Breaking (Foot) Boundaries: Finnish Metrical Parsing Under HS-IFO

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Goals:

- Apply Harmonic Serialism: Iterative Foot Optimization (Pruitt, 2010) to data from Finnish
- Modify existing sets of constraints from HS-IFO for this Finnish data to best account for ternarity

Background

- Pruitt (2010) makes the following assumptions about metrical parsing in order to use HS-IFO
  - feet are maximally disyllabic with one designated head
  - feet can be built by GEN, but not altered or removed
  - there is a ban on adding unassigned syllables into already-assigned feet
- Finnish stress (Kiparsky, 2003):
  - binary trochees are laid down from left to right; primary stress is on the first syllable
  - LH́ effect: when a LH́ is encountered, the light syllable is skipped and added to the prior foot, creating a ternary foot
  - see examples 1a-c

1. (a) (ká.las).(tè.let) “you’re fishing”
   (b) **(ká.las.te)**.(lèm.me) “we’re fishing”
   (c) (jǎr.jes).**(tèl.mäl.li)**.(sỳy.del).(lǎ.ni) "my systematicity" (Adess.Sg.) (Kiparsky, 2003)

Constraints:

- ALIGN-L: the left edge of a word should align with the left edge of a foot
- *LAPSE: Every weak beat must be adjacent to a strong beat or the word edge (Elenbaas & Kager, 1999)
- NON-FINAL: the final syllable should not be stressed
- PARSE-σ: one violation mark for each unfooted syllable
- FTBIN: feet are binary at some level of analysis (one violation mark per foot that is not binary)
- TROCHEE/IAMB: one violation mark per right-/(left-)headed foot
- S2W: Stress-to-Weight; stressed syllables are heavy
- ALL-FT-L/R: one violation mark per syllable between each syllable and the left/right edge of the word

3rd iteration

/('ka.las).te.('lem.me)/	ALIGN-L	*LAPSE	NON-FINAL	PARSE-σ	FTBIN	TROCHEE	S2W	ALL-FT-L
('ka.las).te.('lem.me)				1			1	3
→('ka.las.te).('lem.me)					1		1	3
('ka.las).(te.'lem.me)					1	1	1	2

Figure 1: HS-IFO tableau for /kalastelemme/ “we’re fishing”; first two iterations omitted for space; numbers are used in HS-IFO analyses in place of violation marks

Analysis:

- Cannot account for the dactyls in Finnish with the constraint sets and rankings used in Pruitt (2010) or Kiparsky (2003) using HS-IFO
  - Pruitt’s (2012) analysis leaves unparsed, extrametrical syllables word-medially, which disregards the exhaustive parsing of Finnish and is also acquisitionally unlikely
  - Kiparsky’s (2003) analysis is functional, but Stratal OT is problematic. It is incredibly powerful, but also unbounded and prone to overgeneration
- Through the combination of ALIGN-L, *LAPSE, and PARSE-σ I propose, it is possible to account for intermittent ternarity
  - necessary to disregard all of Pruitt’s (2010) assumptions about HS-IFO

Conclusion

- If the second and third assumptions from Pruitt (2010) exist to support the first assumption, disregarding the three may be acceptable
- The *LAPSE constraint is also possibly problematic (overgeneration)
- My analysis probably cannot account for opacity (as in Tihonova, 2009)
- Would it be better to overhaul the whole constraint system for metrical parsing rather than trying to make do with an old system? (eg Hyde 2002, 2007).

Selected References:

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Kiparsky, P. (2003). Finnish Noun Inflection. In D. Nelson & S. Manninen (Eds.), *Generative Approaches to Finnic and Saami Linguistics* (pp. 109-161). CSLI Publications. https://www.researchgate.net/profile/Paul_Kiparsky/publication/265756560_Finnish_Noun_Inflection/links/56bfaa1408ae44da37fa7053/Finnish-Noun-Inflection.pdf

Pruitt, K. (2010). Serialism and locality in constraint-based metrical parsing. *Phonology*, 27, 481-526. https://doi.org/10.1017/S0952675710000229

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Tihonova, O. (2009). *Acquisition and opacity* [Unpublished master's thesis]. Universitetet i Tromsø. https://munin.uit.no/bitstream/handle/10037/2031/thesis.pdf?sequence=2&isAllowed=y

/ka.las.te.let/	FTBIN	TROCHEE	PARSE-σ	ALL-FT-L	IAMB	ALL-FT-R
1st iteration						
ka.las.te.let			4			
→('ka.las)te.let			2		1	2
ka('las.te)let			2	1	1	1
ka.las('te.let)			2	2	1	
ka('las)te.let			3	1	1	2
ka.las.te('let)			3	3	1	
(ka.'las)te.let		1				2
ka(las.'te)let		1		1		1
ka.las(te.'let)		1		2		

2nd iteration						
/('ka.las)te.let/	FTBIN	TROCHEE	PARSE-σ	ALL-FT-L	IAMB	ALL-FT-R
('ka.las)te.let			2		1	2
→('ka.las)(,te.let)				2	2	1
('ka.las)te(let)			1	3	1	2
('ka.las)(,te)let	1		1	2	1	3
('ka.las)(te.,let)		1		2	1	2

Figure 2: Derivation under Pruitt's (2010) HS-IFO ranking for *kalastelet* "you're fishing"

Figure 1 continued

/ka.las.te.lem.me/	ALIGN-L	*LAPSE	NON-FINAL	PARSE-σ	FTBIN	TROCHEE	S2W	ALL-FT-L
1st iteration								
ka.las.te.lem.me		3		5				
→('ka.las).te.lem.me		2		3			1	
ka.('las.te).lem.me	1	1		3				1
ka.las.('te.lem).me	1			3			1	2
ka.las.te.('lem.me)	1	1		3				3
(ka).las.te.lem.me		2		4	1			
ka.(las).te.lem.me	1	1		4				1
ka.las.(te).lem.me	1			4	1			2
ka.las.te.(lem).me	1	1		4				3
ka.las.te.lem.(me)	1	2	1	4	1			4
2nd iteration								
/('ka.las).te.lem.me/	ALIGN-L	*LAPSE	NON-FINAL	PARSE-σ	FTBIN	TROCHEE	S2W	ALL-FT-L
('ka.las).te.lem.me		2		3			1	
('ka.las).('te.lem).me				1			2	2
('ka.las).(te.'lem).me				1		1	1	2
→('ka.las).te.('lem.me)				1			1	3
('ka.las).te.(lem.'me)		1	1	1		1	2	3
('ka.las).(te).lem.me				2	1		1	2
('ka.las).te.(lem).me				2			1	3
('ka.las).te.lem.(me)		1	1	2	1		1	4
3rd iteration								
/('ka.las).te.('lem.me)/	ALIGN-L	*LAPSE	NON-FINAL	PARSE-σ	FTBIN	TROCHEE	S2W	ALL-FT-L
('ka.las).te.('lem.me)				1			1	3
→('ka.las.te).('lem.me)					1		1	3
('ka.las).(te.'lem.me)					1	1	1	2

(Further parsing or iterations are not possible.)