Japanese learners' English pronunciation: How intelligible is it? (A pilot study)

Masaki Taniguchi, Kochi University
Yusuke Shibata, Kochi University Graduate School of Education

1 Introduction Japanese learners of English are notorious in the world in their unintelligibility of their pronunciation and there have been studies on their mispronunciations. However, we do not know of any studies on the rankings of the degree of unintelligibility of such different mispronunciations. The purpose of the present research is not only to investigate Japanese learners' mispronunciation features in English, but also to examine how intelligible they are from the point of view of native speakers of English, and further to attempt to give unintelligibility rankings to the Japanese mispronunciation features in English. This is a pilot study and far from complete. The number of samples and subjects was too small to reach any conclusions. It is necessary to conduct more experiments with the whole inventory of English and Japanese sounds.

2 Experiment An experiment was conducted as follows. A total of 35 university students studying English, including some who were aspiring to be English teachers in the future, were asked to make a speech of self introduction, including their names, hobbies, what they like to do, where they are from, etc. The speeches were recorded with a compact media recorder, Roland Edirol-09. From the recorded material, some parts of which seemed to contain instances of problematic pronunciation were selected, which came up to 37 sentences. The edited recording was then listened to by 14 native speakers of English (henceforth "listeners") who were asked to say what they heard. Note was then taken of the words they did not hear as intended or could not make out at all.

3 Data Some of the data obtained is shown below in the order of difficulty of intelligibility.

3.1 The following are samples of utterances misperceived by a majority of the listeners.

3.1.1 "I have a pet."
It was pronounced as [ai ˈhabɯ a ˈpetto].
None of the listeners perceived it as intended. Some 36% heard "pet" as "etto", "pet dog", "beddo" and "perfecto". The rest could not make it out at all.

3.1.2 "I am [a] dog lover."
It was pronounced as [ˈai am ˈdokkɯ ˈrabaː].
Only one (7%) of the listeners perceived it as intended. Some 50% heard "dog" as "tock", "dock" and "duck". The rest could not make it out at all. One (7%) heard "dog lover" as "Tokugawa".

3.1.3 "My favourite singer is Amuro Namie."
It was pronounced as [maiˈ ɸeːβaɾitʰ ˈɕiŋgaːʔ iz ˈamɯɾo ˈnamie].
Only one listener (7%) perceived it as intended. Some 14% heard the surname of the famous singer, "Amuro" as "Amino" and "Amuno", and 36% heard the given name

"Namie" as "Namien", "Mamie", "Namae", "Yammy", and "Miya". The rest could not make it out at all.

3.1.4 "I enjoy playing the English horn."
It was pronounced as [ai enˈdʒoi ˈpleiiŋ za ˈiŋgliʃ ˈhoɾun]
Only 29% of the listeners perceived it as intended. Some 36% heard "horn" as "form", "horan", "forn" "horon" and "club". The rest could not make it out at all.

3.1.5 "My favourite baseball team is [the] Hanshin Tigers."
It was pronounced as [mai ˈɸeibaritto ˈbeːsboːɾu ˈtiːm izu ˈhansin ˈtaigaɾas] .
Some 29% of the listeners perceived it as intended. One listener (7%) heard "Hanshin" as "hansan". The rest could not make out "Hanshin Tigers" at all.

3.1.6 "My dream is [to] travel around the world."
It was pronounced as [mai ˈdoriːmu izu ˈtoɾaberu aˈraundo za ˈwaːɾudo].
Some 50% of the listeners perceived it as intended. Some 36% heard "around" as "and", "aroundo" and "into". The rest could not make it out at all.

3.2   The following are the samples of utterances misperceived by a minority of the listeners.

3.2.1 The word, "club", in "I belong to [the] soccer club", which was pronounced as [ˈai biˈroŋgu tuː ˈsakkaː ˈkuɾabu], was perceived by one (7%) as "ground".

3.2.2   The word, "cold", in "I have a cold", which was pronounced as [ˈai haba ˈkoːɾd], was perceived by one (7%) as "gold".

3.2.3 The word, "rugby", in "I love rugby", which was pronounced as [ˈai ɾabu ˈɾagubiː], was perceived by one (7%) as "love you" and by another (7%) as "language".

3.2.4 The word, "from", in "I retired from a TV station", which was pronounced as [ai ɾiˈtaijado ˈɸɾoːm aː ˈtibi steiɕoŋ], was perceived by one (7%) as "floor".

3.2.5 The words, "TV station", in the same utterance as in 3.2.4 above, were pronounced as [ˈtibi steiɕoŋ] and was perceived by one (7%) as "chemistry show".

3.2.6 The word, "baseball", in "My favourite baseball team is [the] Hanshin Tigers", which was pronounced as [mai ˈɸeibaritto ˈbeːsboːr ˈtiːm izu ˈhansin ˈtaigaɾas], was perceived by one (7%) as "home".

3.2.7 The word, "colour", in "My favourite colour is yellow", which was pronounced as [ˈmai ˈɸeibaritto ˈkaɾaː iz ˈijeɾoː], was perceived by one (7%) as "character".

3.2.8 The word, "cleaning", in "My hobby is cleaning my room", which was pronounced as [mai ˈhobiː izu ˈkriːniŋ mai ˈɾuːm], was perceived by one (7%) as "creating".

3.2.9   The word, "position", in "My position is goal keeper", which was pronounced as [mai ˈpoʑɕoŋ iz ˈgoːrkiːpaː], was perceived by one (7%) as "portion".

3.2.10 The word, "like", was perceived by one (7%) as "rike".

3.2.11 The word, "born", was perceived by one as (7%) "bowing".

3.3   The results of the perception were classified into four categories: (1) correct recognition of the word as intended, (2) substitution with another word, (3) inability to perceive it as any word they knew (made no sense at all), and (4) correct recognition of the sounds as intended to be pronounced but inability to make out the word because it was an unknown proper name. Table 1 shows a list of words intended and misheard

Intended	Heard as	Heard as	Heard as	Heard as	Heard as
horn	form	Horan	forn	horon	club
pet	eeto	pet dog	perfecto	beddo	
around	and	Into			
dog	tock	dock	duck		
club	ground				
cold	gold				
rugby	love you	language			
from	floor				
baseball	home				
colour	character				
cleaning	creating				
like	rike				
station	show				
born	bowing				

Table 1: A Short List of Words Misheard

The above data shows the following problems with some Japanese learners of English.

3.3.1 Use of [ɾ] for the English [r] or [l] as in "lover", "around", "club", "rugby", "from", "colour", and "cleaning", leading to confusion of [r] and [l]. The word, "dog-lover", was perceived as "tock clubber", "club" as "ground", "rugby" as "love you", "colour" as "character", "cleaning" as "creating", and "like" as "rike".

3.3.2 Use of [b] for the English [v] as in "lover" and "have", leading to confusion of [b] and [v]. The word, "dog-lover", was perceived as "tock clubber". One reason it was not perceived well might have been because it was not a common expression in English.

3.3.3 Lack of aspiration in voiceless fortis plosives, such as [k] as in "cold", leading to confusion of [k] and [g]. The word, "cold", was perceived as "gold".

3.3.4 Lack of firm lip closure in [m] as in "from" and "room", leading to confusion of [m] and a vowel. The word, "from", was perceived as "floor", and "room" as "ear".
3.3.5 Lack of firm linguo-alveolar contact in [n] as in "station", leading to confusion of [n] and a vowel. The second syllable of the word, "station", was perceived as "show". The word, "born", was perceived as "bowing".

3.3.6 Addition of an extra vowel word-finally, leading to addition of an extra word, as in "pet" perceived as "pet dog".

3.3.7 Use of the wrong vowel quality in "from" as in "I retired from…" which was perceived as "floor" (See 2.3.4 above as well.), which also contains confusion of [r] and [l], as shown in 3.3.1 above.

3.3.8 Use of [z] for the English [ð], in "I enjoy playing the English horn", which was pronounced as [ai enˈʤoi ˈpleiiŋ za ˈiŋgliʃ ˈhoɾun]. It might have helped to improve the intelligibility of the whole utterance if it had been pronounced correctly as [ði] and perceived as the definite article.

3.3.9 Ungrammaticality may affect intelligibility. If "I am dog-lover" had been uttered with the indefinite article, "a", it might have helped to improve the intelligibility of the whole utterance, although not certain.

3.3.10 The above data also shows that some mispronunciations made by Japanese speakers were perceived as they were intended to be pronounced. The use of bilabial fricatives, [ɸ] and [β], which were intended to be pronounced [f] and [v], respectively, as in "favourite", were perceived (or misperceived?) as [f] and [v], respectively. This may be because, although [ɸ] and [β] are not used in English, they shared the manner of articulation with [f] and [v]. It must, however, still give some burden on the listeners.

6   Conclusion The research is far from complete, since the number of native speakers of English who contributed as listeners (judges) was not large enough. However, it revealed some rankings of unintelligibility features in Japanese learners' pronunciation.

1   lack of distinction between [f] vs [h]
2   addition of a vowel after a final consonant
3   lack of distinction between voiced and voiceless consonants, such as [t] vs [d] and [k] vs [g]
4   lack of distinction between [r] and [l]
5   devoicing of close vowels, such as in "position"
6   lack of firm closure in final nasals, [m] and [n]

The list above may contribute to the improvement of English pronunciation teaching in Japan. However, the experiment must be continued with a larger number of Japanese and listeners in order to obtain a sufficient amount of data to clarify all the problematic pronunciations and to measure their level of unintelligibility. It must also be expanded to include the whole inventory of English sounds and to deal with rhythm and intonation.