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Does native speaker status influence comprehenders' guesses about the informativity of upcoming utterance content?

Although a substantial amount of work emphasises the importance of real-world knowledge for anticipating upcoming content in comprehension (e.g. Kutas & Hillyard 1980, Kamide et al. 2003), an emerging body of research demonstrates how comprehenders' expectations are also guided by what speakers typically produce (Rohde et al. 2021, Rohde et al. 2022, Kravtchenko & Demberg 2022). Specifically, comprehenders expect more informative content when the role of a speaker as an intentional communicator is emphasised, demonstrating that expectations of informativity are salient when comprehenders make guesses about what someone will say next (Reksnes et al. 2024). Interestingly, this informativity expectation is modulated by different speakers' individual styles: A speaker who only makes utterances about non-typical content is expected to contribute more newsworthy, informative content than a speaker who often contributes uninformative, mundane utterances (Reksnes et al. 2024). This raises the possibility that other properties of the speaker, such as native speaker status, might also be considered when anticipating upcoming content.

Fairchild, Mathis & Papafragou (2020) showed that under-informative statements by non-native speakers of English are more likely to be attributed to inability to be more informative rather than unwillingness, whereas the same statement from a native speaker is often attributed to unwillingness. This suggests that comprehenders have differing expectations of informativity for native and non-native speakers. Non-native speakers seem to be held to a "lower standard" when it comes to making informative contributions than native speakers.

The present study asks whether these different expectations extend to comprehenders' predictions about upcoming content. Specifically, we test whether comprehenders' completions of utterances from native and non-native speakers differ in their informativity. Work on processing of native versus non-native speech supports the view that native speaker status may play a role in anticipation of content. For example, ungrammatical sentences are shown to elicit a smaller neural response when uttered by a non-native speaker, indicating that non-native speakers' contributions are more expected to contain syntactic errors than native speakers' (e.g. Hanulíková et al. 2012).

In the current study, participants are asked to complete utterances from native and non-native speakers about different locations (e.g. *I'm at the playground, and there's _____*). We consider two competing outcomes, each reflecting different ways that participants may model a non-native speaker. If participants expect non-native speakers to be less informative than native speakers (perhaps they reason that non-native speakers lack vocabulary to communicate unexpected, informative content in English) then this may be reflected in completions about more real-world typical situations and events for non-native

speakers. Alternatively, participants may reason that the fact of a speaker having gone to the effort to speak in their non-native language increases the likelihood that the content the speaker wants to convey is newsworthy and informative, resulting in more informative completions in the non-native condition.

Design. In a within-participant online experiment, participants (N=100, UK-based, L1 English) were instructed that they would see the beginning of phone calls from different speakers and would be asked to complete the speakers' utterances with the word or words the speaker is likely to have said. To test whether comprehenders' expectations for content is modulated by native speaker status, target items (n=20) were uttered either by a speaker from the UK (NATIVE condition) or from France (NON-NATIVE condition). Each stimuli showed a panel with a phone identifying the caller, the answering utterance from the callee, and the utterance to be completed in a speech bubble next to a picture of a speaker on the phone (Figure 1). Target items mention a location (e.g. *I'm at the bakery, and there's* _____). To establish a typicality baseline, an independent pre-test asked participants (N=22) to list up to 10 objects likely to be found in each location. Items were counterbalanced in two lists whereby the set of speaker photos used in the NON-NATIVE condition for one half of the participants were used in the NATIVE condition for the other half of participants. A given item always appeared in the same condition (e.g. *bakery* is always in the NON-NATIVE speaker condition). Stimuli also included 40 filler items, and presentation of items was fully randomised for each participant. Finally, participants were asked whether they considered the speakers' language status and how this influenced their responses.

Results. To measure the informativity of completions, responses were annotated for use of modification (e.g. *steam train*) and negation (*no train),* assigned a typicality score (based on how many participants in the pre-test thought of a given item), and entropy (variability of responses) was calculated. Although prior studies demonstrated significant differences on all these measures (Reksnes et al. 2024), the current study found no effect of condition on participants' responses. However, there is marginal significance for use of negation and for typicality, with more negation and more mentions of typical items in completions for the NON-NATIVE speakers (negation: linear mixed effects model with condition as fixed effect and random slopes and intercepts of condition for participants and items; $p<0.09$, typicality: same model structure, $p<0.09$ by model comparison). Entropy is numerically higher in completions for the NATIVE speaker, however, this difference is not significant.

Discussion. We consider several explanations for the lack of significant effects. Firstly, it may be a true null effect, meaning that a speaker's language status is not included in the comprehenders' model of the speaker in a way that affects their expectations for content informativity. It may also be that the study design does not convey a realistic enough portrayal of non-native speakers with limited vocabulary. It is possible an effect

could be found with a more real-life manipulation, e.g. by using audio of foreign-accented speech or by including grammatical errors to more strongly convey non-native speaker status. Lastly, we consider the possibility that the two ways outlined above of modelling the non-native speaker may have cancelled each other out: The two active biases - an expectation for low informativity due to less proficiency versus higher likelihood of informative content due to a higher threshold for speaking in a non-native language - represent competing pressures and this may have masked any difference between conditions. This opens up the possibility that individual participants may show behaviour consistent with one or the other of these two biases. Future analyses of participants' post-experiment survey responses may further illuminate this consideration.

Figure 1: Example trials

Figure 1 Example stimuli. The left panel shows a target item in the native condition, the right panel shows a filler item in the non-native condition.

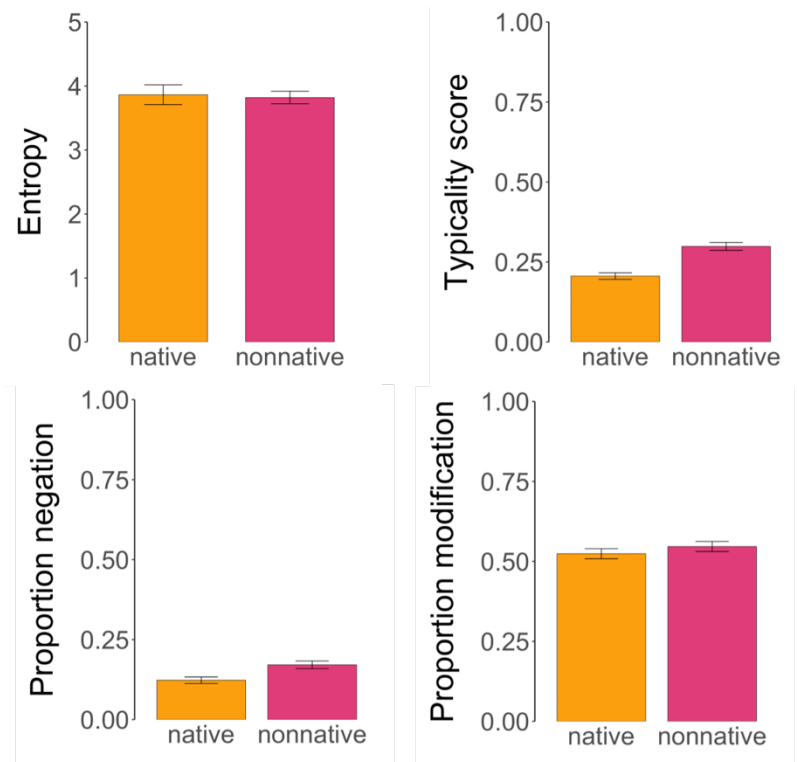**Figure 2**: Mean scores for each of the four measures of informativity

Figure 2 Measures across conditions, from top left: Mean entropy, mean typicality scores, proportion use of modificaiton, and proportion use of negation.

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