**Spelling out prosodic structure inside of polysynthetic words**

Natalie Weber (Yale University)

**Background** Over the last decade there has been a renewed interest in prosodic structure, and especially in how prosodic structure relates to syntactic structure (for example, see Match Theory in Selkirk 2011 and subsequent studies, as well as recent overviews of the field in Bennett and Elfner 2019 and Elfner 2018). Despite the fact that polysynthetic languages provide the necessary phonological length and morphological complexity for testing and comparing predictions of various theoretical approaches, theories of prosody-syntax correspondence long remained poorly tested on polysynthetic languages (Elfner 2018).

**Overview of data** I focus on the prosodic structure of the verbal complex in Blackfoot (Algonquian; ISO 639-3: bla), a polysynthetic language spoken in Montana and Alberta. I argue that there are two distinct prosodic constituents within Blackfoot: the Prosodic Word (PWd), which corresponds to the entire CP verbal complex, and the Prosodic Stem (PStem), which corresponds to the *v*P stem plus following suffixes.

The PWd is well-established as the domain of syllabification and stress, and the left edge is defined by prohibiting any [-cons] segments. The main evidence for the PStem is a set of morphophonological processes which occur at the left edge of the PStem whenever it follows a prefix. For example, there is [i]-epenthesis before stem-initial obstruents (pon → ipon 'cease'), shown in the morphemic gloss lines in (1). There isalso nasal deletion for stem-initial nasals (mokaki → okaki 'wise'), as in (2).

(1) Obstruent-initial stems: epenthetic [i] after prefixes (Frantz & Russell 2017: 91)

| a. | ⟦po.nç.tá:t⟧ | b. | ⟦á.ké:.po.nç.t͡si.wa̧⟧ |
|---|---|---|---|
| | √**pon**-ihtaa-t | | aka-√**ipon**-ihtsi-wa |
| | √cease-AI-IMP.SG | | PRF-√cease-fall.AI-3 |
| | 'pay!' | | 'he is dead' |

(2) Nasal-initial stems: nasal deletion after prefixes (Frantz & Russell 2017: 182–183)

| a. | ⟦mo.ká.kɪt⟧ | b. | ⟦ni.kɔ́:.ka.kɪs.ko.wa:.wa̧⟧ |
|---|---|---|---|
| | √**mokaki**-t! | | n-ika-√**okaki**-ssko-a-wa |
| | √wise.AI-IMP.SG | | 1-PRF-√wise-by.body.TA-3OBJ-3 |
| | 'be smart!' | | 'I have "wised him up"' |

These alternations are best described as a conspiracy of processes (epenthesis, deletion) which avoids [+cons] segments at the left edge of the stem, but *only* when it is preceded by a prefix. These morphophonological processes are anti-optimizing: epenthesis and deletion even occur after a vowel (1b, 2b), creating vowel hiatus. The processes are also surface-opaque: they feed a process of vowel coalescence across the stem boundary, whereby /a+i/ → [é:] and /a+o/ → [ɔ́:]. This is shown in the IPA transcription in the top line of (1) and (2), where the double brackets indicate the transcription was created based on the orthographic representation, rather than transcribed from a recording.

**Matching to theory** An analysis of prosodic structure therefore suggests something like (3).

(3) a. [aka-[√**ipon**-ihtsi]$_{vP}$-wa]$_{CP}$ Syntactic structure
b. (á.ké (é.po.nç.t͡si.wa̧)$_{PStem}$)$_{PWd}$ Prosodic structure

The question is how these phonological facts and prosodic structure can be derived from syntax. I consider three theories of Syntax-Driven Mapping at the PWd level: Alignment Theory (McCarthy and Prince 1994; Selkirk 1996; Werle 2009), Wrap Theory (Kabak and Revithiadou 2009; Truckenbrodt 1999), and Match Theory (Selkirk 2011). As discussed in Weber 2022, none of these theories can account for Blackfoot. One major issue is that prosodic constituents like syllables do not align with PStem edges, as shown in (3) where there long vowel [é:] spans the PStem boundary. This is expected under standard assumptions about the Prosodic Hierarchy such as Proper Headedness (Itô & Mester 2003).

Instead, I end by exploring a Phasal Spell-out based analysis (expanding Weber 2020, 2021), where the *v*P and CP constituents spell out at different times. Crucially, the PStem boundaries are erased before metrification and other PWd-level phonology, which escapes the Proper Headedness constraint.

**References**


Bennett, Ryan, and Emily Elfner. 2019. The syntax–prosody interface. *Annual Review of Linguistics* 5: 151–171.

Elfner, Emily. 2018. The syntax-prosody interface: Current theoretical approaches and outstanding questions. *Linguistics Vanguard*, 4. https://doi.org/10.1515/lingvan-2016-0081

Frantz, Donald G. & Norma Jean Russell. 2017. *Blackfoot dictionary of stems, roots, and affixes*. 3rd edn. Toronto: University of Toronto Press.

Itô, Junko, and Armin Mester. 2003. Weak layering and word binarity. In *A New Century of Phonology and Phonological Theory: A Festschrift for Professor Shosuke Haraguchi on the Occasion of His Sixtieth Birthday*, T. Honma et al. (eds.), 26–65. Slightly Revised Version of 1992 LRC Working Paper. Tokyo: Kaitakusha.

Kabak, Baris, and Anthi Revithiadou. 2009. An interface approach to prosodic word recursion. In *Phonological Domains: Universals and Deviations*, J. Grijzenhout and B. Kabak (eds.), 105–133. Berlin: Mouton de Gruyter.

McCarthy, John J., and Alan Prince. 1994. Generalized alignment. In *Yearbook of Morphology 1993*, 79–153. Dordrect: Kluwer Academic Publishers.

Selkirk, Elisabeth. 1996. The prosodic structure of function words. In *Signal to Syntax: Bootstrapping from Speech to Grammar in Early Acquisition*, K. Demuth and J. Morgan (eds.), 187–213. Mahwah: Lawrence Erlbaum.

Selkirk, Elisabeth. 2011. The syntax-phonology interface. In *The handbook of phonological theory*, 2nd edn, J. Goldsmith et al. (eds.), 435–484. Blackwell Publishing.

Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30: 219–256.

Weber, Natalie. 2022. Prosodic Word Recursion in a Polysynthetic Language (Blackfoot; Algonquian). *Languages*, 7(3): 159. https://doi.org/10.3390/languages7030159

Weber, Natalie. 2021. Phase-based Constraints within Match Theory. In *Supplemental Proceedings of the 2020 Annual Meeting on Phonology*, Bennett, Ryan et al. (eds.). Washington, DC: Linguistic Society of America.

Weber, Natalie. 2020. Syntax, prosody, and metrical structure in Blackfoot. PhD dissertation, University of British Columbia.

Werle, Adam. 2009. Word, Phrase and Clitic Prosody in Bosnian, Serbian and Croatian. Ph.D. dissertation, University of Massachusetts, Amherst, MA, USA.