

Prosodic focus in Hebrew: A Perception study

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One of the common uses of the prosody is the acoustic prominence assigned to a particular element of the produced utterance. This prominence draws the listener's attention to the information most important to the speaker. The prosodically highlighted element usually marks the *new* and updated information of the utterance, as opposed to the *given* information [1]. It is common to distinguish between three types of focus: Broad focus; Narrow focus; And Contrastive focus, which is a subcategory of narrow focus [2].

Very few studies have examined perception and production of focus in Hebrew [3], [4]. In the present perception study, we examined how well listeners perceive each of the three types of focus and if their perception depends on the word position in the sentence (first, middle or last position in three-word sentences). For this purpose, five target sentences of three disyllabic words were recorded by eighteen speakers (9 women), who were asked to read them aloud in response to a question presented to them on the screen. Each speaker recorded 30 variations, resulting in 540 stimuli in total. Due to COVID-19 restrictions, the twenty listeners (women only) who participated in the experiment performed the listening tests using a Zoom meetings with the experimenters. The listeners were asked to a) mark the word in focus (or refute the existence of a narrow/contrastive focus); and b) to rate the degree of prominence on a scale of 1 (very weak) to 5 (very strong).

The research hypothesis was that the contrastive focus would be the easiest to identify (the contrastive focus was uttered only on the middle words and therefore was compared only to narrow focus on the middle words), the narrow focus the second best, while the broad focus would be the most difficult to identify. In terms of focus detection as a function of position in sentence, the hypothesis was that there would be an effect of position on narrow focus detection.

The findings suggest that detection rates of contrastive focus were significantly higher compared to narrow focus on the middle word ($p=0.001$). This finding can be attributed to differences in the production of these two types of focus. Contrastive focus is produced with more emphasis because the speaker has a clear pragmatic intentions [5]. In our case, speakers had to correct a "mistake" embedded in the question they were asked. For example, "A tiger entered the garden?" and their prompt answer was "A **cat** entered the garden."

Regarding the focus position, findings show that the earlier the word in the sentence, the higher the detection rate of the focus (Figure 1. The asterisk marks a statistically significant difference). These findings are similar to findings in the German language [6]. A possible explanation can be related to the phenomenon of "post-focus compression" (PFC) [7], which argues that the acoustic properties of the post-focal word(s) are realized significantly different from the word in focus. It is known that in languages where the phenomenon exists it is a very important cue of focus identification [8]. That is, not only the acoustic properties of the prominent word contribute to the perception of focus but also the different acoustic properties of the word(s) that follow. Therefore, PFC phenomenon might explain our findings because when the focus is on the last word of the sentence, listeners did not have the scaffolds of the PFC phenomenon, making it difficult to identify it as the word with a narrow focus.

Further, our findings show that in productions of narrow focus on the last word, most of the errors were misjudgments as a broad focus. That is, when comparing the broad focus detection to the narrow focus detection on the first word we saw the advantage towards narrow focus, whereas when comparing the broad focus to narrow focus on the last word, the difficulty in identifying them by the listeners created a tendency towards broad focus identifications.

In conclusion, contrastive focus is most salient to listeners, narrow focus on the first word is second best detected. Narrow focus on the last word is judged as a broad focus. Future examination of the PFC phenomenon in Hebrew is required.

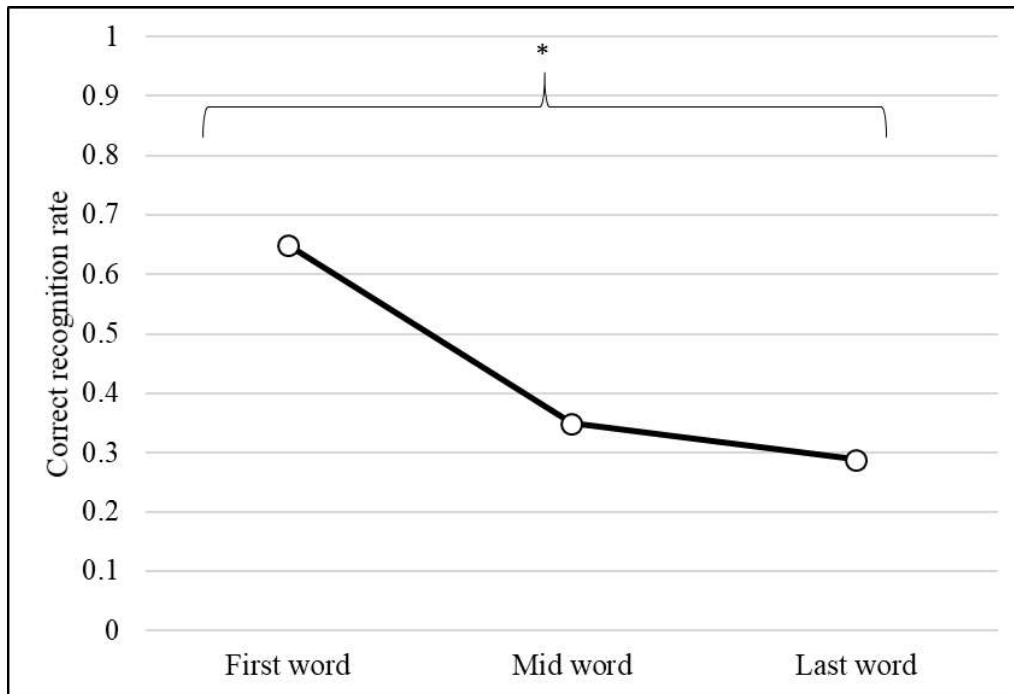


Figure 1. Correct detection rates of narrow focus.

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