

# **A Phonological Explanation of the Allomorphic Variation of the Arabic Definite Article {?**

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### Introduction

It is a well known phenomenon that the phoneme / l / of the Arabic l} exhibits two allophonic alternations, depending on ædefinite article {? the phonological environment in which this phoneme occurs. l} completely disappears when æSpecifically, the final phoneme of {?

followed by certain phonemes, but remains unchanged when followed by other phonemes. Consider the following forms<sup>1</sup>:

ms]æššæ [ʔ→ms] æšl] + [æa. [ʔ

(the sun)→ (the) + (sun)

yf]æssæ [ʔ→yf] æl] + [sæb. [ʔ

(the summer)→ (the)+(summer)

wb]æ••æ [ʔ→wb] æl] + [•æc. [ʔ

Considering the forms given in (1) and (2), one notes that the phoneme [ʔ] is not pronounced. It is also noted that the æ/ l / of the article [ʔ] consonant which immediately follows the article is consistently geminate. By contrast, in the forms given in (3) and (4) below, the [ʔ] is pronounced. No gemination is æphoneme / l / of the article [ʔ] triggered in these forms either. Consider (3) and (4).

æThus, as the data in (1) - (4) illustrate, the definite article morpheme [ʔ] has two allomorphs. This allomorphic variation seems to be [ʔ] is attached. ædetermined by the initial phoneme of the noun to which [ʔ]

All the phonetic symbols used to represent the data are given in appendix "A" with the corresponding Arabic graphemes.

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<sup>1</sup>All the phonetic symbols used to represent the data with their corresponding Arabic graphemes are given un appendix A.

The phonemes which trigger the disappearance of the / l /, as illustrated in (١) and (٢), are listed in (٥) below:

٥. /t/, /t/, /d/, /d/, /s/, /s/, /d/, /d/, /O/, Z/, /n/, and /r/.

Those which do not trigger this phenomenon, as illustrated in (٣) and (٤), are listed in (٦) below:

٦. /b/, /k/, /g/, /j/, /x/, /r/, /G/, /h/, /f/, /m/, /h/, /w/, /p/, and /g/.

## Objective of the study:

The description of this phenomenon in the Arabic linguistic literature is simply based on the distinction of two types of laterals, namely the assimilated and the unassimilated laterals. Specifically, if the lateral of [l] is assimilated, one expects the forms in (١) and (٢); if it is [l̥] unassimilated, one expects the forms in (٣) and (٤). In other words, if [l] begins with any of the phonemes listed in (٥), the lateral of [l] is not pronounced on the account that it is the lateral of [l̥] begins with any of the phonemes listed in (٦), the lateral of [l] is pronounced on the account that it is 'unassimilated'.

However, the description outlined above involves two main problems. First, it does not provide an explanation of the phenomenon under discussion. More specifically, it does not address the question of why [l] is suppressed before the phonemes listed in (٥) and the lateral of [l] remains unchanged before the phonemes listed in (٦). Second, it does not provide an explanation of the germination which the consonant immediately following the 'assimilated' lateral undergoes. (Compare the forms in (٢) with those in (٣)).

The main objective of this study is to provide an adequate phonological explanation of the allomorphic variation of [l]. Specifically, this study will answer the following questions:

(i) Why is the lateral of [l] suppressed before the phonemes in (٥) and remains unchanged before the phonemes in (٦)?

l] is not pronounced, why is the following æ (ii) When the lateral of [ʎ] consonant consistently geminate?

Theoretical Framework:

To answer the questions raised in section (ʎ) and provide an adequate [ʎ], we need to resort to the æ explanation of the allomorphic variation of [ʎ] theory of generative phonology (Chomsky and Halle 1968, Schane 1973, and Sommerstein 1977) and the theory of distinctive features (Trubetzkoy 1939, Jakobson, Fant and Halle (1962), Jakobson and Halle (1966), and Chomsky and Halle 1968). Within the framework of generative phonology, we will propose an underlying form of the [ʎ] and two phonological rules æ morpheme [ʎ] to generate the æ sequentially apply to the underlying form of [ʎ + germination), as shown in (1) and (2). The æ allomorphic variant (ʎ) application of these rules is strictly conditioned by the distinctive features of the consonant phoneme immediately following the lateral of [ʎ]. (specifically, the features coronal and anterior). If these æ [ʎ] will have phonetic æ conditions are not met, then the lateral of [ʎ] realization as shown in (3) and (4). Before undertaking the phonological analysis proposed here, we will provide a brief account of the theory of generative phonology and the theory of distinctive features.

Generative phonology is a sub field of the general theory of language known as generative grammar or generative linguistics. According to the theory of generative phonology, two levels of representation are required: the phonological level and the phonetic level. The phonological (i.e. underlying level) consists of sequences of phonemes, while the phonetic level (i.e. the surface level) represents the actual pronunciation. The relationship between the phonological

representation and the phonetic representation is determined by the phonological rules. These rules apply at the phonological or underlying level to generate the phonetic or surface level (i.e. the actual pronunciation).<sup>۶</sup>

In section (۴), within the framework of generative phonology, we will []. Two  $\alpha$ posit a phonological form for the definite article morpheme [? phonological rules then will sequentially apply to this form to generate the phonetic form of the actual pronunciation.

The roots of the distinctive features theory goes back to Trubetzkoy's theory of distinctive oppositions. Trubetzkoy (۱۹۳۹) in fact attempted a comprehensive taxonomy of the distinctive contrasts employed by languages. Jakobson, Fant, and Halle (۱۹۵۲), on the other hand, hypothesized that a limited number of distinctive features ranging between ۱۲ and ۱۵ can account for all the distinctive contrasts found in human languages. Although the distinctive features proposed by Chomsky and Halle (۱۹۶۸) are based on the work of Jakobson, Fant and Halle (۱۹۵۲), yet they reveal significant modifications. The most significant modification is that Chomsky and Halle introduced two additional distinctive features, namely the features Coronal and Anterior. (For more details about the theory of distinctive features, see Hyman ۱۹۷۵, pp. ۲۴-۵۸).

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<sup>۶</sup>For more details about the theory of generative phonology, see Sommerstien ۱۹۷۷, pp ۱۱۴-۲۳۷.

In section (٤), we will present a distinctive feature representative of the Arabic consonant phonemes. This is necessary for the analysis proposed in this study. The features Coronal and Anterior introduced by Chamsky and Halle are particularly important for our study. As will be illustrated in Section (٤), the application of the phonological rules in this study is strictly conditioned by the features Coronal and Anterior.

#### ξ. Phonological Analysis:

l] is a lateral of [ʔ]. The suppression or pronunciation of the lateral of the morpheme [ʔ] viewed in this study as a morphophonemic process whereby the [ʔ] exhibits two allomorphic alternations. In one alternation, a morpheme [ʔ] the lateral is suppressed and the following consonant becomes geminate; whereas in the other alternation the lateral remains unchanged. (compare (١) and (٢) with (٣) and (٤)). This alternation is determined by the distinctive features of the consonant following the [ʔ].

Within the framework of generative phonology, we will account for this morphophonemic alternation by two phonological rules which sequentially apply to the underlying form of [ʔ]. The first rule is a total assimilation process whereby the lateral of [ʔ] totally assimilates to the consonant phoneme that follows it, only if this consonant has the distinctive features 'coronal' and 'anterior'. The output of the first rule functions as the input of the second rule; hence the two rules must apply sequential. The second rule is a gemination process whereby the two identical phonemes which resulted from the first rule become a geminate one.

As pointed out above, the application of the first rule is conditioned by the distinctive features of the following consonant. Thus, before the formulation of the phonological rules we will propose a distinctive feature representation of the Arabic consonants. The distinctive feature matrix of the Arabic consonants presented below is based on the distinctive features of Chomsky and Halle (1968).

The features Anterior and coronal are particularly important in this study since, as pointed out above, the application of the total assimilation rule [l] → [l̥] is conditional by these two features. In other words, the lateral of [l̥] totally assimilates to the following phoneme only if this phoneme is characterized as (+ coronal + anterior). As stated by Chomsky and Halle (1968), Coronal and Anterior features are defined as follows:

"Anterior sounds are produced with an obstruction that is located in front of the palato-alveolar region of the mouth; non anterior sounds are produced without such an obstruction."

*(Chomsky and Halle, the Sound Pattern of English 1968, P. 304)*

Coronal sounds, on the other hand, are defined as follows:

"Coronal sounds are produced with the blade of the tongue raised from its neutral position; non coronal sounds are produced with the blade of the tongue in the neutral position."

*(Chomsky and Halle, The sound pattern of English, 1968, P. 304).*

Let us now formulate the phonological rules:

Rule 1: Total Assimilation:

Statement of the rule:

[l̥] totally assimilates to [l] The lateral consonant of the morpheme [l̥] to the following consonant if this consonant is characterized as [+coronal] and [+anterior].

Formalization of the rule:

→consonant	consonant' /	_____ / consonant'
[+ lateral]		<b>[+ coronal]</b>
		<b>[+ anterior]</b>

l] totally assimilates to the æ. By virtue of this rule, the lateral of [? consonants listed in (°) obviously because all these consonants are characterized as (+ Coronal + Anterior). (see the Distinctive feature Matrix). Consider the sample derivations in (M):

Phonological form: /

Impact of the total Assimilation Rule:

Output of Total Assimilation Rule: /

It should be pointed out that this rule does not apply if the lateral of ( ) is followed by the consonants listed in (ˆ). As shown in the Distinctive Feature Matrix the reason for this is that none of these consonants is characterized as (+ Coronal + anterior).

l] remains unchanged when followed by these æ. Hence the lateral of [? consonants.

As mentioned before, the output of the total assimilation rule functions as the input of the gemination rule. Thus, the total assimilation rule (i.e. Rule ١) must apply before the gemination rule (i.e. Rule ٢). This sequence of application is obligatory since Rule ١ feeds Rule ٢, Kiparsky (١٩٦٨) uses the term 'feeding rule ordering' to describe such cases of sequential applications.

#### Rule ٢: Gemination

Statement of the rule:

The output of Rule ١ undergoes a process of gemination whereby the two identical consonants become a geminate one.

Formalization of the rule:

Consonant ١ + Consonant ١ Consonant ١  
(+ geminate)

Consider the sample derivation in (٨)

٨. Output of Rule ١:

Thus, the output of Rule ٢ stands for the Phonetic or surface representation, i.e. the actual pronunciation.

٩. Summary and Conclusion:

## APPENDICES

### APPENDIX ١: Phonetic Symbols

The phonetic symbols used in this study are listed below with their corresponding Arabic orthography in parentheses:

(b) voiced bilabial stop.....

- (t) voiceless alveo-dental stop.....
- (t) voiceless alveo-dental verarized stop .....
- (d) voiced alveo-dental stop.....
- (d) voiced alveo-velarized stop.....
- (k) voiceless velar stop .....
- (q) voiceless uvular stop.....
- (p) voiceless glottal stop.....
- (j ) voiced glottal stop.....
- (h) voiceless pharyngeal fricative.....
- (j) voiced pharyngeal fricative.....
- (f) voiceless labia-dental fricative.....
- (o) voiceless dental fricative.....
- (d) voiced dental fricative.....
- (d) voiced dental valorized fricative.....
- (s) voiceless alveolar fricative.....
- (s) voiceless alveolar valorized fricative.....
- (z) voiced alveolar fricative.....
- (s) voiceless palatal fricative.....
- (x) voiceless ocular fricative.....
- (r) voiced uvular fricative.....

- (h) voiceless glottal fricative.....
- (r) voiced alveolar trill.....
- (l) voiced alveolar lateral.....
- (m) voiced bilabial nasal.....
- (n) voiced alveolar nasal.....
- (y) voiced palatal glide.....
- (w) voiced bilabial round glide.....
- (i) high front vowel.....
- (a) low back vowel.....
- (u) high back rounded vowel.....

Consonant gemination (task did) or vowel length are indicated by placing a dash (-) above the respective consonant or vowel symbol.