THE GLOBALIZATION OF CHEMICAL EDUCATION:
THE TRANSLATION FROM ENGLISH TO ITALIAN

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Although the objective of the IUPAC project is the bi-directional translation of chemical education material by the use of machine translation, some limitations are imposed by the quality of the available software. In ordinary speaking or reading, the context is important too. It is the correlation between the words, the context, the tone of the voice, etc. that determine their meaning. As long as English – Italian is concerned, two translations have been made (1). Problems with machine translations are mainly related with the difficulties of the correct construction of the phrase; not with the chemical terms. This is mainly due to the richness of Italian grammar, that uses singular/plural; masculine/feminine, much more verb tenses than English and more prepositions.

The translation takes place in three stages:
1. Machine translation
2. Training the software with a superimposed dictionary
3. The final version is improved manually

Comparison of the initial output with the final version
Five different possibility are considered:

a) wrong words

b) the phrase needs to be reconstructed/the word/s must be changed (because of the reconstruction)

c) the position of the word in the phrase is wrong/unsuitable word

d) wrong because: singular/ plural ;masculine/feminine; verb tense/wrong verb; wrong preposition

e) missing words
Results

The Atkins’ paper: Total Words: 1436
Wrong translations: 70; 70/1436 = 4.87%
wrong words 63 = 4.39%
the phrase needs to be reconstructed/the word/s must be changed 225 = 15.67%
the position of the word in the phrase is wrong/unsuitable word 71 = 4.94%
singular/plural ;masculine/feminine; verb tense/wrong verb; wrong preposition 67 = 4.66%
missing words 39 = 2.72%
Correct translation 1010 = 70.33%

The Agapova et al. paper: Words: 2998
Wrong translations: 91 = 3.04%
wrong words 106 = 3.54%
the phrase needs to be reconstructed/the word/s must be changed 403 = 13.44%
the position of the word in the phrase is wrong/unsuitable word 159 = 5.30%
wrong genre/singular/plural/verb tense/wrong verb; wrong preposition 143 = 4.77%
missing words 87 = 2.90%
Correct translation 2187 = 72.94%

In the two papers, more than 70% of the translation is correct. I tried the translation from Italian to English and the result is even worse than from English to Italian. Starting from an Italian paper, a translation in English and then again in Italian was made. The result is not satisfactory: some sentences are awkward; other are almost impossible to understand.

Bibliography