

"ATAMIRI Computer Translation System"

Talk given by David Stanton on 14 September 1993 at King's College, London.

This was a combined meeting of the Anglo-Bolivian Society and the BCS - NLTSG.

ATAMIRI is a machine translation system based on the South American Indian language Aymara which is used as an interlingua. Aymara has obscure origins dating back to pre-Inca times.

David thought that ATAMIRI had the main hallmarks of most major scientific inventions, namely, a sole inventor working with sparse funding. This inventor was Mr. Ivan Guzman de Rochas, son of Cecilio, a famous painter.

While teaching Aymaran children, Ivan noticed their special difficulties with conventional, Western mathematics; for instance they regarded '3 * 4' as different from '4 * 3', so he started to study their language.

David met Ivan when doing VSO in South America and through him learned about the special qualities of the Aymara language; qualities which would make it suitable as a 'bridge' language in machine translation.

These special features were;

1) Trivalent logic

We, in common with most cultures, have a basic 'yes/no' logic, which is dual/Boolean in concept. Aymara, however, has a trivalent logic, consisting of 'Yes/No/Perhaps'. This is central to Aymara thinking, and shows itself in the two operators - one meaning 'maybe' and the other 'for sure' - which end sentences.

2) Durability

Aymara has resisted repeated attempts in history to wipe it out. So durable is it, that it has been absorbed into the dialogue - and even the thinking - of Bolivia's capital, La Paz.

3) Lack of irregularities

Aymara is completely logical, with no irregularities discovered so far. Its operators are always added in the same order.

4) Agglutination

Aymara uses a 'word build-up' system, similar to German.

5) Punning

Aymara lends itself to puns, of which there are many in the language. This suggests an ability to cope with ambiguity - for so long the bane of machine translation!

Ivan had much success doing translations both in and out of Aymara. It then occurred to him, that if both-way translations went so smoothly, then Aymara might make an ideal 'bridge language' in a computerised system.

ATAMIRI started life on a Wang computer in the early 1980's., and was then moved to a PC, where its functionality was enhanced by the use of the S.I.D. database.

S.I.D. , currently being used for Civil Service Applications in parts of South America, was built by Ivan's son, Marcel, who also rewrote ATAMIRI's driving software in 'C'.

David ended his talk by giving a demonstration of ATAMIRI on a PC.

The issue of context has long been one of the main stumbling blocks in machine translation. While the dictionary's part-of-speech menu takes care of many context problems, further work needs to be done on the semantic aspects of context. Ivan is thought to have had some success in this direction.

Future ATAMIRI development (which has always been a spare-time activity) is currently "on-ice", mainly due to lack of funding. David thought the main problem now was creating large enough dictionaries to and from Aymara.

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