Pictogram AAC prototype software that expands telegraphic language into natural language in Catalan and Spanish

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1. Input system

4. Voice synthesizer

3.3. Articulating module: adds articles (definite, indefinite or no article) to the sentence and apostrophizes them if necessary.

3.4. Verb conjugator module: conjugates verbs according to their subject and the verb tense of the sentence, given by the sentence type, a time expression, a tense modifier or by the default tense encoded in the pattern.

3.5. Cleaning module: deals with pronouns and free pronouns transformations, contracts prepositions with articles, adds time and/or set expressions, punctuation, etc.

2. Parser: From the input, builds a parse tree and sends it to the generator.

Optional input modifiers:

• Type of sentence: Declarative, Wish, Permission, Order, Question, Answer, Conditional, Exclamatory.

• Negative sentence.

• Override default verb tense: Present, Past, Immediate past, Future.

Telegraphic language main characteristics:

• Has only content words (words with meaning).

• Words can appear in any order.

• There can be reduction of content words (e.g., the subject of the sentence).

Results

% Sentences rated as perfect: 86.3%
% Sentences rated as perfect by all annotators: 74%
% Sentences rated as perfect or good* by all annotators: 97%
% Sentences rated as perfect or good* in total: 98.7%

* Good sentences: sentences with minor errors that do not affect the meaning and comprehension of the sentence.

Vocabulary:

• UTAC-CACE (T): basic AAC vocabulary designed by the University of Barcelona.

• 669 words, 41 verbs and 76 patterns annotated, both for Catalan and Spanish. It can be easily expanded.

• Semantic features: Noun (classes: animate, inanimate, human, object, food, location, abstract, etc.), Adjectives (classes of nouns that it better complements), etc.

• Syntactic features: Nouns (gender, number, article that usually precedes it [definite or not], feminine and plural forms, etc.), Modifiers (scope: word or sentence).

References

1. Language dependent.

2. There are 2 generators: for Catalan and Spanish.

3. Each has 5 concatenated modules that build the final natural language sentence step by step.

4. Voice synthesizer

Después querré comer un helado.

(Later I’ll want to eat an ice-cream)

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