

Ideas for Final Projects

Logic

1. Comparing Representations
 - Strother-Garcia (2019) compared syllabic representations ignoring issues like extra-syllabicity and ambi-syllabicity. Extend her comparison to include those things.
 - Danis (2024, AMP) argues that it is insufficient to conclude that comparisons between different representations are “the same” if they are QF-bi-interpretable, and presents additional measures of comparison. Revisit some earlier work with those measures in mind (cf. Nelson 2022).
 - Compare different representations.
 - Lionnet (2024, AMP), argued that register and tone belong on different tiers in order to account for downstep. Formalize the comparison with logic.
2. Investigate a complex morpho-phonological phenomenon and provide an analysis of it using logical transductions.
 - Check out recent issues of Phonology.
 - Gouskova 2024 argues against Richness of the Base on the basis of Russian voicing patterns, and that there should be constraints on underlying forms. How could constraints on URs simplify (or complexify) logical transductions?
 - Check out the recent AMP (or the one before it) for ideas.
 - Mellesmoen examine multiple reduplication and triplication in St’át’imcets.
 - Siah, Zukoff, & Hsieh examine multiple reduplicative opacity in Malay.
 - Phonotactic patterns that have been notes as complex are worth studying as well. In this regard, Lambert’s Language Toolkit and plebby software can prove invaluable.
 - Consider altering the representational assumptions to obtain an arguably better analysis (as was the case in Hwangbo’s and Sebastian’s chapters).
 - Analyze your own field research!
3. Investigate the typology of a class of patterns, and see if it can be understood as a collection of basic building blocks as was the case in Strother-Garcia and Lambert’s chapters in the book.

Learning

1. Logan and Han have implemented versions of BUFIA for featural representations and autosegmental representations, respectively.
 - Compare BUFIA with other phonotactic learning algorithms. Find or develop an appropriate corpus, run BUFIA, analyze the results, and, time permitting, compare to some alternative.
2. Implement Payne’s 2024 generalization of BUFIA to learn positive grammars. Time permitting, run it on a corpus of English or Quechua words, and examine the results.
3. Anything related to learning finite-state transducers, or logical transductions.
4. Anything related to learning underlying representations and phonological processes from a morpho-phonological paradigm. Recent related work:
 - Barke et al. (2019) “Constraint-based learning of phonological processes” (EMNLP)
 - Ellis et al. (2022) “Synthesizing theories of human language with Bayesian program induction” (Nature Communications)
 - Rasin et al. (2021) “Approaching explanatory adequacy in phonology using minimum description length” (JLM)
 - Hua and Jardine (2021) “Learning input strictly local functions from their composition” (ICGI)