Analogical modeling: A new horizon

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Although rule-based explanations of language phenomena have been accepted as fact by a generation of linguistics, the on-going analysis of actual language data constantly indicates that cognitive "rules" cannot realistically account for the significant, non-random variation in language acquisition processes (first and second), regional, social, ethnic and nativized language behavior as well as individual language performance. Alternative explanations need to be found that adequately account not only for linguistic output, but also have some basis in the reality of human speech patterns.

Royal Skousen's non-rule theories as presented in his recently published books, *Analogical Modeling of Language* (1989) and *Analogy and Structure* (1992), appear to successfully address many of the problems associated with rule-based explanations of language competence as well as surface-level performance. The three papers in this thematic section deal with Skousen's approach to exemplar-based modeling of language.

Skousen's "Analogy: A Non-Rule Alternative to Neural Networks" provides an introduction to his approach as well as a comparison with both rule-based and neural network (including connectionist) explanations of language behavior. Skousen includes applications of his model to examples of variation in morphological and sociolinguistic contexts.

The second paper, Steve Chandler's "Non-Declarative Linguistics: Some Neuropsychological Perspectives", argues for the superiority of Skousen's model over connectionist models, a rival non-rule approach. Chandler finds that the underlying problem with connectionist systems is that they cannot account for certain types of variation in linguistic behavior, in particular the directional "leakage" of one form to another.

Derek Robinson's "Index and Analogy: A Footnote to the Theory of Signs" addresses the "nearest neighbour" problem which arises because of a requirement of the analogical model that all records accessible to memory be examined. Robinson argues that this problem can be solved by applying database inversion techniques.

With evidence from linguistics, psychology, and artificial intelligence, these three articles make a strong argument for the serious study of analogical modeling. As a credible explanation for language behavior, analogical modeling will have a significant impact on related theories

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and models. For example, analogical modeling can adequately account for the types of variation found in sociolinguistic studies without relying on complex rule-based probabilistic explanations. The model appears to be fundamentally suited for explaining historical, regional, social, ethnic, and gender variation as well as non-native language performance.

In addition, analogical modeling provides a theoretical foundation for first and second language acquisition. One of the seeming paradoxes of current first language acquisition theories is that they assume, from a rule-based point of view, an innate complexity that far surpasses the observable cognitive capacities of children. A theory of first language acquisition based on analogical modeling offers greater plausibility and a significant impact on educational practices, including a stronger emphasis on exposure to numerous examples from actual language use.

Similarly, in second language acquisition theory, there seems to be an incongruity between models derived from observable data and models built upon linguistic constructs such as rules. By positing analogical modeling as the basis of language behavior, the incongruities disappear. Within an analogical framework, theorists could then make recommendations to language teachers which have a basis in what teachers actually observe and label as "common sense".

Consequently, a warranted examination of analogical modeling would have greater impact than simply being another alternative to rule-based explanations of language. It is hoped that this thematic section in *Rivista di Linguistica* will contribute to the development and understanding of this approach.

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