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A PRELIMINARY DESCRIPTION OF CAIRO ARABIC INTONATION OF STATEMENTS AND QUESTIONS

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Abstract

In this paper I will discuss intonation of statements and yes-no questions in Cairo Arabic. It is pilot study, based on one speaker only. The aim of the paper is to describe the intonational patterns of statements and questions, both in neutral form and with focus on the various parts of the sentence. The sentences consist of subject, verb and object, the subject and object having post-positioned adjectives. Questions in Cairo Arabic of the investigated type have no morphological markings or syntactical means to differentiate them from statements. Thus all sentences have the same morpho-syntactic form, questions being distinguished from statements by intonation only.

PROCEDURE

The following test sentence was used in the investigation: [mu'nir il'marin 'rama lla'mu:n il'murr], (the nimble Munir threw the bitter lemons). The informant was instructed to read at normal, conversational speed. The test sentences were read in a context of frame sentences eliciting the proper intonation. The speaker had no difficulty in producing the different stress patterns. The test sentence is made up of sonorants only in order to ensure a continuous pitch contour and to minimize microprosodic effects. The speech material was recorded in the sound-proof studio of the Phonetic Department in Lund. Each sentence with its frame was recorded six times. The first recording was not used for analysis. Three token sentences of each stress pattern group were selected for analysis after auditory judgment of the recorded material. The speaker showed a remarkable consistency in the production of each type of sentence. Analysis was made from wide and narrow band spectrograms, made on a digital sound spectrograph. Wide band spectrograms were used to aid segmentation and for durational measurements. The fundamental frequency curves were traced from the tenth harmonic on the narrow band spectrograms. The F0 curves of the three selected utterances were traced and superimposed on each other. One sentence of the three was selected as a model sentence for interspeaker, and later, intraspeaker comparisons. Measurements were made of the fundamental frequency at the beginning and end points of the utterance, as well as at the intervening stressed syllables.

STATEMENTS

As in many other languages a neutral statement is realized globally by a continuous declination (Gårding, 1984). An accented syllable is marked as a phonological High. It is realized locally as a peak or as a rise towards the peak. The turning-points of the peaks tend to be at or near the end of the syllable associated with the accent. Statements with the subject noun phrase in focus is not realized by a continuous downdrift like the neutral statement. Instead there is an increase in the frequency range of the focussed subject noun phrase. The rest of the sentence is in post-focal position with less declination and less range than the neutral statement. The frequency range in the focussed part is 75 Hz. The post-focal frequency range is 20 Hz. Locally the focussed subject noun phrase is
realized by this speaker with two peaks, both of the noun and the adjective of the noun phrase. The stressed syllables of both the proper name and the adjective are strongly marked. This raising of the pitch is an increase of between 20-50 Hz, as compared with the neutral statement. After the subject, however, the F0 contour dips under the contour of the neutral statement and keeps well below it for the rest of the utterance. In this way the desired contrast between focus and post-focus is effected by altering the distribution of the pitch range in the whole sentence, not only the focussed part. A noticeable phenomenon in the post-focal part of the sentence is the levelled pitch curve as compared with the neutral statement. Statements with the object in focus have the same pitch contour as the neutral statement in the pre-focal part of the sentence. The focussed object is marked locally by a relatively large rise in the intonation contour. This substantial raising of the pitch curve is roughly 55 Hz. The stress encompasses as in the subject noun phrase the adjective as well as the noun of the object. Statements with the verb in focus are realized by a pitch rise of about 40 Hz of the stressed syllable of the verb, indicating a large step in the frequency contour. The compressed frequency range of the post-focal position is also discernible here. The compressed pitch range after focus is also a bit higher in frequency than that of the neutral statement, and the whole sentence ends higher than the neutral statement.

QUESTIONS
A neutral question, with no part in focus, has the same values for the starting point and the first pitch peak as the neutral statement. Immediately after the first stressed syllable, the declination of the question is suspended and the global F0 is more or less horizontal. This can be compared with similar patterns in Danish (Thorsen, 1980) and Hausa (Lindau, 1986). The question also ends in a local F0 upstep of the last part of the utterance and a small fall, which does not reach the bottom of the speakers pitch range. The difference in frequency between the last stressed syllable in statements and questions is about 70 Hz. In a question with the subject in focus, the focus is marked by a raised F0 contour over the stressed syllables of the whole subject noun phrase. As compared with the corresponding statement the post-focal part of the F0 contour remains on a higher frequency level with a locally marked rise at the end of the utterance. Here it is difficult to discern any compression effect in the post-focal part of the sentence. The question with the object in focus starts from the same frequency level as the corresponding statement. The question is marked globally by an F0 contour which runs parallel to and above that of the statement. The question is marked locally by an upstepping contour of the same type as in the neutral question, but covering a wider range. The frequency difference between statement and question is about 40 Hz. The frequency range is not compressed in the pre-focal part of the sentence. A question with the verb in focus starts on the same F0 level as the corresponding statement. The pre-focus part of the sentence, together with the focussed verb, are approximately in the same frequency range. The post-focussed part of the utterance has a raised pitch contour by between 15-25 Hz with a locally marked question intonation on the last word of the sentence by around 40 Hz.

DISCUSSION
Cairo Arabic seems to use universally employed means to differentiate between statements and questions (Gårding, 1984). Neutral statements exhibit the expected continuous downdrift in frequency. Statements with any part in focus break the downdrift pattern, marking the focussed part by a wider frequency range and a compressed pitch range after focus. Questions also exhibit the expected intonation patterns with a rising
intonation at the end of the utterance. The parts in focus are locally marked in the same way as in the corresponding statements. One feature to be noticed is that the further to the right in the sentence the focus is placed, the greater the similarity with the corresponding statement. Both have suspended declination up to focus, the question being marked locally by a rising $F_0$ contour on the last syllable. Since Cairo Arabic lacks morpho-syntactical means to signal yes-no questions the obvious way of distinguishing statements from questions is by means of intonation, i.e. as presence vs. absence of a global intonation.

References