OO correspondence; Why cyclic rule application is the wrong idea (cont.)

1. **Outline**
   - a better analysis of Palestinian Arabic: OO correspondence
   - base priority in OT analyses; • cyclic domains
   - base-derivative similarity, productivity and level ordering

2. **Palestinian stress and Syncope: we consider only verb-SUBJECT forms first**
   - *stressless high: no stressless high occurs non-finally.
   - Good stress: blanket constraint penalizes deviations from stress pattern outlined above
   - MAX V IO is inactive
   - medial C//V >> initial C//V (same as *CCC >> *#CC)

fihim-t	Good stress	Medial C//V	*stressless high	initial C//V
fíhm-t			*!	
fíhim-t	*!	*		
☞ fhím-t				*

fihim-na	Good stress	Medial C//V	*stressless high	initial C//V
fíhm-na		*!		
fíhimna	*!		*	
☞ fhím-na				*

fihim-at	Good stress	Medial C//V	*stressless high	initial C//V
☞fíhmat				
fíhimat			*!	
fhím-at				*!

3. **An O-O correspondence constraint** (Steriade Labphon 5, 2001; cf. Kager 1999 for alternatives)
In the first attempt to formalize the cyclicity effect, I assume the notions Base and Derivative without further definition.

MAX V-in stress (BD)
For any V, a vowel in base B; and any derivative D of B: if V is stressed then V has a correspondent in D.

4. **Ranking: Good Stress >> MAX V-in stress (BD) > *stressless high**

Input /fihim-na/ Base: fíhim	Good Stress	MAX V-in stress (BD)	*stressless high
☞ fihím-na			*
fhím-na		*!	
fíhim-na	*!		*

Input /fihim-at-u/ Base: fíhm-at	Good Stress	MAX V-in stress (BD)	*stressless high
☞ fíhm-at-u			*
fhím-at-u		*!	*

5. **Excursus: related phenomena elsewhere: English and Catalan**
a. Summary of English effect: in some dialects of English (described in SPE) stress is preserved despite resulting clash in a derivative's syllable corresponding to the main stressed syllable in the base.

2nd stress corresp. to 1 stress in base	2nd syll does not carry. 1st stress in base
còndènsátion (condénse)	còmpensátion (cómpensàte)
mànifèstátion (mànifést)	fòrestátion (fórest or fórèst)
fràgmèntátion (fragmént)	fècundátion (fécund)
òrièntátion (òriént)	? mìnistrátion (mínister)

Ident main-stress BD: For any V, a vowel in base B; and any derivative D of B: if V is main stressed then any correspondent V' of V occurring in D is stressed.

> Ident main stress BD >> *Clash

(a)   Ident syllabic-in stress (BD) >> Hiatus (*VV) in Catalan >> Ident syllabic (BD)

> Summary: in Catalan hiatus is normally resolved through glide formation. But hiatus is tolerated if the potential glide (a UR high vowel) carries main stress in the base. Mascaró 1976 MIT diss.

High vowel corresp. to 1 stress in base	High V does not carry 1st stress in base
ruinós (ruína) 'ruinous' rəimét (rəím) 'grapelet' pruduirá (pruduí) 'will produce'	no jnstár (instár) 'not to instate' əwbrír (ubrír) 'in order to open' pruduirá wksidəsjó (uksidasjó) 'will produce oxidation'

These cases suggest a general ranking schema Corr-in-stress (BD) >> Corr-not-in-stress (BD), where Corr stands for specific correspondence constraints like MAX V, Ident F etc.

6. In the same vein

Input /staʃaar-na/ Base: staʃáar	Good Stress	Ident-long-in-stress BD	*VVCC
☞ staʃáar-na			*
staʃár-na		*!	

7.   Summary of Palestinian analysis

	Phonotactics	**Correspondence**
Undominated	Good Stress Medial C//V	MAX/Ident-long-in-stress BD
Active	*stressless high Initial C//V *VVCC	
Inactive		MAX/Ident-long-not-in-stress BD, Ident stress BD MAX/Ident-long/Ident stress IO

> Advantages compared to the cyclic analysis:
> - no secondary stress, or secondary stress deletion is needed.
> - *fihímna* and *staSaárna* are accounted for in parallel ways
>   MAX/Ident-long-in-stress BD >> competing phono (*stressless high, *VVCC)

8.　Summary of this type of O-O analysis and implications

• The cyclic effects described above lend themselves to the following analytical schema:
O-O correspondence (such as Corr-in-stress BD) >> Phono-C >> I-O correspondence

Language	Phenomenon	Ranking
Levantine	i deletion blocked in derivative when i in base is stressed	MAX V-in-stress >>*i >> MAX (V) I-O
Levantine	V shortening blocked in derivative when V: in base is stressed	Id long-in-stress >>*VVC >>Id long I-O
Catalan	Glide formation blocked when high vowel in base is stressed	Id syllabic-in-stress >> *VV >> Id syllabic
English	Stress clash tolerated when syllable in base carries main stress	Id main stress BD >> *Clash >> Ident stress IO

• The same schema yields analyses for correspondence in cases of truncation (Benua 1997):

Language	Phenomenon	Ranking
English	Ill-formed rhymes tolerated when they correspond to VC sequences in full noun: [lær] from [læri]	Ident F & MAX segment (Full noun-Truncated noun) >> *ær] >> Ident F or MAX segment I-O

9.　Cyclic application fails to predict enough

(a)　Not all BD similarity effects can be uniformly modeled via cyclic rule application

• **Overapplication** (= cycle *prior to* productive affixation undergoes rule):
E.g. cluster simplification and liquid syllabicity

• **Underapplication** (= cycle of productive affixation is exempted from rule):
E.g. stress antepenult blocked in *rémedying*

• **Misapplication**: rule applies in the wrong way
E.g. main stress selection misapplies in *prógràmmable*

Cyclic application by itself explains none of these cases:

(b) Requirements of surface base-derivative identity can predict *which rules will overapply* and *which ones will underapply* in the derivation of a derivative

Which rules overapply: those which would be bled by the addition of the next affix
E.g. liquid syllabicity in *puz[ļ]ing*

These rules overapply in order to allow the derivative (form generated on cycle n+1) to acquire a property present in the base (cycle n). In that way both the derivative and the base will have the same property.

Which rules underapply: those whose structural condition is not met on the early cycle in the same way as it is met in the base.

E.g. stress in *rémedying*: the antepenult syllable is different in the base & the derivative.

These rules underapply in order for the derivative to avoid taking into account information that's different in the derivative compared to the base. Here too, the goal of underapplication is to keep base and derivative identical. Cyclic application characterizes the case of overapplication but cannot explain which rules overapply.

(b) It does not predict that cyclic application will create a derivative that's similar to its base. By contrast, if a OO correspondence constraint is invoked, and if the constraint is active, it will have the necessary effect of creating BD similarity.

© It does not predict which affixes will be associated with cyclic rule application. In fact, there appears to exist a correlation of cyclicity (i.e. BD similarity) with productivity of affixation.

10. Some evidence from English
Base-derivative similarity correlated with affixal productivity
(see: Borowsky 1993 in Hargus & Kaisse eds; Steriade 2000 Labphon; Hay 2001 NWU diss.)

	Same stresses?	Same main stress?	Same syllabicity?	Same segment at right edge?
Unproductive: **-ity**	No: **sólid, solídity**	No	No: **capa[bl̩] capa[bɪl]ity**	No: **cycli[k], cyclí[s]ity solemn, sole[mn]ity**
Unproductive: **-al, -ic**	No: **párent, paréntal**	No	No: **cy[kl̩] cy[klɪk]**	No: **cólumn, colú[mn]al**
Productive: **-able**	Yes: **chállenge, chállengeable**	Variable: **ànalýzable** but ok **prógràmmable**	[dissimilatory effect: *l…l̩]	Yes: **da[m], da[m]able si[ŋ], si[ŋ]able bo[m], bo[m]able**
Productive: **-ing, -er**	Yes: **rémed[iɪŋ], rémed[iɚ]**	Yes: **ánalỳzing prógràmmer**	Yes: **puz[zl̩] pu[zl̩ɪŋ] pu[zl̩ɚ]**	Yes: **lic[k]ing si[ŋ]ing, si[ŋ]er bo[m]ing, bo[m]er**

11. Comment on (10)
• Bases systematically resemble their productive but not their unproductive derivatives

• This can be explained if we assume that:
   (a) the phonology of productive derivatives is subject – in languages like English – to active constraints of Base Derivative identity which invariably outrank IO correspondence and can outrank certain phonotactic constraints as well.

   (b) the phonology of unproductive derivatives is frequently listed (e.g. *cycli[s]ity*; *colu[mn]ar*); or it displays phonotactic optimization at the expense of base derivative similarity (*oríginal*), as if these forms lacked bases.

Early attempts to deal with cyclicity in OT

12. Cyclic constraint evaluation
        (Kiparsky to appear, CSLI: LPM OT; Kenstowicz Phonology 1995; cf. McCarthy NELS 1999, ROA):

- Assume that constraint evaluation takes place on some inner Stem constituents, prior to affixation.

- Assume that in Stem-Af_1, the input to affixation of Af_1 is the optimal candidate for Stem.

- Assume that in a multiply affixed form Stem-…Af_n-Af_{n+1}, the input to Af_{n+1} affixation is the optimal candidate for Stem-…Af_n.

- The grammar consists of a hierarchy of ranked constraints divided into markedness and correspondence

- There are only IO correspondence constraints:
        input to cycle 1 = UR;
        input to cycle n = optimal candidate emerging from cycle n-1 evaluation.

13. We first show that this simple system cannot work
        Example: *peripherality*

- 2nd cycle (assume that input is *perípheral,* the output of the 1st cycle of evaluation
- Ident stress I-O: correspondent syllables have identical values for [±stress]

perípheral-ity	*σ̀ σ́ – no clash	Stress antepenult	Ident stress I-O	Stress 1st
☞perìpherál-ity			*	*
pèripherál-ity			*!**	
pèriphèrálity	*!		*	
perípheral-ity		*!		*

        • The first cycle: suppose the UR has no stress marks

peripheral	*σ̀ σ́ – no clash	Stress antepenult	Ident stress I-O	Stress 1st
☞perípheral			*	*
pèrípheral	*!		**	
pèriphéral		*!	**	

This constraint hierarchy will yield the correct outcomes for words with four lights regardless of the presence or absence of stresses in the UR (assuming further that Nonfinality also outranks Idents stress IO).
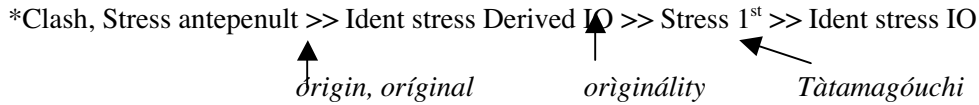
But it will yield incorrect results in the case of the constraint that is outranked by Ident stress IO. We have assumed that Ident stress IO >> Stress 1st for the following reason. In non-derived words possessing more than one light syllables to the left of the main stress (*Tatamagouchi, Winnepesaukee, Apalachicola, hammamelidanthemum…*) there's always an initial stress. This simple fact suggests that Stress 1st is an active constraint in English and that it is violated only in derived forms like *perìpherálity*, for the sake of Ident stress satisfaction. This led to the hypothesis of Ident stress >> Stress 1st.

But the same ranking cannot do justice to the original observation about *Tatamagouchi* etc since there
Richness of Base requires Stress 1st >>> Ident stress.

14. **So: Is it the same constraint hierarchy on every cycle**?
Yes, if Ident IO ≠ Ident Derived IO

• So we need Ident IO ≠ Ident Derived IO, a distinction left unacknowledged

*Clash, Stress antepenult >> Ident stress Derived IO >> Stress 1st >> Ident stress IO

        ↑   ↑   ↖

órigin, oríginal   *orìginálity*   *Tàtamagóuchi*

15. **Aside from this, this system** is fairly similar to one with cyclic rule application

• **Base derivative similarity**: characterized through Ident Derived Input
• **No guarantees**: Ident Derived Input can but need not be active. If this turns out to be too weak a position, explicit statements about its high ranking can be incorporated.
• **Base priority**: guaranteed.
• **Proximate base**: guaranteed
• **No transderivational similarity**: guaranteed.
• **No foresight**: guaranteed

The major difference: the existence of correspondence conditions which can provide very direct statements of base derivative identity.

16. **Progress (?) in LPM OT**

Critical constraints appears below:

• MAX stress V DI-O: a stressed V in the derived input has a correspondent in the output.
• *stressless high: no stressless high occurs non-finally.
• Good stress: blanket constraint abbreviating penalties for deviations from stress pattern outlined above
• MAX stress V IO is inactive

Here are 1st cycle evaluations for some important forms. We assume that the constraint MAX stressed V DI-O is vacuously satisfied here since we have no derived inputs at this point.

fihim-at	MAX stressed V DI-O	Good stress		*stressless high	*#CC
fíhm-at					
fíhim-at				*!	
fhím-at					*!

fihim-t	MAX stressed V DI-O	Good stress	*CCC	*stressless high	*#CC
fíhm-t				*!	
fíhim-t		*!	*		
fhím-t					*

fihim-na	MAX stressed V DI-O	Good stress	*CCC	*stressless high	*#CC
fihím-na				*!	

fíhm-na			*!		
fhím-na					*
fíhim-na		*!		*	

Here is now a second cycle evaluation for /fihim-ø-na/

fíhim-ø-na	MAX stressed V DI-O	Good stress	*CCC	*stressless high	*#CC
fihím-ø-na				*	
fíhm-ø-na			*!		
fhím-ø-na	*!				*
fíhim-ø-na		*!		*	

And another 2nd cycle evaluation. Note that the input here is the 1st cycle output: fíhmat.

fíhm-at-u	MAX stressed V I-O	Good stress	*CCC	*stressless high	*#CC
fíhm-at-u				*	
fhímat-u	*!				*

This works better than Brame's analysis: we don't need the appeal to the phantom stress on 1st because explicit correspondence conditions derive directly the desired BD similarity,

• Does this also yield a unified analysis for *the staʃáar-na* case? No but the constraint needed is related to MAX stressed V: it's MAX stressed *μ* DI-O and its ranking is >> *VVC

• The general ranking schema is:
Corr ó D IO >> *VVC, stressless high >> Corr IO