Broadcasting live and on demand relayed in Japanese Local Parliaments

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I would like to talk about the present state of the real-time and on-demand broadcasting of the deliberation being held at the Japanese Local Parliaments, through the changes that occurred in stenography since the late 1940's.

From the birth of private offices to corporate organizations

In Japan, after 1945, but before the mid-1970s - before tape recorders began to spread - was the golden age of the stenography. Many stenographers took an active role in the Parliament and in publishing.

The activities of individual stenographers gradually became more and more organized, and from the 1980s it led to the birth of numerous companies that deal with stenography.

It is difficult to determine exactly how many companies are now engaged in stenography, because for many of them this is not the primary profile.

In addition, there are many companies whose capital stock exceeds 10 million yen . One of them is the "Kaigirokukenkyusho" with a capital stock of 50 million yen, and it is one of the largest companies in Japan. It has 450 full time and part-time employees.

(ppt-1   ppt-2)

Here you can see the top page of Kaigirokukenkyusho's current website. The company was established about 30 years ago.

As you can see, this company offers a variety of services. Writing transcripts during conferences, managing a search system for records, recording videos, installing the proper equipment and so on, much like any other major stenography company in Japan.

Provision of recording services to local parliaments

With the spread of tape recorders stenography changed greatly. Until that the recording of proceedings, dialogues, symposiums, etc. was only possible by handwriting, but now they could use new methods. This led to many changes in stenographer companies.

Although Japan's parliament is making records from the first congress of 1890, we could say that local councils started making records after 1945.

Handwritten recording was replaced by tape recording, and the introduction of search engines has changed the old system.

Currently, the proceedings search system is installed in every prefecture and in 80% of cities.

(ppt-3)
This is an example for a conference proceedings search system

The development of the recording creation service

With these developments, the companies took up services in addition to the simple stenographic tasks. Book binding, an easy to use, effective search system service, and other integrated services became available and widely used locally and online.

These services developed further. Now live and on-demand broadcasting of parliamentary assemblies is also available.

This practice has spread further, and the number of local governments using live and on-demand broadcasting has increased radically.

For an example, let me show you a picture about a search system from Shizuoka prefecture, Kakegawa city.

(ppt-4)
This is the search system from Shizuoka prefecture, Kakegawa city. Since at the local government the proceedings is only in Japanese, the homepage of the search system also only in Japanese.

Introduction of advanced services in the Diet of Japan

If we look at the advanced recording service in Japan's parliament, especially in the House of Representatives we can see that the Diet full-text database construction has started from around 1994, and it is now completed.

Furthermore, the video distribution services started gradually from the year 1991, from the year 2000 video relay of all Parliament meetings towards the government district are available, and also from 1999, the full service is accessible online

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(ppt-5)
This is the top page of the House of Representatives website.

(ppt-6)
This is in the House of Representatives TV homepage where you can find all of the deliberation.

The screen being delivered in real time can be seen on the right side of the window. Furthermore, it is also possible to enlarge the real-time discussion video to the entire screen.

In addition, after over 10 years of construction and preparation, automatic speech recognition system has started in 2011.

Professor Kawahara has already reported about it at an IPRS conference, so I won't talk about it in details. Of course, a speech recognition system is not perfect. The processed data should be thoroughly examined and mistakes must be corrected.

Prospects for real-time captioning services in local parliaments

In Japan, if there is no sign language interpreter at the deliberations of the local parliaments, a hearing-impaired person won't understand the content of the discussion at all. Therefore, a system using subtitles to inform the audience about the content of the discussion in real time, (on big screen or by tablets, etc.) is desired. In order to fulfill this demand, "Kaigirokukenkyusho" began to provide captioning services in the local parliaments.

In Japan's famous university town, Tsukuba city, there is the National University Corporation Tsukuba University of Technology.

This is a university for hearing-impaired and visually-impaired people only. Each year there are approximately 50 students with hearing disabilities and 50 students with visual impairments. It means that for 4 years the total number of students is approximately 400,

making it a very compact university. Therefore, the Wakatsuki laboratory developed a subtitle display system for school classes, where students have hearing problems. Kaigirokukenkyusho uses this system as well.

(ppt-7)
This is the home page of Tsukuba University of Technology.

Simply put, this subtitle service system, which is called "captiOnline", sends the voice of the speaker from the assembly hall to the center in Tokyo via mobile phone line, where 2-3 employees enter the information with a normal keyboard and send back the information to the local parliament via Internet.
If we equip the assembly hall, or the seats with this kind of monitors, all information that has been said in the assembly hall will appear on the screen real time and the deaf or hard of hearing will understand everything. Since it is a web-based system, where the information is coming through the Internet, those hearing-impaired people who have a smartphone or tablet, can follow the parliamentary debate.

(ppt-8)
It is possible to see captions in such a form with a tablet.

(ppt-9   ppt-10)
This is a simple illustration of the real time caption distribution system.

(ppt-11)
This is a simple illustration of the real time caption distribution system.
The server where the captions are, only be accessed via a web browser.
Special equipment or software is not required, it can be used in various terminals such as a PC or smartphone.
We are using a web protocol to be utilized in various network environments.

Difficulties of Japanese caption displaying

European languages such as English, German, French in other words, countries that use phonetic characters, real-time caption display seems to be easy, but in the case of Japanese where ideographic characters (kanjis) are used, it is quite difficult.

In Japanese, we use three different kind of writing. The kanji, hiragana, and katakana. It is necessary to convert the sounds into kanjis when displaying caption. There are many kanjis that have the same pronunciation, but different meaning.

(ppt-12)
For example, when we say "hashi" there will be lots of words with this pronunciation: "hashi" means bridge, chopsticks, the edge or end of something, ladder, etc. When the caption display operator hears the word "hashi", he has to determine in a second, and convert it into the right kanji.

These days it's not yet possible for a computer to instantly select the appropriate kanji from syntax analysis alone.

For example, if I say "私は橋の上に立っている。" (I'm standing on a bridge.), the word "hashi" means bridge, so the kanji for bridge should be used.

If I say "私はその橋の端を通った。" (I passed the end of the bridge.), the first "hashi" means "bridge", and the second "hashi" means "end".

Yet again, if I say "私は箸を持ち上げた。" (I raised my chopsticks.), the word "hashi" means "chopsticks". As you can see, it's extremely complex. This is the fate that the Japanese language holds.

Thus, given the complexity of the tasks to be carried out, inputting the data with the Japanese keyboard in a fraction of a moment would be too difficult for one person, so this job requires the cooperative work of two or three people.

In Japan the law called "Handicap Discrimination Act," based on the "Convention on the Rights of Persons with Disabilities", which was adopted by the plenary session of the UN General Assembly in December 2006, will be executed April next year and though a variety of difficulties in local government have to be overcome, the caption display service of local parliaments is expected to develop rapidly.

As a specific example, "Kaigirokukenkyusho" carried out the Nagano Prefecture, Karuizawa town's council in this year March and June. I would like to introduce it with a newspaper article.

(ppt-13　ppt-14)
This is an article that was featured in the "Shinano mainichi (Shinano daily) newspaper. In this photo you can see hearing-impaired people with a screen placed in front of them, on which they can see the captions.

Also, I would like to show a picture of the first Japanese female astronaut Mukai Chiaki's lecture at the Tokyo University of Science which was held in May this year. Caption is displayed in such a form.

(ppt-15   ppt-16)
In this way, the speaker is displaying variety of data on a screen, while caption displaying in another screen.

Subtitle display is not only helpful for the deaf and the hard of hearing. It can also help people who have good hearing. In the parliament, the content of the debates can be difficult to comprehend, but by looking at the subtitles displayed in real time, the contents can be easily understood, which is highly advantageous.
Moreover, by utilizing the log information, the creation of proceedings is almost finished by the time the deliberation ends.
Thus, in the Japanese language, although we have to overcome the unique language handicap called kanji usage, from now on real-time subtitle services are going to be adopted in every field. It seems to be no doubt that it will continue to develop.

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