Building Translation Awareness in Occasional Authors: A User Case from Japan

Midori Tatsumi
Toyohashi University of Technology
`midori.tatsumi2@mail.dcu.ie`

Anthony Hartley
Toyohashi University of Technology
`a.hartley@imc.tut.ac.jp`

Hitoshi Isahara
Toyohashi University of Technology
`isahara@tut.jp`

Kyo Kageura
University of Tokyo
`kyo@p.u-tokyo.ac.jp`

Toshio Okamoto
Toyota Boshoku Corporation
`toshio_okamoto@toyota-boshoku.co.jp`

Katsumasa Shimizu
Toyota Boshoku Corporation
`katsumasa_shimizu@toyota-boshoku.co.jp`

Abstract

We report the early stages of an industrial-academic collaboration to build translation awareness within a global Japanese company where non-professional authors are called upon to write 'global job manuals' for internal dissemination. Following an analysis of current practice, we devised a document template and simple writing rules which we tested experimentally with two MT systems. Overall, native-speaker judges found that the quality of the Japanese was maintained or improved, while the impact on the raw English translations varied according to MT system. The case study has wider implications for the acceptance of structured authoring by non-professional and occasional writers.

1 Starting Points

1.1 User profile and need

Toyota Boshoku Corporation is a Japanese company with a global presence in the design and manufacturing of automobile components. Operating in around 90 companies worldwide, the group is aware that the use of Japanese will become problematic as it further globalizes its operations. The designation of English as the official company language is under consideration.

Toyota Boshoku Corporation also has a distinctive ethos, which places high value on Corporate Social Responsibility, on building ties with local communities and on employee welfare. In day-to-day management it adheres at every level to the twin principles of *kaizen* (continuous improvement) and *genchi-genbutsu*, code of action based on establishing the root cause of problems.

To promote on the job training and education, the company pairs new recruits with 'workplace seniors'. As an extension of this concept, key staff in Japan are now being asked to capture their know-how in 'global job manuals' so that their expertise can be shared widely across the company network, within and outside Japan. This will entail translation, initially into English.

The current project was set up to explore the use of MT as a cost-effective means of meeting this need.

1.2 Writers and readers

From an MT perspective, it is widely acknowledged that the typological 'distance' between Japanese and English hampers the achievement of high-quality translation. A well-known way of mitigating this problem is the Controlled Language (CL) approach. However, as Nyberg et al. (2003) stress, the main condition for the successful implementation of CL is to employ trained, professional authors. The challenge of the current project is to promote consistency and clarity of writing by people who do not see themselves primarily as authors and who are called upon only occasionally to write for a readership beyond their immediate working environment. Thus, they bring no prior training to the task and

cannot be expected to invest great effort in extending their language awareness.

At the same time, their readers are 'insiders' with experience of the corporate culture and can be expected to tolerate some infelicity of expression provided the content is understandable.

These constraints suggest that some form of 'CL-lite' may be appropriate. But is it feasible?

1.3   Document format and style

We based our diagnosis of the current situation on three work manuals comprising 33, 20, and 53 pages, or 177,742, 10,433, and 32,366 characters respectively. Using Systran 7 Premium we machine translated all three documents and had one post-edited by a professional translator.

The documents were rendered in Excel, which is a format widely used in Japan in both the technical and administrative domains. As a result, many sentences were broken across two or more cells, which had a predictably negative impact on MT quality. Repairing the breaks improved raw translation quality but destroyed the layout of the exported document. A considerable proportion of the text was embedded in figures and other graphic objects, and much of this was not extracted by the Systran filters. Together, these two factors increased translation costs by an estimated 20%.

The documents were very heterogeneous in wording and style. MT output quality was correspondingly patchy, even when we applied a user dictionary created from the glossary accompanying the manual, augmented with terms identified by the translator.

2   Proposed Remedies

2.1   Word template

With an ultimate goal of implementing some sort of XML format, such as DITA, we designed a MS Word template that organises information into concepts, tasks, reference, etc. It also requires an explicit characterization of readers and their purpose in consulting the document, in order to encourage a user-oriented mindset in the writer.

As an incentive for the next set of authors to abandon Excel, we implemented a full stylesheet, and provided a simple tool for extracting candidate terms from the document and inserting them into a formatted glossary.

2.2   Authoring guidelines

Authors of the existing manuals received no guidance on writing style as such. We reviewed the relatively scarce work on CL in Japanese, which dates back to (Nagao and Tanaka, 1984), who describe a 'machine-readable' Japanese. Yoshida (1987) outlines a framework for designing a 'standardised' Japanese for MT. Kaji (1999) offers a few Japanese examples. Sato et al. (2003) focus on interaction, while the efficacy of the rules proposed by Ogura et al. (2010) is not validated with empirical evidence. General technical and business writing guidebooks[1] provided suggestions for some of the guidelines we formulated. Others were chosen to remedy known problems of Japanese to English MT.

We ended up with the following 10 guidelines which we believed to be accessible and easy to implement.

a.   Do not use single-byte Katakana characters

Katakana is the only one of the three writing systems of Japanese that can also be written in single byte, which can perturb tokenisation by MT systems.

b.   Do not use mathematical symbols in sentences

Symbols are often used in sentences to represent relations concisely.

c.   Do not use nakaguro (bullet) as a delimiter

Nakaguro is often used to separate parallel list items in a sentence. MT systems can fail to distinguish parallel items (underlined) from the surrounding text.

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d.   Avoid using inappropriate Kanji characters

This equates to spelling mistakes in English.

e.   Avoid creating long noun strings

f.   Do not use 'perform' to create a *sa*-verb

Sa-verbs are widely used and are formed by adding a 'do' verb after a noun. Instead of using the simple する, writers commonly add 'perform' or 'execute' (行う／実行する).

g.   Avoid topicalisation

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[1] 日本語スタイルガイド 第2版 (一般財団法人テクニカルコミュニケーター協会編著), 説得できる文章・表現 200 の鉄則 (日経 BP 社出版局)

Japanese is a 'topic-prominent' language. Some MT systems fail to translate non-subject topics correctly when they are signalled by the default topic particle は.

h. Do not connect sentences to make a long sentence

i. Do not interrupt a sentence with a bulleted list

j. Avoid listing numerous parallel items in a sentence; use a bulleted list instead

3 Trial evaluation

From the existing manuals we selected six sentences violating each of the 10 rules and edited them according to the guidelines. We translated both versions with Excite[2] and Google Translate[3], 'off the shelf'. Native-speaker judges were recruited within the company to evaluate both the Japanese and the English MT outputs.

3.1 Questionnaire design and completion

We wanted to establish whether the quality of the Japanese source text written according to the guidelines is as good as or better than that of the text written without guidelines. We also wanted to know whether one or both are acceptable or not. The 20 judges were shown a pair of 'before' and 'after' sentences at a time and asked to evaluate each of them on the four-point scale in Figure 1. (For convenience we provide the questions in English gloss.)

The following two sentences convey the same content but are written using different words. Please evaluate the readability of each sentence.
A　　欠勤・早退・遅刻・離業など、業務に従事していないときの賃金は、原則として支払いません。
B　　欠勤・早退・遅刻・離業など、業務に従事していないときは、原則として賃金を支払いません。
How readable is A? Tick the closest option:
○ *Easy* ○ *Fairly easy* ○ *Fairly difficult* ○ *Difficult*
How readable is B? Tick the closest option:
○ *Easy* ○ *Fairly easy* ○ *Fairly difficult* ○ *Difficult*

Figure 1. Question to judges of Japanese

We surmised that showing two sentences at a time would lead the judges to focus on readability in terms of expression rather than content. Moreover, although the judges were not explicitly asked to compare the two and decide which was better, we thought that, if they perceived a difference in readability between the two texts, they might differentiate between them in their judgment.

In evaluating the English translations we asked the judges to say whether they thought sentence A more readable than B, B more readable than A, or A and B equally readable. This decision was dictated by the small number of judges available (eight).

The ordering of the 'before' and 'after' pairs was randomised for both languages. For the English translations, each judge saw (in random order) an equal number of outputs from each MT system, and no judge saw translations by both systems of the same Japanese source pair. We obtained four judgments for each source and target pair. The questionnaires were answered online.

3.2 Readability of the Japanese

The questionnaire design enabled us to draw conclusions on both the relative and absolute readability of the Japanese text.
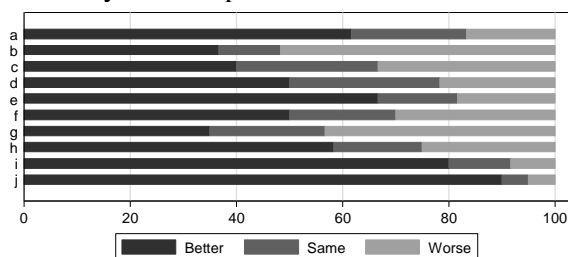
In relative terms, Figure 2 shows that most of the guidelines achieved the objective of improving or at least maintaining the quality of the text, in so far as they were valued as Better or Same by at least two thirds of the judges.

The exceptions were *b* (Avoid symbols) and *g* (Avoid topicalisation). Guideline *c* (Avoid nakaguro) also received a rather low evaluation, which suggests that the use of non-linguistic devices to relate meaningful parts of a sentence promotes concision. The result for *g* was somewhat expected, since topicalisation does not usually compromise readability for humans and editing sentences to eliminate topicalisation can result in wordiness.

The greatest positive impact on readability was registered by guidelines *i* (Do not interrupt

the sentence before bulleted lists) and *j* (Avoid listing parallel items in a sentence).

To ground the absolute readability of the text, we converted the rating options to numbers as follows: 'Easy to read' = 4, 'Fairly easy' = 3, 'Fairly difficult' = 2, 'Difficult' = 1.

Table 1 compares the median values of the evaluation results for JAO ('original') and JAR ('rewritten'). We see that overall readability for both JAO and JAR is rather good; there is no category whose median value is lower than 2. This is not surprising, however, since all sentences have been written by a human.

More important, there are no categories for which JAR received a lower score. This suggests that the guidelines we used for this experiment was generally successful in maintaining and even raising the quality of Japanese sentences.

	JAO	JAR	EXC	GOO
a	3	4	0	1
b	3	3	1	-4
c	3	3	0	-1
d	2.5	3	1	1
e	3	4	-3	3
f	3	3	3	-1
g	3	3	-1	3
h	3	3	-5	2
i	2	4	5	2
j	2	4	2	-2

Table 1. Readability and translation quality

3.3 Translation quality of the English

The last two columns of Table 1 give the net sum of the judgments comparing ENO/ENR-Excite and ENO/ENR-Google, respectively, in the range +12 to -12. It appears that only with rules *d* and *i* do all three indicators improve. Hartley et al. (2012) discuss the conflicting impacts of the rules on Excite (RBMT) and Google (SMT).

Note that these are relative changes in the performance of the same system given modified inputs. Limitations on the availability of competent judges prevented us from grounding the judgments in terms of the acceptability of the sentences, as we did with the Japanese input.

4 Conclusions

The fact that we are dealing with non-professional and possibly reluctant writers is a big factor. We have emphasized readability of the Japanese since, if it is perceived to suffer, authors will be likely to simply reject the guidelines. But the fact that simple rules did consis-

tently maintain or improve readability may motivate the writers to use them, even if only two rules also consistently raise MT quality.

Some 90 authors are creating global job manuals by a June 2012 deadline. Although use of the template is not mandatory, a majority are expected to use it.

The next step is to translate the manuals and establish, with Toyota Boshoku staff, the necessary quality benchmark for post-editing. This may be attainable using either Japanese translators without English native review or by Toyota Boshoku staff outside Japan who are not professional translators. We will also investigate how closely the authors adhered to the guidelines.

Acknowledgments

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