

# Dialogue Act Classification, Higher Order Dialogue Structure, and Instance-Based Learning

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## Abstract

The main goal of this paper is to explore the predictive power of dialogue context on Dialogue Act classification, both as concerns the linear context provided by previous dialogue acts, and the hierarchical context specified by conversational games. As our learning approach, we extend Latent Semantic Analysis (LSA) as Feature LSA (FLSA), and combine FLSA with the k-Nearest Neighbor algorithm. FLSA adds richer linguistic features to LSA, which only uses words. The k-Nearest Neighbor algorithm obtains its best results when applied to the reduced semantic spaces generated by FLSA. Empirically, our results are better than previously published results on two different corpora, MapTask and CallHome Spanish. Linguistically, we confirm and extend previous observations that the hierarchical dialogue structure encoded via the notion of game is of primary importance for dialogue act recognition.

**Keywords:** Dialogue Acts, Latent Semantic Analysis, k-Nearest Neighbor, Dialogue Games

## 1. Introduction