

Spanish FrameNet in Question Answering

Following Narayanan and Harabagiu's (2004) proposal for the application of English FrameNet to Question Answering (QA) systems, the present work reports on the preliminary results of applying Spanish FrameNet (SFN) data in a prototype QA system (Shen and Lapata 2007, Sinha and Narayanan 2005). More specifically, we incorporate Frame Semantics (FS) information for developing a QA system for the cinema domain from one originally designed for tourism.

The goal of SFN is to develop a semantically and syntactically annotated lexical resource with broad lexical coverage that can be used as a training corpus for applications requiring automatic semantic role labeling (Erk and Padó 2006). The first SFN release includes over 10,000 annotated sentences and almost 700 lexical units fully annotated comprising over 300 frames. In accord with FS, SFN describes the meaning of lexical units by appealing to their underlying frames. Consider the verb *preguntar* (ask) in the QUESTIONING frame, dealing with a Speaker asking an Addressee a question, the Message:

[María_{Speaker}] [me_{Addressee}] **preguntó** [si iríamos al cine_{Message}]
 María me asked if go (cond.) to-the movies
 María asked me if we could go to the movies.

SFN data were used to train Shalmaneser (Erk and Padó 2006), a software package for shallow semantic parsing, the output from which was integrated into a Spanish QA system developed on QALL-ME (qallme.itc.it/). Shalmaneser's sense disambiguation module assigns words to frames, and the FE assignment module labels the evoked semantic roles. The frames and FE roles are associated to the QALL-ME ontology, which generates SPARQL expressions that automatically retrieve the answers from a database.

Rather than relying on existing query patterns to retrieve an answer, the system exploits the association of semantic roles with the appropriate entities and relations in the ontology. Shown in Figure 1, Shalmaneser assigns *ver* to PERCEPTION_ACTIVE, *puedo* to CAPABILITY, and the FEs Phenomenon, Place, and Event to the appropriate constituents in the query. First, the system associates the seeing event with that of movie viewing in the ontology; and relates the FEs to entities in the ontology, including that of Place to the entity labeled *cinema* while building the SPARQL query to retrieve the correct answer.

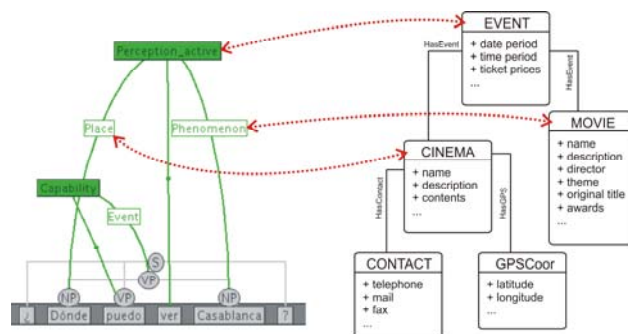


Figure 1. ASRL and relations with the ontology classes for *¿Donde puedo ver Casablanca?*

Preliminary findings suggest that QA systems based on FS are easily portable to other domains, and other languages that have FrameNet lexical resources. This work advances the FrameNet enterprise by demonstrating the application of SFN data in a QA environment for the first time.