



Taking the Babble Out of Babel Fish

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The May 2000 issue of *Wired* marks a milestone of sorts in the public visibility of machine translation. The cover of that ever-so-hip magazine features a series of articles on machine translation.

Although the emphasis is on the “geewhiz” aspects of the technology, the amount of space given to the field underscores that MT has moved to the forefront of the IT world, clearly because of the growing number of non-English speakers on the Internet. Throughout the primary article on MT (“Talking to Strangers”) AltaVista’s Babel Fish is presented as an example of the shortcomings of MT. Yet this service, initiated in late 1997, now is used a million times per day, according to the

Systran site. If it is so bad, why is it so popular?

The fact of the matter is that Babel Fish represents MT at its best—and at its worst. In this brief space I explore just why this free service from AltaVista and Systran should be considered in light of its—and MT’s—reality.

Setting Expectations

In principle, Babel Fish is a great idea; in practice, it often falls short of expectations. The shortfall has led to any number of negative reviews about this service, including a few barbs in the principal *Wired* article. The truth is that expectation is often the problem in many views of machine translation in general.

The concept of Babel Fish is to provide information-level translation for any Web site by merely clicking on the translate link

for that site. After a quick query about language direction, the system delivers its best attempt to translate the site’s page into the desired language.

From my own recent experience the results range from acceptable to laughable. There were the predictable howlers, e.g., *Regisseurin* (female director) becomes “rain eating urine” when the translation engine treats it as a compound (Reg(en) + isse + Urin). Also there were numerous unavoidable instances where the system provided literal translations for sentences and phrases which must be handled otherwise. Held against the standard of what a highly qualified professional translator would do, Babel Fish gets a failing grade.

However, anyone who expects it to match a professional translator’s skill is asking for far more than the system was intended to do. In many instances, Babel Fish is being

asked to do what no MT system can do well: translate a random document in colloquial language without any knowledge of the subject area.

The problems encountered when using Babel Fish simply highlight the reality of machine translation. All machine-translation systems have clear limitations, no matter how high- or low-end.

Classes of Service

The limitations of MT may be stated in terms of certain key factors.

The first factor is the purpose of the system. For at least 10 years MT proponents have recognized that there are at least two translation areas in which MT may play a useful part. One is so-called information-level translation (also called inbound, gisting, or translation for assimilation). This is an area in which professional translators are rarely used, since the purpose is merely to provide a very rough translation or, even, paraphrase the source document. The other is publication-level or outbound translation, or translation for dissemination. Here we are in the area in which professionals are needed. Without relying on highly qualified human translators the publisher runs considerable risk. In considering MT, the potential user must be fully aware of what she or he wants from the system. For Web-site translation via AltaVista's translation link, users want information, a gist of the site. To expect a publication-level translation is unreasonable. Whether Babel Fish provides this level of translation is in the eye of the beholder. My recent assessment of the Babel Fish results for the sites I visited varied a great deal from site to site. However, in every instance it gave me usable information in spite of the howlers and over-literal treatment.

The varying results were due to the second key factor: dictionary coverage. No matter what the purpose of the translation, an MT system is only as good as its dictionary. The issue here is coverage, not size. A gigantic system dictionary is meaningless if it does not cover just those terms found in the source document. This is particularly true for the high-end systems which parse the source text and generate a translation. If a source word is missing from the dictionary, the parser will have to guess the part of speech and function of a given word. Algorithms for such guessing are imperfect. The humorous mistranslation of *Regisseurin*, cited above, clearly resulted from the lack of the word in the dictionary

and the parser's valiant, but futile, attempt to parse the parts.

In addition to having all the source words covered, the dictionary must provide the correct translation. Even the best parse will yield unsatisfactory results if the dictionary does not have the appropriate translation. For instance, Babel Fish translated *Apfelmus* (applesauce) as "apple mash" and *Winterspeck* (weight gain during winter) as "winter bacon." In some instances, the translation engine simply returned the

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source word in the translation, since it had no way of even guessing what the translation might be.

When considering dictionary coverage one must realize that Babel Fish provides no means for the user to *exclude* words from translation. This is a highly useful feature in most MT systems, since it prevents the systems from translating proper nouns and similar words. For instance, a German-language film site was naturally full of the names of celebrities, many of which were dealt with unkindly by Babel Fish (e.g., Mark Keller became "Mark of cellars." On another site the Karin Richter-Knapp became "Karin judge-scarcelly.")

Additionally, Babel Fish lacks a feature common in many MT systems. Users cannot alert the system to the general subject area for the document. This means that the engine mistranslates the site even if the correct transfer is in the dictionary. Without access to the Babel Fish dictionary, I cannot tell which of the problems were due to this factor, but I assume a number of mistranslations arose simply because the system took the general translation when a more specific one was needed.

Perhaps the most fundamental factor for MT is the suitability (or translatability) of the text with such software. Here the key primarily comes down to the amount of

ambiguity in the text. The more ambiguous the text the less likely that the machine-translation system will handle it correctly. Ambiguity from a system standpoint goes well beyond that for human beings. Additionally, sentence fragments are often fatal to a high-end system, since a complete parse is needed for a successful translation. Since Web sites often seek to be colloquial, chatty, and clever the prevalence of ambiguity and sentence fragments is often high, thus lowering the chances for Babel Fish's or any other system's success. Although the demand for Web-site translation is high, the reality is that machine translation systems may be ill suited for such work. If Webmasters want their sites translated on demand, they may have to use more controlled language.

The Last Word

Using Babel Fish is a convenience. When it works well, it can meet the expectations of the user as long as she or he realizes that it is not publication-quality translation. At its best it can probably garner a B- or C+ for its results. This assumes that the dictionary coverage is at least adequate to the task and that the site is suitable for MT. Of course, at its worst it fails to perform adequately for any expectations.

But this may be said of all systems. Machine translation has come a long way in its 50 or so years, but it remains a means to do a rough translation of the source material. If this source provides enough information for gisting or a sufficient starting point for post-editing, it has fulfilled its purpose. If not, forget it. However, the growing reality is that the systems often do produce results that enhance the work of the translator, freeing her or him from the less attractive translation work, to do the more exciting.

Machine translation has too long been regarded either as a means to do "perfect" translation without a human translator or as a means to produce worthless translations quickly. The truth is that it is neither. Given a clear idea of the purpose of the translation, the necessary dictionary coverage, and suitable source text, good machine-translation systems can fulfill their purpose as an aid in understanding text at an assimilation level or in providing useful technology to the professional translator in getting the work done.

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