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Abstracts:

LEARNING PHONOLOGICAL CATEGORIES

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This article describes in detail several explicit computational methods for approaching such questions in phonology as the vowel/consonant distinction, the nature of vowel harmony systems, and syllable structure, appealing solely to distributional information. Beginning with the vowel/consonant distinction, we consider a method for its discovery by the Russian linguist Boris Sukhotin, and compare it to two newer methods of more general interest, both computational and theoretical, today. The first is based on spectral decomposition of matrices, allowing for dimensionality reduction in a finely controlled way, and the second is based on finding parameters for maximum likelihood in a hidden Markov model. While all three methods work for discovering the fairly robust vowel/consonant distinction, we extend the newer ones to the discovery of vowel harmony, and in the case of the probabilistic model, to the discovery of some aspects of syllable structure.

Keywords: categorization, machine learning, hidden Markov models, spectral graph theory, vowel harmony, phonology

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EFFECTS OF WORD POSITION AND STRESS ON ONSET CLUSTER PRODUCTION: EVIDENCE FROM TYPICAL DEVELOPMENT, SPECIFIC LANGUAGE IMPAIRMENT, AND DYSLEXIA

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Children with specific language impairment (SLI) and dyslexia have phonological deficits that are claimed to cause their language and literacy impairments and to be responsible for the overlap between the two disorders. Little is known, however, about the phonological grammar of children with SLI and dyslexia, and indeed whether they show differences in phonological development. We designed a nonword repetition task to investigate the impact of word position and stress on the production accuracy of onset clusters. We compared the performance of children with SLI and dyslexia, SLI only, and dyslexia only (mean age eleven), and three groups of typically developing children (aged five, seven, and nine). Analysis of cluster production accuracy revealed that all three clinical groups made significantly more errors on word-medial clusters compared to word-initial clusters. Unstressed clusters were more difficult than stressed clusters for the two dyslexic groups but not the SLI-only group. None of the groups of typically developing children showed an effect of word position or stress on cluster accuracy. All groups, however, created new clusters significantly more frequently in initial than medial positions. These results indicate a difference in phonological grammar in children with SLI and dyslexia that could potentially shed light on the relationship between the two disorders. Furthermore, they indicate that structural position and stress are developmentally independent elements in phonological representations.

Keywords: specific language impairment, dyslexia, phonology, language development, positional markedness

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PEAKS BEYOND PHONOLOGY: ADOLESCENCE, INCREMENTATION, AND LANGUAGE CHANGE

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What is the mechanism by which a linguistic change advances across successive generations of speakers? We explore this question by using the model of incrementation provided in Labov 2001 and analyzing six current changes in English. Extending Labov's focus on recent and vigorous phonological changes, we target ongoing morphosyntactic(-semantic) and discourse-pragmatic changes. Our results provide a striking validation of the incrementation model, confirming its value as a key to understanding the evolution of linguistic systems. However, although our findings reveal the predicted peak in the apparent-time progress of a change and corroborate the female tendency to lead innovation, there is no absolute contrast between men and women with respect to incrementation. Instead, quantitative differences in the social embedding of linguistic change correlate with the rate of the change in the speech community.

Keywords: language change, adolescence, incrementation, vernacular reorganization

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SUFFIX ORDERING AND MORPHOLOGICAL PROCESSING

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There is a long-standing debate about the principles constraining the combinatorial properties of suffixes. Hay 2002 and Hay & Plag 2004 proposed a model in which suffixes can be ordered along a hierarchy of processing complexity. We show that this model generalizes to a larger set of suffixes, and we provide independent evidence supporting the claim that a higher rank in the ordering correlates with increased productivity. Behavioral data from lexical decision and word naming show, however, that this model has been one-sided in its exclusive focus on the importance of constituent-driven processing, and that it requires supplementation by a second and equally important focus on the role of memory. Finally, using concepts from graph theory, we show that the space of existing suffix combinations can be conceptualized as a directed graph, which, with surprisingly few exceptions, is acyclic. This acyclicity is hypothesized to be functional for lexical processing.

Keywords: suffix ordering, morphological processing, productivity, lexical strata, graph theory, directed acyclic graph

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SEMPDATES: A NEW CONCEPT IN LEXICAL SEMANTICS? (Short Report)

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This short report draws attention to an interesting kind of configuration in the lexicon that seems to have escaped theoretical or systematic descriptive attention. These configurations, which we dub SEMPLATES, consist of an abstract structure or template, which is recurrently instantiated in a number of lexical sets, typically of different form classes. A number of examples from different language families are adduced, and generalizations made about the nature of semplates, which are contrasted to other, perhaps similar, phenomena.

Keywords: semplate, lexical semantics, space, landscape lexicon, metaphor, analogy, cultural models, sense relations, toponyms

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