

RESEARCHERS ARE HOPING **SELF-LEARNING SOFTWARE** WILL SPEAK ALL LANGUAGES.

Tongue twisting

THERE'S NOTHING LIKE a good biblical story to inspire a new IT product. Remember the Tower of Babel, which was to be built so high that it would reach God? God stopped it from being constructed by causing all the builders to speak in different tongues, meaning that no-one could get any work done. It's good to talk, but only if you're speaking the same language.

Douglas Adams used the idea of a Babel Fish in his *Hitchhiker* books as a way to get around the fact that his characters spoke different languages. Characters became multi-lingual by inserting a small fish in their ears. The fish would interpret other languages and relay it to the characters in their mother tongue.

Multilingual marine life notwithstanding, the idea of instant translation is attractive, as

people communicate more over such mediums as the Internet. Services that allow quick and accurate translations would break down barriers between different cultures and make interaction easier, both in business terms and from a consumer perspective.

Unfortunately, translation is one of those areas that is proving to be too complex for even the power of the latest PCs. The problem is that there are just too many language variables for computers to deal with. Think of the word 'part'. It has many different meanings: to part you hair, to pick up a car part, or even phrases such as 'part and parcel'.

Differences in language and idiom make it difficult for machine translations to work well. Typically, a translation will need to be edited for accuracy and grammar if it is to be shown to someone in a business context, for example.

Nevertheless, a group of researchers at the University of Southern California Information Sciences Institute (USCISI) is looking at a way to create more accurate translations under a project known as Gazelle (www.isi.edu/natural_language/projects/GAZELLE.html). The group, funded by the US Department of Defense, is developing software to translate 'difficult' languages such as Japanese and Arabic into English, but it believes the research will also

make it easier to develop translation technology for other languages.

The researchers hope to make the Artificial Intelligence used in machine translation more accurate by creating software that will self-learn linguistic knowledge by analysing large online text collections to derive translation rules.

This is not the first time a research group has looked at this method. Researchers at Sheffield University have also been developing automated programs that comb through text in order to develop translation rules.

But the group at USC is also working on ways to translate real-world natural language sentences that are long and complex, and often contain unexpected grammatical constructions.

It has developed what it calls a Controlled Skip Parser which can decipher real-world sentences by, ironically, skipping some of the words in the sentence. The software is intelligent enough to control its behaviour to find out which words to skip. Statistical information, which is learnt from past successful experiences, is used to control the skip.

While these advances are likely to improve machine translation services such as those available on the Internet from Altavista and Freetranslation.com, they are unlikely to lead us to the holy grail of a computerised Babel Fish.

Even speaking into a trained voice recognition system designed to listen to continuous speech can leave you with a high number of errors. You would not want to write a document using speech recognition software without checking it through first. Similarly, you would not want to say something to an important business contact, family member or even friend if you were unsure that it would keep its meaning, so introducing another possible layer of error into the equation could produce embarrassing results.

Although you could produce makeshift Babel Fish software by speaking text into a word processor and having a translation package convert it, we are unlikely to see cheap devices enabling you to do it fluently in a noisy cafe.

It looks like the phrase book is here to stay, proving that at times, the silicon chip just can't replace good old paper and ink. In the meantime, remember what a thousand British sitcoms have taught you – that speaking loudly won't make non-English speakers understand you better...

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