A Diachronic Counter-example to the Subset Principle: The Case of Anatolian Reduplication
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AMP 2018 • University of California, San Diego • Oct 5-7, 2018

1. Introduction
- The “Subset Principle” (cf. Prince & Tesar 2004): learners choose the most restrictive grammar consistent with the positive evidence (≈ initial bias of MARKEDNESS ≫ IO-FAITHFULNESS).
  - Capturing the Subset Principle is key argument in favor of Biased Constraint Demotion (RCD; Prince & Tesar 2004) and Low Faithfulness Constraint Demotion (LFCD; Hayes 2004) over simple Recursive Constraint Demotion (RCD; Tesar & Smolensky 1998).
- The diachronic development of the Anatolian reduplicative system represents a case where speakers learned a superset grammar.
  - Our learning algorithm needs to accommodate (a specific kind of) non-Subset learning.
- Proposal: “Maximally Informative Recursive Constraint Demotion” (MIRCD)
  - A version of RCD (or BCD) which is biased towards winner-prefering constraints that can account for the greatest amount of data possible.
  - Non-Subset learning is permitted with MIRCD when there is a superset-subset relationship between the violation profiles of crucial constraints.

2. Anatolian Data
  - Base Shape Proto-Anatolian > Hittite
    - CVX- ≫ CV-CVX- ≫ CV-CVX- (1)
    - TRVX- ≫ TV-TRVX- ≫ TRV-TRVX-;
    - STVX- ≫ STV-STVX- ≫ STV-STVX-;
    - VRTX- does not exist yet (Yates & Zukoff in press)
    - Distribution analyzed with *PCR, a constraint against certain types of consonant repetitions:
      - No Poorly-Cued Repetitions (*PCR) [≈ *C,VCa / .C1[sonorant]] (Zukoff 2017)
        - For each sequence of repeated identical consonants separated by a vowel (CaVCa), assign a violation mark * if that sequence immediately precedes an obstruent.
- Contiguity-BR (McCarthy & Prince 1995) must rank low in PA to allow TRVX– C1-copying in pi-pri– (4.i), but high in Hittite to generate TRVX– cluster-copying in pri-pri– (4.ii).
- *PCR must rank high in PA but low in Hittite to allow VRTX– ar-ark– to emerge (6.ii).
- ALIGN-ROOT-L is ranked in the middle at both stages.
- ALIGN-ROOT-L: Assign one violation mark * for each segment intervening between the left edge of the root and the left edge of the word.

3. Anatolian Analysis & Diachrony
- CONTIGUITY-BR (McCarthy & Prince 1995) must rank low in PA to allow TRVX– C1-copying in pi-pri– (4.i), but high in Hittite to generate TRVX– cluster-copying in pri-pri– (4.ii).
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4. Anatolian Analysis & Diachrony (cont.)

5. MIRCD in Pre-Hittite [after change from TV-TRVX– to TRV-TRVX–]
- MIRCD installs CNTGm, because it has only W’s, and the most W’s.
  - RCD would install *PCR, but MIRCD does not because it does not have the most W’s.
  - Among remaining support (white rows), ALIGN is the only winner-prefferer, so it gets installed.
  - Again unlike RCD, MIRCD does not install PCR despite it preferring no losers.
  - All data is now explained, so *PCR (and MAXm) are ranked at the bottom of the grammar.
  - This is the ranking necessary to allow the later emergence of VR-VRTX–.
- Non-Subset learning is permitted w/ MIRCD here because of the superset-subset relationship between CNTGm and *PCR: *PCR explains a proper subset of the data which CNTGm explains.
- Under these specific conditions, MIRCD produces the non-Subset learning necessary to capture the Anatolian facts, without predicting non-Subset learning in the general case.

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- RCD with a preliminary step which picks out and installs the constraints that favor the most winners first (Becker 2009), i.e., the most “informative” constraints.

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