

The Representation of Experience for Case-Based Reasoning in Subjective Interpretation

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Abstract

In Martin (1993), I argue for a new focus on *subjective interpretation* rather than *meaning identification* in natural language understanding. I characterize subjective interpretation as the integration of the reader's past experience with the current state of mental processing. The role of a text is to identify relevant past experience; linguistic terms are associated with experience, not memory structures, and thus their interpretation is always reader-dependent.

This reader-dependence must be reflected in the representation of experience: the "cases" of the system. In most case-based reasoning systems, as in the Direct Memory Access Parser (Martin, 1990), experience is represented as an instantiated episodic knowledge structure. I argue instead for a more *process-oriented* representation, in which the mental state of the reader at the time of a past experience is a crucial part of its representation.

This "mental state" information is usually implicit in a reasoning system's algorithm—in fact, it is usually equivalent to the "processing state" of a program. In this presentation I will demonstrate how such information can be made explicit and available for reasoning by CBR systems. I will also discuss the constraints on fundamental CBR tasks such as *adaptation* which make use of this information. Those interested in the details are referred to the forthcoming technical report (Martin, 1993).

Although this research is motivated by natural language understanding tasks such as metaphorical interpretation (Martin, 1989), I will also demonstrate how this applies to problems in planning and integrated architectures (Martin and Firby, 1991).

References

- Martin, C. (1989). Complex Indices: A Metaphorical Example. In *Proceedings of the 1989 DARPA Workshop on Case-Based Reasoning*, Pensacola Beach, FL.
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- Martin, C. (1993). *Subjective Interpretation in Natural Language Understanding*. Research report in preparation, Department of Computer Science, The University of Chicago, Chicago, IL.
- Martin, C. and Firby, J. (1991). An Integrated Architecture for Planning and Learning. In *Working Notes of the 1991 AAI Spring Symposium on Integrated Cognitive Architectures*, Palo Alto, CA. Reprinted in *ACM SIGART Bulletin* 2(4), 125-129.