

**Tel-Aviv University  
The School of Philosophy, Linguistics and Science Studies  
Department of Linguistics**

**THURSDAY INTERDISCIPLINARY COLLOQUIUM**

**Thursday 20.5.2021  
16:15-17:45**

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**Formalizing Iterativity and the Computation of Rule Application Modes**

Foundational work in rule-based phonology (Chomsky and Halle 1968, Anderson 1969, Johnson 1972, Howard 1972, Lightner 1972, Kenstowicz and Kisseberth 1979) brought about a debate over whether rules should be assumed to apply in a simultaneous manner, an iterative manner, or both. The shift to constraint-based formalisms like Optimality Theory (Prince and Smolensky 1993, 2004), which are inherently iterative, lead to a stronger hypothesis that noniterativity should have no role in phonology at all (e.g., Kaplan 2008). In this talk I address this debate from a computational perspective, by first recasting the simultaneous/iterative distinction as one of input- versus output-based computation. More specifically, in earlier work (Chandlee 2014) I proposed the input strictly local (ISL) functions and output strictly local (OSL) functions as implementations of simultaneous and iterative rule application, respectively. This correspondence is imperfect, however, as only under certain conditions does an OSL function actually enforce iteration. I therefore propose a more intuitive formalization of iterativity in terms of target and trigger overlap. Given that the ISL and OSL function classes are incomparable but not disjoint, this formalization of iterativity enables a more accurate classification of a given process and provides evidence that both input- and output-based computation are needed in a theory of the phonological grammar.

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