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Refereed Article

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A Bootstrapping Model for Children's Vocabulary Acquisition using Inductive Logic Programming

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Abstract: *This paper proposes a bootstrapping model for children's word acquisition based on inductive logic programming. There are four fundamental features in our approach. Firstly, we address the issue of bootstrapping in children's word acquisition. We do not depend on any knowledge other than innate abilities in word acquisition process. Secondly, we incorporate cognitive biases developed recently to explain the efficiency of children's language acquisition. Thirdly, we design a co-evolution mechanism of acquiring concept definitions for words and developing concept hierarchy. Concept hierarchy plays an important role of defining contexts for later word learning processes. A context switching mechanism is used to select a relevant set of attributes for learning a word depending on the category which it belongs to. On the other hand, during acquiring definitions for words, concept hierarchy is developed. Fourthly, we pursue resemblance to human brain in functional level.*

We developed an experimental language acquisition system called WISDOM (Word Induction System for Deriving Object Model) and conducted virtual experiments or simulations on acquisition of words in two different categories. The experiments shows feasibility of our approach.

Publication and review history

This work was first presented at the Machine Intelligence 18 Workshop, held on September 19-21, 2001 at the University of York, UK. Attendance at this workshop was based on invitations. Speakers at the workshop were invited to submit their articles for consideration in the forthcoming workshop volume. The subsequent publication and review history for the present article was as follows.

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5. Revised version appears in Electronic Transactions on Artificial Intellligence, Volume 5 (2001), section B, pages 47–72. The section and the annual volume are made permanently available at
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6. Paper editions of the ETAI issue and the ETAI volume containing this artice *republished* by the Royal Swedish Academy of Sciences.

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Besides the publication and review history, it contains links for contacting the author(s), as well as to amendments and other related information for the article. It is intended to keep these links up-to-date in the future.

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