

POTENTIALLY GLOBAL INTERACTIONS ARE RESOLVED LOCALLY

Embick (2010) Chapter 6, Part I

OUTLOOK

The (strong) global predictions of optimality theory are assessed with respect to both real and hypothetical examples of PCA and compared to the Localist theory. As will be seen, the Globalist predictions based on surface phonology are not borne out. Instead, allomorphy selection seems to be driven locally, i.e. step-by-step, in a way that follows directly from a cyclic Localist perspective.

1. GLOBAL INSTEAD OF LOCAL INTERACTIONS

We are interested in those cases where local conditioning requires x_1 from a set of allomorphs x_1, x_2, x_3 and global optimization requires x_3 and the language shows x_3 .

Two possible instantiations

I. “UNCONDITIONED” ALLOMORPHS/PHONOLOGICAL EFFECTS:

Theories with (at least some) Global interaction between morphology and phonology (Global-MP) allow for what look like locally “unconditioned” allomorphs to be inserted, or locally “unconditioned” phonological effects to be found, in cases in which this results in globally optimal outputs.

II. (PHONOLOGICALLY-DRIVEN) ALLOMORPHIC VACILLATION:

Globalist theories predict that there should be cases in which the allomorph that is chosen for part of the paradigm of some Root differs from the allomorph chosen in another part of the paradigm. In such a case, different allomorphs are inserted for the same Root in a way that depends on the global phonological context. The head showing the different allomorphs can be said to show *Allomorphic Vacillation* in this scenario. Crucially, these hypothesized effects could go beyond the local types of outwards-sensitive allomorphy predicted by the theory of Part I.

2. OPACITY EFFECTS

Epenthesis in Turkish: -m 1sPoss

- a. after V
ölçü-m ‘my measure’
- b. after C
el-im ‘my hand’

The opacity effect involving the *-m* morpheme arises after velar consonants. In these contexts a phonological rule of Velar Deletion deletes such consonants intervocally.

(1) *Velar Deletion*: $k \rightarrow \emptyset / V_V$

(2) Example: *ajak* ‘foot’; *-m* 1sPoss

ajak-m	Input
ajak-im	Epenthesis
aja-im	Velar Deletion

While opaque interactions generally pose problems for Global theories, the Localist view accounts for the epenthetic vowel (that appears in spite of not being between consonants on the surface) by serial ordering of *Epenthesis* before *Velar Deletion*:

At the point of the derivation where Epenthesis takes place the insertion of *-i* is motivated locally. Embick calls this the *Local Conditioning Environment*. Whether the factor for some change is visible in a surface form or not (in the case of opacity) is irrelevant as long as there is an earlier derivational step, when the relevant computation (here *-i* insertion) takes place, at which the Local Conditioning Environment for the computation is found.

3. NON-LOCAL (NL) APPLICATION

Example: Overapplication in Tagalog

/paN-RED-pu:tul/ surfaces as *pa-mu-mu:tul*, even though the stem-initial /p/ is not adjacent to the *paN-* affix which triggers nasalization.

(3) McCarthy and Prince’s (1995) analysis

	/paN-RED-pu:tul/	Phono-Constraint	B-R Identity	I-O Faithfulness
a.	pam-pu-pu:tul	* !		
b.	^ɸ pa-mu-mu :tul			*
c.	pa-mu-pu:tul		* !	

NL-APPLICATION: An effect is found in a surface form even though the effect is not constrained to its (typical) *Local Conditioning Environment*, because the constraint system allows global forces to override local ones.

Notice: The Tagalog example does not directly involve Globalism in the Global-MP sense. However, it can easily be formulated in such a way to yield predictions about PCA.

4. ALLOMORPHY AND NL-APPLICATION

Turkish again: (C)V allomorphy with 3s possessive morpheme

(4) VIs

[poss] ↔ -si/V_

[poss] ↔ -i/C_

(5) *Velar Deletion*: k → ∅/V_V

(6) Example: bebek 'baby'; 3sPoss

bebek Input

bebek-i VI

bebe-i Velar Deletion

What if, hypothetically, allomorph selection in Turkish were conditioned by "look-ahead" as defined in (7)?

(7) Insert affix x in a particular environment, unless doing so creates an undesirable representation due to the interaction with other phonological or morphological processes that occur later in the derivation.

SOLUTION: (Global) NL-Application

Possible manifestations

I. ALLOMORPHIC OVERAPPLICATION:

A locally "unconditioned" allomorph is inserted instead of the expected one, because when the whole word is taken into account, the net result is better.

→ In the Turkish case above, -si is inserted after velar-final stems, in order to avoid the hiatus created by Velar Deletion. This would yield e.g. *bebek-si*.

(Viewing this as allomorphic *underapplication* of the -i allomorph amounts to the same thing.)

(8) Hypothetical Turkish I

(i)	fire-si/-i	*HIATUS	VKV	MAX(C)	NOCODA
a.	☞ fire-si				
b.	fire-i	*!			
(ii)	bedel-si/-i	*HIATUS	VKV	MAX(C)	NOCODA
a.	bedel-si				*!
b.	☞ bedel-i				
c.	bede-si			*!	
(iii)	bebek-si/-i	*HIATUS	VKV	MAX(C)	NOCODA
a.	☞ bebek-si				*
b.	bebek-i		*!		
c.	bebe-i	*!		*	
d.	bebe-si			*!	

II. ALLOMORPH-DRIVEN PHONOLOGICAL OVERAPPLICATION:

Rather than inserting an "unexpected" allomorph to avoid a problem, it should also be possible to see the surface results of a phonological change, even though its environment for application is not met locally.

→ In the case of Turkish, deleting the velar /k/ and inserting -si to yield *bebe-si*.

(9) Hypothetical Turkish II

	bebek-si/-i	*HIATUS	VKV	NOCODA	MAX(C)
a.	bebek-si			*!	
b.	bebek-i		*!		
c.	bebe-i	*!		*	
d.	☞ bebe-si				*

Embick's conclusion: The constraint rankings involved in either of the two hypothetical languages would have to be motivated based on larger analyses of the language. At the same time, these two possible systems clarify the types of phenomena that would provide evidence for Globalism.

What about a local alternative?

(10) required VIs for bebek-si

[3s] ↔ -i/C[-vel] _

[3s] ↔ -si

Embick: Reference to an unnatural phonological environment (non-velar consonants) might be impossible, depending on how this part of the theory is configured.

(The situation is similar for bebe-si)

5. A (HYPOTHETICALLY) INSOLUABLE CASE FOR LOCALISM

Hypothetical Turkish might still be resolved locally since allomorph selection could be based on something that is locally visible to the 3s possessive morpheme.

So what happens in a language in which Roots may be followed by three morphemes, -X, -Y, -Z of the following type?

- (11) Structure Root-X-Y-Z
-
- a. X : -tak ; -ilub
 b. Y : -o
 c. Z :
- i. Z1 : -bat
 ii. Z2 : -tarag

Let Z be a morpheme that is not subject to contextual allomorphy. For example, if Z were an AGR node, Z1 and Z2 would represent different combinations of person/number features.

Assume PCA of X based on the metrical properties of the Root:

- (12) -tak after odd-syllabled root
 -ilub after even-syllabled root

Assume further that a PARSE-σ constraint favors even-numbered words in the language.

CASE STUDY: Roots = blik, golut

- (13) Root-X cases
- a. (blik-tak)
 *(blik-i)lub (violates PARSE-σ)
- b. *(golut)-tak (violates PARSE-σ)
 (golu)(t-ilub)
- (14) Root-X-Y-Z cases
- i. blik-X-o-bat: -tak inserted at X
 *(blik-i)(lub-o)-bat
 (blik-ta)(k-o-bat)
- ii. blik-X-o-tarag: -ilub inserted at -X

(blik-i)(lub-o)-(tarag)

*(blik-ta)(k-o-ta)rag

What is optimal in (14) is dependent on the phonology of Z's exponent, because PARSE-σ overrides the local requirement of -tak and -ilub after odd and even syllables, respectively.

→ The properties of the whole word have to be taken into account to derive the correct results

This cannot be achieved in a Local theory for two reasons:

- I. Cyclic spell-out: an inner morpheme cannot be sensitive to the phonology of an outer morpheme
- II. Linear adjacency: X is not adjacent to Z

EMBICK'S CONCLUSION: The above case study is a clear argument for a Globalist theory. However, there appears to be no evidence that such cases are found in natural languages.

6. SAAMI

Saami verbs show allomorphy that yields surface forms that contain an even number of syllables and can be exhaustively parsed into binary feet:

(15) Allomorphs by host syllable count

P/N	Even	Odd
1du	-∅	-tne
2du	-beahhti	-hppi
2pl	-behtet	-hpet
3pl pret	-∅	-dje
passive	-juvvo	-vvo

Example: Optimization of passive 2du jearra 'ask'

'Look-ahead' to outputs offers two possible outcomes for Root-PASS-AGR of passive 2du

- i. Adding two monosyllabic affixes
 *je:rru-vvo-hppi
- ii. Adding two disyllabic affixes
 je:rro-juvvo-beathi

The Localist theory predicts insertion of the disyllabic affix in the inner morpheme position since this is demanded by the local context.

The Globalist theory must be further restrained to produce the correct results, i.e. to exclude other cases that might be expected to arise (here: adding two monosyllabic affixes).

What about cyclic OT?

Embick: Cyclic OT is able in principle to account for at least some of the cases examined above.

BUT: Three morphemes may have their morphology and phonology computed in the same cycle and thus NL-Application is predicted. This kind of interaction is not attested in natural language.

7. INTERIM CONCLUSION

In the cases examined so far, allomorph selection seems to proceed step-by-step, in a way that follows directly from the point of view of a cyclic Localist theory.

There appears to be no evidence in natural languages for the strong predictions of Globalism.

REFERENCES

Embick, David (2010). *Localism vs Globalism in Morphology and Phonology*. MIT Press: Cambridge, Massachusetts.