審査の結果の要旨
Report of examination doctoral defense

Evaluating the Effect of an Ethnic Bias on Speech Perception by Non-native Listeners
(非母語話者の発話知覚における民族バイアスの影響評価)

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Previous studies have suggested that listeners' perception of speech may be affected by various socioindexical information, such as gender, age, or ethnicity of the speaker. In some cases, it was shown that native English speakers may perceive the same native English utterances produced by exactly the same person, as more accented and less intelligible when they are made to believe that the speaker was East Asian, than when they are made to believe that the speaker was Caucasian. Since these findings may have important social impacts on the lives of those who do not fit social expectations (such as being seen as less attractive, less intelligent or even less competent), Karpinska's thesis aimed at evaluating if, first of all, such a bias towards East Asian-looking speakers of English existed among a sample of Japanese listeners, and if so, if this bias had some impact on three dimensions of speech perception: accentedness, comprehensibility, and intelligibility of the spoken utterances.

The degree of perceived accent was evaluated with a rating task using a Likert Scale ranging from strong accent to native accent. The perceived comprehensibility of each utterance (that is, how easy or difficult to understand was the utterance) was also evaluated using a rating task with a Likert Scale ranging from easy to hard. The intelligibility of each utterance was evaluated using a transcription task, were the number of correctly transcribed words was counted.

Using an Implicit Association Task (IAT), which has been used in other studies to evaluate the strength of an association between two concepts, she found that the Japanese listeners in her study generally exhibited a moderate to strong bias towards the association American = Caucasian. It was important to confirm such a bias first, as a lack of a relatively strong bias is less likely to impact speech perception. However, a relatively strong bias was confirmed for most participants in the current study.

The method employed to evaluate speech perception used a combination of a within and between subjects design. Eighty (80) Japanese listeners were presented with the same audio only files for the baseline condition, to make sure there was no *a priori* difference between the groups. The participants were then divided into 5 groups, for a total of 16 participants per group. The groups were balanced in terms of number of male and female participants. Importantly, the number of male and female native English speakers from North America (who produced the English utterances for the experiment) was also balanced across the baseline and experimental conditions (5 male and 5 female speakers in total).

In the experimental condition, each group was presented with the same audio files (but different from the baseline condition). However, each group was presented with different visual cues while listening to the audio files. One group was presented with pictures of Caucasian faces and made to believe that they were the speakers of the audio files. A second group was presented with pictures of East Asian faces instead. Group three and four were presented with videos of Caucasian-looking (group 3) or East Asian-looking (group 4) actors who carefully lip-synched the audio files, so that the listeners were made to believe that these actors were the actual speakers of the spoken utterances (the same actors were used for the video and picture groups). The last group was presented with audio files only, and served as the control group (this group did not have any visual cue).

Various analyses were performed to evaluate the two main research questions (p. 5):

1. Are non-native listeners of English affected by the speaker's perceived ethnicity in the same way as native English listeners seem to be?
2. Does priming ethnicity with different types of visual cues (pictures vs. videos) yield different results?

The main analyses revealed no difference between groups, for the three measures evaluated: accentedness, comprehensibility, and intelligibility. There was also no significant difference between the picture vs. video conditions. The strength of the American = Caucasian bias, obtained with the IAT task, was also not strongly correlated with either the accentedness, comprehensibility or intelligibility results.

Various possible explanations were discussed in the thesis, in addition to differences in experimental design between the current study and previous studies that found a significant ethnic bias. In particular, Karpinska suggested, based on experience-based models, that the cumulative experiences of the Japanese participants may not have resulted in them having an English speaker = Caucasian bias, which is different from having an American = Caucasian bias (only the latter was measured in the thesis). It is also possible that the impact of socioindexical cues on speech perception is weakened for non-native listeners, maybe due to limited experience with some socioindexical vs. linguistic combinations. To confirm this, the author acknowledged that native English speakers must be included, along with non-native listeners, in the same experimental design in future studies.

On the other hand, more fine-grained analyses on possible gender effects found some significant patterns in the opposite direction for male and female speakers. Although it is not clear at this time whether the effects are due to individual voice characteristics or gender differences, it indicates the need to include both genders in the design of future experiments, as most previous studies disregarded possible gender differences by including only female speakers.

This study is ground-breaking by being one of the very first studies looking at a possible impact of an ethnic bias on speech perception by non-native listeners, particularly East Asian listeners, as almost all previous studies that found an effect of an ethnic bias were looking at native English listeners assessing English speech. The lack of effect in the current study is not entirely unexpected, however, as some recent studies also failed to find any

significant effect of an ethnic bias on speech perception—even when the subjects are native speakers—especially when a range of accents (from strong accent to native accent) are included as part of the speech samples. Hence, this study contributes to a growing body of sociolinguistic literature that endeavors at measuring and quantifying the possible impact of socioindexical cues on speech perception, which in turn may have significant social repercussions for speakers whose characteristics do not necessarily fit the listeners' expectations.

Overall, the committee members agreed that Marzena Elzbieta Karpinska thoroughly and meticulously addressed the comments provided at the first defense by each member, demonstrating her ability to properly address criticism and constructive comments.
Her thesis is written very clearly, is well organized and properly grounded in previous research and theory. Her methodology was well thought through with a well-balanced design and relevant statistical analyses of her data. The only comment that could not be addressed by the candidate was the possibility to collect data with native English listeners. Given the lack of any statistically significant findings, having included English listeners could have strengthen her conclusions and made it possible to have more conclusive comparisons with previous studies. Unfortunately, it was impossible at this time to collect more data with human subjects, but this shortcoming was mentioned in her dissertation as a need for future research. That being said, the members agreed that Karpinska's research design was sufficiently well carried out and her discussion of her results was sufficiently exhaustive and relevant to make a significant contribution to the field of socio-linguistics. We strongly and unanimously recommend that Marzena Elzbieta Karpinska be granted a *Hakase (Gakujustsu)* degree.