Testing the discrimination between different intonation contours associated with topic-comment and narrow focus-background structures by Egyptian Arabic listeners

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In corpus and experimental research it could be shown that morpho-syntactically identical SVO sentences that only differ in their pragmatic structures (topic-comment vs. focus-background) exhibit different prosodic realizations in Egyptian Arabic. Specifically, it was found out that there is a significant difference in the first accent that is associated with the topic or the focus, respectively. In addition, the post-focus material has been as shown to be realized in a compressed pitch range. However, the grammatical status of these prosodic contours is still a matter of some debate. To test whether Egyptian speakers also use the prosodic cues to identify different information structures we set up two experiments.

Experiment 1:

We used prototypical examples from an earlier production study of SVO sentences with topic-comment or focus-background structures as stimuli for a forced-choice context-matching task. 30 Egyptian listeners had to decide which of two morpho-syntactically identical sentences with different intonation contours was a suitable answer to a context question that would either elicit a topic-comment structure or a focus-background structure.

Experiment 2:

In the second part of the same session, the same group of participants had to repeat the task with stimuli that only contained the first accent with the rest of the sentence masked by pink noise. In this case, the two different stimuli were based on an identical base sentence of which the first accent was resynthesised in the appropriate ways. This was done to test whether listeners are able to identify the structures when only the shape of the first pitch accent is different and all other acoustic cues are kept stable.

Control group:

As similar contours are usually regarded as grammatical means of coding information structure in German, we also conducted the same experiment with 23 German-speaking listeners who do not speak Arabic, but had to choose the appropriate answer only based on the perception of different intonation contours.

Results:

The results show that while Egyptian listeners cannot reliably use the prosodic cues to identify the different information structures, the German-speaking listeners scored very high in this task (about 80% correct answers). The Egyptian listeners performed only slightly above chance level in the first experiment (56% correct answers) and exactly at chance level (50% correct answers) in the second experiment.

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