Student Modelling and Native and Non-Native Language Transfer

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Abstract

Cross-linguistic influence is an important issue in foreign language learning. It is therefore important that in addition to knowledge about a student's beliefs concerning the target language, an intelligent computer assisted language learning (ICALL) system also contains representations of any other languages known by that student. The major transfer questions considered in the ICALL system described here are: 1. the learner's perception of the language distance between the target language and the native and other languages known; 2. the natural acquisition order of the target language; 3. the provision of a component to enable discussion with the student about the target language and the learner's own beliefs.

Work has so far concentrated mainly on the case of a native English speaker with a knowledge of Spanish, who is learning Portuguese. This situation enables the consideration of both native and non-native language transfer. The area of study is that of personal object pronouns. In Portuguese, personal pronouns appear immediately before or immediately after the verb. A similar situation is found in Spanish, though the rules of clitic placement for these two languages are not identical. Some degree of transfer might be expected from English and Spanish.

The three points introduced above are dealt with as follows:

1. At the start of the first interaction with the system, the student is requested to select the following from the menu presented: firstly, his perception of the degree of similarity between his native language (English) and his target language (Portuguese). He is then asked to indicate his view on the language distance between his first foreign language (Spanish) and Portuguese (as languages perceived to be similar tend to lead to more instances of transfer). The student subsequently assesses his ability in Spanish on a scale of one to five (as transfer may occur more readily from a language in which one has reached a high degree of proficiency and automization). From this information the system determines the order in which the background languages will be checked for occurrences of transfer where errors are based on incorrect analogy. This will enable greater computational efficiency.

2. The data upon which the system has been based suggests a possible acquisition sequence for the rules of clitic pronoun placement in Portuguese (for English/Spanish speakers). This information is made available to the learner in order that he will become aware that it is quite normal to acquire some rules before others. The information can also be used by the system to assist in the sequencing of material.

3. The system will allow discussion of the target grammar, both with and without reference to (positive and negative) transfer. Discussion may also centre on the
system's representation of the student's knowledge and beliefs, and if this information is considered by the student to be incorrect, the system and student may cooperate in the repair of the representation. Such interaction has the advantage of providing a 'real' language task on which the student may work (i.e. the construction of a more accurate student model to optimise system responses to the individual learner), and this same task should promote student reflection on language and learning, thereby facilitating learning.

To summarise: the system described here combines an approach of collaborative student modelling with a consideration of transfer issues. This results in the availability of more accurate information regarding student performance: information which may be used by both the learner and the system.