerned about]$_i$.

These examples illustrate heavy NP shift, which displays the surface order V-α-NP. The data in (1) suggest that a quantifier

Some of the observations and conclusions discussed here arose in conversation with Shigeru Miyagawa. Chisato Kitagawa and an anonymous reviewer for *Linguistic Inquiry* made a number of extremely useful suggestions, for which I am very grateful. Naturally I am responsible for any errors.