

## Missouri River Nightmare

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Crow and Hidatsa are sister languages spoken in Montana and North Dakota, respectively, and together comprise the Missouri River branch of the Siouan language family. Their underlying consonant inventories are difficult to determine (hence the nightmare of the title), mostly because of completely regular and productive alternations among labials [b~m~w] and coronals [d~n~r] ([d~n~l] in recent Crow). Briefly, Crow has b in the onset, m when moraic and w intervocalically, a classic case of a segmental process interacting with prosody:

- (1) Crow [b~m~w]
- |              |        |         |
|--------------|--------|---------|
| onset        | [bía]  | ‘woman’ |
| moraic       | [ham]  | ‘some’  |
| intervocalic | [a.wá] | ‘earth’ |
- (2) Crow [d~n~l]
- |              |                      |         |
|--------------|----------------------|---------|
| onset        | [dée]                | ‘go’    |
| moraic       | [k <sup>h</sup> oón] | ‘there’ |
| intervocalic | [pilé]               | ‘water’ |

The underlying representation has been taken as the approximant (Kaschube 1967), the nasal (Martin 1989), or the stop (Golston 2015). A nice illustration of the [d~n~l] allophony in Crow is the following, where *dak* ‘and’ shows up with [l] intervocalically, [n] with a mora (ǰan:ak<sup>h</sup>) and [d] in the onset:

- (3) p<sup>h</sup>it<sup>h</sup>ə-lak<sup>h</sup> ǰan-nak<sup>h</sup> ǰemz-dak<sup>h</sup> Ø-áxp<sup>h</sup>-ak<sup>h</sup> taá-u-k<sup>h</sup>  
Peter-and John-and James-and 3SG-with-SS go-PL-DECL  
‘Peter, John, and James went with him.’ (Graczyk 2007:191)

Hidatsa has (nearly) the reverse, with b moraic, m in the onset and w intervocalically:

- (4) Hidatsa [m~b~w]
- |              |         |             |
|--------------|---------|-------------|
| onset        | [mía]   | ‘woman’     |
| moraic       | [karáb] | ‘remember!’ |
| intervocalic | [awá]   | ‘land’      |
- (5) Hidatsa [n~d~r]
- |              |          |            |
|--------------|----------|------------|
| onset        | [náa]    | ‘go!’      |
| moraic       | [níhaad] | ‘finish!’  |
| intervocalic | [ará]    | ‘his hair’ |

The alternation can be seen in pairs like the following:

- (6) **mía** 'woman'  
tsiga:ga-**wí**a 'bird-woman'

The problem for Siouanists lies in what the underlying consonant inventories are, whether these languages have any underlying nasals or approximants, and what to reconstruct for Proto-Missouri-River-Siouan. The problem for phonologists involves Freedom of Analysis (Prince & Smolensky 1993; Blaho, Bye & Krämer 2008): how are we to account for the surface distribution of these sounds in Crow and Hidatsa without stipulating an underlying difference? If we stipulate underlying /b/ in Crow and /m/ in Hidatsa we can get the onset facts from positional faithfulness (Beckman 1997), though this still leaves the moraic facts unaccounted for: why moraic [b] in Hidatsa and [m] in Crow?

Krämer & Zec (2016) argue that the phonotactic behaviour of nasals requires two types, low sonority and high sonority nasals. I propose here that Crow has underlying *high* sonority nasals that are banned in onsets and surface there as stops, while Hidatsa has underlying *low* sonority nasals that are banned in codas and surface there as stops. There are two problems with such an analysis: first, it runs afoul of Freedom of Analysis, as we stipulate an underlying difference to account for the surface facts; second, it runs afoul of Krämer & Zec's demonstration that codas are insensitive to sonority differences and to the observation that almost all languages allow all sounds in onsets, so that onset markedness isn't a thing.

I propose instead that the difference is linked to the phonetics of voiceless stops in the two languages and the issue of surface contrast (Łubowicz 2003). Crow has [p<sup>h</sup> t<sup>h</sup> k<sup>h</sup>] in addition to bmw/dnl while Hidatsa has plain [p t k] alongside bmw/dnr. Thus Crow [búa] 'fish' maintains a surface contrast with [p<sup>h</sup>úa] 'rotten', while Hidatsa [múa] 'fish' maintains a surface contrast with [búa] 'spoiled'.

[Data from published and unpublished sources and from fieldwork by the author.]

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