

Machine Translation: Its Past, the Potential and the Problems

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Abstract

This paper probes the history, potential, and reality of Machine Translation in terms of the language needs of global communications. In examining the nature of language, the literature reflects both a respect for the need of peoples to define themselves through a local culture and their urgency to function in a global world. This dilemma is echoed in international online discussions.

It's now widely recognized that global communications must be available in as many languages as feasible, and MT could offer a means to communicate both locally and globally. MT has long been associated with an idealistic drive to find a universal foundation for all language, but this has proved unfeasible because the linguistic task of reducing languages into a universal set of symbols denies the very nature and cultural value of language. What makes language irreducible is also what makes it important.

As the need for MT and commercial applications grow, major institutions and developers are designing niche products to fulfill specific needs. The search for more effective general translation also continues, and the programs now available to a broad public appear to offer tremendous potential. However, their limitations must be recognized, and to use them effectively, people have to make some accommodation to the machine. How to do that without perverting the languages that translation is supposed to capture is a challenge that must be met. While some ideas are presented for how to tailor messages, norms, and expectations to the real abilities of MT without destroying the ability to freely communicate, it's acknowledged that norms for communications will develop through experience and experimentation.

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Introduction

In today's global economy, as more people increasingly need or want to communicate with counterparts abroad, we are confronted with daunting cultural and language divisions. The fact that most of the world's people can't communicate in American English, the predominate language of international commerce and communications, is reinforcing a global digital divide.

Globalism has intensified the demand for translation. To reach customers in Mexico and Canada, for example, businesses must offer packaging and technical instructions in three languages. In 1994 Mexico closed Wal-Mart's doors for a day because the company failed to make sure all products were available in Spanish.¹ If the world's non-English speakers want to be more than passive receivers of information, dynamic translation is needed. This paper investigates the global language divide, particularly from the point of view of the average citizen impacted by globalization, and the potential of Machine Translation (MT) to close that gap. Today people who access the Internet now have at their fingertips free programs they can use online or download, that claim to translate growing numbers of languages. Can these programs revolutionize international communications?

Machine Translation programs appear to be much better than the programs available a few years ago, and there should be a way they can be useful to people who can't afford professional translation. Can they help the global have-nots express themselves in their own language without losing crucial meaning? Or must we change language itself for international communications? This paper investigates the uses people are making of MT, how much more progress can be expected, and the implications for society and culture.

Language and Culture in a Global Economy

Nine out of ten global citizens don't speak English. The world's people speak 3,000 to 8,000 different languages (depending on what is defined as a dialect).² But most of the communication through new communications technology is in English, even as that technology facilitates a vast new level of international commerce and communications. Of the world's 50 largest enterprises in global information services (press, publishing, TV radio and cinema), 41 are based in the U.S. or United Kingdom.³

Language, says Manuel Castells, is often experienced as the repository of community, thought structures, and values that people refuse to relinquish. Castells points to Catalunya as a culture that maintained a strong sense of community around a language that was suppressed over centuries by ruling powers. Language "represents a system of codes," explains Castells, "crystallizing historically a cultural configuration" and is "a fundamental attribute to self-recognition... a linkage between the

public and the private sphere and between the past and the present.” In response to “homogenization by the ideology of modernization [and materialism] and the power of global media,” language is also “the trench of cultural resistance...”⁴ that also leads to growing “social fragmentation.”⁵ Ian Clark views the disintegration of nations “into a narrow ethnic and linguistic form” as “pockets of resistance to globalism” that both resist the “powerful homogenizing influence” of today’s world and also carry “the potential for instability and conflict.”⁶

Languages on the Internet

When Alis Technologies and the Internet Society studied the languages used on the Internet in 1997, they found that English dominated 84% of all sites.⁷ In 1998, Colin Haynes wrote that 80 percent of Web sites were created in English-speaking countries.⁸ Yet by 1999, 217 countries were connected to the Internet, ten times the number that were online in the beginning of the decade.⁹ A June 1999 report from Computer Economics said that just 54 percent of Internet users are English-speaking and predicted that that the proportion will fall to 43 percent of users by 2005.¹⁰

People are beginning to use the Internet to communicate in other languages. In late 1997 *The Economist* reported that in three years Web sites posted in English had fallen from 98% to 82%.¹¹ By 1998, Yoshi Mikami of Asia Info Network claimed that “99 % of the sites created in Japan are in Japanese.”¹² Major sites such as CNN and Yahoo are now translated into several languages.¹³ The Appel du Comité Européen Pour le Respect des Cultures et des Langues en Europe (C.E.R.C.L.E.) has a web site translated into 11 languages, with the express intention to fight “the triumph of a sole language and of a unique thinking.” Europe, it says, must “claim its identity and affirm its personality” and “build a radiant community of equal, united yet diverse peoples.”¹⁴ The Human Languages Page¹⁵ hosts links to dozens of Web pages in languages like Wolof, Yiklamu, and Papiementu. Yet proponents of globalism like Mansell and When see the emergence of “netizens who form common language communities” as potential “barriers to communications and knowledge sharing.”¹⁶

The Search for Viable Machine Translation

The review of online international discussions presented in *Appendix A* reveals personal struggles of people who want to enjoy cross-culture communication. One of the themes coming out of these discussions is the yearning for an automatic way to translate messages that, says Frenchman Michel Elie, would “help preserve cultural diversity while making the world a little smaller”¹⁷

This yearning has deep roots. In the 19th century, mathematician Charles Babbage convinced the British government to finance research on a “computing machine” by promising that it would lead to

automated translation of spoken languages.¹⁸ In 1946 American mathematician Warren Weaver was inspired by the British Colossus computer success in breaking German encryption codes to launch the first Machine Translation project.¹⁹ In 1948 Claude Shannon of Bell Telephone Laboratories collaborated with Weaver on transforming natural language to mathematically processable bits and bytes.²⁰ To translate a text from Russian to English, Warren explained in a 1949 memo to the Rockefeller Foundation, “all I need to do is strip off the code in order to retrieve the information.”²¹ The first MT conference was held in the U.S. in 1952.²²

When the Georgetown Automatic Translating System (GAT) was unveiled in 1954, it was promoted as a breakthrough because it translated several simple sentences into Russian on an IBM mainframe computer.²³ Its vocabulary was limited to 250 words, however, and it handled only six rules of grammar and contained no random data. This, say Church and Hovy was “a canned demo of the worst kind,” because it set unrealistic expectations.²⁴

Work on artificial intelligence was spurred in part by the cold war. But in 1959 Israeli linguist Yehoshua Bar-Hillel reported that machines produced mediocre translations that could be useful only in special contexts or in collaboration with humans.²⁵ He illustrated the difficulty of, for example, translating the pair of sentences: “The box was in the pen” and “The pen was in the box.” The METAL translation system was developed at the University of Texas in 1959, and later picked up by Siemens of Germany. The Georgetown GAT system continued to be developed, largely through military funding, and in 1964 the Atomic Energy Commission at Oak Ridge took it up. GAT became the *SYSTRAN* system when it was commercialized in California in 1964 by Peter Toma, and over the decades it was attached to huge databases of technical and military terms and idiomatic expressions. NASA used it for the Apollo-Soyuz mission.²⁶

Research was set back by a scathing April, 1964-66 report from the Automatic Language Processing Advisory Committee (ALPAC) of the U.S. National Academy of Science. MT wasn't netting enough results to make it worth the money, concluded ALPAC, and when compared with human capabilities, it might never be a success. The real problem, Colin Haynes pointed out, was that although MT was developed for military use and had business applications, it was condemned because it couldn't reach the unrealistic “ideal objective” of translation without post-editing that was claimed by the Georgetown project.²⁷

Faced with mounting needs for translation, the Commission of European Communities purchased an English-French version of SYSTRAN in 1975. A Russian-French system was developed in 1966 by the Group of Grenoble CETA for translating mathematical and physics texts. The *Logos* system was

used in the U.S. to translate English into Vietnamese during Vietnam War,²⁸ and in 1976 the Pan-American Health Organization created the SPANAM system that helped specially trained translators get results, doubling or tripling their productivity.

As accelerated global commerce forced multinational companies to develop and market products in several languages, the Japanese Ministry of Industry and big private groups got involved in commercial research and development of MT in the 1970s. Fujitsu's *Atlas* system was the first in the world to translate between Japanese and English at more than 60,000 words per hour.²⁹ The Air Force's work on the METAL system was commercialized in 1989.³⁰ But the systems were used mostly as workstation tools for professional translators.³¹

Some systems could stand alone for specialized uses. In 1977 the Centre Canadien de l'Environnement installed the TAUM group's Meteo system for translating weather reports. Xerox adopted Systran for internal translations by creating a Multinational Customized English that's easier to translate, and Toshiba's AS-TRANSAC translated complex technical manuals. In 1983 the ALPS (Automated Language Processing System) appeared with an interactive feature that allows users to enrich the system's dictionaries.³²

In 1987 British Telecom launched the world's first telephone interpreter to handle hotel bookings.³³ Work on speech translation continues, notably at Carnegie-Mellon University and through a government-funded team of engineers in Kyoto, Japan.³⁴

In 1991 the Unicode consortium of software publishers created a standard for text that allows computers to communicate in all the world's major languages, by including accents & special characters that standard ASCII 8-bit code can't handle. That same year the International Association for Machine Translation was founded in Washington D.C.³⁵

But for business, language can still be what Haynes calls "the Ultimate Non-Tariff Barrier to Commerce."³⁶ Whenever Lucent sells a telephone switching system overseas, it can require translation of some 15,000 pages of documentation.³⁷ Global pressures to reduce time-to-market are also spurring the use of MT: A one-day delay in launching new drug costs pharmaceutical industry between \$60,000 to \$600,000 in non-sales, say Hartley and Paris. Aircraft maintenance manuals need to be updated – and retranslated -- four times a year.³⁸ A *Wards Automotive News* reader survey pinpointed communication as "one of the biggest roadblocks facing truly global engineering." To facilitate communication, Japanese and American engineers began using pictographs, diagrams, hieroglyphics and sketches.³⁹

In 1994 CompuServe began offering free translation on online discussion forums, and in December, 1997, Alta Vista became the first major web search site to offer free MT online.⁴⁰

Failure to Find a Universal Language

Much of the research has centered on finding or creating a universal foundation onto which any language could be translated. Otherwise, the standard “transfer” method of translation means that every time you add a new language to a system, you have to write new transfer components between that language and every other language. So if you extend a system of three languages into five, you need to write 14 new transfer components, one for each new pair. It appeared easier to translate into an “intermediate language only the MT system understands” and then reconstruct meaning into any target language from that base.⁴¹

MT pioneer Warren Weaver assumed he could find a “great open basement, common to all the towers” of language,⁴² and Bar-Hillel’s 1951 report stated that developing MT required the discover of a “stock of concepts held in common by humanity.” The DLT (Distributa Lingvo-Tradukado) system was developed around Esperanto, an “ideal” universal language created in 1887.⁴³ Progress in linguistic theory culminated in 1965 with the publication of *Aspects of the Theory and Syntax* by Noam Chomsky.⁴⁴ Chomsky’s approach relied on the notions of deep structure and surface structure linked by transformations, but the transformations worked only in one direction, from depth to surface; reversibility would be crucial to any Interlingua translation system⁴⁵.

The search for an Interlingua, or Linguistic Knowledge System, was pursued by the European Community’s EUROTRA project⁴⁶ and others, including Carbonnel, Colgate, and Carnegie Mellon Universities. But the Grenoble group reoriented itself in 1971 from interlingual toward transfer models, and in 1986 the METAL system also rejected the interlingual approach.⁴⁷ The DLT Project ended in 1990.⁴⁸

The failure of the interlingua model provides insight into the difficulties of machine translation. Alan Melby was part of a team that, beginning in 1970, spent five years reducing language to sememes (language-independent concepts) that could be translated into several target languages.⁴⁹ By 1978 he hit a “Wall,” and concluded that “the language-independent universal sememes we were looking for do not exist!” Melby says that the interlingua researchers failed “because of a fundamental misunderstanding of. . .languages.”⁵⁰ “I had a degree in mathematics,” explained Melby. “The world was supposed to be a nice, tidy place.” But that approach “leave[s] true creativity behind. All meaning becomes mechanical combinations of atomic word senses.”⁵¹ He developed a new respect for the

Whorf-Sapir hypothesis that languages are not interchangeable and one's world view is influenced by one's language,⁵² and his continuing work focuses on productivity tools for human translators.⁵³

New Approaches to MT

Yorick Wilks of Sheffield University is among those developing programs that comb through already-translated text to empirically derive grammatical rules. "It doesn't matter how brain-dead the approach," says Eduard Hovy, president of Association for Machine Translation in the Americas. As computers become more powerful, "doggedness" and computing power matter more than linguistic breakthroughs."⁵⁴ In what Budiansky calls "brilliant stupidity,"⁵⁵ the computer tallies coincidences in translation and creates probability tables for combinations of up to three words. Another experiment searches the Internet itself, sometimes using HTML tags for guidance, for translated word groups it then stores in a personalized dictionary.⁵⁶

Other researchers are trying to program "meaning" into the computer with "nested belief spaces representing differing points of view of the participants in the translation process as well as the actors referred to by source-language text." They try to include "default reasoning" about events, so they can make machine's translation seem coherent within the beliefs of the target-language audience. For example, terms like "el tercer piso" (literally "third floor" in Spanish) could mean either the third or fourth floor, depending on cultural floor-naming conventions.⁵⁷

Evaluations of Publicly Available Machine Translation Systems

The number of web sites offering free translation was growing when this paper was written; JETServ⁵⁸ even offered an online forum in which "Americans and Japanese can communicate--without worries of a language barrier" In 1998 Globalink's marketing consultant optimistically predicted "accuracy rates of "98% plus."⁵⁹

But available translation programs have serious short-comings. An attempt to translate a CNN article about a street protest into Spanish using AltaVista (See *Appendix B*) disintegrated into nonsense, but French translations of the same passage were better. Since hopes for an Interlingua are largely dead, translations must be evaluated not only in terms of the system, but of each language pair. When Amber Lewis evaluated how four systems treated a badly-written business letter, she concluded that the system "is not cost-effective because it will still require extensive human editing."⁶⁰ However, many such samples show errors that machine technology should be capable of fixing, such as pairing a singular article with a plural noun or creating non-words like "adddestr".⁶¹

Many MT translations are generally understandable, but there are still basic problems with words like “beam” that have multiple meanings, and machines can’t guess as well as people do. MT is “now recognized as a tool rather than a panacea,” reports Frievalds. One factor is that “the input must be precise to produce useful output.” For example, so that a machine won’t interpret “inspect for wear and damage” as “inspect it and then damage it” you would have to write: “inspect for wear and also for damage.”⁶² Conceding that available systems aren’t good at prose, Mansel and When conclude that they’re nonetheless “reasonably proficient” at translating web sites.⁶³

Adaptations to Machine Technology

MT is still largely used for translators, offering tools like memory software that memorizes a translator’s past work and suggests a translation when similar sentences appear. Medtronic, a medical device manufacturer that translates its documents into 12 languages, has glossaries that increase translator productivity by 25 percent a year.⁶⁴

Haynes says that in 1995 experts concluded that: “on complex technical terminology, machines can do better” because there are fewer nuances to technical terms. MT is also “especially valuable” where literary values aren’t important, and you just need to pull information out of the source text. To make that easier, organizations are standardizing their use of terms, and programs are being developed for specific domains, such as medicine or mining; even some programs available on the Web allow users to choose from specialized databases. The effectiveness of MT depends on the attitudes and competence of the humans using them, concludes Haynes.⁶⁵

Modern *controlled-language* tools like *Clearcheck* (Hayes ’94) are designed to adapt human language to the machine rather than vice versa, by constraining user input. Caterpillar Corporation’s Controlled English program, for example, limits the number of words used to 8,000 and establishes syntax rules, leading to 40 percent faster translations.⁶⁶ Interactive programs like Carnegie-Mellon’s DIPLOMAT prompt the user to intervene during the parsing process to resolve ambiguity and/or add words and phrases they commonly use. That way, computers “learn” with each translation to expand their capability.⁶⁷

The Potential for Popular Machine Translation

With MT for the first time available for free to people who could never before communicate across languages, can we have it both ways? Will MT help promote world understanding, while also allowing people to use the unique forms of language expression that are so important to our cultural identity? Can the average person translate ideas to counterparts throughout the world, just as the rich and powerful have been doing?

While powerful institutions can hire translators for pre- and post-editing, train employees, and invest in customized programs, these options aren't available to the average person. Moreover, in personal communications people tend to use slang, local expressions and words like "surfing" that change over time. Many languages will never be machine translated, and some others can only be translated to and from English.

The basic problem is that every language holds within it attitudes that cannot be fully translated by human or machine. The French adjective "sympatique" describes a quality that the English language doesn't recognize, for example. And although the Spanish "se me cayó el libro" may be translated to "I dropped the book," it reflects a different attitude, stressing the accidental nature of such events by treating the speaker as an observer; in the English version, there's no distinction between dropping the book by accident or on purpose.

Making Machine Translation Work

While expecting MT to fully translate the complexities of language remains an unrealistic standard, MT can help people get access to a vast amount of information and extract the essence of the meaning. In going beyond that to create their own original messages, people have three alternatives if they want to get acceptable results without help from a human translator:

1. Make adjustments before sending a message. While avoiding extreme "controlled language" approaches, people can learn to speak carefully and add visual hints such as graphics, if the desire to communicate is strong. See *Appendices C and D* for tips. It's also a good idea to translate results back into the original language and if something's completely off-base, reword the original.⁶⁸

2. Check the translation in progress. Some Web programs allow users to list words, such as proper names, that they do NOT want translated. Communication with the person receiving the translation can also become interactive; but people have to be willing to send back translated sentences that are unclear for clarification, and ask questions. That involves delays that interfere with direct communication and can also mean getting over conventions where people want to avoid anything that might imply criticism of the sender. Programs like *Translator* that allow people to add their own expressions to standard dictionaries can help, and will likely become more widely available.⁶⁹

3. All parties to the communication adjust their expectations and tolerance. "There are many millions of people around the world, particularly younger people under 30, using the new technology.

... who have no problem at all in accepting the raw English output of the better MT systems as being acceptable as the fractured Americanized English that they use as a common language when they get together with foreign contemporaries on line, or face-to-face in our increasingly global society,” asserts Haynes. He even expects a computerized equivalent of pidgin English to develop.⁷⁰

Since the goal is comprehension, people should be prepared to “take in stride the mis-translation or even non-translation of text” in cases where they can “figure out fairly easily” what the other person is trying to say, advise Church and Hovy.⁷¹ They point out that “workers at the EURATOM Research center in Italy and the Atomic Energy Commission’s Oak Ridge lab managed to communicate using the primitive Georgetown system available from 1963 through 1973, with no pre- or post-editing.” Moreover, an evaluation found that 96 percent would recommend MT “even though the texts were said to require almost twice as much time to read as original English texts” and 21 percent were intelligible. Some said “the machine is more honest” and predictable – they got used to MT style, and mistakes were easily discarded.⁷² Haynes finds that the hardest thing for people to accept is imperfect grammar or vocabulary in written texts in their mother tongue. “This is an important point to bear in mind as we examine the validity of machine translations in real world situations.”⁷³

The question remains: If you have to modify what’s familiar and expressive in language for universal translation, how valuable is it? Technical manuals are fine, but what about communication between people? Does this adaptation pervert the cultural expression that translation should potentially protect? The answer relies in part on the fact that dynamic cultures always adapt to new circumstances. Hopefully the interaction between MT and the people who use it will create new norms that are still impossible to predict. In the global telecommunications age, the experiment seems worth the trouble.

Acceptance of imperfection also depends on a level of trust and familiarity over time. It means giving someone who appears to have said something terrible the benefit of the doubt, filling in blanks for concepts that are incomplete, and developing commonly understood shortcuts. The more shared experiences people gain by communicating with MT tools over time, the more successful they’ll be.

Appendix A: Review of Online Discussions of Language

Those who join international discussions online hotly debate the use of English and minority languages.. “A language is the bedrock of most civilisations,” claims Etse Ladzekpo in an African discussion group conducted in English. “Would it not be great if members of this group were able to communicate via this medium in a typical African language?. . . For the present I’m prepared to use the colonial but universal language,” she adds. “I’m willing to adapt and apply the technology which is predominantly Anglo-centric and Anglo-phonic in ways which would benefit my community.” Another participant thinks “one of the fundamental ways to democratise web access is by exploring technologies that can make use of African languages in conveying web content.”⁷⁴

At the 1997 Virtual Conference on the Right to Communicate*: hosted by IDRC/PanAsia Networking, an online discussion that was itself translated into three languages discussed the language dilemma. One participant bemoaned the fact that young people in his native Belgium, a trilingual country, aren’t using French. In his bilingual work environment, he claims “You get more respect from other people if you talk multiple languages.” Writing in Spanish, Hawaiian Edward Sills said reading other languages is “a little like listening to a conversation through a brick wall. I catch a word here and there and I understand the context a little.” Writing in English, Spaniard Luistxo Fernandex said that in any bilingual forum “The logical choice of language will always go toward the dominant language.” Another participant complained that “the vast majority of [Americans] act as though . . . EVERYBODY in the world should understand and speak English.”⁷⁵

“I can think of nothing more horrible than one world, one language, one culture,” continued Sills from Hawaii. “Is that the only alternative to divisive, mistrustful, warring, insularity?. . . I’m an amateur naturalist. Observing nature I see that there is great diversity. Our survival is dependent on that diversity, and I suspect that the survival of our individual cultures rests on diversity as well. Use the technology to cement diversity, minorities, languages into the culture..” To this, Fernandez responded: “Well, If I posted this message in Basque, maybe my action gets praised as ‘politically correct’, but it is nonsense from a communicational point of view.” Adding that there aren’t any monolingual Basques, he felt that attempts at establishing Basque language sites on the Internet would result in “marginalization of Basque.” Cvi Solt suggested that a universal, easy-to-learn language like Esperanto be used as a second or third language in international communications.⁷⁶

In another international discussion, a participant said “I very much enjoy postings in multiple languages. When I have the time, I can compare the translations and pick up a word or phrase or two. But I would hate to see this become a requirement for participation. Funding really should be made to construct inexpensive and reliable language translators.” Michel Elie of Montpellier France praised efforts to comprehend other languages, adding that dual language postings “would improve mutual understanding.” He suggested that such translations “in the future might be assisted by an automatic translator.” The goal, he added, is to “help preserve cultural diversity while making the world a little smaller.”⁷⁷

The Ayacucho chat group originating at a Venezuelan University disintegrated into bitter debate over one participant’s untranslated posting in English. A respondent complained in Spanish that “the people of Venezuela . . . can’t even listen to music in Spanish.” Another confessed that since he didn’t speak English, for a long time he suffered in silence about messages in English, not realizing it bothered other participants as well. Another praised the “magnificent essay” that had been submitted in English and in Spanish suggested that “your minds are walled off.” Eventually someone translated the essay.⁷⁸

Caoimhín P. Ó Donnáile who created the Web site “European minority (or minoritized!) language”⁷⁹ warned in a French email message to Marie Lebert that the Internet “has contributed and will

contribute to the continuing development of English as the world language.” The Internet can also be “a tremendous aid to minority languages,” he believes, but “that won’t happen all by itself; people must choose to defend their language.” He sees the popularity of the many web sites that offer language courses as helpful. Welcoming the UNICODE system that facilitates multilingualism on the Web, he sees machine translation as a way to help cultures revive repressed languages.⁸⁰

Henk Slettenhaar, a trilingual professor at the Webster University, Geneva, Switzerland, wrote in December, 1998 that “Local communities. . . on the Web should use the local language first and foremost. . . I much prefer to read the original with difficulty than to get a bad translation. . . I see a real need for bilingual websites.”⁸¹ Bruce Girard director of Comunica.org. wrote in the Indian language Chasqui about the Agencia Informativa Púlsar, of which he’s a founding director, which uses the Internet to communicate for Latin Americans in both Spanish and in Quechua.⁸²

The French language is vigorously promoted online by La Délégation Générale à la Langue Française (DGLF). It includes the creation of three lists moderated by the DGLF to facilitate exchanges of ideas and information in French and also discuss linguistic diversity, politics and dynamics, along with technical guides to help people communicate digitally in French.⁸³

Appendix B: Sample translation

<http://officeupdate.lhsl.com/scripts/GreenAcres.dll>

L&H Online Translations

Translated into French:

Windows a été cassé, signes déchirés vers le bas et plusieurs Suisse les agents de police ont été blessés samedi comme en gros 1,300 les démonstrateurs ont essayé d'interrompre le Monde Économique Forum ici, mais un mur serré de police a gardé les contestataires bien loin du centre de conférence où Président Bill Clinton a parlé à la conférence quelques heures plus tôt. Peu après 4 p.m. le temps local, plusieurs contestataires dans le la foule bruyante a commencé déchirer et mettre feu à plusieurs panneaux d'affichage en bois qui courent le long du principal promenade dans ceci ville normalement paisible haut dans le Suisse Alpes. Président Clinton n'était pas dans le centre de conférence quand les protestations ont commencé. Police dans équipement de l'émeute plein et les boucliers en osier ont tiré un petit nombre de caoutchouc plus tard balles et aérosol du poivre usagé subjugué trois contestataires qui a essayé d'avancer mbeyond un ensemble de la barrière du grillage au-dessus par police le long de la principale route qui mène à la conférence le centre. Contrôlez porte-parole qu'Alois Hafner a dit à deux agents de police les blessures de la tête souffertes. Il a dit que quelques démonstrateurs avaient aussi été le blessé, et que deux ont été arrêtés.

French back to English:

Windows has been broken, torn downwards signs and several Switzerland police's agents have been wounded Saturday as on the whole 1,300 the demonstrators tried to interrupt the World Economic Forum here, but a wall tight police kept the protesters well far from the center of conference where President Bill Clinton spoke to the conference a few hours earlier. Shortly after 4 p.m. the local time, several protesters in the the loud crowd began to tear and to put fire to several noticeboards made of wood that runs the long of the principal walk in this city normally restful high in the Switzerland Alps. President Clinton was not in the center of conference when the protests began. Police in equipment of the full riot and the wicker shields pulled one small number of rubber later bullets and spray of the used pepper to captivate three protesters who tried to advance mbeyond a whole of the gate of the wire fencing above by police along the main road who lead to the conference centers it. Control spokesman that Hafner standards told two agents of police the injuries of the head suffered. He/it said that some demonstrators had also been the injured, and that two have been stopped.

English into Spanish:

Windows esté borracho, colgajo de las señales abajo y varios suizo se dañaron policía sábado como aproximadamente 1,300 demostradores intentaron romper el Mundo Económico El foro aquí, pero una pared firme de policía guardó a las protestadoras bien fuera del centro de la conferencia dónde Presidente Bill Clinton habló antes a la conferencia unas horas. Poco después 4 postmeridiano el tiempo local, varios protestadores en el la muchedumbre bulliciosa empezó rasgando abajo y poniendo el fuego a varias carteleras de madera a lo largo de que corren el principal pasee en este pueblo normalmente-pacífico alto en el suizo Alpes. Presidente Clinton no estaba en el centro de la conferencia cuando las protestas empezaron. Vigile el vestido del alboroto por completo y los escudos tejidos de mimbres dispararon un número pequeño de caucho después las balas y usó el rocío de pimienta para dominar a tres protestadores quién intentó al mbeyond de antemano un juego de barrera de cerco a por policía a lo largo del camino principal que lleva a la conferencia el centro. Portavoz policíaco que Alois Hafner les dijo a dos policía las heridas de cabeza sufridas. Él dijo que algunos demostradores también habían sido el herido, y que se han arrestado dos.

Spanish back into English:

Windows is drunk, torn piece of the signs below and several Swiss was damaged police Saturday like approximately 1,300 demonstrators tried to break the Economic World The forum here, but police's firm wall kept to those protesting well outside of the center of the conference where President Bill Clinton spoke before to the conference some hours. Soon after 4 postmeridiano the local time, several protesters in the the bustling crowd it began ripping below and putting the fire to several wooden billboards along that you/they run the main one go for a walk in this high usually-peaceful town in the Swiss Alps. President Clinton was not in the center of the he/she confers when the protests began. Watch over the one dress of the din completely and the knitted shields of wickers shot a small number of rubber later the bullets and it used the dew of pepper to dominate at three protesting who attempted to the mbeyond ahead of time a game of fence barrier to for police along the one I walk main that takes to the conference the center. Police spokesman that Alois Hafner told at two police the suffering head wounds. He said that some demonstrators had also been the wounded, and that two have been arrested.

English original:

Windows were smashed, signs torn down and several Swiss policemen were injured Saturday as roughly 1,300 demonstrators attempted to disrupt the World Economic Forum here, but a tight wall of police kept the protesters well away from the conference center where President Bill Clinton spoke to the conference a few hours earlier. Shortly after 4 p.m. local time, several protesters in the boisterous crowd began ripping down and setting fire to several wooden billboards that run along the main promenade in this normally-peaceful town high in the Swiss Alps. President Clinton was not in the conference center when the protests began. Police in full riot gear and wicker shields later fired a small number of rubber bullets and used pepper spray to subdue three protesters who tried to advance beyond a fence barrier set up by police along the main road leading to the conference center. Police spokesman Alois Hafner said two policemen suffered head wounds. He said some demonstrators had also been injured, and that two have been arrested.

Appendix C:
Practical Tips for Pre-Editing

Abridged from: **Colin Haynes**, *Breaking Down the Language Barriers*

1. Always run the draft for translation through grammar-checking software, which can catch overly complex construction, compound verbs and obscure phrasing (which they often flag as being in the passive voice).
2. Use a word processor or use that function in a MT program.
3. Use a thesaurus to simplify uncommon usages.
4. Stick to a logical sequences of events, without flashbacks.
5. Spell out abbreviations when they're first used, with the abbreviations put in all-caps in brackets.
6. Avoid idiomatic, slang and regional or national expressions.
7. Don't use complex compound structures.
8. Be precise. Avoid fuzzy language.
9. Don't make the comprehension of the text dependent on formatting like italics or indents.
10. Try to use the ISO Format for dates.
11. Be careful with contracts, where language may have a precise but obscure legal meaning.
12. Translate back and forth (back to the originallanguage) to see where the translation goes astray, and reword.

Appendix D:
Tips for Preparing Your Document for Translation

From: <http://www.multilingual.com/>
ADAM JONES

Translating English materials into other languages has its share of pitfalls, many of which can be avoided. At SimulTrans, we look for the following primary difficulties at the beginning of a translation to prevent problems and ensure consistency and clarity in the target language:

- Maintain consistency of terminology.
- Strive for clarity and use simple, direct sentences with basic grammatical construction.
- International users generally prefer straightforward, factual wording.
- Provide a list of all terms which should remain in English (for example, proper names, product names and titles) to alert the translator .
- Provide a definition or explanation for terms taken out of context (for example, disjointed phrases or ad headlines)
- Avoid words that can have multiple meanings
- Avoid abbreviations, acronyms and contractions (for example, Esc., config., FDA)
- Avoid long noun strings or modifier chains (for example, magnetic storage media, move program item, compatible software and hardware), as they can cause confusion about what modifies what.
- Inserting a hyphen can often clarify meaning.
- Avoid present participles (for example, “selecting icons and menu items”). Instead use the infinitive form of the verb (“to select icons and menu items”), as present participles do not have counterparts in many languages.
- Avoid singular words that can be multiple parts of speech (for example, program, display, feature, control)
- Avoid plays on words, puns, slang and idiomatic expressions (for example, “take a byte out of your budget”).
- Avoid Latinisms such as e.g. and i.e., which do not have equivalents in some language families.

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- ⁵¹ *Ibid.*, 180-182.
- ⁵² *Ibid.*, 49-50.
- ⁵³ According to Gunkel, (*Lingua ex Machina: Computer-mediated Communication and the Tower of Babel*, p. 85) the pre- Babel ideal of universal language has always been a controversial subject, in any case, with Jacques Derrida claiming a "universal tongue would have been a particular language imposed by violence, by force, by violent hegemony over the rest of the world."⁵³ Critics link the universal-language movement to colonial expansion of Europe . . The *Ars magna* universal-language projects of Ramon Lull (1232-1316), "were initially devised for the purpose of converting the heathen to Christianity," Gunkel says, pointing out that MT techniques were not developed at first for intercultural communication, but by the U.S. Defense Department for national security. They began as an extension of wartime cryptanalysis by computer. ^{p.85}
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