

**Consonant Frequency in Kenzi and  
Fadicca**

by

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## Introduction

Kenzi and Fadicca, which are spoken in Southern Egypt by people called Nubians, are part of the Nile Nubian language group; they have been discussed (cf. Armbruster 1960; Tucker and Bryan 1966) as dialects belonging to different languages. Kenzi is a dialect of the Dongolese-Kenzi language; Fadicca is a dialect of a different language, namely Mahas or Fadicca-Mahas (Trigger 1966). Thus these dialects are mutually unintelligible and the speakers of these different dialects can communicate through Arabic which functions as a *lingua franca* among the Nubian groups.

The study of consonant frequency has always drawn the attention of linguists (cf. Alkhuli 1990; Sobkowiak 1996; Amayreh, Hamdan, and Fareh 1999). The consonant frequency in Fadicca has been dealt with in Abdel-Hafiz (i.p.). The findings of such an undertaking can be helpful to scholars of different disciplines (e.g. speech-language pathologists, audiologists, and foreign language teachers, and language acquisition specialists (Amayreh, Hamdan, and Fareh 1999 : 209)).

In this paper, I start by discussing Kenzi consonant frequency, which has not been studied before. I have relied on the basic vocabulary listed in Abdel-Hafiz (1989). The corpus of the study turns out to be 1899 phoneme tokens. I employed the statistical method to count the consonants of Kenzi. First, I classified consonants into groups in accordance with place and manner of articulation. The frequency of each class is determined across the board and the frequency of each class in word positions is carefully examined. I also examined the overall occurrences of each consonant and the frequency of each consonant in initial, medial and final position. I then compared the results to the findings reported in Abdel-Hafiz (i.p.) concerning the Fadicca consonant frequency. Such a comparison enables us to answer the following questions :

- a) Do Kenzi and Faddica differ as to the word position that hosts the most consonants ?
- b) Are they different in terms of the sound class that occurs most frequently ?
- c) Do they differ as to the most frequent and the least frequent sounds ?

### Consonant Frequency in Kenzi :

Kenzi has 19 consonants (cf. Abdel-Hafiz 1989). Most consonants (cf. table 1) occur in the medial word position : 54.13% of the total consonant occurrences (i.e. 1899 tokens) are manifested in the medial position. The initial position comes next; it hosts 28.49% of the consonants. The final word position is the least position concerning the number of consonants; it has only 17.38% of the consonants.

Consonants	%
in Initial position	28.49 %
in Medial position	54.13 %
in Final position	17.38 %

Table (1) : Consonants in word positions.

The consonants are divided into six classes according to place of articulation (cf. table 2). The alveolar is shown to be the most occurring class, with an overall frequency of 53.13%. Moreover, it is the most frequent class in initial (38.45%), medial (56.42%), and final position (66.97%). The velar is the next most occurring class in the overall occurrence (21.85%) and in the initial (30.87%) and medial (20.62%) word position. The glottal is the least occurring class with an overall frequency of (0.26%). It is also the least frequent class in all word positions : initial (0.18%), medial (0.39%). Two classes of sounds are not attested in the final position : labiodental and glottal.

Kenzi has six classes of sound according to manner of articulation. As shown in table (3), the stop constitutes the most frequent class (45.76%). It is followed by the liquid (19.75%), the Fricative (12.37%), and the nasal (11.43%). The glide (5.63%) and the affricate (5.06%) are least occurring classes. The stop is also the most occurring class in initial (60.26%) and medial (42.51%) position. The liquid is the

most occurring class in the final position (37.57%). Interestingly, the liquid is the least frequent class in the initial position (0.19%). But the affricate is the least occurring in the medial (4.67%) and the final position (4.24%).

	Overall	Initial	Medial	Final
Alveolar	53.13%	38.45%	56.42%	66.97%
Velar	21.85%	30.87%	20.62%	10.91%
Bilabial	14.27%	19.59%	11.77%	13.33%
Palatal	9.37%	9.06%	9.73%	8.79%
Labiodent	1.11%	1.85%	1.07%	
Glottal	0.26%	0.18%	0.39%	

Table (2) : Cons. according to place of articulation.

	Overall	Initial	Medial	Final
Stop	45.76%	60.26%	42.51%	32.12%
Liquid	19.75%	0.19%	24.32%	37.57%
Fricative	12.37%	15.34%	11.97%	8.79%
Nasal	11.43%	12.57%	11.67%	8.79%
Glide	5.63%	5.36%	4.86%	8.49%
Affricate	5.06%	6.28%	4.67%	4.24%

Table (3) : Cons. according to manner of articulation.

### Overall Frequency and Rank Order of Each Consonant :

Table (4) shows the overall frequency and rank order of each consonant in Kenzi. The approximant [r] is the most occurring sound (13.27%) : its overall rank is 1. It is followed by the voiceless velar stop [k] (12.80%) which is ranked 2. The glottal fricative [h] (0.26%), the velar nasal [ŋ] (0.47%), and the palatal nasal [ɲ] (0.63%) are the least frequent sounds. The top six consonants in the initial position are obstruents (i.e. stops and fricatives). Thus the most frequent sound in this position is [k] (21.63%) and is ranked 1. It is followed by [t] (12.57%), [s] (10.54%), [g] (9.24%), [d] (8.69%), and [b] (8.13%). [h] is the least occurring sound in this position (0.18%). Some sounds have not been attested in the initial position : the liquid [r], the palatals

([c], [y], [ɲ]), and the velar nasal [ŋ]. In the medial position, the approximant [r] is the most occurring sound (15.47%); it is ranked 1. The voiceless velar [k] is the next most occurring sound (12.16%); it is ranked 2 in this position. The least occurring sounds are [h] (0.39%), (ŋ) (0.87%), and [j] (0.97%). The approximant [r] is the most occurring in the final position (28.18%), followed by the voiced alveolar stop [d] (14.24%). They are ranked 1 and 2, respectively. The voiceless velar [k], which is ranked 1 and 2 in the initial and medial position, respectively, is one of the least occurring sounds in the final position (0.30%); hence, it is ranked 13. The other sound that is least occurring is the palatal fricative [ʃ] which is ranked 12. Five sounds are not attested in the final position : [f], [c], [ɲ], and [h].

	Overall		Initial		Medial		Final	
	%	rank	%	rank	%	rank	%	rank
/r/	13.27	1			15.47	1	28.18	1
/k/	12.80	2	21.63	1	12.16	2	0.30	13
/d/	9.37	3	8.69	5	8.17	5	14.24	2
/s/	9.21	4	10.54	3	8.85	4	8.18	5
/l/	8.85	5	12.57	2	9.14	3	1.82	11
/g/	8.58	6	9.24	4	7.58	6	10.61	3
/ʌ/	6.48	7	0.18	12	8.85	4	9.39	4
/b/	6.16	8	8.13	6	5.45	8	5.15	6
/n/	5.95	9	6.47	7	5.93	7	5.15	5
/m/	4.37	10	6.10	9	3.70	9	3.64	10
/w/	3.74	11	5.36	10	2.63	11	4.54	7
/j/	3.05	12	6.28	8	0.97	15	4.24	8
/c/	2.00	13			3.70	9		
/y/	1.89	14			2.24	12	3.94	9
/ʃ/	1.79	15	2.77	11	1.65	10	0.61	12
/f/	1.10	16	1.85	12	1.07	14		
/ɲ/	0.63	17			1.17	13		
/ŋ/	0.47	18			0.87	16		
/h/	0.26	19	0.18	13	0.39	17		

Table (4) : Consonant overall frequency and rank order.

There is sometimes a correspondence between the overall rank of a consonant and its rank order in word positions. For example the overall rank of the approximant [r] is 1 and it is ranked 1 in the medial and final position. The overall rank of the voiceless velar [k] is 2 and it is ranked 2 in the medial position. The voiceless fricative [s] is 4 in the overall rank and 4 in the medial rank order. The voiced velar stop is ranked 6 in the overall rank and 6 among the medial consonants. The bilabial stop [b] receives 8 in the overall rank and in the medial position. The bilabial nasal [m] is 10 in the overall rank and in the final position. The bilabial approximant /w/ is 11 in the overall rank and in the medial rank.

Some consonants have the same rank order in word positions. Thus the approximant [r] is ranked 1 in the medial and final position. The voiced alveolar stop [d] is ranked 5 among the initial and medial consonants. The rank order of the lateral approximant [l] is 4 in the medial and final position. The bilabial stop [b] is ranked 6 in the initial and the final position. The alveolar nasal [n] is 7 in the initial and the medial position while the bilabial nasal is ranked 9 in the initial and final position. The voiced affricate [j] is ranked 8 in the initial and the final position.

### **Consonant Frequency in Kenzi and Fadicca :**

The study of consonant frequency in Fadicca (Abdel Hafiz, i.p.) was based on a corpus of 967 consonant phoneme occurrences whereas the study of the Kenzi consonants was based on a corpus of 1899 consonant phoneme occurrences. Does this difference in sample size have any effect on the findings of these two studies ? The following presentation provides an answer to this question and the questions raised in the previous pages.

The two Nubian dialects have the same set of consonant phonemes: each one has 19 consonants. The distribution of these consonants in the word positions seems to be similar : As table (5) shows, the medial position is the most preferable position for consonants in Kenzi and Fadicca. In Kenzi, 54.13% of the total consonants occurred in the medial position. Likewise, 62.2% of the total consonants occurred in the medial position in Fadicca. In both dialects the initial position is the next most preferable position : 28.49% of the Kenzi consonant occurrences is in the initial position. This can be compared to 24.5% of

the occurrences in Fadicca. Furthermore, both dialects show that the final position is the least preferable position for consonants : only 17.38% of the consonants occurred in the final position in Kenzi; in Fadicca, 13.3% of the consonants occurred in this word position.

Consonants	Kenzi	Fadicca
in Initial position	28.49 %	24.5%
in Medial position	54.13 %	62.2%
in Final position	17.38 %	13.3%

Table (5) : Consonants in word positions in Kenzi and Fadicca.

Both dialects have six classes of sound according to place of articulation : bilabial, labiodental, alveolar, palatal, and glottal. The overall frequency of each class is exhibited in Figure (1) which shows that the most frequent class in both dialects is the alveolar : the alveolar makes up 53.13% and 53.62% in Kenzi and Fadicca, respectively. The velar is the next most occurring class in both Kenzi (21.85%) and Fadicca (20.60%). The other classes exhibit similar frequencies in both dialects : the bilabial (17.27% in Kenzi and 11.50% in Fadicca), etc. The least occurring class in both dialects is the glottal : in Kenzi, it makes up 0.26% while in Fadicca it makes up 0.10%.

These classes also appear in initial, medial, and final word positions in Kenzi and Fadicca (table 6). In both dialects, the alveolar is the most occurring class in initial, medial and final word positions; for example, in the final position the alveolar makes up 66.97% in Kenzi and 65.89% in Fadicca. The velar is the next most occurring class in the initial and medial position in Kenzi and Fadicca. In both dialects, the bilabial rather than the velar is the second most occurring class in the final position : it makes up 13.33% in Kenzi and 12.40% in Fadicca. The class that follows the velar in initial and medial position is the bilabial in both dialects. While the velar is the least occurring class (10.08%) in the final position in Fadicca, the palatal is the least occurring class (8.79%) in the final position in Kenzi. The glottal is the least occurring class in the initial position in Kenzi and Fadicca : it makes 0.18% in Kenzi and 0.42% in Fadicca. Although the glottal is the least occurring class (0.39%) in the medial position in Kenzi, it is not attested in this position in Fadicca. The labial and glottal are not attested in the final position in Kenzi or Fadicca.



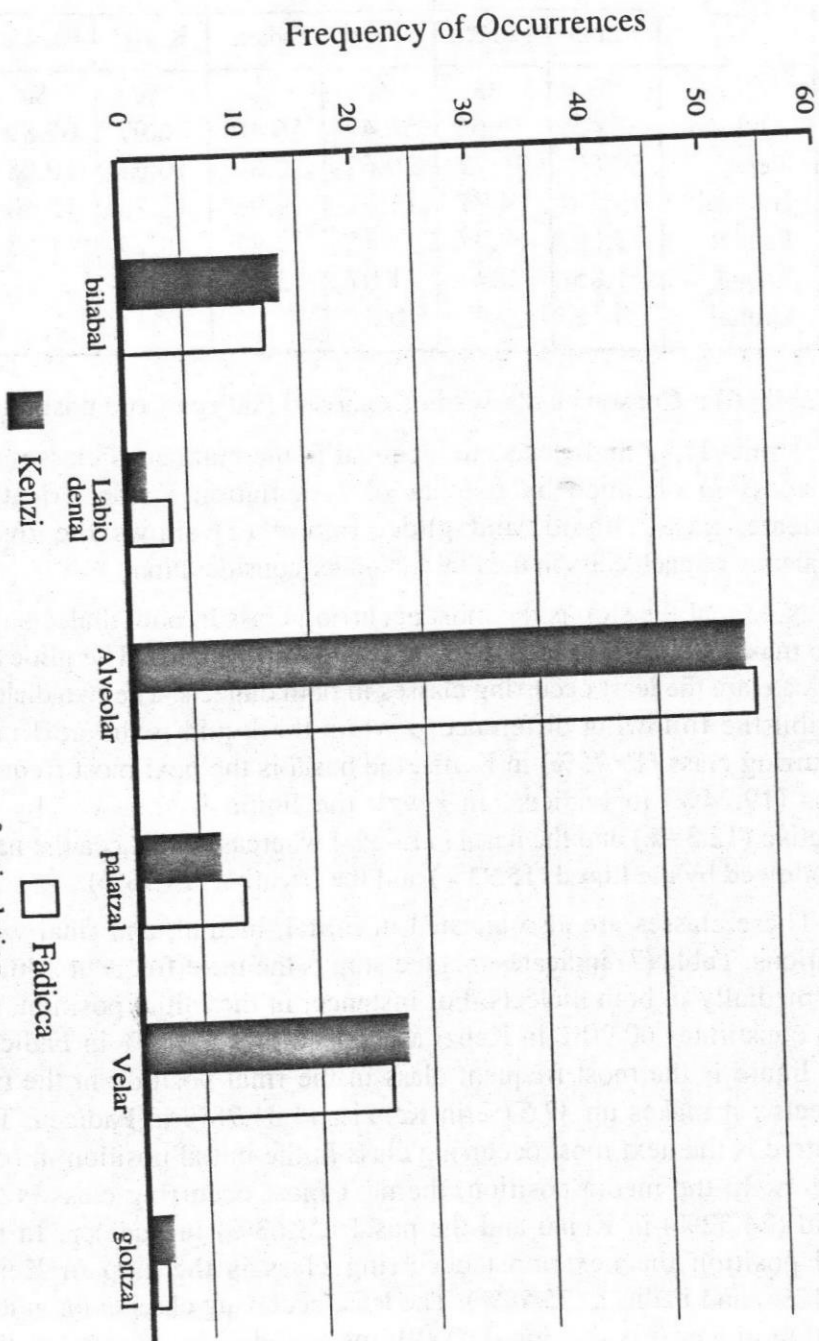


Figure (1) : Kenzi and Fadicca places of articulation.

Class	Initial		Medial		Final	
	Kenzi	Fadicca	Kenzi	Fadicca	Kenzi	Fadicca
	%	%	%	%	%	%
Alveolar	38.45	39.66	56.42	56.40	66.97	65.89
Velar	30.87	25.73	20.62	20.80	10.91	10.08
Bilabial	19.59	14.77	11.77	9.98	13.33	12.40
Palatal	9.06	10.97	9.73	9.82	8.79	11.63
Labial	1.85	8.44	1.07	2.99		
Glottal	0.18	0.42	0.39			

Table (6) : Consonant classes in Kenzi and Fadicca word positions.

Similarly, both dialects are identical in the number of classes (i.e. six classes) obtained by manner of articulation : stop, fricative, affricate, nasal, liquid, and glide. Figure (2) shows the overall frequency of each class in the dialects under consideration :

Note that the stop is the most occurring class in both dialects : the stop makes up 45.76% in Kenzi and 39.09% in Fadicca. The glide and affricate are the least occurring classes in both dialects. The two dialects exhibit the following differences : while the liquid is the next most occurring class (19.75%) in Kenzi, the nasal is the next most frequent class (19.24%) in Fadicca. In Kenzi the liquid is followed by the fricative (12.37%) and the nasal (11.43%) whereas in Fadicca the nasal is followed by the liquid (15.93%) and the fricative (14.58%).

These classes are also attested in initial, medial, and final word positions. Table (7) indicates that the stop is the most frequent initially and medially in both dialects. For instance, in the initial position, the stop constitutes 60.20% in Kenzi and constitutes 52.32% in Fadicca. The liquid is the most frequent class in the final position in the two dialects : it makes up 37.57% in Kenzi and 31.78% in Fadicca. The fricative is the next most occurring class in the initial position in both dialects. In the media position, the next most occurring class is the liquid (24.32%) in Kenzi and the nasal (21.63%) in Fadicca. In the final position the next most occurring class is the stop in Kenzi (32.12%) and Fadicca (25.58%). The least occurring class in the initial position in Kenzi is the liquid (9.19); the liquid is not attested in this

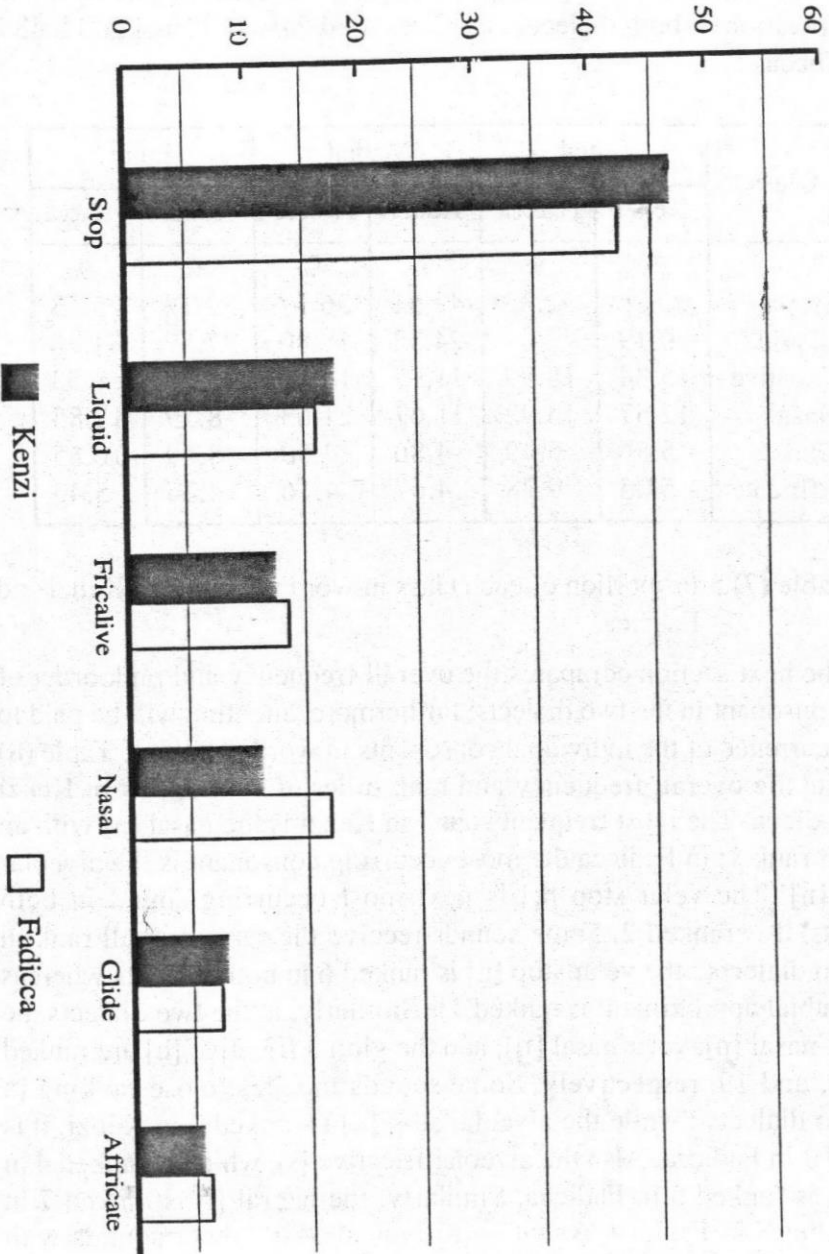


Figure (2) : Manner classes in kenzi and Fadicca.

position in Fadicca. In the medial position the affricate is the least occurring (4.67%) in Kenzi; in Fadicca it is the glide that is the least occurring (4.5%) in this position. The glide the least occurring in the final position in both dialects : it makes up 4.24% in Kenzi and 5.43% in Fadicca.

Class	Initial		Medial		Final	
	Kenzi	Fadicca	Kenzi	Fadicca	Kenzi	Fadicca
	%	%	%	%	%	%
Stop	60.26	52.32	42.51	36.77	32.12	25.58
Liquid	0.19	--	24.32	18.80	37.57	31.78
Fricative	15.34	18.99	11.97	14.14	8.79	8.53
Nasal	12.57	13.92	11.67	21.63	8.79	17.83
Glide	5.36	5.49	4.86	4.50	8.49	10.85
Affricate	5.06	9.28	4.67	4.16	4.24	5.43

Table (7) : Proportion of each class in word positions in Kenzi and Fadicca.

The next section compares the overall frequency and rank order of each consonant in the two dialects; furthermore, attention will be paid to the occurrence of the individual consonants in word positions. Table (8) exhibits the overall frequency and rank order of consonants in Kenzi and Fadicca. The most frequent sound in Kenzi is the nasal [n] with an overall rank 1; in Fadicca the most occurring consonant is the alveolar nasal [n]. The velar stop [k] is next most occurring sound in both dialects; it is ranked 2. Some sounds receive the same overall rank in the two dialects : the velar stop [g] is ranked 6 in both dialects whereas the bilabial approximant is ranked 11. Similarly, in the two dialects the palatal nasal [ɲ], velar nasal [ŋ], and the glottal fricative [h] are ranked 17, 18, and 19, respectively. Some sounds manifest close ranking in the two dialects : while the alveolar stop [d] is ranked 3 in Kenzi, it is ranked 4 in Fadicca. Also the alveolar fricative [s], which is ranked 4 in Kenzi, is ranked 5 in Fadicca. Similarly, the lateral [l] is ranked 7 in Kenzi but 8 in Fadicca. As table (8) indicates, the other sounds with close rank order include [m], [c], [y], and [ʃ].

Cons:	Overall Frequency		Rank Order	
	Kenzi	Fadicca	Kenzi	Fadicca
	%	%		
/r/	13.27	9.42	1	3
/k/	12.80	10.56	2	2
/d/	9.37	9.11	3	4
/s/	9.21	8.50	4	5
/ʌ/	8.85	8.18	5	7
/g/	8.58	8.38	6	6
/ʌ/	6.48	6.52	7	8
/b/	6.16	2.90	8	13
/n/	5.95	11.59	9	1
/m/	4.37	4.97	10	9
/w/	3.74	3.62	11	11
/j/	3.05	3.31	12	12
/c/	2.00	2.78	13	14
/y/	1.89	1.86	14	15
/š/	1.79	1.76	15	16
/f/	1.10	3.93	16	10
/ɣ/	0.63	1.03	17	17
/ŋ/	0.47	1.66	18	18
/h/	0.26	0.10	19	19

Table (8) : Frequency and rankm order of each consonant in Kenzi and Fadicca.

The consonants in the two dialects can be compared in the initial, medial, and final position. As table (9) shows, some consonants have the same rank order in the two dialects. Examples of such consonants in the initial position include [k] which is ranked 1. Consonants having the same rank in the medial position in the two dialects are [t] (ranked 3), [s] (ranked 4), [w] (ranked 11), [c] (ranked 9), [y] (ranked 12), and [n] (ranked 13). Similarly, the final position has several consonants that have the same rank order : [r] (ranked 1), [d] (ranked 2), [g] (ranked 3), [l] (ranked 4), [w] (ranked 7), and [s] (ranked 12).

Some sounds in the two dialects have close rank orders : in the initial position [t] ranked 2 in Kenzi but 3 in Fadicca, [n] is ranked 7 in

Cons.	Initial				Medial				Final			
	Kenzi		Fadicca		Kenzi		Fadicca		Kenzi		Fadicca	
	%	rank	%	rank	%	rank	%	rank	%	rank	%	rank
/t/	21.63	1	19.83	1	15.47	1	10.81	2	28.18	1	20.16	1
/k/	8.69	5	13.50	2	12.16	2	8.99	5	0.30	13	0.77	12
/d/	10.54	3	8.44	5	8.17	5	6.32	7	14.24	2	13.95	2
/s/	12.57	2	9.70	3	8.85	4	9.15	4	8.18	5	7.75	6
/v/	9.24	4	5.91	7	9.14	3	9.32	3	1.82	11		
/g/	0.18	12			7.58	6	9.15	4	10.61	3	9.30	3
/b/	8.13	6	3.38	9	8.85	4	7.99	6	11.63	4	9.39	4
/n/	6.47	7	8.02	6	5.45	8	3.00	9	5.15	5	1.55	11
/m/	6.10	9	5.91	7	5.93	7	12.81	1	5.15	5	12.40	3
/w/	5.36	10	5.49	8	3.70	9	4.49	8	3.64	10	5.43	7
/j/	6.28	8	9.28	4	2.63	11	2.49	11	4.54	7	5.43	7
/c/					0.97	15	1.16	14	4.24	8	2.33	10
/y/					3.70	9	3.00	9			3.10	9
/ʒ/	2.77	11	1.69	10	2.24	12	2.00	12	3.94	9	5.43	7
/f/	1.85	12	8.44	5	1.65	10	2.00	12	0.61	12	0.77	12
/p/					1.07	14	3.00	9				
/tʃ/					1.17	13	1.66	13				
/ʌ/	0.18	13	0.42	11	0.87	16	2.66	10				
					0.39	17						

Table (9) : Consonant frequency and rank order in Kenzi and Fadicca.

Kenzi and 6 in Fadicca, and [š] is ranked 11 in Kenzi but 10 in Fadicca. In the medial position, [r] is ranked 1 in Kenzi but 2 in Fadicca, [b] is ranked 8 in Kenzi but 9 in Fadicca, [m] is ranked 9 in Kenzi and 8 in Fadicca, and [j] is ranked 15 in Kenzi and 14 in Fadicca. In the final position, [k] ranks 13 in Kenzi and 12 in Fadicca, [s] ranks 5 in Kenzi and 6 in Fadicca.

Some sounds are not attested in certain positions in the two dialects. Note that the initial position is the only position in which all sounds occur. Restrictions are attested in initial and final positions. For instance, [r], [c], [y], [ɲ], and [ŋ] are not attested in initial and final positions. Likewise, [f], [p], [tʃ], and [h] do not occur in the final position.

Some sounds are permitted to occur in certain word position in one dialect but in the other. For instance, in Kenzi, [l] constitutes 0.18% of consonant occurrences in the initial position and is ranked 12; this sound is not attested in this position in Fadicca. Similarly, [h], which constitutes 0.39% and is ranked 17 in the medial position in Kenzi, is not attested in such a word position. Also, [t] in Kenzi makes up 1.82% and ranks 11 in the final position but this sound does not occur in the final position in Fadicca. The sounds [c] and [y], which make up 3.10% and 5.43%, respectively, in the final word position in Fadicca, are not attested in such a position in Kenzi.

### Discussion and Interpretation :

The consonants that occur in the medial position constitute 54.13% of the total consonant occurrences in Kenzi and 62.2% in Fadicca. In both dialects, the final position is the least preferable position for consonants : the consonants occurring in this position make up 17.38% in Kenzi and 13.3% in Fadicca. Furthermore, all consonants can occur in the medial position but some consonants cannot occur in the final position. This is not surprising for sounds in the final position are often subject to loss. For example, in French, consonants are more often elided in such a position.

It has also been shown that the alveolar is the most frequent class in Kenzi (53.13%) and Fadicca (53.62%) whereas the glottal is the least occurring class. The alveolar occurs most frequently in initial, medial,

and final positions in both dialects. In contrast, the glottal is non-existent in the final position. Actually, the alveolar class of sounds occurs most frequently in many languages (Gimson 1980 : 217). For instance, the most frequent consonant in English is the alveolar nasal [n] which constitutes 7.58% of total consonant occurrences (Gimson 1980 : 217). Similarly, in Arabic (cf. Amayreh, Hamdan and Fareh 1999 : 210) the alveolars turned out to be the most frequent sounds (45.17%). As pointed out by Hyman (1974 : 16-17), it is a general tendency for children to learn front consonants before back consonants. Thus English children learn alveolar consonants before velar consonants (Hyman 1974 : 17). This is due to the fact that alveolar consonants, being front consonants, are easier to articulate : the nearest point to the tongue-tip is the alveolar ridge. The fact that alveolars are phonetically less difficult to articulate than other sound types explains the predominance of alveolar consonants in Kenzi and Fadicca. Note, for instance, that the most frequent sounds in these dialects are alveolars : in Kenzi, for example, the alveolar approximant [r] is the most occurring sound (13.27%) whereas the alveolar nasal [n] is the most occurring sound (11.59%) in Fadicca. Likewise, alveolar sounds dominate word positions in these dialects : thus [r] is the most frequent sound in the final position in both dialects. Whereas [r] is the most frequent sound in the medial position in Kenzi, [n] is the most occurring sound medially in Fadicca. Also note that the alveolar nasal is different from the other nasal sounds such as the palatal nasal [ɲ] and the velar nasal [ŋ] in that while the alveolar nasal can occur in all word positions, the other nasal sounds are restricted to medial position and are not attested word initially or finally.

The study has revealed that the stop consonants, as a class, occur most frequently in both dialect : it constitutes 45.76% of consonant occurrences in Kenzi and makes up 39.09% in Fadicca. In contrast, the affricate is the least frequent class in the two dialects. The stop also occurs most frequently in all positions except the final position where it is the second most occurring class, the liquid being the most frequent class in this position. It is not difficult to explain this : note that three of the five stop consonants in these dialects are front rather than back : [t], [d], and [b]. The affricate is a phonetically complicated sound which requires much greater muscular effort in articulation.



The glottal fricative [h] is shown to be the least occurring sound in this study : it constitutes -0.26% of consonant occurrences in Kenzi and constitutes 0.10% in Fadicca. This is not difficult to explain : cross-linguistic studies (Lass 1984 : 179) reveal that [h] is prone to loss. Thus in English /h/ occurs only in syllable initial, and prevocalic positions (Gimson 1980 : 191). As stated by Roach (1991 : 51), "all English speakers, however carefully they speak, omit the h in unstressed pronunciations". Furthermore in many types of popular regional speech, English /h/ is elided in such words as hill, high, hair etc. (ibid.). Even in RP (i.e. Received Pronunciation), non-initial /h/ is omitted in the pronunciation of such words as him, his, her. In addition, words like historical, hour, honest, honor, heir, heiress, etc. are h-less in RP.

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/b/	voiced bilabial stop
/m/ <del>/m/</del>	a bilabial nasal
/w/ <del>/w/</del>	a bilabial approximant
/f/ <del>/f/</del>	a labiodental fricative
/t/	a voiceless alveolar stop
/d/ <del>/d/</del>	a voiced alveolar stop
/s/ <del>/s/</del>	an alveolar fricative
/l/ <del>/l/</del>	a lateral approximant
/r/ <del>/r/</del>	an alveolar approximant (trill)
/n/ <del>/n/</del>	an alveolar nasal
/ʃ/ <del>/ʃ/</del>	a voiceless palatal fricative
/ʒ/ <del>/ʒ/</del>	a palatal nasal
/tʃ/ <del>/tʃ/</del>	a voiced palatal affricate
/tʃ/ <del>/tʃ/</del>	a voiceless palatal affricate
/j/ <del>/j/</del>	a palatal approximant
/k/ <del>/k/</del>	a voiceless velar stop
/g/ <del>/g/</del>	a voiced velar stop
/ŋ/ <del>/ŋ/</del>	a velar nasal
/h/ <del>/h/</del>	a glottal fricative

