

CSK

Argo is a more recent arrival among Japanese MT systems.

CSK is a relative newcomer to the MT field in Japan and differs from its fellow MT suppliers in several ways. For one thing, CSK is not a hardware manufacturer, an obvious advantage in a world increasingly dominated by the open systems philosophy. Rather, it is a large, international systems integration house (1992 revenues: ¥87 billion). For another, the company targets the area of internal correspondence with its MT system, Argo, instead of the traditional domain of technical manuals. CSK sees an enormous potential for the application of MT between Japanese companies and overseas relations, particularly as Japan has entered a phase where it is actively exporting *factories*. A typical situation as envisaged by CSK would be the communications between the Japanese headquarters of a company and its offshore subsidiary in a country like Malaysia. "For these operations, a lot of material goes back and forth." explains Kazuhiko Nishioka, director of CSK's Advanced Technology Division, "and although it's rather technical, people usually know the subject. Moreover, it's usually confidential. The output quality is not so important, unlike user manuals." The output would be offered without post-editing. For Nishioka, these constraints suggest a suitable domain for an MT system like Argo.

CSK's first excursion into MT in the 1980s resulted in a system for producing English translations of the Nikkei stock market reports in realtime for distribution via the Nikkei Telecom network to Reuters and its customers worldwide. CSK targeted as potential takers American and European companies interested in Japanese stockmarket activities. However, current events overtook the company; the system came online in September 1986, just a month before the notorious stock market crash of October 1986, and the expected interest for this service did not materialize. CSK launched its commercial package Argo, which runs on Sun Unix machines, in 1992, but once again CSK found itself swimming against the tide; this time it was due to Japan's current recession. Nonetheless, Argo is currently being used at ten sites in Japan. Nishioka readily acknowledges that the market for MT is still very undefined in Japan; development is not driven (yet) by user demand, a real problem.

According to Tsuneo Noda, manager of the Machine Translation Department, Argo is based on a modified dependency model. It goes a step further than the pure dependency design at the heart of many Japanese MT systems with a close analysis of the relation of all the items in a sentence. For semantic analysis, CSK has settled on sixty semantic primitives, which offers a tradeoff between sophistication and ease of dictionary updating.

CSK is obviously aware that the latter is a keen issue from the user's perspective, and the user interface of Argo has become increasingly important to the system. CSK now offers two different Argo packages: Argo Pro, the original bare-bones system, is easily extendable and designed for embedding in other systems but has austere interface, and Argo-I, which works with Interleaf and with its attractive OpenLook interface provides a far friendlier environment in which to work. Interleaf is not yet widely used in Japan, but a Japanese edition of Interleaf 5 <SGML> was released this past August and there is great interest in it on account of its extensibility. The company also has Frame-Maker and HyperCard interfaces under development. CSK clearly positions Argo not as a standalone technology but as an integral part of a larger document production system.

Like many MT developers, CSK has developed a sophisticated interface for entering words in its lexicon, but CSK goes a step further by partly automating the procedure. During entry of the word, the system will prompt the user with such things as "Can you touch it?", "Does it think?", and "Can it read?" and it automatically switches on the corresponding semantic markers, thereby considerably lowering the level of linguistic knowledge required of potential

users. An Argo license costs ¥5.6 million and includes three months of customization by CSK engineers, who analyze a sample corpus of 200 to 250 pages of customer documentation to elicit a user dictionary for the system. Among other things, CSK demonstrates to its new customers the advantages of writing MT-friendly texts.

While CSK has yet to meet with substantial commercial success with Argo, it nonetheless gives the indication of being thoroughly committed to MT. The company counts fifty people in MT development and Nishioka and Noda speak of other domains which they hope to target, in particular in-house business procedures. In targeting the domain of in-house documentation, CSK efforts are hampered by the overwhelming popularity of the MT-unfriendly fax machine, but Nishioka sees companies switching to email when people discover they need to use information in different forms. For CSK, the future lies in providing raw MT for materials which would not be otherwise translated manually.

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