

**Phonological exceptions are morphotactic exceptions
given phonological underspecification** - Katie McCann (University of Leipzig)

Main Claim: I show that a correlation between exceptional morphotactic position and phonological exception is explained by assuming underspecification in the phonology. In Mandan, a Siouan language of North America, certain affixes appear in syntactically and semantically unpredicted positions where they show unexpected phonological behaviour. Phonologically underspecified affixes trigger a process of metathesis in the phonology which leads to the unexpected surface ordering of affixes. Further, the phonological underspecification predicts the morpheme-specific phonological exception. This analysis adds to a body of work focusing on phonologically conditioned affix order (see Paster (2006) a.o.) without resorting to a P»M account. I assume that phonology can manipulate the order of segments but never make direct reference to entire morphemes. **Puzzle:** Mandan has been described as a language with templatic affix ordering (Kasak 2019). This means that the order of affixes cannot be predicted by the syntax or semantics and instead must be stipulated by a template. Specifically, in Mandan the pronominal affixes are described to be templatically ordered with respect to the verb root and the so-called preverb (PV). The 1PL pronominal affix precedes the preverb, while the 1SG and 2nd person pronominal affixes follow the preverb. This results in the following affix order: 1PL-[PV]-1SG-2-*verb*. The examples in (1) show that the ordering of pronominal prefixes is independent of the arguments thematic roles. 1SG and 2nd person always follow the preverb in (1-a), (1-b) and 1PL always precedes the preverb as an agent in (1-c) and as a patient (1-d).

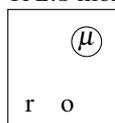
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|---|---|
| <p>(1) a. [émĩnĩpeʔʃ]
 [e]-wa-rĩ-pE=oʔʃ
 [PV]-1SG.A-2S-say.1A=IND.M
 ‘I said it to you’</p> <p>b. [émānāteʔʃ]
 [e]-wā-rā-tE=oʔʃ
 [PV]-1SG.S-2A-say.2A=IND-M
 ‘you said it to me’ (Kasak 2019:198)</p> | <p>c. [ró:ropxeʔre]
 rü-[O]-ropxE=oʔre
 1PL.A-[PV.IRR]-enter=IND.F
 ‘we will enter [the water]’</p> <p>d. [ró:raha:nitoʔʃ]
 ro-[O]-ra-hE:=rit=oʔʃ
 1PL.S-[PV.IRR]-2A-see=2PL=IND.M
 ‘you are going to see us’ (p.233)</p> |
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Additionally, the 1PL marker undergoes a process of vowel deletion in (1-c), (1-d). This process of vowel deletion only occurs when the 1PL prefix precedes a vowel-initial element. The general strategy for vowel hiatus resolution in Mandan is glottal stop epenthesis, shown in (2-a). The 1PL prefix behaves phonologically exceptionally because no glottal stop epenthesis is observed and instead vowel deletion occurs, see (2-b).

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|---|--|
| <p>(2) a. [wá:ʔʃĩraseke]
 wa:i-ra-sek=E
 NMLZ-PV.INS-2.A-make=SV
 ‘what you made [is good]’ (p.212)</p> | <p>b. [rĩ:sā:roʔʃ]
 rü-isā:=oʔʃ
 1PL.A-be.in.a.hurryIND.M
 ‘we are in a hurry’ (p.230)</p> |
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Examples (1) and (2) show that there is a correlation of exceptional behaviour in the morphosyntax and phonology concerning the 1PL prefix. On the one hand, (1) indicates that the 1PL prefix has exceptional morphosyntactic properties: its position preceding the preverb. On the other hand, (2) indicates that the 1PL prefix has exceptional phonological properties: its behaviour in vowel hiatus constructions. **Solution:** I suggest that the exceptional morphosyntactic and phonological behaviour can be explained by underspecification in the phonology. I assume that the 1PL affixes are phonologically underspecified, their mora is not associated to their vowel, instead the mora remains floating in the input, see (3). The 1PL is lacking an association between the moraic and the segmental node, it is phonologically deficient. This deficiency needs repairing. The default repair will be adding an association line from mora to vowel segment. However, when the 1PL marker is preceded by a monosegmental morpheme which lacks an onset, such as all the preverbs, association of the mora to the deficient vowel is no longer optimal. The

- (3) Underspecified
1PL.S morpheme:



reason for this is metathesis. I assume that the need for an onset triggers metathesis of the preverb vowel and the following consonant. Given the linearization after metathesis, associating the mora to the deficient vowel results in a vowel hiatus construction which is illicit in Mandan. Thus the repair strategy employed is deletion of the deficient vowel and association of the mora to the preceding vowel. This is shown in (4-b) from the example given in (4-a).

- (4) a. $\left[\begin{array}{l} \boxed{\text{r}i:r\text{u}} \text{ksah} \tilde{a}mika \\ \boxed{\text{i-ro-ru}} \text{-ksah} = \text{aw} \tilde{i} = \text{ka} \end{array} \right]$
 PV.INS-1PL.S-INS.HAND-go.away=CONT=HAB
 ‘[...], leaving us behind.’ (p.233)
- b. $\begin{array}{ccccccc} \mu & \mu & & \mu & \mu & \mu & \\ | & \circledast & | & | & | & | & \\ \text{i} & \text{r} & \text{o} & \text{r} & \text{u} & \rightarrow & \text{r} & \text{i} & \text{r} & \text{u} \end{array}$

A derivation of (4) using OT is given below. I follow Trommer & Zimmermann (2014) in recognising MAX and DEP constraints which refer to different phonological nodes (moraic μ and segmental \bullet) and to moraic association ($\begin{array}{c} \mu \\ | \\ \bullet \end{array}$). As evident from the tableau below, (4-b) represented by candidate d., surfaces as the optimal candidate. Candidate a. which has associated the floating mora to the deficient vowel is less optimal because the preverb is onsetless. It incurs a violation of ONSET. Deleting the preverb vowel in candidate b. incurs violations of highly ranked MAX constraints. Candidate c. which has undergone metathesis but has still associated the floating mora to the deficient vowel incurs a violation of highly ranked *HIATUS.

	$\begin{array}{c} \mu \mu \mu \\ \\ \text{i} \text{r} \text{o} \text{r} \text{u} \end{array}$	*HIATUS	MAX μ	MAX $\begin{array}{c} \mu \\ \\ \bullet \end{array}$	DEP $\begin{array}{c} \mu \\ \\ \bullet \end{array}$	ONSET	MAX \bullet	LIN
a.	$\begin{array}{c} \mu \mu \mu \\ \\ \text{i} \text{r} \text{o} \text{r} \text{u} \end{array}$				*	*!		
b.	$\begin{array}{c} \mu \mu \\ \\ \text{r} \text{o} \text{r} \text{u} \end{array}$		*!	*			*	
c.	$\begin{array}{c} \mu \mu \mu \\ \\ \text{r} \text{i} \text{o} \text{r} \text{u} \end{array}$	*!			*	*	*	*
d.	$\begin{array}{c} \mu \mu \mu \\ \\ \text{r} \text{i} \text{r} \text{u} \end{array}$				*		*	*

and (1-b). The 1SG and 2nd person affixes are fully specified in the input. Thus, an onsetless syllable is tolerated because reassociating moras from a fully specified segment results in a less optimal output (due to the ranking MAX $\begin{array}{c} \mu \\ | \\ \bullet \end{array}$ \gg ONSET). Further, this analysis correctly predicts that metathesis will occur for the 1PL affixes even if the preverb is preceded by another morpheme, cf. (5-a). In this case, metathesis prevents a violation of highly ranked *HIATUS. For the 1SG and 2nd person affixes no metathesis is predicted in the context of (5-b) once the ranking MAX $\mu, \begin{array}{c} \mu \\ | \\ \bullet \end{array}$ \gg DEP μ, \bullet is established, preferring glottal epenthesis over moraic reassociation.

- (5) a. $\left[\begin{array}{l} \boxed{\text{kar} \acute{o}:} \text{ruxihka} \\ \boxed{\text{ka-o-ro}} \text{-ru-xik} = \text{ka} \end{array} \right]$
 AGT-PV.IRR-1A.PL-INS.HANDbe.bad=HAB
 ‘the ones bad to us’ (p.153)
- b. $\left[\begin{array}{l} \boxed{\text{w} \acute{a}:? \text{owa}} \text{ra:h} \tilde{i}n \tilde{i}: \text{co} \text{?} \text{?} \\ \boxed{\text{wa:-o-wa}} \text{-rE:h} = \text{r} \tilde{i} \text{x} = \text{o} \text{?} \text{?} \end{array} \right]$
 NEG-PV.IRR-1A-go.there=NEG=IND.M
 ‘I am not going to go’ (p.246)

Conclusion: This analysis presents evidence that phonological underspecification can give rise to surface patterns which are phonologically and morphologically exceptional. A purely templatic approach (see Nordlinger (2010) a.o.) is able to derive the exceptional surface ordering of affixes. However, it needs a further mechanism to explain the exceptional phonological behaviour. The same argument holds for positing position classes (Inkelas 1993). Position classes may explain the exceptional morphological position of the 1PL but need an additional explanation for the phonological exceptionality. By allowing the phonology to manipulate segmental linearization the source for both exceptions is simply phonological underspecification.

Selected references: Inkelas, S. 1993. Nimboran position class morphology. *NLLT* 11(4). • Kasak, R.M. 2019. *Affix ordering and templatic morphology in Mandan*. • Nordlinger, R. 2010. Verbal morphology in Murrinh-Patha: Evidence for templates. *Morphology* 20(2). • Paster, M. 2006. *Phonological conditions on affixation*. • Trommer, J & Zimmermann, E. 2014. Generalised mora affixation and quantity-manipulating morphology. *Phonology* 31(3).