

7LN003 Machine Translation

Presentation Essay

An Evaluation on Google and Weblio
Online Machine Translation Services
in Japanese to English Translation

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1 Introduction

1.1 Machine Translation (MT) and Online MT Services

Machine translation (MT) refers to the use of computerised systems to produce translations from a natural language to another (Hutchins and Somers, 1992). The process can either be or be not interfered by humans. Depending on the extent of human interference, types of MT can be classified across a spectrum -- from Human Translation, Computer-Aided (Human) Translation (CAT), Human-Aided Machine Translation (HAMT), and finally the ideal of Fully-Automated High-Quality Translation (FAHQT).

Over the history of MT, various approaches towards achieving the ideal goal of FAHQT has been put forward. Rule-based approaches were one of the earliest steps taken in MT, although not being welcomed for a period, it made a comeback in the 1980s. Along with advanced computers, new approaches such as example-based MT and statistical-based MT emerged. Since the 1990s, the development of MT has been speeding up exponentially, thanks to the rapid development of the Internet. Not only is translation made easier and more accessible to people, innovative approaches to MT using machine learning and neural networks further closed the distance left towards FAHQT. Nowadays, everyone can be a translator as long as they are connected to the Internet and have access to relevant websites.

This essay looks into the performances of two online translation services, *Google* and *Weblio*, in Japanese to English translation. By translating texts that are highly available to and frequently accessed by laymen, the quality of the services would be assessed to answer the following questions: *Whether the translation services are good enough for daily use by ordinary people* and *whether the systems are reliable for translating languages of specific purposes (LSPs)*. In other words, how useful are the system in professional fields.

1.2 MT Evaluation

With numerous options in the market, various MT evaluation proposals have been put forward in the translation community. The performance of an MT system is important to a few stakeholders in MT -- the developers, the translators and the audience of the translation (Hutchins and Somers, 1992). For instance, with MT evaluation, developers can optimize translation quality and efficiency of systems, reducing the workload of human translators (in either pre- or post-editing), and ultimately providing natural, high quality translations to message recipients.

MT Evaluation can be performed either by computer programmes or humans. For automatic MT evaluation, the programme takes in the MT output and reference translation, then returns a score showing the similarity of the two. Most automatic MT evaluating methods score translations using string-based methods, comparing the inputs in units of characters, n-grams or sentences. Common scoring methods include BLEU (Bilingual Evaluation Understudy), METEOR (Metric for Evaluation of Translation with Explicit Word Ordering) and the Levenshtein (Edit) Distance. For human MT evaluation, since human perception is subjective, frameworks have been proposed to guide human evaluators to assess the quality of MT outputs. Adequacy, fluency and error identification are the main aspects being considered when rating an MT output.

1.3 Challenges in Japanese to English Translation

One of the largest challenges in Japanese-English translation is to preserve sociolinguistic information. In Japanese, sociolinguistic information is encoded into either different terms having the same meaning, or in the suffixes of verbs phrases. Meanwhile, orthography is one of the obstacles in meaning disambiguation. In the Japanese writing system, *kanas* and *kanjis* are used. The former are Japanese-invented characters, in which one character represents one syllable. The latter are Chinese characters that are either imported from China or invented locally in Japan. The same combination of *kanas* can result in different *kanjis* while one *kanji* can have multiple pronunciations, meaning that it can be broken down into different combinations of *kanas*. Last but not least, ellipsis is common in Japanese discourse (Okamoto, 1985). Noun phrases and verb phrases are often left out as a result of the distinctive communication style of a high-context culture. Information like the referents of pronouns and the performers or recipients of actions are omitted, and it is expected that listeners or readers can pick up such information from the surrounding context. The table below demonstrates the summary of these difficulties for the sentence *I am Hanako*.

Formality	Casual	<i>Watashi-wa / Hanako – da.</i>
	Formal	<i>Watashi-wa / Hanako – desu.</i>
	Honorific	<i>Watakushi-wa / Hanako – degozaimasu.</i>
	Dialect	<i>Watashi-wa / Hanako – ja.</i>
Orthography	Kana	わたし - は / はなこ / です。
	(Possible Kanjis)	(わたし → 私 or 渡し / はなこ → 華子 or 花湖)
	Kanji	私 - は / 花子 / です。
	(Possible Kanas)	(私 → わたし or わたくし or し / 花子 → はなこ or かし)
Ellipsis	Omitting pronoun	<i>(Watashi-wa /) Hanako – desu.</i>

2 Methodology

2.1 Experimental Procedures

2.1.1 Text Collection

Two pieces of texts were taken for the study – a children’s fiction and a news article. The texts were around 1500 and 1700 characters-long respectively.

For the piece of children’s fiction, it was retrieved from an online collection of bilingual stories¹. The story retrieved was written in full Japanese characters, and each line of the story was aligned with an English translation.

The news article is was retrieved from BBC. The article was originally written in English² and a translated version is available on the Japanese version of the website³. Hyperlinks to the articles are supplied at the bottom of the page.

2.1.2 Text Preprocessing and Alignment

A third piece of source text was created by re-writing the story from Japanese characters into Chinese characters where appropriate. This was to test whether the use of Chinese characters facilitate meaning disambiguation during the translation process. The resulting document consisted of around 1300 characters.

Moving onto sentence alignment, each line of the story was aligned with the respective translation into an excel file for comparison. For the news article, sentences that only exist in either the English or the Japanese version were removed so that a parallel comparison could be made. Only the sentences that were remained would be passed into the MT systems in the next stage.

2.1.3 Translation with Online MT Services

2.1.3.1 Google Translate (<https://translate.google.com/>)

Google began providing online translation service since 2006. (Turovsky, 2016) It started off by using statistical MT, with training data from corpora of texts from the United Nations and the European Union. It also invites its users, the Translation Community to make contributions to improve their MT system. For instance, users are invited to provide their own translations to phrases provided by the system. Or, they can help rate possible translation so that the system learns which ones are better. In recent years, Google has upgraded their MT service by using deep learning (Turovsky, 2017).

¹ Yukionna (The Snow Woman), from Hukumusume Fairytale Collection http://hukumusume.com/douwa/English/jap/01/22_i&E.html

² Coronavirus: World Health Organization members agree response probe <https://www.bbc.com/news/world-52726017>

³ WHO、新型コロナウイルス対応を検証へ 全加盟国が同意 <https://www.bbc.com/japanese/52733876>

2.1.3.2 Weblio (<https://translate.weblio.jp/>)

Weblio is a Japanese company that has been providing online dictionary services since 2005. Their online translation services has been available since 2012, offering Japanese to/from Chinese, Korean and English translation. Weblio provides its users with support on studying foreign languages (mainly English) for overseas employment and travel (Weblio, 2020). For example, there is a sample-sentence-lookup function on their website. Users can input a Japanese sentence and the system returns English translations under different contexts for users to reference. Examples are from their self-developed email corpus and the Wikipedia Japanese-English parallel corpus. While the approach of MT is not specified on Weblio's website, other services provided by the website suggested that statistical MT is employed.

2.1.4 Evaluation of Translation Output

The translation outputs from the online systems were evaluated both automatically and manually.

BLEU was used as the automatic evaluation method. BLEU stands for "BiLingual Evaluation Study", in which a numerical metric is utilized to measure the closeness between a MT output with a gold, corpus standard (Kishore, Roukos, Ward and Zhu, 2002). The BLEU scores for each sentence in the output was calculated. The score of a piece of output would then be computed by averaging the sum of the scores of each sentence. The more the BLEU score is closer to 1, the better the quality is the MT output. Copying the MT outputs into a .txt file, BLEU score for the outputs were generated using the Natural Language Toolkit in Python. Here are the source codes of the evaluation program (Brownlee, 2017).

```
1 from nltk.translate.bleu_score import sentence_bleu
2 ### Preparing the standard
3 text = open("standard_YUKI.txt")
4 standard = []
5 for sent in text:
6     sentence = sent.split()
7     #print(sentence)
8     if sentence != []:
9         standard.append(sentence)
10 #print(standard)

1 ### Preparing the output
2 fn = "google_YUKI_1.txt"
3 translation = open(fn)
4 output = []
5 score = 0
6 count = 0
7 for trans in translation:
8     t = trans.split()
9     #print(trans.split())
10    #output.append(t)
11    if t != []:
12        #print(t)
13        count += 1
14        score += sentence_bleu(standard, trans.split())
15 #print(len(output))
16 print("Average BLEU score for ", fn, ":", score/count)
```

As BLEU only shows the similarity of the MT output with a reference, it could only tell how accurate a result is with respect to the reference. Whether the translation is readable or appropriate in the target culture is yet to be judged (Hutchins and Somers, 1992). This is why manual evaluation is necessary, and hence the results would be evaluated by a human, who would comment on the outputs' accuracy and fluency.

2.2 Experimental Setup

Three trials of experiments were carried out to assess the performance of the MT system. The first using the piece of children's fiction written in full Japanese characters and the second with the one written with Chinese characters. These trials assessed the importance of meaning disambiguation using Chinese characters, as well as the ability of the systems to translate everyday expressions such as onomatopoeic words and dialectal expressions, which do not have direct English translations. Last but not least, the last trial was performed by back-translating the news article and see how well the systems performed with texts of a more formal and informative register.

3 Results and Discussion

BLEU scores for the experiments are listed as below:

	Google Translate	Weblio
Story (in full Japanese characters)	0.5865	0.5469
Story (with Chinese characters)	0.6160	0.6134
News article	0.4339	0.4779

Comments on the systems would be made in this section, extracting examples from the translation results for illustration. The full results in a spreadsheet format could be accessed from https://docs.google.com/spreadsheets/d/1KUr-tcNDI5tvH4hkaF7P-UibVPFbM93-lveQOM_FNro/edit?usp=sharing.

3.1 Experiment 1: Children's Fiction in full Japanese characters

	A	B	C
1	Source	Standard	Google
2	むかしむかしの、さむいさむいきたぐにの おはなしです。	Once upon a time, in the cold, cold northern lands...	Once upon a time, this is the story of the cold and cold weather.
3			
4	あるところに、しげきとおのきちという きこりの おやこがすんでいました。	there lived an old logger named Shigesaku, and his son, Onokichi.	At one point, there was a sickly-smoked kid who lived.
5			
6	この おやこ、やまがすっぽり ゆきにつつまれるころになると、 てっぽう をもって りょうに かけていくのです。	Every year, when the mountains became white snow, they would take their rifle and go hunting.	When it comes time for this oyster, Yama to be comfortably wrapped, he will take the teppoka and take it with him.
7			
8	あるひの こと、おやはいつものように ゆきやまへ 歩いていきましたが、 いつのまにか そらは くらぐもに おおわれて、ふぶき となりました。	One day, while they were out, vicious clouds rolled in and they found themselves in the middle of a blizzard.	One day, the boy went to YukiYama as usual, but before he knew it, the sky was covered with black cloud and became fluffy.
9			
10	ふたりは なんとか きこりごや を みつけました。	Fortunately, they were able to find a small hut.	The two managed to find a woodcutter.
11			
12	「こんやは ここでとまる より、しかたあるめえ」	"We have no choice but to spend the night here."	"Koya is a way to stay, rather than stop here."
13			
14	「うん だなあ」	The son agreed.	Yeah.
15			
16	ちろちろ と える いろいろの ひに あたりながら、 ふたりは ひるまの つかれからか、すぐ にねむりこんで しまいました。	They were both tired, and while listening to the cracking of the fire, soon fell asleep.	While hitting the fluttering squirrels, the two immediately fell asleep, probably because of the sardines of the sardines.
17			
18	かぜの いきおいで とが たんと ひらき、ゆきが まいこんで きます。	The hut's door, pushed by the strong wind, was slammed opened...	You can enjoy the warmth of the cold and the snow.
19			
20	そして、いろいろの ひが ふっと きえました。	and in an instant the fire was put out.	Then, I heard a lot of hilarity.
21			
22	「うー、さむい！」	"Brrr.... It's cold!"	"Wow, it's cold!"
23			
24	あまりの さむさに めを きました おのきは、 そのとき、ひとかげ を みました。	The chill awoke Onokichi, and it was then that he saw the figure of a person.	Onochi, who was too angry, saw a shadow at that time.
25			
26	「だれじや、そこにおるの？」	"Who is there?"	Who are you there?
27			
28	そこに すがた を あらわしたのは、わかくうつくしい おんなのひとでした。	From the darkness emerged a young and beautiful woman.	It was a beautiful and beautiful woman who expressed herself there.
29			
1	Source	Standard	Weblio
2	むかしむかしの、さむいさむいきたぐにの おはなしです。	Once upon a time, in the cold, cold northern lands...	さむいさむいきたぐにの おはなしです of old days old days.
3			
4	あるところに、しげきとおのきちという きこりの おやこがすんでいました。	there lived an old logger named Shigesaku, and his son, Onokichi.	In a certain place, it is しげきとおのきちというきこりの おやこがすんでいました.
5			
6	この おやこ、やまがすっぽり ゆきにつつまれるころになると、 てっぽう をもって りょうに かけていくのです。	Every year, when the mountains became white snow, they would take their rifle and go hunting.	When when この おやこ、 a mountain are surrounded to go completely, become, てっぽう をもって りょうに かけていくのです。
7			
8	あるひの こと、おやはいつものように ゆきやまへ 歩いていきましたが、 いつのまにか そらは くらぐもに おおわれて、ふぶき となりました。	One day, while they were out, vicious clouds rolled in and they found themselves in the middle of a blizzard.	あるひの こと、 おやはいつものように ゆきやまへ 歩いていきましたが、 いつのまにか そらは くらぐもに おおわれて、ふぶき となりました。
9			
10	ふたりは なんとか きこりごや を みつけました。	Fortunately, they were able to find a small hut.	The two are きこりごや を みつけました somehow.
11			
12	「こんやは ここでとまる より、しかたあるめえ」	"We have no choice but to spend the night here."	こんやは ここでとまる より、しかたあるめえ
13			
14	「うん だなあ」	The son agreed.	Yes
15			
16	ちろちろ と える いろいろの ひに あたりながら、 ふたりは ひるまの つかれからか、すぐ にねむりこんで しまいました。	They were both tired, and while listening to the cracking of the fire, soon fell asleep.	ちろちろ と える いろいろの ひに あたりながら、 the two have fallen asleep from fatigue of the day immediately.
17			
18	かぜの いきおいで とが たんと ひらき、ゆきが まいこんで きます。	The hut's door, pushed by the strong wind, was slammed opened...	I go かぜの いきおいで とが たんと ひらき、 and there is a load.
19			
20	そして、いろいろの ひが ふっと きえました。	and in an instant the fire was put out.	And it is いろいろの ひが ふっと きえました.
21			
22	「うー、さむい！」	"Brrr.... It's cold!"	Ugh, ... is cold!
23			
24	あまりの さむさに めを きました おのきは、 そのとき、ひとかげ を みました。	The chill awoke Onokichi, and it was then that he saw the figure of a person.	あまりの さむさに めを きました おのきは、 it is ひとかげ を みました then.
25			
26	「だれじや、そこにおるの？」	"Who is there?"	Whose being there
27			
28	そこに すがた を あらわしたのは、わかくうつくしい おんなのひとでした。	From the darkness emerged a young and beautiful woman.	It was a young, beautiful woman that expressed a figure there.
29			

In this experiment, Google performed significantly better than Weblio as reflected from the BLEU scores. Weblio's performance was in fact very poor as only 19 out of 52 lines of the story was fully translated into English. A large amount of instances remained in Japanese in the output text. Yet, despite of Google's effort to translate the whole text into English, a number of instances were incorrectly translated due to ambiguity with the Japanese characters (marked in red). As a result, even if Google's results were readable, they did not make much sense. Besides, it was noticed that the tone and emotion of characters' speech was incorrectly translated. However, even if Weblio made few attempts to fully translate sentences into English, it did correctly captures the emotions (as marked in green). In sentences that Weblio was able to translate, the quality of the results were fair. Terms were correctly translated but it was obvious that better candidates are available (marked in blue).

3.2 Experiment 2: Children's Fiction rewritten with Chinese characters

Source	Standard	Google
昔々の、寒い寒い北国でのお話です。	Once upon a time, in the cold, cold northern lands.	It's an old story in a cold northern country.
あるところに、しげきとおのきちという樵の親子が住んでいました。	there lived an old logger named Shigesaku, and his son, Onokichi.	In one place, Shigeru Sakulo and Onokichi lived as a parent and child.
この親子、山がすっぽり雪に包まれる頃になると、鉄砲を持って猟に出かけていくのです。	Every year, when the mountains became white snow, they would take their rifle and go hunting.	When it is time for the parents and children to be completely covered in snow, they will go out for hunting with a gun.
ある日のこと、親子はいつものように雪山へ入っていきましたが、いつの間にか空は黒雲に覆われて、吹雪となりました。	One day, while they were out, vicious clouds rolled in and they found themselves in the middle of a blizzard.	One day, parents and children went into the snowy mountains as usual, but before I knew it, the sky was covered with black clouds and it snowed.
二人はなんとか、樵小屋を見つけました。	Fortunately, they were able to find a small hut.	The two managed to find a cottage.
「今夜はここで泊まるより、仕方あるめえ」	"We have no choice but to spend the night here."	There is no way to stay here tonight.
「うんだなあ」	The son agreed.	Wow!
ちろちろと燃える囲炉裏の火にあたりながら、二人は昼間の疲れから、すぐに眠り込んでしまいました。	They were both tired, and while listening to the crackling of the fire, soon fell asleep.	The two fell asleep immediately, probably because of daytime fatigue, while hitting a blazing hearth fire.
風の勢いで戸ががたんとき、雪が舞い込んできます。	The hut's door, pushed by the strong wind, was slammed opened.	The door opens with the force of the wind and snow comes in.
そして、囲炉裏の火がふっと消えました。	and in an instant the fire was put out.	Then the fire in the hearth suddenly went out.
「うー、寒い！」	"Brrr.... It's cold!"	Wow, it's cold!
あまりの寒さに目を覚ましたおのきちは、その時、人影を見たのです。	The chill awoke Onokichi, and it was then that he saw the figure of a person.	When he woke up to the cold, he saw a figure at that time.
「誰じゃ、そこにおるの？」	"Who is there?"	Who are you there?
そこに姿を現したのは、若く美しい女の人でした。	From the darkness emerged a young and beautiful woman.	What appeared there was a young, beautiful woman.

Source	Standard	Weblio
昔々の、寒い寒い北国でのお話です。	Once upon a time, in the cold, cold northern lands.	It is the story in the cold (old northern country) of ancient times.
あるところに、しげきとおのきちという樵の親子が住んでいました。	there lived an old logger named Shigesaku, and his son, Onokichi.	Parent and child of the woodcutter who seemed to have a certain place, and a fence faded away, and said a little lived.
この親子、山がすっぽり雪に包まれる頃になると、鉄砲を持って猟に出かけていくのです。	Every year, when the mountains became white snow, they would take their rifle and go hunting.	I go out for hunting with a gun when it becomes when these parent and child, mountain are surrounded completely by snow.
ある日のこと、親子はいつものように雪山へ入っていきましたが、いつの間にか空は黒雲に覆われて、吹雪となりました。	One day, while they were out, vicious clouds rolled in and they found themselves in the middle of a blizzard.	It was one day, and parent and child went into the snowy mountains as always, but the sky was covered all too soon by black clouds and became the snowstorm.
二人はなんとか、樵小屋を見つけました。	Fortunately, they were able to find a small hut.	Two people found a woodcutter hut somehow.
「今夜はここで泊まるより、仕方あるめえ」	"We have no choice but to spend the night here."	Than "I stay tonight here with あるめえ"
「うんだなあ」	The son agreed.	Yes
ちろちろと燃える囲炉裏の火にあたりながら、二人は昼間の疲れから、すぐに眠り込んでしまいました。	They were both tired, and while listening to the crackling of the fire, soon fell asleep.	While, chirochiro warmed itself by the fire of the hearth which burnt, two people were from daytime fatigue or have fallen asleep immediately.
風の勢いで戸ががたんとき、雪が舞い込んできます。	The hut's door, pushed by the strong wind, was slammed opened...	Door ががたんとき、雪 come by force of the wind.
そして、囲炉裏の火がふっと消えました。	and in an instant the fire was put out.	And the fire of the hearth went out incidentally.
「うー、寒い！」	"Brrr.... It's cold!"	Ugh, ... is cold!
あまりの寒さに目を覚ましたおのきちは、その時、人影を見たのです。	The chill awoke Onokichi, and it was then that he saw the figure of a person.	覚ましたおのきちは looked at the shadow of a person with eyes for excessive cold then.
「誰じゃ、そこにおるの？」	"Who is there?"	Whose being there
そこに姿を現したのは、若く美しい女の人でした。	From the darkness emerged a young and beautiful woman.	It was a young, beautiful woman that appeared there.

From the BLEU scores, it is well-acknowledged that Chinese characters are helpful in meaning disambiguation, especially for Weblio where a jump in the score was observed. Reviewing Google's errors in the first experiments, the nouns and names were correctly identified in this experiments as circled in green. Still, it failed to capture characters' emotion. Meanwhile, having a better look at Weblio's translation, it is fair to say that when Weblio had no problems in correctly translating nouns and using accurate candidates (annotated in green), but it continued to show incapability in translating dialectal and onomatopoeic expressions (circled in blue), which was never a problem for Google. On the other hand, Weblio inserted a pronoun in one of the narrations while it was not in the original text.

3.3 Experiment 3: News Article

JP	EN	Google
WHO、新型コロナウイルス対応を検証へ 全加盟国が同意	Coronavirus: World Health Organization members agree response probe	WHO to verify new virus response All members agree
世界保健機関（WHO）加盟国は19日、WHOの新型コロナウイルスの世界的流行（パンデミック）対応について、独立した検証委員会を設置することで合意した。	World Health Organization (WHO) member states have agreed to set up an independent inquiry into the global response to the coronavirus pandemic.	Members of the World Health Organization (WHO) agreed on the 19th to establish an independent verification committee on the WHO pandemic response to the new coronavirus.
この合意は、WHOがスイス・ジュネーブの本部とオンラインで開いていた年次総会の決議に含まれる。決議は加盟194カ国の全会一致で採択され、WHOの役割そのものも検証することを決めた。	The resolution, approved without objection by the WHO's 194-member annual assembly, also allows for the inquiry to look into the health body's own role.	The agreement was included in a resolution of the annual meeting held online by WHO with its headquarters in Geneva. The resolution was unanimously adopted by 194 member countries and decided to examine the role of WHO itself.
WHOの新型コロナウイルス対応は、特にアメリカが強く批判している。	The United States in particular has been highly critical of its response.	The United States has strongly criticized WHO's response to new viruses.
決議案は、欧州連合（EU）が100カ国を代表して提案した。	The EU presented the resolution on behalf of 100 nations.	The resolution was proposed by the European Union (EU) on behalf of 100 countries.
決議の内容	What is in the resolution?	Contents of resolution
決議は、WHOの国際的な新型コロナウイルス対応について、「公平で独立した全般的な評価」が必要だと求めている。決議はまた、各国が治療やワクチンを「透明で公平な方法でタイムリーに活用」できるように促している。WHOに対しては、「ウイルスの発生と人への感染経路」を調査するよう求めている。	It calls for an "impartial, independent and comprehensive evaluation" of the international response to the new virus. The resolution also calls for the world to ensure "transparent, equitable and timely access" and pushes for the WHO to investigate the "source of the virus and the route of introduction to humans."	The resolution called for a "fair and independent global assessment" of WHO's international response to new viruses. It also said it did not clarify China's responsibility to the WHO.
WHOへの圧力	Why is the WHO under pressure?	Pressure on WHO
ドナルド・トランプ米大統領はWHOを中国の「操り人形」と呼び、拠出金の支払いを停止した。アメリカはWHOにとって最大の資金拠出国である。	President Donald Trump has labelled the organisation a "puppet" of China and suspended the US is the largest donor.	US President Donald Trump called WHO a Chinese "puppet" and stopped paying contributions. The United States has become the largest contributor to WHO.
トランプ氏は中国について、大流行の発生を隠そうとしたと非難している（中国はこれを強く否定）。またWHOに対しても、中国の責任を明確にしないとしている。	He has also accused China of trying to cover up the outbreak - something it strongly rejected and said the WHO had failed to hold Beijing to account.	Trump accuses China of trying to cover the outbreak, which China strongly denies. It also said it did not clarify China's responsibility to the WHO.
トランプ氏は18日、WHOのアドノム・グブレイエス事務局長に送った書簡を公表、アメリカの立場を鮮明にした。	The president on Monday published a letter he sent to WHO head Dr Tedros Adhanom Ghebreyesus outlining specific issues the US has.	On the 18th, Mr. Trump published a letter sent to the WHO Executive Secretary "Tedros Adhanom Ghebreyesus." Clarified America's position.
同日のWHO年次総会では、米保健福祉省のアレックス・アザール長官が強い口調でUS Health Secretary Alex Azar was scathing in his address to the assembly.	US Health Secretary Alex Azar was scathing in his address to the assembly.	At the WHO Annual Meeting on the same day, US Department of Health and Welfare Secretary Alex Hazard was scathing in his address to the assembly.
「今回の大流行が手におえなくなった主要な理由を、私たちは率直に認めなくてはならない。世界が必要としていた情報を、この組織（WHO）は入手できなかった。それが多くの犠牲者を生じた。」	"We must be frank about one of the primary reasons this outbreak spun out of control: there was a failure by this organisation to obtain the information that the world needed, and we have to admit that the main reason this outbreak has fallen out of hand is that the organization (WHO) could not obtain the information that the world needed."	We have to admit that the main reason this outbreak has fallen out of hand is that the organization (WHO) could not obtain the information that the world needed.

JP	EN	Weblio
WHO、新型コロナウイルス対応を検証へ 全加盟国が同意	Coronavirus: World Health Organization members agree response probe	All member nations agree to inspection by WHO, new virus correspondence
世界保健機関（WHO）加盟国は19日、WHOの新型コロナウイルスの世界的流行（パンデミック）対応について、独立した検証委員会を設置することで合意した。	World Health Organization (WHO) member states have agreed to set up an independent inquiry into the global response to the coronavirus pandemic.	The World Health Organization (WHO) member nation agreed about global trendy (pandemic) correspondence c
この合意は、WHOがスイス・ジュネーブの本部とオンラインで開いていた年次総会の決議に含まれる。決議は加盟194カ国の全会一致で採択され、WHOの役割そのものも検証することを決めた。	The resolution, approved without objection by the WHO's 194-member annual assembly, also allows for the inquiry to look into the health body's own role.	This agreement was included in the resolution of the annual meeting that WHO held with the headquarters and c
WHOの新型コロナウイルス対応は、特にアメリカが強く批判している。	The United States in particular has been highly critical of its response.	The United States in particular strongly criticizes the new virus correspondence of WHO.
決議案は、欧州連合（EU）が100カ国を代表して提案した。	The EU presented the resolution on behalf of 100 nations.	European Union (EU) suggested the resolution on behalf of 100 countries
決議の内容	What is in the resolution?	Contents of the resolution
決議は、WHOの国際的な新型コロナウイルス対応について、「公平で独立した全般的な評価」が必要だと求めている。決議はまた、各国が治療やワクチンを「透明で公平な方法でタイムリーに活用」できるように促している。WHOに対しては、「ウイルスの発生と人への感染経路」を調査するよう求めている。	It calls for an "impartial, independent and comprehensive evaluation" of the international response to the new virus. The resolution also calls for the world to ensure "transparent, equitable and timely access" and pushes for the WHO to investigate the "source of the virus and the route of introduction to humans."	The resolution said that "a general evaluation independent with fairness" was necessary about international new virus correspondence. It is inspection in progress of the pandemic correspondence of the infectious disease (COVID-19) of the new virus.
WHOへの圧力	Why is the WHO under pressure?	Pressure on WHO
ドナルド・トランプ米大統領はWHOを中国の「操り人形」と呼び、拠出金の支払いを停止した。アメリカはWHOにとって最大の資金拠出国である。	President Donald Trump has labelled the organisation a "puppet" of China and suspended the US is the largest donor.	The U.S. President Donald Trump called WHO a Chinese "marionette" and stopped payment of the money of co The United States becomes the biggest fund contribution country for WHO.
トランプ氏は中国について、大流行の発生を隠そうとしたと非難している（中国はこれを強く否定）。またWHOに対しても、中国の責任を明確にしないとしている。	He has also accused China of trying to cover up the outbreak - something it strongly rejected and said the WHO had failed to hold Beijing to account.	Trump blames that I was going to hide all the rage outbreak about China (China strongly denies this). In addition, for WHO, it is said that I do not make responsibility of China clear.
トランプ氏は18日、WHOのアドノム・グブレイエス事務局長に送った書簡を公表、アメリカの立場を鮮明にした。	The president on Monday published a letter he sent to WHO head Dr Tedros Adhanom Ghebreyesus outlining specific issues the US has.	Trump publishes the letter which I sent to a テドロス アダノム Seb Rey's secretary general of WHO on 18th. I did a viewpoint of the United States clearly.
同日のWHO年次総会では、米保健福祉省のアレックス・アザール長官が強い口調でUS Health Secretary Alex Azar was scathing in his address to the assembly.	US Health Secretary Alex Azar was scathing in his address to the assembly.	In the WHO annual meeting of the same day, I criticized WHO in the tone that Alex アザール Director General of
「今回の大流行が手におえなくなった主要な理由を、私たちは率直に認めなくてはならない。世界が必要としていた情報を、この組織（WHO）は入手できなかった。それが多くの犠牲者を生じた。」	"We must be frank about one of the primary reasons this outbreak spun out of control: there was a failure by this organisation to obtain the information that the world needed, and we have to admit that the main reason this outbreak has fallen out of hand is that the organization (WHO) could not obtain the information that the world needed."	We must accept the main reason why this rage became unmanageable openly. This organization (WHO) was not able to obtain the information that the world needed.

It was unexpected that Weblio outperformed Google from the BLEU scores, especially when it once again gave up translating when it came across a relatively new concept. Circled in red and green are the names of current officials, which were translated in Google's output but not in Weblio's. This suggested that Google's neural MT system is capable of more frequent updates with help from its Translate Community, and that Weblio's fails to catch up with the fast-changing world. Comparing Google's and Weblio's outputs, the translation of the word "puppet" sparked an interesting observation as circled in purple. Literally translating the Japanese translation of "puppet", it would be "controlled doll" as in the left column. In back-translation, the word became "marionette", which is the French word borrowed into Japanese to refer to controlled dolls. This prompted the idea that Weblio is more faithful to Japanese compared to Google, and the claim can be supported by the retention of active and passive voices in the Weblio outputs marked in blue.

4 Discussion

In terms of accuracy, while both Google and Weblio results were satisfactory, the latter has a larger room for improvement. For instance, the utilization of a user community greatly helped Google to conquer dialectal and onomatopoeic expressions when translating the story from Japanese to English. It is also noted that Weblio's translation is more faithful to the source texts, choosing candidates that are more frequent with Japanese English norms. In addition, overall speaking, the Weblio translations of the texts sounded more formal compared to Google's. This could be explained since Weblio compiles data to help its users improve their English for education and work. So that formality of the data would be different to that of casual translations collected from Google's translator community where laymen are engaged as well. On the contrary, Google's outputs were of a more natural and fluent tone of English.

Referring to the first two experiments, it was proved that Chinese characters help to improve meaning disambiguation in the translation process. In fact, a counter example was found in the outputs indicating that Japanese characters, signalling the pronunciation of the Chinese characters, can be useful for meaning disambiguation too. For instance, 二人 can be pronounced as *fu-ta-ri* (ふたり) when referring to two people, but it can be read as *ni-ni-n* (ににん) while counting two persons. While both systems correctly translated the term in the first experiment, Weblio failed to do so in the second experiment. This could further prove that Weblio is developed using more texts of a formal register and complex topics since Chinese characters are harder to learn and thus are used only for more sophisticated concepts.

Another point to note is that, although not fully presented above, the insertion of pronouns in narratives in the outputs. Even if Google's neural MT seemed to be winning, it occasionally fails to translate ellipsis properly. It could be concluded that Google is still weak in capturing pragmatic meanings for high-context cultures like Japanese, along with the evidence of imperfect translation of characters' speech in the first experiment.

5 Conclusion

All in all, Google Translate and Weblio Translate are easy-to-use online MT system which caters to the needs of commoners. Google is optimal for daily uses, producing natural outputs and with an excellent grasp on up-to-date information. For Japanese users, it is undoubted that Weblio serves its purpose by providing useful translations at school and at the workplace, but it is reckoned that they utilize Google for more natural English expressions. Meanwhile, with better knowledge in Japanese pragmatics, it is possible for Japanese learners to have a better understanding in the culture by studying the Japanese-style English translation as well. At the end of the day, both systems are successful in fulfilling the goals of everyday cross-border communication but could be limiting for LSP.

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