Scholarly Communication

- Can be thought of as a system through which research and scholarship is created, evaluated, distributed, and preserved. (ACRL)

- This system includes traditional and formal publications, such as scholarly journal articles, scholarly chapters or monographs, and conference proceedings.

- It also includes continually emerging publications, such as data sets, data visualizations, working papers, and blogs.
Characteristics

- Written by subject experts
- Written for subject experts
- Discipline-specific vocabulary
- Carefully explain their objective
- Include actual data and evidence
- Carefully document their sources
- May be peer-reviewed
A Cognitive Model for the Representation and Acquisition of Verbs Selective Preferences


Abstract

We present a cognitive model of verb selective preferences from individual verb usages. The selective preferences for each verb argument are represented as a probability distribution over the set of semantic properties that the argument can possess—a semantic profile. The semantic profiles index verb-specific conceptualizations of the arguments associated with a syntactic position. The proposed model can learn appropriate verb profiles from a small set of noisy training data, and can use them in simulating human-plausibility judgments and analyzing implicit object alternation.

1 Introduction

Verbs have preferences for the semantic properties of the argument filling a particular role. For example, the verb eats expects that the object receiving its theme role will have the property of being alive, among others. Learning verb semantic preferences is an important aspect of human language acquisition, and the acquired preferences have been shown to guide children's expectations about missing or upcoming arguments in language comprehension (Nussenblatt et al., 2005).

Rosch (1996) introduced a statistical approach to learning and use of verb selective preferences. In this framework, a semantic class hierarchy for words is used, together with statistical tools, to induce a verb's selective preferences for a particular argument position in the form of a distribution.

Over all the classes that occur in that position. Rosch's model was proposed as a model of human learning of selective preferences that made minimal representational assumptions: it showed how such preferences could be acquired from usage data and an existing conceptual hierarchy. However, its and later computational models (see Section 2) base properties that do not match with certain cognitive plausibility criteria for a child language acquisition model. All these models use the training data in "batch mode," and most of them use information theoretic measures that rely on total counts from a corpus. Therefore, it is not clear how the representation of semantic preferences could be updated incrementally in these models as the person receives more data. Moreover, the assumption that children have access to a fully hierarchical representation of semantic classes may be too restrictive. We propose an alternative view in this paper which is more plausibilistic in the context of child language acquisition.

In previous work (Alshibli and Stevenson, 2005), we have proposed a usage-based computational model of early verb-learning that uses Bayesian inducting and prediction to model language acquisition and use. Individual verb usages are incrementally composed to form emergent classes of linguistic constraints that share semantic and syntactic properties. We have shown that our Bayesian model can incrementally acquire a general conception of the semantic roles of predicates based only on exposure to individual verb usages (Alshibli and Stevenson, 2007). The model forms probabilistic associations between the semantic properties of arguments, their syntactic positions, and the semantic properties during the course of learning, and compared it with child data for different age groups, as we do with semantic role (Alshibli and Stevenson, 2007).

We have shown that the model can predict appropriate semantic profiles for a variety of verbs, and use these profiles to simulate human judgments of verb-alternation plausibility, using a small and highly noisy set of training data. The model can also use the profiles to measure verb-argument compatibility, which was used in analyzing the implicit object alternation.

References


The Real College Debt Crisis
How Student Borrowing Threatens Financial Well-Being and Erodes the American Dream
William Elliott III with Melinda K. Lewis

Contents

Foreword by Martha J. Kanter vii
Acknowledgments xiii

ONE: Introduction 1

PART ONE: Student Loans: A Paradigm in Crisis
TWO: Two Paths, One Dream 17
THREE: Education Is Still Our Best Hope 43
FOUR: The Student Loan Program Has an Equity Problem 71
FIVE: Evidence of a Paradigm in Crisis 91
SIX: Delayed Dreams 113
SEVEN: Can’t See the Forest for the Trees 125

PART TWO: From Debt Dependence to Asset Empowerment
EIGHT: Assets Provide a Launching Pad for Economic Mobility 145
NINE: Children’s Savings Accounts: The Next Evolution in Financial Aid 163

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