Yes / No Questions in Cyrenaica
A Phonetic Analysis

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Arabic intonation has its own peculiarities. This applies to all Arabic dialects [1]. The salient feature of the up-and-down effect characterizes both the reading style and the spoken language. Though accented syllables of Arabic words and phrases delineate the intonational contours of sentences, in declarative sentences accents occur on the Arabic peaks and unaccented syllables of the following words of phrases fall in the valleys (See figures 1, 2, 3 & 4). On the contrary, English shows a pattern of continuous descent from the first accent [2].

Elsewhere [3], I described Arabic as a non-intonational language, but rather it is a particle language. There are myriads of particles used for grammatical, attitudinal, pragmatic, and discourse purposes , whereas in English, various intonational patterns are used for these purposes.

The aim of this paper is to provide a phonetic analysis of the intonation for Yes/ No questions in Cyrenaica dialect (Benghazi – Libya), where both the clitic (particle) and the intonational contour cooccur. The clitic which is used in the dialect is the enclitic {+u} at the end of Yes/No & verifying questions.

Little research has been done on the intonation of Arabic. No research, to the best of my knowledge, has been done on interrogative intonation of Arabic.

Experiment

1. Collection of sample intonations:

A female university lecturer, a native speaker of Benghazi (Cyrenaica), recorded 12 short every day sentences. The list of the sentences is presented in Table 1. A recording of the sentences was made three times. In every time of recording, each sentence was recorded twice in two different grammatical intonations:

a)Statement intonation.
b)Yes/No question form and intonation.

The total was 24 sentences.

The recording was done in an insulated room, on a reel tape, by a professional technician and sound-library personnel.

Table (1)
List of Sentences

[A]

?allaah	God	**?allaahu**	God ?
haliib	milk	**haliibu**	milk ?
?asmaa?	Asmaa (proper name)	**?asmaa?u**	Asmaa?
fathii	Fathi (proper name)	**fathiyu**	Fathi ?
luuluu	Lulu (proper name)	**luuluu**	Lulu ?
?omo	Omo (proper name)	**?omo**	Omo ?

[B]

?ana min benyaazii	I am from Benghazi
?ana min benyaazyu	Am I from Benghazi ?
?ana ʃribt gahwa	I drank coffee
?ana ʃribt gahwaw	Did I drink coffee ?
?iktibu	Write !(2nd p.plural)
?iktibu	Write ? (Did I say "write"?)

[C]

man	"who"	**man**	"who !"
manu	"who?" (Did you say "who"?)		
keef	"how"	**keef**	"how!"
keefu	"how?" (Did you say "how"?)		

2- Analysis

The total of 120 sentences (24 x 5 repetitions) were recorded and analyzed through implemented CECIL package :

Intonation in language. Summer Institute of linguistics, University of Texas 1997. The intonational contours are smoothed by autocorrelation, version 2.2.

The output contours of intonations were compared according to the kinetic tones [4] for the following criteria :

1- A rise is a rise whether it moves from 80 Hz to 120 Hz or from 150 Hz to 300 Hz [5].

2- Arabic is characterized by the up-and-down effect in the intonational contours of sentences, whereas English exhibits a pattern of continuous descent from the first accent.

3- Two levels of kinetic tone, high/low or fall/rise, are normally distinguished as a means of partially accounting for intonation differences [6].

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[B]

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3-Results

The outputs of the computational analysis show the following contour tendencies :

1) Up-and-down movements in both statement and questions, even in sentences with one word surface structure, e.g.: halib, halibu? See Fig.5 & Fig.9.

2) Question contours have two peaks. (See Figures 5-11).

3) Questions are higher with respect to their tonal range, and statements, on the contrary, are low. (See Figures 5-11).

4) Emphasizing (or confirming) utterances are medium in their tonal range. (See Fig. 10).

4) No rising final cadence as we see in other language such as English.
(For comparison see Figures 1-4).

4-Discussion

1) Up-and-down contours of the data support the findings of Mitchell 1990 & 1993 where he stated that Arabic intonation is characterized by its 'jumping' nature.

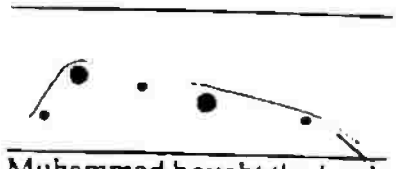
2) The two-peak phenomenon is supported by the transcribed contours above the accented and non-accented syllables of sentences done by Mitchell (See Figures 1-4). This attested also in Ladd (1992:324) findings on the " association of tunes to text".

3) The high-beginning in Yes/No questions is supported by the findings of (Miura & Hara, pp. 294-5).

4) The middle tone-range of 'emphasis' or 'confirmation' is supported by the cross-languages description of Heffner (1969:220-1).

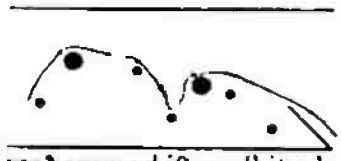
5) No rising final cadence result is contrary to what is stated in English by Mitchell 1993 (compare figures 3,4 with the other figures of the experiment). It is not also supported by (Heffner 1969:220-1) where he stated that Yes/No questions normally have a rising final cadence, which may be described as a low rising slur of moderate interval. Bolinger (1978:501) is another counter example of this finding, where he dealt universally with many languages, Arabic not included.

Fig. (1).



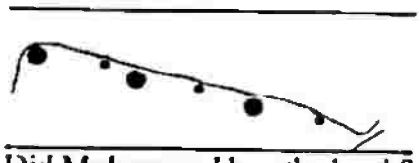
Muhammad bought the book

Fig. (2).



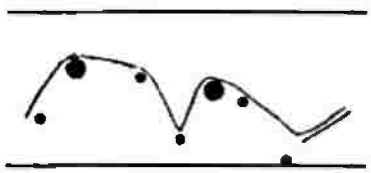
maħammad iʃtaro lkitaab

Fig. (3).



Did Muhammad buy the book?

Fig. (4).



maħammad iʃtaro lkitaab?

(from the courtesy of T.F. Mitchell, 1993)

(The contours above the accents and tones are added by the author of this research).

FIG. 5

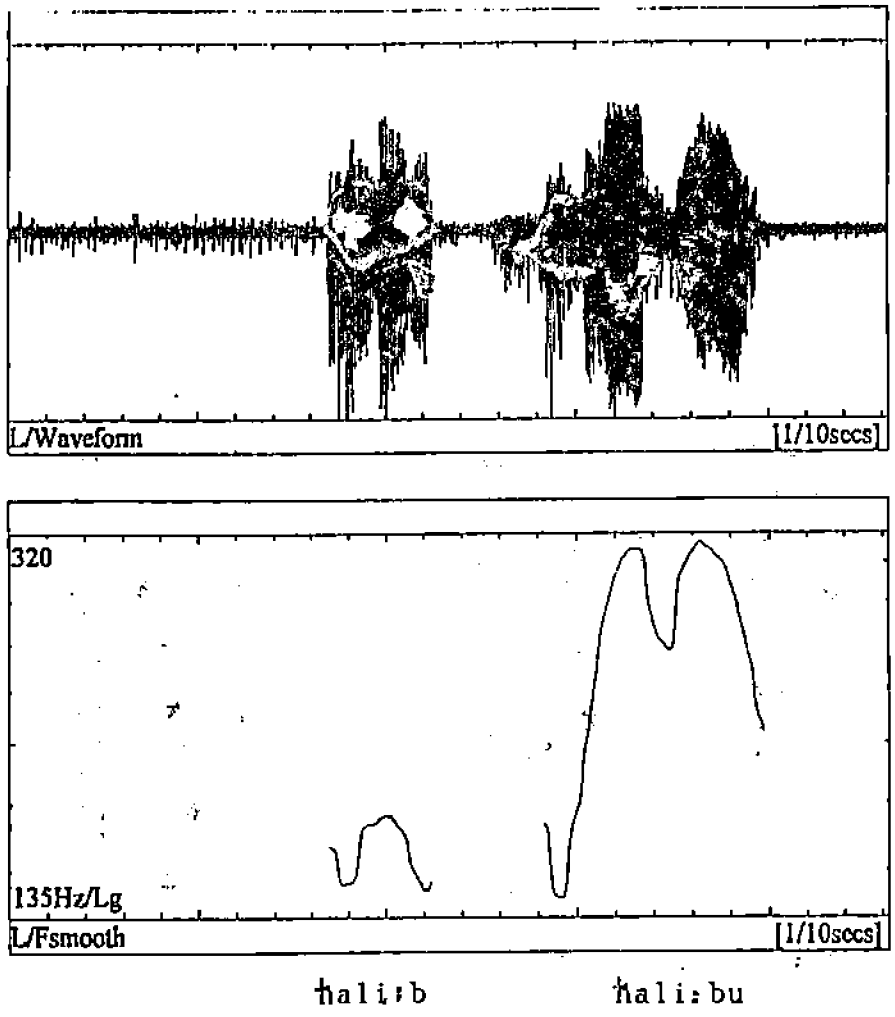

L/Waveform
[1/10secs]
320
135Hz/Lg
L/Fsmooth
[1/10secs]
ħali:b
ħali:bu

FIG. 5

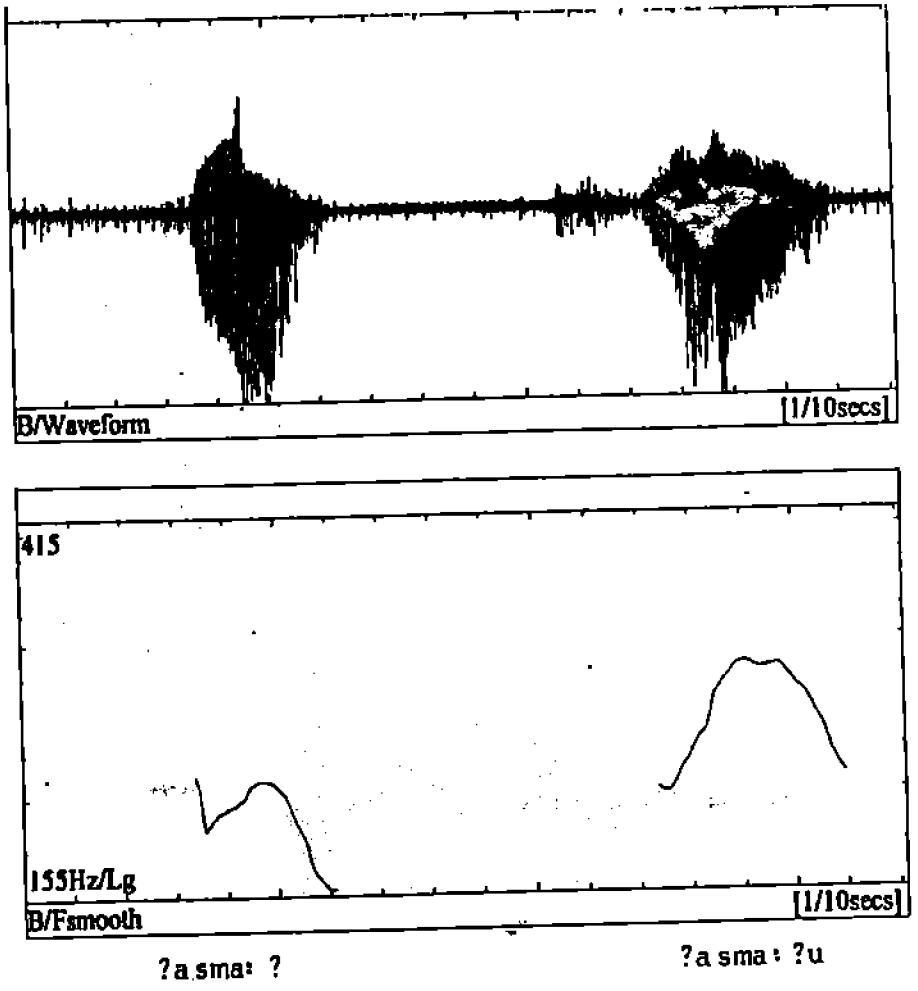

B/Waveform
[1/10secs]
415
155Hz/Lg
B/Fsmooth
[1/10secs]
?a sma: ?
?a sma: ?u

FIG. 6

FIG. 6

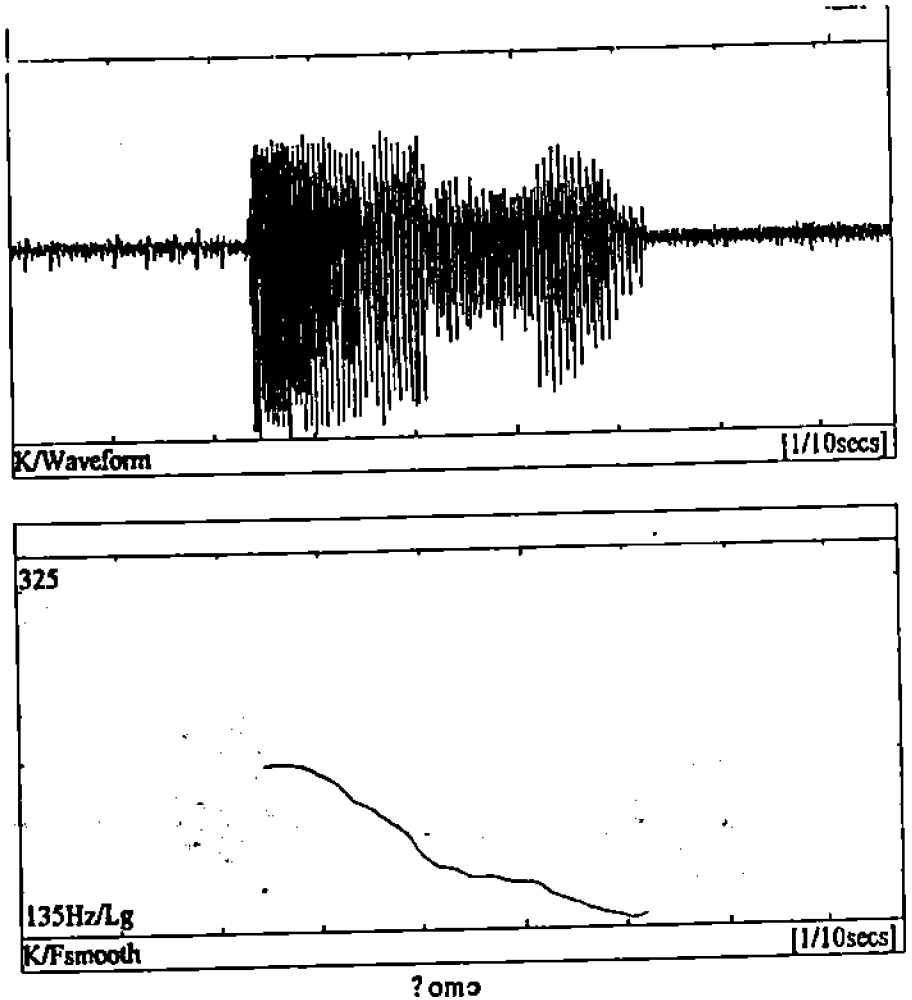


FIG. 7a

FIG. 7a

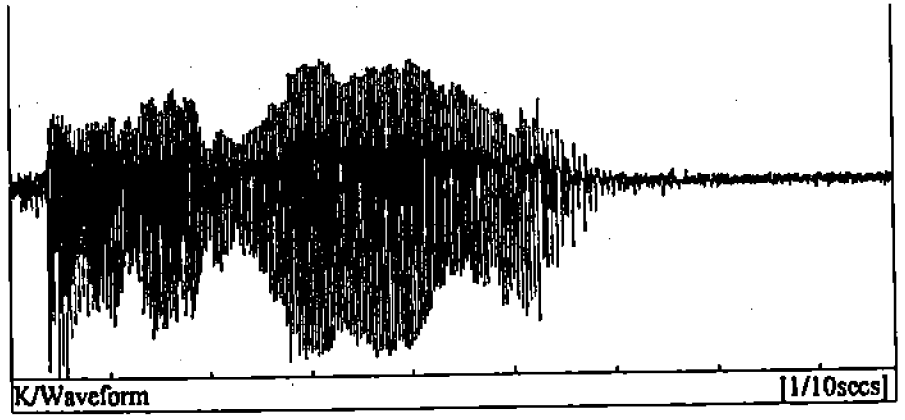
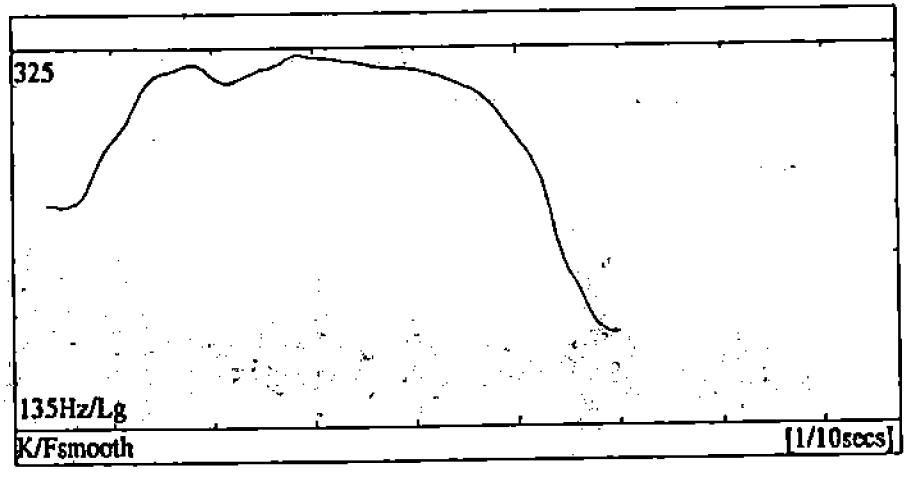


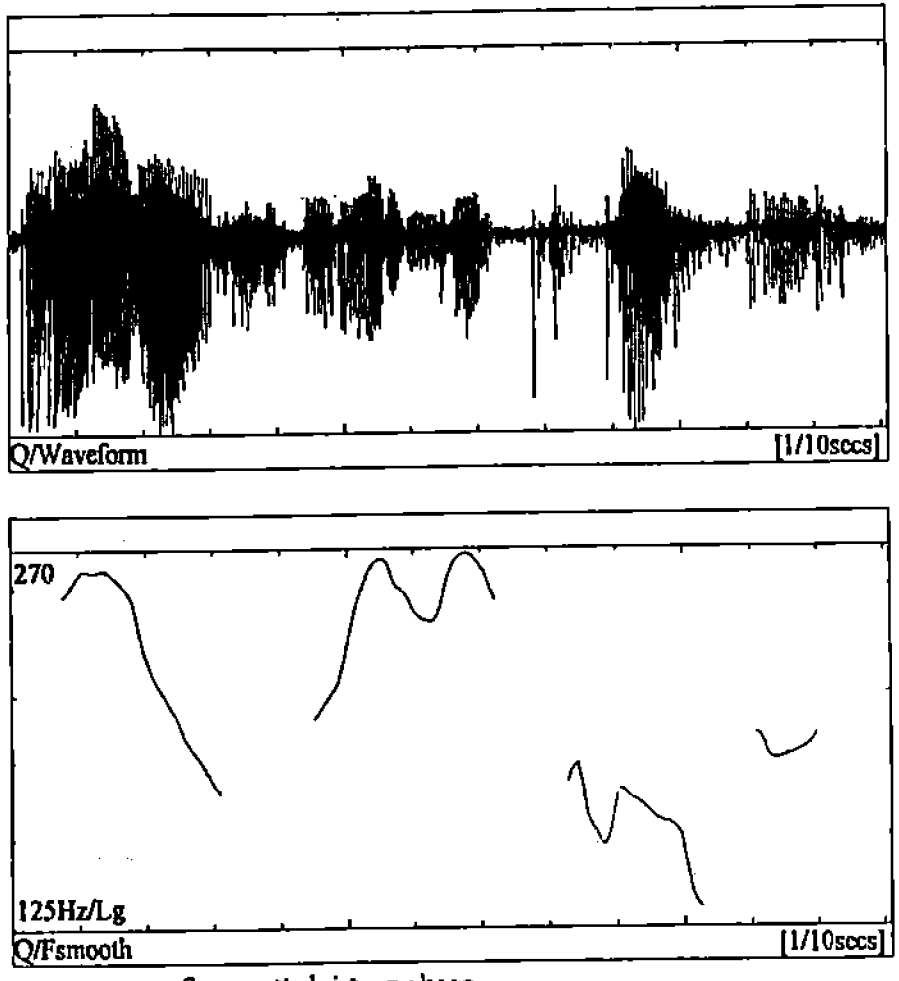
FIG. 7b



?omo ?

FIG. 7b

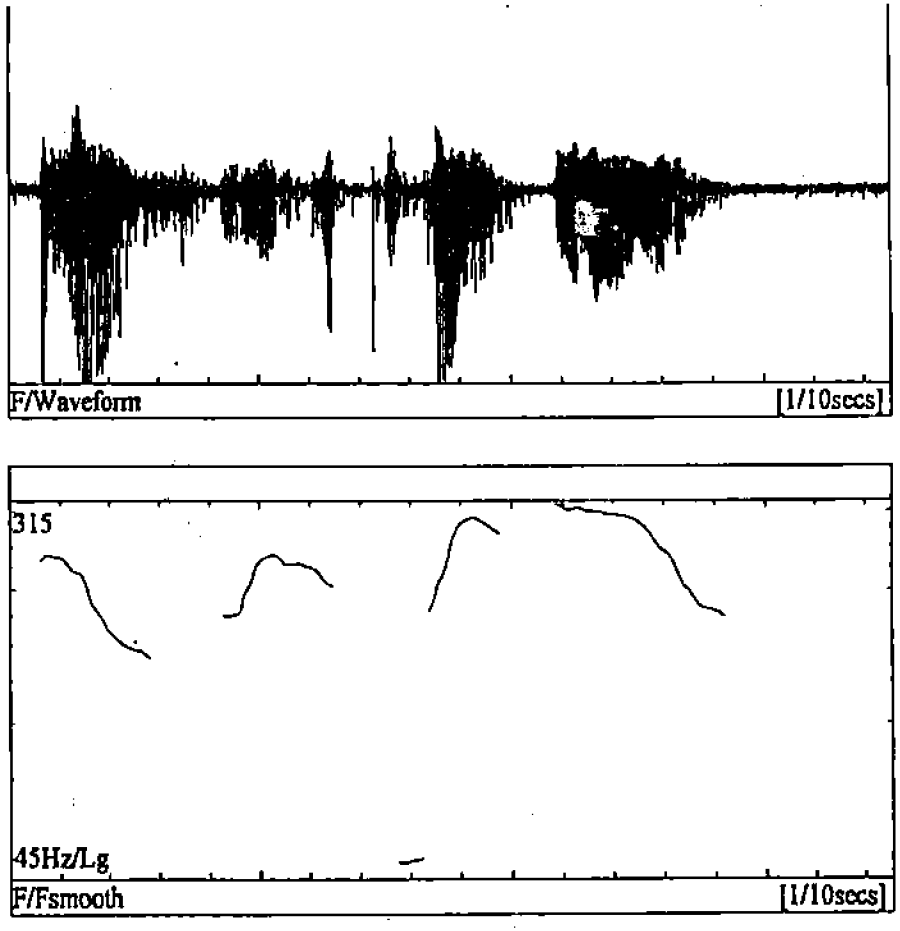
FIG. 8a



?ana ʕrbit gohwa

FIB. 8a

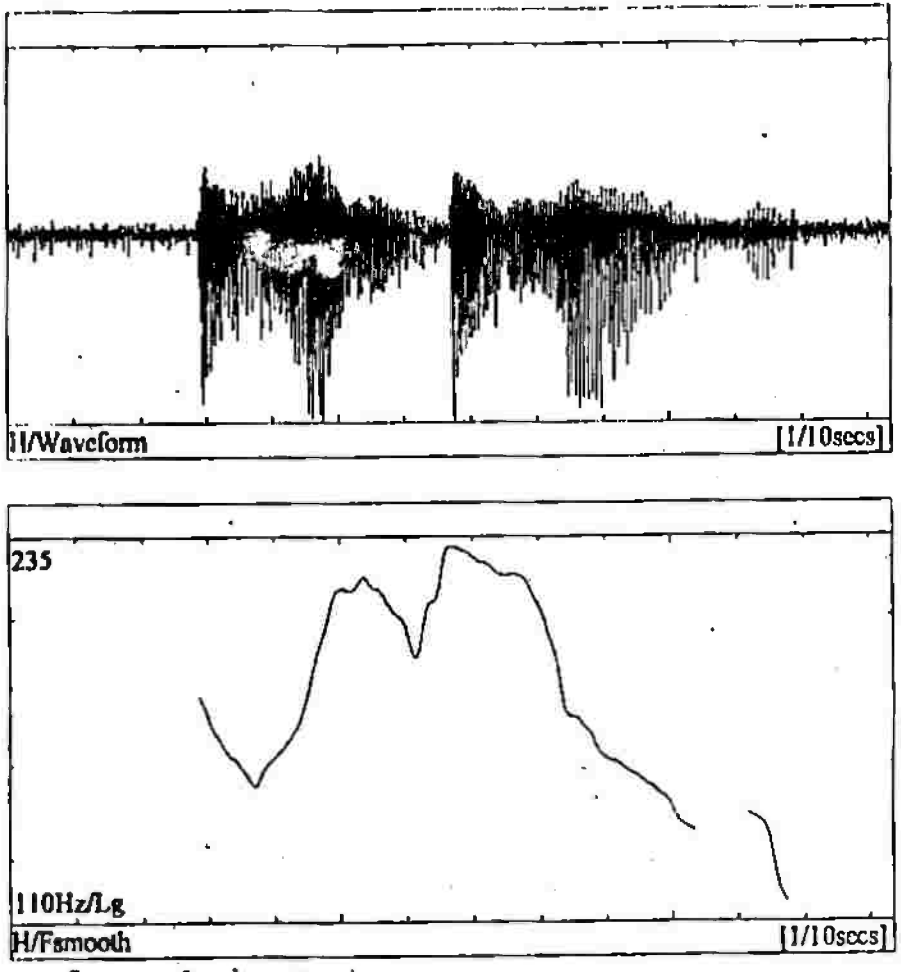
FIG. 8b



?ana ɣribt gᵃhwaw?

FIG. 8b

FIG. 9a



?ana mIn banγazi

FIG. 9a

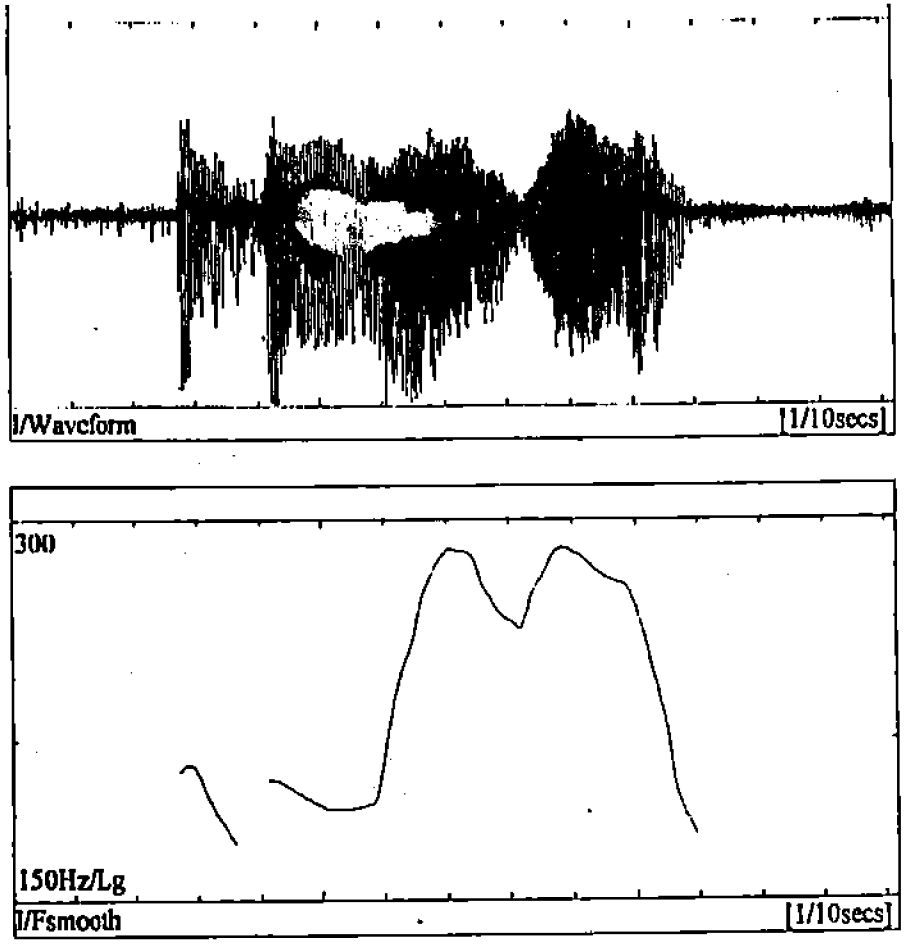


FIG. 9b

?ana mIn banYazju ?

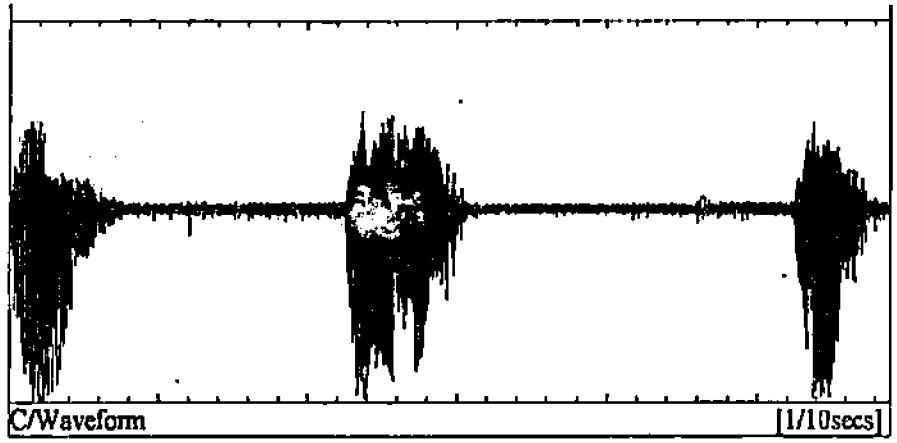
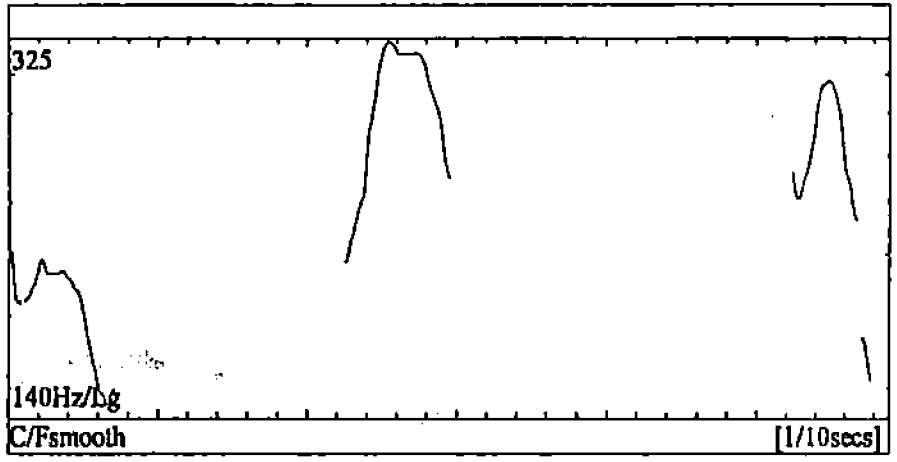


FIG. 10



man manu ? man!

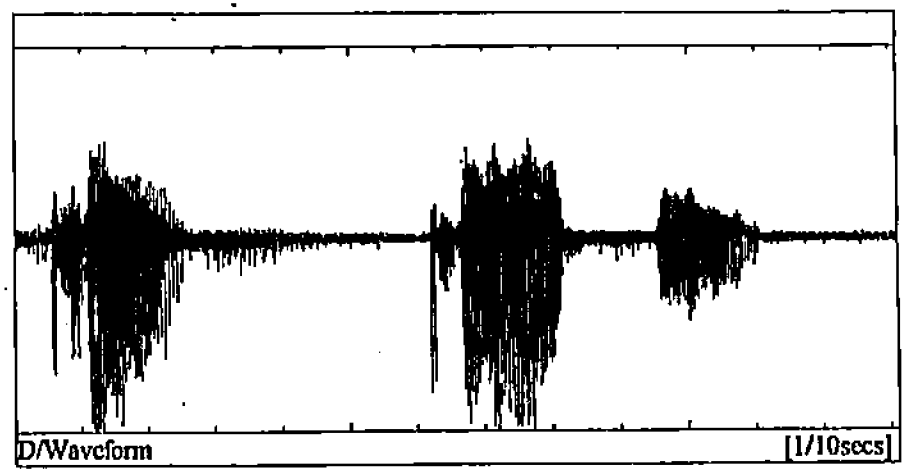
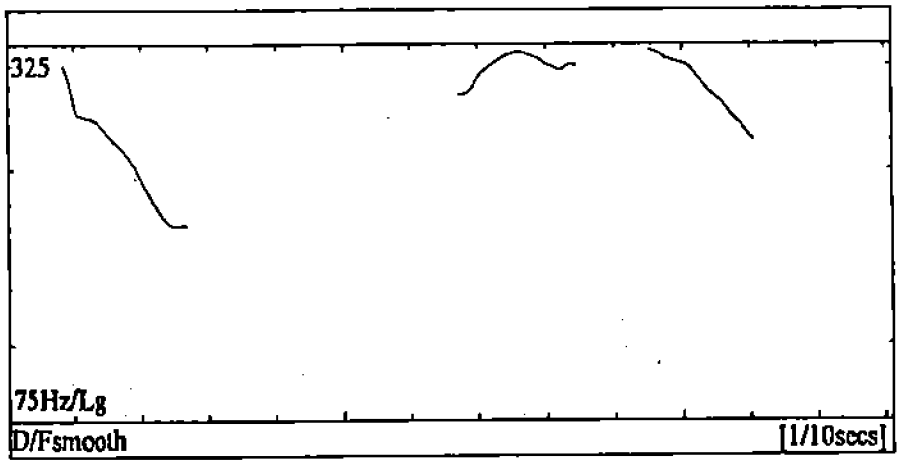


FIG. 11



ke:f ke:fo ?

Foot Notes :

* The words in the list are whole sentences in the deep structure. The left side word of group (A) are answers of the questions .

Who has the control of destiny ?

What did you drink ?

Whom did you meet ?

who did this chart ?

What is your name ?

Which detergent did you use ?

The right side words of group (A) are questions asking the verifying of the words or the availability of things or persons.

The (C) group contains sentences about the two question words [man] "who" and [keef] "how", a statement, order to write or to know, and a Yes/No question respectively.

1) Mitchell (1993) p. 222, 226.

2) ibid.

3) El-Dalee, M.S. (forthcoming) "Fundamental Problems in Arabic Intonation". To appear in : ARABIC JOURNAL FOR THE HUMANITIES: KUWAIT UNIVERSITY No. 64.

4) The term "Kinetic" is applied to tones which vary in pitch range, e.g. rising/falling, or falling/rising tones.

5) Ladd (1993) p. 329.

6) Mitchell (1993) p. 221.

References:

- Bolinger D., "Intonation across languages" in UNIVERSALS OF HUMAN LANGUAGE, Edited by J.H. Greenberg, Volume 2, Phonology, Stanford University Press, Stanford, California 1978.

- El-Dalee, M.S. (forthcoming) "Fundamental Problems in Arabic Intonation". To appear in: ARABIC JOURNAL FOR THE HUMANITIES: KUWAIT UNIVERSITY No.64.

- Heffner, R.M.S. : General Phonetics : The University of Wisconson Press, 1969.

- Ladd, D. Robert. "An Introduction to Intonational Phonology".

  In Docherty, G.J. & Ladd, D.R (eds) PAPERS IN LABORATORY PHONOLOGY II, 1992 pp. 321-334.

- Laver, J., Principles of Phonetics. Cambridge University Press, 1994.

- Mitchell, T.F. Pronouncing Arabic 1, Oxford, 1990.

- ----------. Pronouncing Arabic 2, Oxford, 1993.

- Miura, I. & Hara, N. " Production and Perception of Rhetorical questions in Osaka, Japanese". JOURNAL OF PHONETICS (1995) 23, 291-303.

- Takefuta, Yukin; Method of Acoustic Analysis of Intonation. in Singh, S. (ed): MEASURMENTS PROCEDURES IN SPEECH, HEARING, AND LANGUAGE. University Park Press, Baltimore, London, Tokyo,1975. pp. 363-378.