Correspondence basics continued: MAX F and positions

Today's topics:

1. Coalescence, Ident aF vs. MAX F constraints continued
2. Fixed rankings of MAX F
3. Floating features and MAX F constraints; floating tones
4. MAX segment$_{[\alpha F]}$ constraints
5. Linearity, segment integrity and segment deletion in a MAX F theory
6. Positional correspondence: Beckman's version
7. Which position: both UR and SR

MAX F constraints

1. Coalescence can be described in two ways:

a. MAX segment, Ident aF >> Ident –aF, Uniformity

a_1i_2	MAX	Ident [+low], Ident [-back]	Ident [-low], Ident [+back]
☞ e_{12}			**
a_{12}		*! [-back]	
i_{12}		*! [+low]	

b. MAX aF >> MAX -aF

ai	MAX [+low], MAX [-back]	MAX [-low], MAX [+back]
☞e		**
a	*! [-back]	
i	*! [+low]	

2. An unsuccessful system based on local conjunction of constraints

a. MAX segment, Ident ±F ∨ ±G[1] >> Ident ±F, Ident ±B

a_1i_2	MAX	Ident [±low] ∨ [±back]	Ident [±low], Ident [±back]
☞e_{12}			**
☞$\mathbf{i}_{12}$			**
a_{12}		*!	
i_{12}		*!	

Similarly this system cannot decide whether to map [eo] to [ø] or [ʌ]. It's not obvious that one vowel more marked than the other (in the implicational sense) so we can't rely on *ʌ >> *ø.

3. **Invariant properties of coalescence** (Casali 1997, survey of cca 92 languages):
   - [+low] always wins over [-low]
   - [-high] …. over [+high]
   - [+round] … over [-round]

   Both systems in (1) can characterize this through fixed correspondence rankings.

[1] Local-conjunction constraint violated by every output segment that violates both Ident [±F] and Ident [±G] wrt any one of its underlying correspondents.

4. **Empirical differences**:
   MAX F can characterize the preservation of floating features.
   MAX F can characterize F-sensitive segment deletion.

5. **Floating F**: Sanskrit aspiration (Grassmann's Law: Collinge 1984)
   (a) CVD^h-V…, CVD^h-sonorant: preserved intact (*runad^h-mi* 'I obstruct')
   (b) DVDh-s, DVDh# : aspiration "thrown back" to a voiced stop in root, if any (*bud^h-sa-ti* [b^{h}utsati])

   What favors *b^{h}utsati* over *butsati*? Not a conjoined constraint. Not Ident [+asp]:

bud^h-sa-ti	C^h/_ son	Ident [+asp]	*C^h
but^{h}sati	*!		
☞ butsati		*	
☹ b^{h}utsati		*	*!

   The effect of MAX [+asp]

bud^h-sa-ti	C^h/_ son	MAX [+asp]	*C^h
but^{h}sati	*!		
butsati		*!	
☞ b^{h}utsati			*

   Richness of base precludes solutions that bank on the UR's of Sanskrit roots containing only D^{h}VD^h, not also DVD^h.

6. **Linearity among features?**
   Some constraint penalizes F's surfacing on segments they did not belong to in UR. Otherwise, in a MAX F system, most phonotactic constraints will be satisfied through reassignment of F to the right segment. Assume that features are ordered wrt each other: then Linearity applies to features and this will do it.

   a. The effect of Feature-Linearity

bud^h-sa-ti	C^h/_ son	MAX [+asp]	F-Linearity
but^{h}sati	*!		
butsati		*!	
☞ b^{h}utsati			*(h vs. F's in [u])

   Two Linearity constraints:
   (a) Weak Linearity: If x precedes y and xRx', yRy' then y' does not precede x'
   (x, x', y, y' feature values; xRx' = x and x' are correspondents)
   Violated only by metathesis

   (b) Strong Linearity: If x precedes y and xRx', yRy' then x' precedes y'
   Violated by metathesis and coalescence.

/ai/	Weak Lin	Strong Lin
☞e		*
ja	*!	*

7. **Floating T**: Kenstowicz 1987; Kizigula, Bantu.
(stressed syllables are in bold characters; L tones not marked)

Toneless roots	H roots
ku-lag**a**z-a 'to drop'	ku-lomb**é**z-a 'to request'
ku-gul**u**k-a 'to run'	ku-ham**í**l-a 'to bump'
ku-sog**e**l-a 'to approach'	ku-kaz**í**ng-a 'to fry'
ku-songel**e**z-a 'to aggravate'	ku-bindil**í**z-a 'to finish'
ku-lagaz-**i**l-a 'to drop for'	ku-lombez-**í**l-a 'to request for'
ku-lagaz-**a**n-a 'to drop e.o.'	ku-lombez-**á**n-a 'to request e.o.'
ku-lagaz-il-**a**n-a 'to drop for e.o.'	ku-lombez-il-**á**n-a 'to request for e.o'
na-lag**a**z-a 'I drop'	a-songel**é**z-a 'he aggravates'
wa-lag**á**z-a 'they drop'	a-bíndil**í**z-a 'he finishes'
wa-lagaz-il-**á**n-a 'they drop for e.o.'	a-lômb**é**z-a 'he requests'

Tone is not a segment in the standard sense (must be realized on a segment) but a feature. Ident H tone is insufficient: only MAX H works here.

	ku, lómbez, il, a	MAX H	*H/stressless	Strong Linearity
a	ku-lómbez-**il**-a		*!	
b	ku-lombez-**i**l-a	*!		
☞ c	ku-lombez-**í**l-a			* (H vs. all F's in *mbez*)

By comparison, consider an analysis based on Ident H and Ident -H

	ku, lómbez, il, a	Ident H	Ident -H	*H/stressless
a	ku-lómbez-**il**-a			*
b	ku-lombez-**i**l-a	*		
☹ c	ku-lombez-**í**l-a	*	*	

(c), the desired candidate, cannot win under any ranking against (b).

This example suggests that Linearity is differently evaluated depending on which features it relates: Linearity between Tone and segmental features seems to be lower ranked than Linearity between segmental features: Kizigula reorders tones wrt segmental F's but not segmental F's among themselves.

5. **F-Sensitive elision** (Casali 1997):

• *V.V can be satisfied through: **coalescence**: e.g. ai -> e; **glide formation**: e.g. ai -> aj
epenthesis: ai -> aʔi; **elision**: ai -> a or ai -> i

• elision target identified by order (V_1V_2 -> V_2) or morphology (V_{root}//V_{affix} -> V_{root})

• target may also be identified by its features: e.g. ai -> a, ia -> a

6. **Greek elision** (data in Casali 1997; analysis a bit revised):

i. a//V -> a	ta exo -> taxo me aɣapai -> maɣapai ta onirevome-> tanirevome	'them I have' 'me he loves' 'them we dreamt'
ii. mid//high -> mid	to urliazi -> torliazi eu -> e (no cited example)	'it he howls'
iii. round//plain -> round (same height)	to edosa – todosa me onirevome -> menirevome (?)	'it gave' 'me we dreamt'

(a) No coalescence here: eu -> e not o. Ident F will not choose between e and u.
(b) But feature hierarchies active in coalescence are active here too:

+low > -low: a//e -> a
-high > +high: o//u -> o
+round > -round: o//e -> e
-high > +round u//e -> e

(c) Use MAX αF and F linearity.

eu	F linearity	MAX -high	MAX +round
o	*! ([-high]-[+round])		
u		*!	
☞e			*

MAX αF: an αF in S_1 has an identical correspondent in S_2.
F-Linearity: If [αF] precedes [βG] in S_1, and if they have S_2 correspondents, then the S_2 correspondents stand in the same precedence relation.

(d) Alternative: MAX segment containing αF >> MAX segment containing βG

eu	MAX seg $_{-high}$	MAX seg $_{+round}$
o		
u	*!	
☞e		*

MAX seg $_{aF}$ If a segment specified as [aF] exists in S_1, it has a correspondent in S_2.

But without MAX F constraints, the parallel typology for feature sensitive elision and coalescence cannot be formally unified:

Coalescence: a//e -> æ, not ʌ requires Ident [+low] >> Ident [-low]
F-sensitive elision: a//e -> a, not e requires MAX $seg_{[+low]}$ >> MAX $seg_{[-low]}$

MAX F system unifies these as: MAX [+low] >> MAX [-low]
Coalescence: MAX [+low] >> MAX [-low], Strong Linearity
Elision: Strong Linearity, MAX [+low] >> MAX [-low]

7. **A similar argument for MAX F: Cantonese** (Silverman 1992 Phonology)

(a) Undominated phonotactics are *CC onset/coda and *[-cont,+cons] in coda.

Preserve strident as such thru epenthesis	/bus/ -> pasi, not *pat
Turn non-strident fricative to stop	/leaf/ -> lip, *lifi
Preserve strident as such thru epenthesis	/tips/ -> t^hipsi, *tip
Drop non-strident coda after C	/bend/ -> pen, *penti

(b) A MAX F analysis

MAX [+strident] >> DEP V	/bus/ -> pasi, not *pat
DEP V >> MAX [+cont]	/leaf/ -> lip, *lifi
By transitivity: MAX [+strident] >> MAX [+cont]	

(c) A MAX seg/Ident [±F] analysis.

Ident [+strid]>> DEP V	/bus/ -> pasi, not *pat
DEP V >> Ident [+cont]	/leaf/ -> lip, *lifi
MAX $C_{[+strid]}$ /_# >> DEP V	/tips/ -> tipsi, *tip
DEP V >> MAX $C_{[-strid]}$ /C_#	/bend/ -> pen, *penti

(d) Duplication of constraint families is not the only downside. System actually predicts more patterns than the alternative MAX F account; none of them attested.

Ranking	Predicted pattern
MAX $C_{[+strid}$ DEP V >> Ident [-strid] >> Ident [-strid] >> MAX $C_{[-strid}$	Stridents modified to surface in their position, non-stridents dropped

Imaginary example:

Coda =ʔ,ŋ,	
MAX $C_{[+strid]}$, DEP V >> Ident [+strid]	/bus/ -> buʔ, *busi
DEP V >> Ident [-strid]>> MAX $C_{[-strid]}$	/foot/ -> fu, not *fuʔ
Modeled on Seleyarese where	
Coda =ʔ,ŋ, MAX [+strid] >> DEP V	/bus/ -> busu
DEP V >> MAX F ≠ [+strid]	/foot/ -> fuʔ

8. **Segment deletion in a MAX F system lacking MAX segment constraints**

• In a MAX seg, Ident F system, deletion results from: Ident [aF] >> MAX $seg_{[aF]}$

• In a MAX F system lacking MAX seg constraints, segment deletion requires a different mechanism. Ranking of DEP F wrt MAX F? Not fully explored.

Greek /kekomid-ka/->[kekomika] *[kekomiska]: DEP [+strid] >> MAX coronal

/siŋg/ -> [sɪŋ], *[sɪŋk]:	DEP [-voice] >> MAX [-nasal, -son]/context
/hɪmn/ -> [hɪm], *[hɪmd]:	DEP [-nas, -son] >> MAX [+nasal, +son]/context

9. **Summary:**
   • Even when supplemented with MAX $C_{[aF]}$ constraints, a system using Ident aF as a substitute for MAX aF fails to account for the recovery of floating features and for the shared properties between feature sensitive segment deletion and feature modification or coalescence.
   • MAX F accounts for all these cases. It must be supplemented by Feature Linearity constraints which penalize migration of features from one segment to the next.
   • Segment deletion not explored in MAX F systems. Until then the proposal to replace Ident F by MAX F remains in limbo.
   In what follows I use Ident F to maintain intelligibility with the rest of literature.

Positional correspondence

10. **Two related effects**:
    • For every feature F, specific positions where F-contrasts more likely to occur.
      s-z voicing contrast in _V (*sit, zit*) and V_ (*bus, buzz*) but nowhere else.
    • Phonological processes protect F values in these positions, as against others.
      voicing assimilation targets in non pre-V position:
      VTDV -> VDDV, VTDV -> VTTV
11. **Standard proposal** (Casali 1997 *Language*, Beckman 1998 *Phonology*):
    • Directional assimilation is the result of:
      MAX F in position P, Agree >> MAX F (context free)
    Or MAX F in position P, Agree >> MAX F in position other than P

    • And not as:
      Agree wrt F>> F must be in P >> context free Ident/MAX F

12. **Which context matters**: modified French voicing (Dell *Lingua* 1995)
    • V deletion: aʃɛt ‘buys’ aʃ̣te ‘bought’ /aʃət–e/
    • Voicing assimilation: aʒəte ~ aʃte ‘has thrown’ /aʒət–e/
    • Assume: aʃɛv ‘finishes’ aʒ̬ve ‘finished’ /aʃəv–e/

13. **Surface context**: If a ***surface prevocalic*** segment s has an underlying counterpart s’, then if s’ is [+voice], s is also [+voice]. (And likewise [-voice])

aʃəʒ̬ve	Agree voice	Id[±voice]/_V_{SR}	Id [±voice]/¬(_V_{SR})
aʃfe		*!	*
☞aʒve			*

14. **Not underlying context,** in this case: assume that _V refers to UR context

aʃəʒ̬ve	Agree voice	Id [±voice]/_V_{UR}	Id [±voice]/¬(_V_{UR})
✋aʃfe		*	
✋aʒve		*	

Third candidate will lose eventually: ***DD** (*voiced obstruent cluster)

15. **Patterns suggesting the opposite**: Hindi place assimilation
    - V deletion: kəmər 'waist' kəmrõ 'oblique-pl'
    - Place assimilation: underlying NC clusters always homorganic aŋken 'mark', *anken
    - No post-deletion assimil: sənək 'craze' sənkõ 'oblique-pl'

sənəkõ	Id [±voice]/ (_V_{UR})	Agree place	Id [±voice]/¬(_V_{UR})
☞sənkõ		*	
səŋkõ	*!		
səntõ	*!		

anken	Id [±voice]/ (_V_{UR})	Agree place	Id [±voice]/¬(_V_{UR})
anken		*!	
☞aŋken			*
anten	*!		

16. **Effect of stress as context**: underlying context
    - If V is stressed in input, V is preserved
    - Eg.g. Catalan (Mascaró 1976 MIT): high vowel glides after V *fránku-jtaljá* Underlyingly stressed V protected: *ruína* 'ruin', *ruinós* 'ruinous'

17. **Conclusion**:
    - Positional correspondence needed
    - Two classes of constraints: UR vs. SR position.
    - Typology of these effects is not clear at all: for one and the same phenomenon (e.g. preservation of syllabicity under stress; or place assimilation) we don't have both options (Corr/ $Context_{UR}$) and Corr/$Context_{SR}$) attested.