ALLOMORPHY WITH PHONOLOGICAL CONDITIONING

The context for allomorph selection is phonological information belonging to an adjacent element.

An example from English:

(1) English indefinite determiner: *a, an*
   a. She ate a pear
   b. She ate an orange

Before a consonant, the determiner has the shape *a*; before a vowel it has the shape *an*.

Given the fact that the difference between the two allomorphs is the presence vs. absence of the consonant [n], one could say that there is a single underlying exponent, for instance /ən/, and that a phonological process deletes the consonant before another consonant. This is a type of argument that can be found for many examples where the surface allomorphs are similar. The price to pay is that we will need a phonological rule or constraint that will be restricted to a single lexical item (what DM calls *readjustment rules*), an option that is rejected by Cartairs (1988), among others.

A more undisputed example, from Moroccan Arabic:

(2) Moroccan Arabic 3rd sg. masculine pronominal enclitic (data from Mascaró 2007, after Harrell 1962)

   a. After a consonant: *u*
      menn-u 'from him'
      ʃaf-u   'he saw him'

   b. After a vowel: *h*
      mʕa-h   'with him'
      ʃafu-h   'they saw him'

This type of allomorphy is often referred to as PCSA, which stands for Phonologically-Conditioned Suppletive Allomorphy. The term *suppletive* is used to indicate that the differences among the allomorphs cannot be derived from pnonological rules/constraints, although the term *allomorphy*

itself, in its more restrictive sense, already implies exactly that. I will use the term PCSA anyway for convenience.

Some of the questions that we can ask concerning PCSA are the following:

(a) Is the phonological conditioning always related to the consonantal / vocalic nature of the adjacent segment or can it refer to other phonological properties?

(b) is adjacency always required?

(c) is the distribution of the allomorphs always predictable?

(d) where do different allomorphs compete for insertion?

(e) must the relevant allomorph be introduced at a specific cycle / domain / phase?

(f) where are the limits between allomorphy and exceptional phonological rules or constraints?

We will go through answers that have been given to these questions through the discussion of several cases.

Two basic views on the simple PCSA cases (Moroccan Arabic type):

    A. They are selected through the same mechanisms as any other types of allomorphy;

    B. the selection of allomorph is left to the phonology.

View A is argued for, among others, by DM, as represented by Embick (2010), for instance (within OT also by Paster 2006, to appear, or Bye 2007). In DM all competition is assumed to take place at the point of Vocabulary insertion:

(3) (Simplified) DM Vocabulary Items for Moroccan Arabic:
    a. [–participant], [–pl], [–fem] ⇔ u / C ___
    b. [–participant], [–pl], [–fem] ⇔ h / V ___
    b'. [–participant], [–pl], [–fem] ⇔ h

Under this view (A) the nature of the context is accidental; it could have been the other way around, for instance.

View B is defended in much OT work, like Drachman et al. (1996), Kager (1996), Lapointe (1996), Mascaró (1996, 2007), Perlmutter (1998), Rubach & Booij (2001), or Tranel (1996). The idea is that the selection of the

allomorphs is not arbitrary, but is *optimizing*: the phonologically less marked allomorph is chosen in each context (*The Emergence of Tthe Unmarked*, TETU). The selection of the appropriate allomorph is determined by the constraint ranking of the language. For that to be possible, the two allomorphs have to be made available to the phonology component. In DM terms, for Moroccan Arabic:

(4) Alternative Vocabulary Item for Moroccan Arabic
    [–participant], [–pl], [–fem] ⇔ {u, h}

So, *multiple inputs* (Lapointe's term) are sent to the phonology.

(5) Selection of exponents in the phonology
    a. ʃaf-u 'he saw him'

/ʃaf+{u, h}/	ONSET	NO-CODA
a. ☞ ʃaf-u		
b. ʃaf-h		*!

    b. mʕa-h 'with him'

/mʕa+{u, h}/	ONSET	NO-CODA
a. mʕa-u	*!	
b. ☞ mʕa-h		*

None of the candidates shown in the tableaux above violate a faithfulness constraint, because the two allomorphs are present in the input.

A more elaborate (and controversial) example, from Basque, as presented and analyzed in Mascaró (2007):

Postnasal voicing (*NC̥): in many languages stops following a nasal consonant must be voiced. Old Basque seems to have been one of these languages, but nowadays postnasal voicing is restricted to specific morphemes.

(6) No *NC̥ effect
    a. *Inside morphemes*
       kanpo   'out'
       Jainko   'God'

b. *Compounds*
Ian-talde   'work group'
Gabon-kanta   'Christmas-song'

c. *Derivatives*
illun   'dark'   ilun-ki   'darkly'
                         ilun-tasun   'darkness'
zuzen   'right'   zuzen-keta,   'correction'
                         zuzen-pen

d. *Nominal inflection*
hon-taz   'this-INSTR'

e. *Verbal inflection*
gin-tuen   's/he had (us)'
nen-torren   'I went'

(7) Presence of *NC̥ effect in derivational suffixes *-tar*, *-ta*, and clitic *ta*

a. Bilbo 'town name'   bilbo-tar 'Bilbaoese'
   Irun   'town name'   Irun-dar 'Irunese'
   etorri 'to come'   etorri-ta 'come' (participial adjective)
   jan   'to eat'   jan-da   'eaten' (participial adjective)

b. i. ardorik   ez   du   edaten   [d]a
      wine.PART not has   drink.PRES since
      'since he doesn't drink drink any wine'
   ii. ardorik   ez   du   edango   [t]a
      wine.PART not has   drink.FUT   since
      'since he will not drink any wine'

(8) Presence of *NC̥ effect in nominal inflective affixes *-ko* and *-tik*

	Place genitive	Ablative
Bilbo 'town name'	Bilbo-ko	Bilbo-tik
Irun 'town name'	Irun-go	Irun-dik
non 'where'	non-go	non-dik

(9) Presence of *NC̥ effect in verbal affixes *-ko* and *-tu*

a. *Perfect*   *Future*
   etorri   etorri-ko 'come'
   joan   joan-go   'go'

b. *Nominal*   *Verbal participle*
   gogor 'hard'   gogor-tu 'harden'
   gizon 'man'   gizon-du 'become man'

The allomorphic analysis rests on the fact that no general process of voicing can apply to postnasal stops, since the phenomenon is found only with specific affixes, and is not restricted to, let's say, all and only derivational suffixes.

Under the allomorphic analysis morphemes like *-ko* (Genitive) have two competing allomorphs underlyingly: {ko, go}, while *-taz*, for instance, has a single exponent /-taz/.

Relevant constraints:
IDENT(voice): forbids the change of feature values between corresponding
              input and output segments [Faithfulness constraint].
*NC̥: forbids voiceless stops preceded by a nasal consonant [Markedness
              constraint].
*VOICEDOBST:forbids voiceless obstruents [Markedness constraint].

The ranking IDENT(voice) >> *VOICEDOBST is independently needed because Basque has voiced obstruents in other contexts (as words like *gizon* or *Bilbo* show).

Ranking needed for Basque: IDENT(voice) >> *NC̥ >> *VOICEDOBST

(10) a. 'Bilbao.GEN': *Bilbo-ko*

Bilbo-{ko, go}	IDENT(voice)	*NC̥	*VOICEDOBST
☞ a. Bilbo-ko			**
b. Bilbo-go			***!

   b. 'Irun.GEN': *Irun-go*

Irun-{ko, go}	IDENT(voice)	*NC̥	*VOICEDOBST
a. Irun-ko		*!	
☞ b. Irun-go			*

(11)   'this-INSTR': *hon-taz*

hon-taz	IDENT(voice)	*NC̥	*VOICEDOBST
☞ a. hon-taz		*	
b. hon-daz	*!		*

Why is Basque a controversial example of allomorphy?
        - the alternation affects more than one morpheme;
        - the allomorphs are always identical except for the value for
          voicing of the first stop.

The Basque facts can alternatively be analyzed as the effect of what in SPE was called a *minor rule*, a rule that applies to a small set of items; only one underlying form for the morpheme is lexically stored. How are minor rules handled in OT?

Two approaches:
A. *Lexically-indexed constraints* (Itô and Mester 1999, Pater 2000,...): certain constraints (C) have a general version, but also a specific version (C_L), ranked differently, that applies to a lexically-marked restricted set of lexical items. In most approaches, lexically-indexed constraints are restricted to faithfulness constraints, but here the lexically-indexed constraint should be *NC̥, a markedness constraint, a move that weakens the model.

(12) a. 'Bilbao.GEN': *Bilbo-ko* (with indexed constraints)

Bilbo-ko$_L$	*NC̥$_L$	IDENT(voice)	*VOICEDOBST	*NC̥
☞ a. Bilbo-ko			**	
b. Bilbo-go		*!	***	

    b. 'Irun.GEN': *Irun-go*

Irun-ko$_L$	*NC̥$_L$	IDENT(voice)	*VOICEDOBST	*NC̥
a. Irun-ko	*!			*
☞ b. Irun-go		*	*	

(13)   'this-INSTR': *hon-taz*

hon-taz	*NC̥$_L$	IDENT(voice)	*VOICEDOBST	*NC̥
☞ a. hon-taz				*
b. hon-daz		*!	*	

B. *Co-phonologies* (Orgun 1996, Anttila 1997, Inkelas and Zoll 2007,...): different subgrammars (i.e. different constraint rankings) apply to different lexical items.

(14) a. /-ko/, /-tar/, /-tik/...:{*NC̥ >> IDENT(voice)} >> *VOICEDOBST

    b. /-taz/:{IDENT(voice >>)*NC̥} >> *VOICEDOBST

A potential problem with co-phonologies pointed out by Pater (2009) is that they cannot differentiate between variation and exceptionality.

While an analysis of the Basque case through co-phonologies or indexed constraints is plausible, because the rule would affect several morphemes, in many other cases, like the English *a/an* alternation for the indefinite article, which affects a single lexical item, most researchers have assumed a multiple input approach: two allomorphs are stored in the lexicon; the general constraint ranking of the language selects the appropriate allomorph in each context.

Not all cases of PCSA seem to be optimizing.

(15) C*ontinuum of optimization in PCSA*, from Paster (to appear):

Optimizing; possible TETU effects	*Non-arbitrary distribution; not necessarily optimizing*	*Arbitrary distribution; non-optimizing*	*'Perverse'*
⟵──⟶			
e.g. Armenian	Nakanai	Tzeltal, Kaititj, Dyirbal	Haitian creole

A typical situation found in PCSA is that one of the allomorphs is the default or preferred one while the other allomorph appears in some restricted context.

An example from Spanish (from Bonet and Mascaró 2006): the coordinating conjunctions 'and', *y* [i]/*e*, and 'or', *o/u*.

(16) a. María **y** Pedro   *María e Pedro
    'Maria and Pedro'
    una piedra **y** una mesa
    'a stone and a table'
    aquella **y** ésta
    'that.FEM and this.FEM'
  b. María **e** Ignacio   *María y Ignacio
    'Maria and Ignacio'

(17) a. Pedro **o** María
    'Pedro or Maria'
    una piedra **o** una mesa
    'a stone or a table'
    esto **o** aquello   *esto u aquello
    'this or that'
  b. este alomorfo **u** otro   *este alomorfo o otro
    'this allomorph or (an)other (one)'

The generalization is that the forms *y* and *o* are used always *except when* they would give rise to a sequence of two identical vowels, a violation of the well known constraint (or principle) OCP (Obligatory Contour Principle). While the restricted form is optimizing (because it prevents a violation of OCP), the general form is not. How is the selection of allomorph determined in examples like *María y Pedro* (**María e Pedro*)?

Again, there are two possible ways to go about these cases:

    A.   The choice is made through the same mechanisms as non-PCSA;
    B.   As much as possible is left to the phonology.

Under view A one can have the following DM-type Vocabulary Items for the conjunction 'AND', for instance, where *y* is the *Elsewhere* or default allomorph:

(18) (Simplified) DM Vocabulary Items for Spanish 'AND':
      a. 'AND' ⇔ e / ___ i
      b. 'AND' ⇔ y [i]

Similarly to what we saw for the Moroccan Arabic case, here it is just a coincidence (that one can attribute to historical factors) that the allomorph *e* is chosen precisely after a following [i]. The same would be said for the conjunction 'OR'.

View B must combine 2 properties of these cases of allomorphy:
    – predictability of morph selection in OCP contexts;
    – unpredictability of morph selection in other contexts (why not select [e] always?)

Mascaró (2007) makes the following proposal for this type of cases, which are fairly common; we will see it illustrated with the Spanish conjunctions:

The preference of *y* over *e* is lexically encoded in the input, because it is a property of the lexical entry. The symbol '>' represents this preference relation.

(19) a. 'AND' ⇔ {i > e}
     b. 'OR' ⇔ {o > u}

But even if the lexical entry has such an idiosyncratic feature, candidates with either allomorph must be evaluated. Therefore a faithfulness constraint must assess to what extent the preference relation is respected.

This constraint (a universal constraint) is called PRIORITY and penalizes the choice of the non-preferred allomorph.

(20) PRIORITY: respect the lexical priority (ordering) of allomorphs.

The competition between PRIORITY and OCP gives as a result the selection of the appropriate allomorph in each context.

(21) *Tableaux* corresponding to *María e Ignacio* and to *María y Pedro*

/María {i > e} Ignacio/	OCP	PRIORITY
María [i] Ignacio	*!	
☞ María [e] Ignacio		*
/María {i > e} Pedro/		
☞ María [i] Pedro		
María [e] Pedro		*!

A more detailed analysis of these facts, which also takes into consideration other candidates ignored here (like candidates with diphthongs) can be found in Bonet and Mascaró (2006).

The alternations *y/e* and *o/u* cannot easily be interpreted as the result of some restricted phonological rule. For the *y/e* alternation we would need some lowering rule in potential OCP violation contexts, while for the *o/u* alternation we would need a raising rule.

Side comment: in phonology and morphology the disjunctive ordering between competing rules has traditionally been interpreted as the general rule being overriden by a more specific rule; a more specific rule blocks the application of the general rule, a principle that goes back to Sanskrit grammarians like Pāṇini, and is best known with the names *Elsewhere Condition* (Kiparsky 1973), or, in Distributed Morphology, *Subset Principle* (Halle and Marantz 1993). The DM entry for 'AND' and 'OR' above, (19), is of this type: when the special form (*e* or *u*) cannot be selected, because the context is not met, the general form is inserted. The Priority-based view is the opposite: the preferred form (the general one) is always selected, except when some problem (here OCP) forces the selection of the specific form.

Catalan provides a similar example of allomorph distribution (with an added twist). It concerns the gender (or class marker) morphs found in

nouns and adjectives when they are masculine (determiners, quantifiers, and some pronominal clitics also have them, but we will leave those aside).

Most masculine nouns and adjectives do not have any specific ending, they have a Ø masculine allomorph. Several nouns and adjectives have an allomorph *-o* (some others have other allomorphs, but we will ignore them here). In the plural an *-s* is added.

(22) *Masculine nominal allomorphs*
    a. more common Ø *singular*   *plural*

singular	plural	
cel-Ø	cel-Ø-s	'sky'
resum-Ø	resum-Ø-s	'summary'
petit-Ø	petit-Ø-s	'small'
feixuc-Ø	feixuc-Ø-s	'heavy'

    b. less common *-o* *singular*   *plural*

singular	plural	
mic-o	mic-o-s	'monkey'
llor-o	llor-o-s	'parrot'
fof-o	fof-o-s	'spongy'
xat-o	xat-o-s	'flattened'

However, when the stem ends in a sibilant we get mixed cases: Ø in the singular, but *-o* in the plural.

(23) *Mixed masculine nominals: Ø in the singular, -o in the plural*

singular		plural		
gos-Ø	[gós]	goss-o-s	[gósus]	'dog'
peix-Ø	[péʃ]	peix-o-s	[péʃus]	'fish'
despatx-Ø	[dəspátʃ]	despatx-o-s	[dəspátʃus]	'office'
fluix-Ø	[flúʃ]	fluix-o-s	[flúʃus]	'weak'
escàs-Ø	[əskás]	escass-o-s	[əskásus]	'scarce'

The selection of the marked allomorph *-o* in these cases prevents an OCP violation; using the unmarked allomorph Ø in the plural would give rise to a sequence of sibilants (e.g. *[góss], *[flúʃs]).

The relation between the two masculine allomorphs Ø and *-o* can be seen as similar to what we saw for the Spanish conjunctions: Ø is the preferred allomorph, and this preference relation is reflected in the lexical entry (or Vocabulary Item):

(24) [masculine] ⇔ {Ø > o}

In the singular the preferred allomorph will be selected, but the presence of an additional sibilant in the plural will force the selection of the less preferred allomorph *-o*.

(25) Tableau corresponding to *gos* 'dog' (singular)

gos-{Ø > o}	OCP$_{SIB}$	PRIORITY
☞ a. gos-Ø		
b. goss-o		*!

(26) Tableau corresponding to *gossos* 'dogs' (plural)

gos-{Ø > o}-s	OCP$_{SIB}$	PRIORITY
a. goss-Ø-s	*!	
☞ b. gos-o-s		*

For nominals, like *cel/cels* 'sky.SG/PL', (22a), the lack of any conflict with OCP will cause the preferred morph Ø to always surface.

(27) Tableau corresponding to *cel* 'sky' (singular)

cel-{Ø > o}	OCP$_{SIB}$	PRIORITY
☞ a. cel-Ø		
b. cel-o		*!

(28) Tableau corresponding to *cels* 'skies' (plural)

gos-{Ø > o}-s	OCP$_{SIB}$	PRIORITY
☞ a. cel-Ø-s		
b. cel-o-s		*!

What about the cases where the marked allomorph *-o* surfaces systematically, as in *mico/micos* 'monkey.SG/PL', (22b)?

The fact that these items surface with *-o* is totally unpredictable; therefore, it must be encoded in the lexical entry of these items. We can assume that masculine nouns like 'monkey' subcategorize for the marked allomorph.

(29) 'MONKEY' ⇔ mic$_o$
 We can assume that a faithfulness constraint, RESPECT (Bonet, Lloret, and Mascaró 2007) rules out any candidates that do not respect this lexical subcategorization.

(30) RESPECT: Respect idiosyncratic lexical specifications

The ranking RESPECT >> PRIORITY forces the marked allomorph *-o* in these cases. For words like *gos* 'dog' or *cel* 'sky' the constraint is irrelevant (they don't have any lexical subcategorization).

(31) Tableau corresponding to *mico* 'monkey'

mic$_o$-{Ø > o}	OCP$_{SIB}$	RESPECT	PRIORITY
a. mic-Ø		*!	
☞ b. mic-o			*

Not all cases of PCSA are amenable to an analysis that resorts to phonological constraints or rules. For instance, in Kaititj the ergative/instrumental/locative suffix is realized as *-ŋ* with disyllabic stems, while it surfaces as *-l* with longer stems (examples from Paster 2006).

(32) *Kaititj*

a'ki-ŋ	'head.ERG'		a'liki-l	'dog. ERG'
il'tʸi-ŋ	'hand.ERG'		a'ʈuyi-l	'man. ERG'

In this case, since the two allomorphs consist of a single consonant, it is really difficult to see the relation between allomorph selection and prosodic weight (disyllabic stem vs. longer stems); in other cases of prosodically-conditioned allomorphy, one of the allomorphs is longer than the other one, and the shorter one appears with longer stems, while the shorter one appears wtih longer stems. In Spanish, for instance, it is said (e.g. Aranovich and Orgun 2006) that the nominalizing allomorph *-eza* selects monosyllabic or bisyllabic stems, while *-ez* selects longer stems.

(33) *Spanish*
   a. *1 or 2 syllable base:* -eza
       vil   'vile'   vileza
       duro   'hard'   dureza
   b. *3 syllables or more:* -ez
       tímido   'shy'   timidez
       estúpido 'stupid'   estupidez

In the Spanish case an analysis can be given that resorts to a phonological generalization (derived words with less than a bisyllabic foot are avoided), but for Kaitij no such generalization seems possible.

For Kaitij it seems unavoidable to postulate some subcategorization for at least one of the suffixes (although it is not trivial how to formalize it).

But not all the cases in the right-hand side of the continuum in (16) are hopeless. Let us focus on Haitian Creole, labeled a "perverse" case by Paster (2006, to appear).

At first sight, Haitian Creole looks like a clear counterexample to the idea that phonologically-conditioned allomorphy favors the more unmarked allomorph; in this case it seems that the worst possible allomorph is chosen in each case.

The definite article in Haitian Creole is a suffix with two allomorphs: *-la* and *-a*. The phonetic transcriptions below do not reflect nasality, an interesting feature of this language.

(34) *-la* appears after a consonant
   /liv/   'book'   [livla]   'the book'
   /ʃat/   'cat'   [ʃatla]   'the cat'

(35) *-a* appears after a vowel
   a. presence of a hiatus, when the stem ends in [a]
      /papa/ 'father'   [papaa] 'the father'
   b. absence of a hiatus, because an epenthetic glide (shaded) is inserted
      when the stem ends in other vowels
      /papje/ 'paper'   [papjeja] 'the paper'
      /lapli/ 'rain'   [laplija] 'the rain'
      /bato/ 'boat'   [batowa] 'the boat'
      /tu/   'hole'   [tuwa]   'the hole'

Questions that can be asked concerning this distribution:

   A. Why choose *-la* in [liv.la], when selecting *-a* would provide a less marked syllabification, *[li.va]?

(36) [liv.la]:   violates NOCODA   *[li.va]:   √ NOCODA

   B. Why choose *-a* in [papa.a], when selecting *-la* would provide a less marked syllabification, would avoid a hiatus and a sequence of two identical vowels, *[pa.pa.la]?

(37) [pa.pa.a]: violates ONS, OCP   *[pa.pa.la]: √ ONS, √ OCP

   C. Why choose *-a* and insert an epenthetic glide in [la.pli.ja], when

selecting *-la* would avoid it, *[la.pli.la]?

(38) [la.pli.ja]: violates *DEP   *[la.pli.la]: √ DEP

An insight from Klein (2003) (slightly modified) leads to the understanding of this "perverse" case: as much as possible, the edges of prosodic and morphological constituents must coincide. In [liv.la] the right edge of the syllable (']$_\sigma$') coincides with the right edge of the stem (')$_{st}$'), while in *[li.va] this is not the case.

(39)   l i v]$_\sigma$)$_{st}$ l a   *[l i]$_\sigma$ v)$_{st}$ a]

This is not a weird property of Haitian Creole, but a general property of many languages (and at different levels of prosodic and morphological structure). The specific constraint at work can be formulated as follows:

(40) R-ALIGN: Align the right edge of the stem with the right edge of a
                syllable

The rest of Klein's analysis is based on the idea that morphemes can be lexically marked as needing to violate a specific constraint, a desideratum. In Haitian Creole, the allomorph *-la* (but not *-a*) needs to violate a constraint that requires stems to end in an open syllable (STEMFINAL-NOCODA); a failure to violate this constraint is evaluated as a violation of MAX.

But there is no need to resort to the idea of desiderata for constraint violation to account for the *-la/-a* distribution. This case becomes much simpler and well behaved as soon as we consider the possibility that *-a* and *-la* are ordered allomorphs.

(41) definite article ⇔ {a > la}

In addition to PRIORITY and more common universal constraints we need the following (also common) constraint:

 (42) *C.V: avoid a syllable that ends in a consonant followed by a syllable
            that begins with a vowel (the worst syllable contact).

Analysis of the cases in which the stem ends in a consonant:

(43) [livla] 'the book'

/liv-{a>la}/	*C.V	R-ALIGN	PRIOR	ONS	DEP
☞ a. liv.la			*		
b. liv.a	*!			*	
c. li.va		*!			

Analysis of the cases in which the stem ends in a low vowel [a]:

(44) [papaa] 'the father'

/papa-{a>la}/	*C.V	R-ALIGN	PRIOR	ONS	DEP
☞ a. papa.a				*	
b. papa.la			*!		

For the cases in which the stem ends in a mid or high vowel, like [laplija] 'the rain' or [batowa] 'the boat', we need to add constraints that control the quality of the epenthetic glide, [j] (front, unrounded) or [w] (back, rounded), following Klein (2003).

(45) AGREE(f) constraints:
 a. AGR-FRONT: a vowel and a following glide must agree with respect to [FRONT]
 b. AGR-ROUND: a vowel and a following glide must agree with respect to[ROUND]

(46) [laplija] 'the rain'

/lapli-{a > la}/	PRIORITY	AGR-FRONT	AGR-ROUND	ONSET	DEP
☞ a. lapli.ja					*
b. lapli.a				*!	
c. lapli.wa		*!	*!		*
d. lapli.la	*!				

(47) [batowa] 'the boat'

/bato-{a > la}/	PRIORITY	AGR-FRONT	AGR-ROUND	ONSET	DEP
☞ a. bato.wa					*
b. bato.a				*!	
c. bato.ja		*!	*!		*
d. bato.la	*!				

Stems that end in a low vowel:

(48) [papaa] 'the father'

/papa-a/	PRIORITY	AGR-FRONT	AGR-ROUND	ONSET	DEP
☞ a. papa.a				*	
b. papa.ja		*!			*
c. papa.wa			*!		*
d. papa.la	*!				

A remaining question is whether the fact that R-ALIGN is ranked so high will prevent resyllabifcation between morphemes. The constraint ranking already established predicts the presence of resyllabifcation accross morphemes.

(49) [bobine] 'to roll up'

/bobin+e/	*C.V	R-ALIGN	PRIOR	ONSET	DEP
☞ a. bo.bi.ne		*			
b. bo.bin.e	*!			*!	

A final issue: given the resemblance between the two allomorphs -*a* and -*la* we could wonder whether this is a real case of allomorphy or -*a* can be obtained from /*la*/ through a deletion process, as some people have proposed (Cadely 2002, Nikiema 1999). The data could be obtained mechanically with a rule of the type /l/$_{\text{Det}} \rightarrow \emptyset$ / V __ plus a later rule that would insert a glide after certain vowels. The problem would be that there wouldn't be any way of capturing the deletion in a natural way.

OTHER POSSIBLE ISSUES TO EXPLORE:
• Cyclicity vs. parallelism: arguments against Mester (1994) by Embick (2010).
• opacity
• PCSA beyond the morpheme: English indefinite article, Western Catalan (handout on DM), French adjectives,...

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