

## Towards a knowledge base system for arabic

---

### Introduction

Since the first computers appeared in early 19-0's many scientists saw the potential of using them for processing of human (natural) language. First, computer programs have been developed to manipulate texts to produce words lists, indexes... etc. Later on, it has proposed that computers might be used to translate one natural language to another [1]. With time, more research subjects and applications were identified. Currently, the domain of computational treatment of natural language is vast enough and covers a wide collection of theories, techniques, and research results. Two sets of compative software (programs) however exist. The first, are those programs that produce text indexes archives etc. The second set of programs, often called knowledge based systems, expert system or advisory systems are expected to «understand» texts and generate outputs with as much fluency as a native speaker would.

Knowledge Base Systems are the result of the research progress made in the field of Artificial Intelligence (AI) and constitute one of the key AI disciplines. For this, we review AI in what follow :

AI is the computer science that focuses on «intelligence», and is applied to solving real-world problems. It offers viable solutions for dealing with complex situations: the require interpretation of information, the use of heuristic rules or problems dealing with uncertainty. AI models emulate human expert behaviour in recalling past experiences needed to judge when an exceptional case is encountered.

Besides Knowledge Base Systems, major AI disciplines include symbolic processing, natural language processing, machine translation, and speech and pattern recognition.

Symbolic processing is a technique used to represent real world objects and properties associated with them as symbols. [2] It allows the manipulation of these symbols in a way analogous to human reasoning. Symbols can be linked together, using super structures such as networks or graphics, to represent such relationships as hierarchy and dependency. As conventional computer languages are not suited for symbolic processing, special AI logic languages, such as «Lisp», «Planner» and «Prolog» were developed.

Natural language processing by computers has as its goal humans communication with computers in normal everyday languages such as English or Arabic rather than in conventional programming languages. Major applications of natural-Language processing are in data-base interfaces. Users of data-bases are allowed to retrieve and manipulate stored data by using ordinary natural language commands. [3-10]

Using computers to assist in translation from one natural language to another is an active research area of AI. In the mid-fifties, interest was in the development of a system that could produce high-quality, high-speed translation of arbitrary texts. However, initial research results proved that, for some time to come, only Machine Assisted Translation (MAT) would be feasible. During the 60's more researchers and scientists realized that major

## Towards a Knowledge base System for Arabic

Dr. Sami S. Al-Wakeel  
College of Computer

Dr. Abdulaziz I. Al-Sweel  
College of Arts

King Saud University  
P.O. Box 51178, Riyadh 11543, Saudi Arabia

### ABSTRACT

Recent developments in Computer Science have made possible far-reaching and linguistically relevant research into and implementation of an Arabic language Knowledge Base System (KBS). Although no Arabic KBSS yet exist, they have shown a great potential to the task of processing the multifold systems within the Arabic natural language, its morphology and syntax. Arabic language machine translation, pattern-recognition and Artificial Intelligence (AI) applications are as yet in their infancy. The purpose of this paper is to review past work in the same and related fields of investigation into AI applications for Arabic Language, suggest various interesting possible roads of development, with special attention given to a KBS for the Arabic language ; enumerate pressing research problems and research objectives ; and, provide possible applications. This paper concludes with a concrete and detailed research project design for an Arabic language KBS. The design is made so that its implementation can be realized in distinct research phases. Explanatory tables and references are included with the text.



## REFERENCES

- Abdel-Jawad, Hassan, R.E. 1983 :  
Sex Differentiation and Linguistic Variation : a case study of spoken Arabic in Amman. In J. Owen & I. Abu-Salim, compilers. *Proceedings of the Second Annual Linguistics Conference*. Yarmouk University, 101-120
- Cadora, Frederick, 1970 :  
« Some Linguistic Concomitants of Contactual Factors of Urbanization », in *Anthropological Linguistics* 12, pp. 10-19.
- El-Dash, Linda and Richard Tucker, 1975 :  
« Subjective Reaction to Various Speech Styles in Egypt », in *Linguistics : An International Review*, 166, 33-54.
- Ferguson, Charles, 1971 :  
*Language Structure and Language Use*. Stanford University Press, Stanford, California.
- Herbolich, James B. 1979 :  
« Attitudes of Egyptians toward Various Arabic Vernaculars », in *Lingua* 47, 301-321.
- Hussein, Riad F. 1980 :  
The Case for Triglоссия in Arabic. Unpublished Ph. D. dissertation. State University of New York at Buffalo.
- Ibrahim, Mohammad H. 1983 :  
On the Notions « Standard » and « Prestigious » in Arabic Sociolinguistics. Mimeographed paper presented at the Third Linguistics Conference of Yarmouk University.
- Lambert, W.E., and H. Frankel and R. Tucker, 1966 :  
« Judging Personality Through Speech : A French-Canadian Example », in *Journal of Communication* 16, 305-321.
- Lambert, Wallace, 1967 :  
« A Social Psychology of Bilingualism », in *Journal of Social Issues*, 23, pp. 91-109.
- Ferguson, Charles, 1968 :  
« Myths About Arabic », in *Readings in the Sociology of Language*. Joshua Fishman (ed) The Hague : Mouton.
- Nader, Laura, 1972 :  
« A note on Attitudes and the Use of Language », in *Readings in the Sociology of Language*. Joshua Fishman (ed). The Hague, Mouton.
- Rabin, Chaim, 1951 :  
*Ancient Western Arabia*, London
- Sawaie, Mohammed :  
A Sociolinguistic Study of /q/ and its variants : A Preliminary Investigation into Some Arabic Speakers' Attitudes (mimeographed).
- Shuy, Roger and Ralph W. Fasold (eds), 1973 :  
*Language Attitudes : Current Trends and Prospects*. Georgetown University Press, Washington, D.C.
- Wolck, Wolfgang, 1973 :  
« Spanish and Quechua in Bilingual Peru », in *Language Attitudes : Current Trends and Prospects*, eds. Rogers Shuy and Ralph Fasold. Georgetown University Press, D.C.

There are no significant differences between male and female respondents as to their ratings of the colloquial varieties. This finding is contrasted with Abdel-Jawad who reported that «Women produce the urban linguistic variants more often than men». (1983/18). In harmony with this we expected females to show similar preference patterns of the Madani variety by rating it more highly than other colloquial varieties regardless of their linguistic background.

Here we can conclude that educated Arab women are similar to educated Arab men in their ratings of MSA and colloquial Arabic spoken in Jordan.

(4) —Do respondents associate language varieties with certain professions?

In answer to this question we will not list all professions but rather the most frequent ones associated with each language variety. Of the 281 who answered the question regarding the profession of the MSA guise, 223 said

he is a teacher, 45 assigned him a respectable job (engineer, doctor, lawyer, etc.).

Of the 285 respondents who answered the question of the profession of the Bedouin guise, 96 said he is a shepherd and 55 said he is a teacher. Shepherding as a profession is almost exclusively restricted to the Bedouin variety speakers, but this does not imply that Bedouin speakers are necessarily associated with low or inferior jobs as some educated Bedouin speakers hold very respectable jobs in the army, government offices and educational institutions. Of the 279 respondents who answered the question regarding the Madani guise, 118 said he is a skilled professional (engineer, lawyer, pharmacist, doctor, etc.), 49 said he is a merchant, trader or businessman.

Finally, of the 293 respondents who answered the question regarding the profession of the Fallahi guise, 142 associated him with farming and 64 said he is a merchant. It is not strange for respondents to associate farming with the Fallahi guise since the word Fallah in Arabic literally means farmer.



#### MADANI :

'Ult lamhammad imbaarih 'innu yruuh 9asuu' Qaşaan yištri šwayit laħmi wi šwayit samak wukamaan šwayit banduura wuĐumit ba 'duunis wfilfi 'axĐar wa9Teitu tamaniin 'irš 'uddaam 'abul 9abid wistaneitu talat sa9aat wumažaaš wba9dein xuft 9aleeh wu 'ult la 'ibni 'aasim 'ir.nu yruuh ydawwir 9aleeh wiy 'uul laľbuliis iza ma la 'ahuuš. wugaab 'ibni 'aasim hawaali sa9tein wuba9dein rizi9 w'aal 'innu šaaf žamiil 'axu mhammad 'illu 'allu 'innu mhammad 'axad il masaari wuharab 9ažiniin.

#### BEDOUIN :

gult lamhammad 'ams yruuh 9asuug wuyisiri laham wušwayit samak wba9d šwayit banduura wfilfil xadar wđumit bagduunis wanTeitu Ğimaniin ğirš gudaam 'abul

9abid wnaTartu Ɔalaθ sa9aat wmaaja. xuft 9alee gult liwildi gaasim yruuh yidawwir 9alee bassuug wiguul laššurTa 'i ğa maalagah wugaab wildi gaasim tguul sa9teen wba9deen jaa wgaal innu saaf jimiil 'axu mhammad 'illi gallu' innu mhammad 'axaž ligruuš winhazam 9a jiniin.

#### FALLAHI :

Kulit lamhimad imbeirih yiruh 9asuuk wuyištri laħmi wišwayit sa mac wuxra šwayit banduura wfilfil ixdar wđumit bakduunis wa9teitu Ğmž niin kiris kudaam 'abul 9abid wistaneitu Ɔplaθ sa9aat wmajaaz. xuft 9alei wkuul la 'ibni kaasim yruuh yidawwir 9alei bisuuk wikuul laššurta 'i ğa malakahuuš wugaab 'ibni kaasim tkuul sa9tein 'aja wukaal 'innu šaaf jamiil 'axu mhimad 'illi kallu 'innu mhimad 'axaž likruuš wuharab 9a jiniin.

Table 7 :

Rating means and standard deviations of Fallahi respondents' ratings for the four varieties according to their order of presentation

| Variety rated | Order |       |       |       |
|---------------|-------|-------|-------|-------|
|               | M     | F     | B     | S     |
| $\bar{X}$     | 56.73 | 58.74 | 54.46 | 59.84 |
| S $\bar{X}$   | 7.47  | 9.73  | 11.11 | 10.19 |
| S.D.          | 38.7  | 43.12 | 37.46 | 42.44 |
| M $\bar{X}$   | 10.38 | 10.09 | 8.74  | 10.79 |
| S.D.          | 36.98 | 38.51 | 43.93 | 39.79 |
| F $\bar{X}$   | 11.15 | 11.82 | 9.14  | 10.58 |
| S.D.          | 41.5  | 40.82 | 38.60 | 33.74 |
| B $\bar{X}$   | 10.97 | 8.71  | 10.46 | 10.17 |
| S.D.          |       |       |       |       |

Again, it is clear that MSA enjoys the highest status regardless of the order of presentation. One question is raised here : Why do the Fallahi variety respondents rate their variety lower than other colloquial varieties ? In reply, we can attribute this to the presence of some stigmatized feature in the Fallahi variety. Another interpretation may be the lack of identification with the Fallahi variety in the Irbid area, where the colloquial model most respected and valued is the Bedouin variety.

(3) — Do male and female respondents show different patterns of preference toward the language varieties under investigation ?

Patterns of preference amongst female respondents were similar to those shown by males. A common denominator to both male and female respondents is their tendency to value MSA more highly than other colloquial varieties as shown in Table 8.

Table 8 :

Means and standard deviations of male and female respondents' ratings of the four varieties

| Variety     | Male  | Sex | Female |
|-------------|-------|-----|--------|
| $\bar{X}$   | 56.75 |     | 59.37  |
| S $\bar{X}$ | 9.86  |     | 9.27   |
| S.D.        | 43.77 |     | 40.42  |
| B $\bar{X}$ | 10.02 |     | 11.52  |
| S.D.        | 38.46 |     | 40.17  |
| M $\bar{X}$ | 10.02 |     | 11.08  |
| S.D.        | 40.07 |     | 93.97  |
| F $\bar{X}$ | 11.34 |     | 10.16  |
| S.D.        |       |     |        |

Table 5 :

Rating means and standard deviations of the varieties as rated by Madani respondents according to the order of presentation

|   | Variety rated | Order |       |       |       |
|---|---------------|-------|-------|-------|-------|
|   |               | M     | F     | B     | S     |
| S | $\bar{X}$     | 59.84 | 54.69 | 55.76 | 61.23 |
|   | S.D.          | 7.2   | 7.97  | 10.5  | 9.77  |
| M | $\bar{X}$     | 42.53 | 45.3  | 35.88 | 45.15 |
|   | S.D.          | 9.1   | 7.87  | 12.1  | 9.98  |
| F | $\bar{X}$     | 43.3  | 37.92 | 41.53 | 40.61 |
|   | S.D.          | 7.1   | 13.48 | 10.1  | 9.5   |
| B | $\bar{X}$     | 34.74 | 37.92 | 46.18 | 38.3  |
|   | S.D.          | 10.46 | 9.14  | 10.22 | 10.33 |

As is the case with other respondents, the Fallahi respondents ( $n = 221$ ) rated MSA as the most preferred. But unlike both Madani and Bedouin respondents, they showed no signs of loyalty to their own variety, instead they showed more loyalty to the Bedouin variety as shown in Table 6. It is believed that some Fallahi speakers tend to

value their speech negatively due to the presence of some stigmatized variants, [ɟ] and [k] for example. Cadara reports that »The ruralite, (Fallahi) in the company of urbanities, would suppress ruralite features in favour of urbanite (Madani) equivalents so that he may not be identified as 'a peasant'» (1970/11) (between brackets added).

Table 6 :

Rating means and standard deviations of Fallahi respondents' ratings of the varieties ranked in order

|           | MSA   | B     | F     | M     |
|-----------|-------|-------|-------|-------|
| $\bar{X}$ | 57.58 | 43.13 | 39.87 | 38.59 |
| S.D.      | 10.3  | 10.45 | 11.05 | 10.45 |

To investigate whether this pattern of loyalty remains the same through different orders of presentation, the

researchers examined the rank ordering of the four language varieties according to their order of presentation as shown in Table 7.

Table 3 :

Rating means and standard deviations of Bedouin respondents' ratings  
of the four variables ranked in order

|           | MSA   | Bedouin | Fallahi | Madani |
|-----------|-------|---------|---------|--------|
| $\bar{X}$ | 69.25 | 45.00   | 38.00   | 35.00  |
| S.D.*     | 8.88  | 12.37   | 10.49   | 11.81  |

(\*) Calculated by  $(n - 1)$  formula since  $(n = 20)$

By examining the Bedouin respondents' rating in the four groups, a consistent pattern emerged indicating its second ranking all through regardless of the order of presentation of language varieties. Due to the small number of the Bedouin respondents in the four groups ( $n = 20$ ), it was deemed unnecessary to investigate the difference of their rating means.

The findings in this study indicate that standard deviations are considerably different due perhaps to the small number of Bedouin respondents. It is not expected that these findings will change with the increase in the number of the Bedouin respondents. This, however, needs further investigation.

The Bedouin variety as a common linguistic pheno-

menon throughout the Arab World enjoys a very high status and is held in high esteem. (See Nader, 1978 and Rabin, 1951). In this study the Bedouin variety has been shown to enjoy a highly respectable status amongst non-Bedouin respondents. It is not therefore surprising for the Bedouin respondents themselves to express approval for their variety and value it more highly than other colloquial varieties.

The Madani respondents ( $n = 62$ ) clearly favoured MSA over other colloquial varieties as the Bedouin respondents did. They highly valued MSA as shown in Table 4. Next in status, they rated their own variety. However, their favourable rating of their own variety is not clearly identified since the rating means of all colloquial varieties are approximately the same. (See Table 4).

Table 4 :

Rating means and standard deviations of Madani respondents' ratings of the four varieties ranked in order

|           | MSA   | Madani | Fallahi | Bedouin |
|-----------|-------|--------|---------|---------|
| $\bar{X}$ | 57.94 | 41.84  | 41.13   | 39.15   |
| S.D.      | 9.30  | 10.69  | 10.21   | 11.49   |

To investigate whether the order of presentation would affect the ranking order of the varieties by the Madani respondents, the researchers examined the rank ordering of the four varieties according to the order of presentation as shown in Table 5.

The MSA guise was valued most highly by the Madani respondents regardless of the order of presentation. On the other hand, Madani respondents valued the Bedouin guise most negatively and this can be contrasted with the favourable reaction towards the Bedouin variety exhibited by the sample at large.



Had the study been conducted in Jerusalem, Ramalla or Nablus, (the major enclaves of the Madani variety on the West Bank), it would have yielded a considerably higher status of the Madani variety. Briefly stated, in the Yarmouk University area people do not seem to identify with the Madani variety or consider it sound to emulate.

To investigate whether the order of presentation of the four guises would affect the hierarchical ordering of the four varieties, the researchers examined the rank ordering of the varieties according to their order of presentation as shown in Table 2.

Table 2

Rating and Standard deviations of the varieties according to order of presentation

| Variety |           | Order |       |       |       |
|---------|-----------|-------|-------|-------|-------|
|         |           | M*    | F*    | B*    | S*    |
| S       | $\bar{X}$ | 56.41 | 58.33 | 54.96 | 60.15 |
|         | S.D.      | 10.41 | 9.41  | 10.85 | 10.00 |
| B       | $\bar{X}$ | 37.72 | 42.26 | 47.51 | 41.86 |
|         | S.D.      | 10.48 | 10.24 | 9.12  | 11.12 |
| F       | $\bar{X}$ | 38.71 | 38.33 | 43.23 | 39.48 |
|         | S.D.      | 10.40 | 12.06 | 9.42  | 10.48 |
| M       | $\bar{X}$ | 41.55 | 41.52 | 37.74 | 35.51 |
|         | S.D.      | 10.42 | 9.03  | 11.06 | 11.10 |

M = M.B.S.F.  
B = B.S.F.M.

F = F.M.B.S.  
S = S.F.M.B.

Regardless of the order of presentation of the four guises, the highly valued status of MSA remained the same. Other colloquial varieties were rated less in social status when the MSA guise was first in order than when it was in some other position. Besides, the Madani variety was valued more favourably with the Fellahi or Madani guise being first in order than otherwise.

(2) —To what extent are the respective speakers of col-

loquial Arabic loyal to their language varieties ?

Loyalty which is not precisely defined here is indicated by the relatively high score on a given speaker assigns to his or her own language variety.

The Bedouin respondents consistently showed a preference pattern toward their variety. The 20 respondents rated their variety second to MSA as shown in Table 3.

cal items were substituted for others following suggestions made by native speakers of these varieties.

Respondents were divided into four groups with approximately 110 in each group. After having clarified the instructions and procedures for filling out the questionnaires, respondents were asked to fill out the demographic section (age, sex, major, etc.). Then they were asked to listen carefully to a tape-recording of the four guises, assign them the number 1 to 4 and finally place them on the ten S-D scales.

For each group, the tape recording was played twice before proceeding with evaluating the guises under investigation. It took each respondent 30 to 40 minutes to fill out the questionnaire.

#### Results and Discussion :

Employing a matched-guise technique, this study attempts to investigate the attitudes of Jordanian students toward MSA and the various colloquial varieties spoken in Jordan. The 303 respondents reacted to MSA guise, Bedouin guise, Fallahi guise, and finally Madani guise, using a speech evaluation questionnaire which contained

ten 7 point semantic differential scales (valued from seven-most positive rating to one-least positive rating) and a question soliciting the identification of the profession of each of the four guises.

Following are the results of this study with a statement of the research questions and a discussion of results.

- (1) —How do respondents arrange the four language varieties in terms of their social status ?

All respondents (303) exhibited the following preference pattern : MSA was rated the highest, although not claimed to be spoken by anyone at home, next in status was Bedouin and Fallahi respectively, and finally Madani was rated lowest as shown in Table 1. Differences amongst standard deviations for the varieties in question were inconsiderable.

Since the study is investigative, i.e. it posed no hypotheses, inferential statistical analyses<sup>(\*)</sup> were not therefore utilized. However, one can easily notice that there is a considerable difference in rating MSA compared to other varieties.

TABLE 1

Rating means and standard deviations of the four varieties ranked in order

|           | MSA   | Bedouin | Fallahi | Madani |
|-----------|-------|---------|---------|--------|
| $\bar{X}$ | 57.67 | 42.35   | 40.14   | 39.02  |
| S.D.      | 10.32 | 11.04   | 10.61   | 10.71  |

(\*) It remains skeptical to run inferential statistical methods since the data is obtained by an ordinal scale.

Before conducting this study, it was expected that MSA would be rated more highly than other colloquial varieties. The high rating of MSA did not therefore come as a surprise. In a study by Sawaie (mimeographed), «MSA was perceived by university students to be aesthetically far more appealing than, and favoured, over regional dialects». In their study of reactions of Egyptians toward various speech styles in Egypt, El-Dash and Tucker (1975) found that Classical Arabic was generally more positively rated than colloquial Arabic on a set of traits.

The relatively high status of the Bedouin variety, despite the underrepresentation of the Bedouin respondents in the sample (20 out of 303), may be attributed to a belief deeply-rooted in the minds of some Arabs that Bedouin speakers are exceptionally intelligent and eloquent, or to the close association between the Bedouin variety and the

Bedouin nature of the Arab culture which may be obvious in some aspects of Arab ways of life and thinking. Nader (1968) reports that speakers would be considered disloyal to their dialect if they expressed approval of other dialects, but not of the Bedouin Arabic whose «speakers speak the purest of Arabic».

One striking finding is the fact respondents valued the Fallahi variety more highly than the Madani variety. The unexpectedly low status of the Madani variety may be attributed to either of the following :

- The Madani guise may not have been totally successful in his articulation and production of the Madani variants,
- The area itself where the study was conducted lies in a non-Madani region.

in a given language variety together with its equivalents in other language varieties is deemed inadequate to enable respondents to judge them correctly because of the few number of phonological, lexical, and syntactic clues involved in a single utterance samples. (sawie, for example, stands out as a case in point).

The selection of a sustained speech sample in this study was motivated by the fact that such a sample would include most of the levels of linguistic expression which can be utilized by a hearer as diagnostic of the speaker's status. Wölck asserts «that the hearer should have access to all these potential variables when asked to judge another person's speech». (Shuy and Fasold 1973/131).

#### Semantic-differential :

After having listened twice to the recorded stimulus labels, respondents were asked to record their reaction toward the four guises by using ten semantic scales selected randomly from prior literature. The scales selected for use were as follows :

|                    |              |
|--------------------|--------------|
| Careful .....      | Sloppy       |
| Unpleasant .....   | Pleasant     |
| Hard-working ..... | Lazy         |
| Non-fluent .....   | Fluent       |
| Educated .....     | Uneducated   |
| Intelligent .....  | Stupid       |
| Bad .....          | Good         |
| Honest .....       | Dishonest    |
| Undependable ..... | Dependable   |
| Expressive .....   | Unexpressive |

Respondents recorded their reaction to the MSA passage and its equivalents by giving guises the numbers 1, 2, 3 and 4 according to their order of presentation. In one setting, respondents listened first to the Fallahi guise, followed by the Madani, then the Bedouin, and finally the MSA. Respondents were asked to assign them the numbers 1, 2, 3 and 4 respectively. Then they were asked to assign these numbers which stood for the guises on the cells of each S-D scale. In another setting and with another group the order of presentation was altered in this way : MSA guise followed by the Fallahi, then the Madani, and finally the Bedouin. In this case respondents were asked to assign them the numbers 1, 2, 3 and 4 respectively. The closer a number representing a certain guise to a particular adjective, the more it indicates a greater association between the guise and that adjective. For purposes of numerical analysis, each guise was given a value from one-to-seven depending on its assignment on the scale. The seven is typically associated with the guise closest to the positive adjective and the one to the guise closest to the negative adjective of the pair in each case. The cells next to these were assigned six and two respectively and so forth. The center cell was given the value of four.

The study focused mainly on uncovering the positive vis-à-vis negative status of each variety in terms of

preference. In line with this, the scores given for each variety on the ten scales were summed, the highest score 70 (obtained by the most preferred variety). Summing the scores on the ten semantic-differential scales may be invalid for certain purposes, but for the purpose of this study, it is believed that summing the scores is both justifiable and meaningful.

For answering the questions raised in this study, score means and standard deviations were computed and ranked in hierarchical ordering.

To prevent the effect of ordered sets and to eliminate likely biases stemming from a fixed ordering of all varieties for all groups, it was decided that each group of respondents should listen to the guises in a random order : the first, Fallahi, Madani, Bedouin, Standard (F.M.B.S.) ; the second (S.F.M.B.) ; the third, (B.S.F.M.) ; and the fourth, (M.B.S.F.).

With the completion of the semantic-differential scales in their Arabic version, respondents were required to identify the profession of each of the four guises so that we could tell whether they correlated language varieties with certain professions or not.

#### Respondents :

The total number of respondents was 444 and all were enrolled at Yarmouk University in the north of Jordan. Of the sample 141 respondents were excluded because they failed to record all data or a major part of it on their questionnaires. The remaining number of respondents was 303, of whom 189 were male and 114 female. They pursued their first degree in arts or sciences and ranged in age between 18 and 25.

Of the 303, 20 stated Bedouin as the variety they speak at home, 62 stated Madani, 221 stated Fallahi, and none claimed MSA to be the variety they speak at home. The respondents constituted a sample which represented a cross-section of the varieties under investigation.

#### Administration of the questionnaire :

During the initial stages of planning for this research, we decided to test the research instrument on one of the regular classes on campus. Consequently, we had to incorporate some modifications on both semantic-differential scales and the working of the texts to be read by the guises. First, in the Arabic version of the scales, some adjectives were given two Arabic glosses, honest-dishonest, pleasant-unpleasant, for instance. Due to the unnecessary confusion a pair of Arabic glosses for the same adjective would cause and due to the different connotations associated with each member of a synonymous pair, it was decided that in the final version of the scales, only one Arabic gloss be used on every end of the scale. Second, we had to incorporate further modifications on the text of the Bedouin and Madani guises whereby additional levi-

by Hussein (1980), a general pattern of response has emerged clearly with regard to the status of Classical Arabic and colloquial Arabic. Classical Arabic was believed to be the most highly valued for two reasons : first, its perceived status as a historical source from which colloquial varieties have descended ; second, its alleged sacredness.

With regard to the colloquial varieties, the study has shown that there exists a hierarchical ordering for the different colloquial varieties, the Madani being the most prestigious and the Fallahi being the most stigmatized, and of intermediate status was the Bedouin variety.

#### Purpose of the Study :

This study aims at exploring the social status of Modern Standard Arabic (MSA) in relation to that of other colloquial varieties spoken in Jordan, which are Bedouin, Fallahi, and Madani. It also attempts to uncover the status of each colloquial variety in relation to other colloquial varieties. More specifically, it attempts to address the following questions :

- 1 — How do respondents arrange the four language varieties in terms of their social status ?
- 2 — To what extent are the respective speakers of non-standard Arabic loyal to the varieties they speak ?
- 3 — Do male and female respondents show different patterns of preference toward the language varieties under investigation ?
- 4 — Do respondents associate language varieties with certain professions ?

#### Attitudinal Techniques :

Two techniques commonly used in attitudinal studies have been utilized here : Lambert's matched-guise and Osgood's semantic-differential. The matched-guise technique was initially devised to elicit attitudes held by members of a certain social group toward another group, using recorded speech as the means of elicitation. Briefly described, the technique

involves the reactions of listeners (referred to as judges) to the taped recordings of a number of perfectly bilingual speakers reading a two-minute passage at one time in one of their languages (e.g. French) and, later, a translation equivalent of the same passage in their second language (e.g. English). Groups of judges are asked to listen to this series of recordings and evaluate the personality characteristics of each speaker as well as possible using voice cues only. (Lambert 1965/387).

This technique has been modified in such a way to allow for the study of attitudes of a social group toward not only another language and its social group but also toward dialects and accented speech.

In this study, however, the matched-guise technique has been used to elicit respondents' reactions with regard to the personality characteristics of the four guises under investigation, and such reactions pertaining to personality traits of a given speaker, especially in the absence of visual cues, can be presumed to stem from his speech, speech style or language. It is not therefore strange to infer that respondents were in a way reacting more to the guises' language rather than anything else.

In a later study, Lambert (1967) asked French and English Canadian university students to rate the personality characteristics of five bilinguals, each appearing in two guises—once in English, then in French. Lambert reported that «English students evaluated the English-speaking guises more favourably on most traits while French students not only evaluated English guises more favourably than French guises, but also evaluated the French guises significantly less favourably than the English students did». (Shuy and Fasold 1973/4). As stated above, it is clear that students were unconsciously reacting to the language as a symbol of stigma or prestige rather than to the speakers as individuals. Such an inference is based on the fact that the guises had equal competence in both languages.

With regard to Osgood's semantic-differential scaling, it involves the evaluation of a concept or stimulus by rating it on scales comprised of adjectival opposites. Thus, for example a person might rate a speech sample in terms of the following scale :

Careful ..... careless

If the respondent thought that the speaker sounded either extremely careful or careless, he would place a checkmark on one of the extreme cells of the scale. He could indicate a lesser degree of extremity by marking in either of the second most extreme positions and so on. If the intended rating is neutral, the center cell is checked.

#### Stimulus Labels :

A speaker with exceptional ability in producing the Arabic language varieties under investigation was asked to tape-record a short passage in Modern Standard Arabic (MSA), along with its equivalents in Bedouin (B), Fallahi (F), and Madani (M). Each recorded passage involved an anecdote and lasted between 40-50 seconds, and reflected the phonological, morphological and lexical variations inherent in the varieties under consideration. (See appendix A). These colloquial passages were modified before finally recording them subsequent to consultations with native speakers of different colloquial varieties, in the same way, the MSA passage was «cosmetically» modified subsequent to consultations with two Arabic professors.

Our selection of samples of connected speech was determined by the fact that a single recorded utterance

from a variety, there does not seem to exist a supraregional form outside the West Bank from which the local sub-varieties may have descended. These are merely working hypotheses that can be established only by extensive field research if we intended to come to grips with a precise linguistic characterization of the varieties.

The Bedouin variety is a common linguistic phenomenon throughout the Arab World, and can be traced back to the pre-Islam era. In the context of Jordan, however, it is commonly associated with nonsedentary nomadic tribes constantly on the move within Jordan and the adjacent Arab countries. It is also spoken by nomads who, with the aid of settlement plans initiated by the Government, set out to adopt the sedentary way of life in linguistically heterogeneous towns such as Zerqa, Madaba, Mafrqa, Maan, Kerak, and Aqaba on the East Bank.

The linguistic characterization of the Bedouin variety remains incomplete without explicitly stating that the Bedouin variety is also spoken by the non-sedentary population on the West Bank.

In conclusion, Bedouin Arabic constitutes what is normally referred to as non-sedentary Arabic and the Falahi and Madani varieties constitute sedentary Arabic.

#### Attitudinal Studies of Arabic :

Although the study of attitudes toward Arabic is a fairly recent intellectual enterprise, the ancient Arabs, we are told, exhibited favourable biases toward some language varieties such as, Classical Arabic and Bedouin Arabic, the former because of its intimate relationship to Quran and the new faith, the latter because of its close association with the Bedouin nature of the Arab culture and ways of life from early days of history.

A cursory look at Bedouin Arabic from a historical perspective immediately indicates that it enjoyed a high status and was held in high esteem never paralleled except by Classical Arabic. Due to the high status of Bedouin Arabic, nomads in the early days of Islam were often used as informants and were even called upon to arbitrate linguistic disputes amongst philologists and the Caliphs, Rabin asserts «that the nomad Arab was the final arbiter of correct speech and could not speak the wrong arabic even if he wanted to». (1951/18). This explains perhaps why they were taken as favourable models to imitate, while their settled compatriotes were accepted as authorities on correct speech.

In the present context of Arabic attitudinal studies which are scanty, Ferguson stands out as one of the early pioneers to investigate the status of different Arabic varieties. He reports that «Sedentary Arabs feel that their own dialect is the best, but on certain occasions or in certain contexts will maintain that the Bedouin dialects are better. This high rating of the dialect, however, is generally only given lip-service and in any actual test it seems clear

that the speaker really feels his own dialect is superior». (Fishmar 1968/379).

Ferguson's technique in getting at the status of Colloquial Arabic was by attempting repeatedly to learn the place of origin of an Arab by asking him where the best Arabic is spoken before he asked him where he came from. The Arab indicates, for example, that the best Arabic is spoken in Damascus, then a few minutes later, when asked where he came from, he replies again «Damascus». In modifying Ferguson's experiment, Nader found that the answer given depended in part on where the informant was. «A man in Damascus visiting in Beirut would belligerently defend his dialect as the best, but in Damascus he would say that the Bedouin dialect was best». «Fishman, 1968/279) Nader goes on to report that under no circumstances did an informant suggest that the dialect of another town was best. Preferences for another town's dialect would be considered as being disloyal to one's own dialect, whereas stating that the Bedouin dialect was best was not disloyal. It was expressing loyalty to a widespread cultural ideal that the Bedouin speaks the purest of Arabic.

El-Dash and Tucker (1975) in their study on reactions of Egyptians toward various speech styles in Egypt found that Classical Arabic was more positively rated than Cairene Egyptian Arabic with respect to intelligence, likeability, religiousness, suitability at school, or radio and television and in formal situations.

The findings in Sawaie's study seem to point to a set of fixed and deeply-rooted attitudes amongst Arabic speakers toward the Standard variety as well as the various dialects spoken in Jordan. The following are the most significant :

- 1 — The Standard is perceived by university students to be aesthetically far more appealing than, and favored over, regional dialects.
- 2 — The Standard is prescribed for use and is viewed more positively than other regional or social varieties, which are perceived to exhibit negative attributes.

In his study of attitudes toward Arabic vernaculars, Herbolich (1979) seems to have judiciously left out Classical Arabic due to the fact that other colloquial varieties can not stand comparison with it. In Herbolich's study, Egyptian subjects rated Cairene Arabic vernacular higher than non-Egyptian Arabic vernaculars which were ordered sequentially according to their value and social status : Syrian, Saudi, and Libyan.

We note here that the Egyptian respondents' favor of their vernacular ties is well with Nader's findings (1968), which has shown a pattern of preference of one's own dialect over other dialects.

In an extensive ethnographic interviewing conducted