

## A Phonological Study of Substitution in English and Arabic

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### 1. Abstract

Substitution is a phonological phenomenon whereby a sound replaces another one in English, Standard Arabic and Iraqi Arabic words. The present study aims at identifying and analyzing patterns of substitution in such languages in order to investigate aspects of similarities and differences among them. The results show that differences are more than similarities in such patterns.

**Key words:** substitution, phonological phenomenon.

دراسة مقارنة بعلم الصوت عن الإبدال في اللغتين الانكليزية والعربية

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### الخلاصة

الابدال ظاهرة صوتية يتم من خلالها ابدال صوت محل صوت اخر في اللغات الانكليزية والعربية الفصحى والعربية العراقية وعليه فان الدراسة الحالية تهدف الى تحليل نماذج الابدال في تلك اللغات لمعرفة اوجه التشابه والاختلاف بينهما. وقد اظهرت نتائج البحث ان نقاط الاختلاف تفوق التشابه.

الكلمات المفتاحية: الابدال. ظاهرة صوتية

### 2. Substitution in English

Substitution means that the speaker uses one sound in place of another. /w/, for instance, substitutes /l/ and r/ as in:

rabbit → wabbit. little → wittle (1).

/d/ replaces /t/ when it occurs between vowels as in: *secret identity* where the /t/ of *secret* is preceded by the vowel /i/ and followed by the first vowel of *identity*, namely the diphthong /ai/. Thus, it changes into /d/. As far as the word *identity* is concerned, its second /t/ changes into /d/ since it occurs between two vowels.

An initial voiced consonant can replace a voiceless one as in the following instance where /g/ substitutes /k/:

Key → gey. (2)

/s/ or /t/ can be used by English learners to substitute the voiceless dental fricative /θ/: thank sank or tank, thinking → sinking or tinkling. (4).

Consonants such as /t,d,p,b,k/ or /g/ can substitute /s,z,ʃ,f,v/ or /ð/ as in:

Zipper /zipə/ → dipper /dipə/ (3)

#### 2.1 Palatal Fronting

Palatal fronting means that a palatal consonant can be substituted by another consonant in an initial position as illustrated in the following example where /s/ replaces the palato – alveolar consonant /ʃ/:

shoe /ʃu:/ → sue /su:/ (3).

#### 2.2 Deaffrication

Deaffrication means that an affricate consonant such as /tʃ/ or /dʒ/ is substituted by another consonant such as /s/:

chin/ tʃin / → sin /sin/ (3).

#### 2.3 Velar Fronting

Velar fronting means that an anterior sound such as /t/ is possible to replace /k, g/ or /ŋ/ as in:

key /ki:/ → tey /ti:/ (3).

## 2.4 Liquid Simplification

Liquid simplification means that a liquid consonant such as /l/ or /r/ can be substituted by /j/ or /w/ as in:

lake /leik/ → yake /jeik/, ride /raid/ → wide /waid/ (3).

## 2.5 Backing to Velars

Backing to velars means that velar consonants such as /k, g, ŋ/ or /h/ are possible to replace another sound as in: drum/drʌm/ → grum-/grʌm/ (3)→

## 2.6 Assimilation

Assimilation means that the consonants /l/ and /n/ can substitute /ð/ in certain phonetic environments as shown in the following phrases:

fail the test /feil ðə test/ → /feil lə test/.

join the army /dʒoin ði a:mi/ → /dʒoin ni a:mi/ (Collins and Mees, 2008: 103).

## 3.Nasal Substitution

In certain contexts, the nasal /m/ substitutes /n/ since these two segments differ only in their place of articulation in that both of them are voiced and nasal whereas /m/ is bilabial and /n/ is alveolar. This can be elaborated in the word **handball** /hændbo:l/ in which the nasal /n/ is immediately followed by /d/. In order to investigate nasal assimilation, i.e. to change /n/ into /m/, the medial consonant cluster /-ndb-/ must be reduced, i.e. /d/ should be elided in order that /n/ will be adjacent to /b/. As a result, /m/ substitutes /n/ to share the place of articulation of /b/, i.e. both of them will be bilabial. This process can be explained in the following rule:

Phonemic form: /hændbo:l/.

Consonant cluster reduction: /hænbo:l/.

Nasal assimilation: /hæmbo:l/.

Phonetic form: [hæmbo:l] (Parker and Riley, 2005: 125-26).

### 3.1 Phonemic Nasalization

Gimson(1989:296) asserts that "phonemic assimilations involving nasality (i.e. anticipation or prolongation of the lowered soft palate position) would be likely to show":

/b/ or /v/ → /m/.

/d/, /z/ or /ð/ → /n/.

/g/ → /ŋ/.

This phonemic nasalization deals with alveolar consonants adjacent to the negative (n't):

/d > n/: He wouldn't do it /hi: wudnt du: it/ → /hi: wunn(t) du: it/.

good news /gud nju:z/ → /gun nju:z/.

/d > g > ŋ/ He wouldn't go /hi: wudnt gəu/ → /hi: wuŋ(k) gəu/.

/d > b > m/ good morning /gud mo:nɪŋ/ → /gum mo:nɪŋ/.

/v > m/ you can have mine /ju: kæn hæv main/ → /jukŋ hæv main/.

The following examples are unacceptable in RP:

/z / > /n/ He doesn't know /hi: dʌznt nəu/ → \*/hi: dʌnn(t) nəu/ .

/ð / > /n/ He wasn't there /hi: woznt ðeə/ → \*/hi: won(t) neə/ .

to win the race /tə win ðə reis/ → \*/tə win nə reis/.

According to Malmberg (1963: 43), nasals and stops have much in common. "... a nasal is stop as regards the oral articulation, but an open sound (free passage) if we consider the nasal cavity". Thus, the nasal sounds are articulated like stops except that the velum is lowered to allow the air to pass through the nasal cavity (Bronstein, 1960: 100).

### 3.2 Modifications of Nasal Consonants

Nasal consonants can undergo some modifications such as the following:

1. /m/ and /n/ may be devoiced and represented phonetically by [m̥] and [n̥]. They can be used in interjections as [m̥ m̥ m̥] and [n̥ n̥ n̥]. [m̥] and [n̥] can substitute [t] sounds in: I don't mind /ai dəunt maind/ → /ai dəum̥ m̥ maind/.

I don't know /ai dəunt nəu/ → /ai dəun n nəu/ (Jones, 1972: 82).

2./m/, which is bilabial nasal, becomes labio-dental immediately before /f/ as in:

comfort /kʌmfət/, triumph /traɪmf/.

3.A nasal sound can be substituted for one another such as /m/ for /n/ and /ŋ/ for /n/ as in: happen /hæpn/ → /hæpm/, taken /teɪkn/ → /teɪkŋ/ (Bronstein, 1960: 206).

#### 4. Substitution in Arabic

Substitution means that one sound replaces another in the same position (Ibn Ya'eesh, n.d.: 7). In this case, Ibn Faaris (1963: 173) says that Arabs always substitute one sound for another such as مدحه/madaḥahu/ ("He praised him") that changes into مدده/madahahu/ where /ḥ/ becomes /h/.

Substitution is considered an important factor of language development. It enables us to know how tribes are different in using the words that have the same meaning but different pronunciation. This means that substitution is really related to different uses of the language. In this sense, Al-Siyooti (n.d.: 462) indicates that there is no conditioned relationship between the substituted sounds. On the contrary, Al-Farra'a affirms that substitution is conditioned by a phonological relation between substituted sounds such as neighboring in places of articulation or that such sounds share the same feature such as voicing or tenseness.

Al-Jundi (1978: 349) states that the purpose of substitution is to make pronunciation easy. In this respect, Al-Jarbardy (n.d.: 316) indicates that substitution tends to lessen the energy consumed in the production of sounds. According to (Mohammad, 2006:

75) substitution is of two types: regular and irregular.

##### 4.1 Regular Substitution

According to Al-Qasimi (2008: 409) this type of substitution is referred to as morphological. In this case, Tarabiya (2005: 1-2) remarks that this substitution is obligatory because if it is not followed, there may be confusion.

##### 4.1.1 Substitution of Sounds with the Same Place of Articulation

This section deals with the substitution of the sounds that have the same place of articulation as illustrated in the following points:

##### 1. /h/ and the Glottal Stop /ʔ/

Such sounds are pronounced at the back of the pharynx (Ibn Jinni, 1954: 52). Modern linguists indicate that those sounds are glottal (Umar, 1976: 273). Consider the following example in which /h/ substitutes /ʔ/:

أردت /ʔaradtu/ ("I wanted") → haradtu/ (Ibn Jinni, 1986: 39).

Ibnul-Jazri (n.d.: 270) justifies this substitution saying that /h/ is lighter than the glottal stop /ʔ/.

##### 2. /t, d, t/

These consonants are alveolar. /t/ and /d/ are voiced whereas /t/ is voiceless (Sibawayhi, 1983: 433). All of them are tense (Umar, 1976: 273). /t/ is replaced by /t̤/ when it follows one of the velar consonants such as /ʂ, ɖ, t̤/ and /ʃ/ as in اصطلح /ʔiṣṭalaḥa/ ("become reconciled") which is originally اصتلىح /ʔiṣṭalaḥa/ (Ibn Jinni, 1986: 39-40). In this sense, Tarabiya (2005: 1 – 2) states an example such as اضترب /ʔiḍṭaraba/ ("to be confused") where /t/ replaces /t/ so that the word will become اضطرِب /ʔiḍṭaraba/. Then /t̤/ assimilates to /d/ and the word becomes اضرب /ʔiḍḍaraba/.

##### 3. /s/ and /ʂ/

Such consonants are voiceless and lenis (Anees, 1971: 76). They differ in one feature, i.e. /ʂ/, unlike /s/, is velarized. Consider the following Quranic verse:

قال تعالى: اهدنا الصراط المستقيم. الفاتحة. الآية ٦ qaala taʿaalaa: ʔihdinaa ṣṣiraatā lmustaqīm ("keep us on the right path") (Shakir, 2005: 31). Concerning الصراط /ʔaṣṣiraat̤/, /ʂ/ substitutes /s/ in order to be similar to /t̤/ in velarization (Al-Qaysi, 1974: 29). In this sense, Anees (1971: 129) points out that the original word is الصراط /ʔaṣṣiraat̤/ since it occurs in the holy Qur'an. Then it is developed and pronounced with /s/ instead of /ʂ/. In this respect, Ibn Jinni (1986: 168) points out that /ʂ/ replaces /s/ when it comes with high consonants such as /x, ʂ, t̤, ʃ, ɖ/ and /q/ in which case such sounds make /s/ high similar to /ʂ/.

### 4.1.2 Substitution of Sounds with Neighboring Places of Articulation

This section deals with the consonants whose points of articulation are adjacent as illustrated in the following points:

#### 1. /f/ and /θ/

/f/ replaces /θ/ since both of them are voiceless and lenis (Al-Farahidi, 2007: 67). Consider the following verse:

قال تعالى: ... بقلها وقثائها وفومها وعدسها وبصلها ... البقرة. الآية ٦١ /qaala taʕaala: ... baqlihaa waqiθθaaʔihaa wafuumihaa waʕadasihaa wabaʕalihaa .../ (... "its herbs and its cucumbers and its garlic and its lentils and its onions" ...) (Shakir, 2005: 39). The word فومها /fuumihaa/ is read as ثومها /θuumihaa/.

#### 2. /s/ and /d/

Both these two sounds are velarized. /s/ is voiceless whereas /d/ is voiced (Al- Isterabaathi, n.d.: 257). Consider the following verse in which قبضة /qabḍa/ is originally قبضة /qabṣa/, i.e. /d/ replaces /s/:

قال تعالى: ... فقبضت قبضة من اثر الرسول ... طه. الآية ٩٦ /... "I took a handful of the dust from the footsteps of the messenger" ...) (Shakir, 2005: 376).

#### 3. /ʃ/ and /t/

Such two consonants are high and velarized. In addition, /ʃ/ is voiceless whereas /t/ is voiced. /ʃ/ replaces /t/ in the word حسب /ḥaṣab/ which can be read as حطب /ḥaṭab/:

قال تعالى: ... حسب جهنم ... الانبياء. الآية ٩٨ /qaala taʕaala: ... ḥaṣabu jahannam .../ (... "the fire wood of hell" ...) (Shakir, 2005: 388).

### 4.2 Irregular Substitution

This type of substitution depends on hearing (Ibn Ya'eesh, 1973: 296). This means that there is no phonological relationship between the substituted sounds since their places of articulation are not adjacent and their features are different. In this case, Sibawayhi (1983: 433-34) indicates that this type of substitution occurs in two sounds such as /t/ and /w/. /t/ can be described as alveolar and voiceless whereas /w/ is bilabial and voiced. Ibn Ya'eesh (1973: 292) states examples such as تجاه /tujaah/ ("towards") and تراث /turaaθ/ ("heritage") where /t/ replaces /w/ since such words are originally وجاه /wujaah/ and وراث /wuraaθ/ respectively.

According to Tarabiya (2005: 1-2) this type of substitution is referred to as linguistic. It is optional since it does not depend on strict rules and regulations as illustrated in the following examples:

1. The final /n/ is replaced by /m/: بنان /banaan/ ("finger") → banaam/.
2. The final /s/ is replaced by /t/: الناس /ʔannaas/ ("people") → ʔannaat/.
3. The final /ʕ/ is replaced by /i/: الضفادع /ʔaḍḍafaadiʕ/ ("frogs") → /aḍḍafaadii/.

### 4.3 Substitution in Iraqi Arabic

This section deals with patterns of substitution where Modern Standard Arabic (MSA) changes into Iraqi Arabic (IA). Consider the following points:

1. /ʃ/ substitutes /s/: سطر /saṭr/ ("line") → ṣaṭr/ (Al-Najjar, n.d.: 64).
2. /ʃ/ substitutes /ð/: ذاق /ḍaaq/ ("He tasted") → /ʃaaq/. The final /g/ substitutes /q/.
3. /y/ substitutes /j/: جار /jaar/ ("neighbor") → /yaar/ (Ibid: 65).
4. /g/ substitutes /q/: قال /qaal/ ("He said") → /gaal/ (Ibid: 66).
5. /j/ or /g/ substitutes /q/: طريق /ṭariiʕ/ ("way") → /ṭiriij/ or /ṭariig/.
6. /tʃ/ substitutes /k/: كتف /katf/ ("shoulder") → /ʔatif/ (Ibid: 67).
7. /g/ substitutes /q/: قصر /qaṣr/ ("palace") → /gʌsr/ (Ibid: 68).
8. /ʕ/ substitutes /ʔ/: سؤال /suʔaal/ ("question") → /suʕaal/.
9. /n/ substitutes /ʕ/: اعطي /ʔaʕṭi/ ("I give") → /ʔanti/ (Ibid: 69).
10. /f/ substitutes /j/: مجتمع /muʕtamaʕ/ ("society") → /muʕtamaʕ/.
11. /i/ substitutes /ʔ/: ذئب /ḍiʔb/ ("wolf") → /ḍiib/.
12. /a/ substitutes /ʔ/: يأكل /yaʔkul/ ("to eat") → /yaakul/.

## 5. Changing

Changing is a phonological phenomenon where one sound changes into another as illustrated in the following points:

1. /w/ changes into /y/ when:

- preceded by /i/: موزان /miwzaan/ ("measure") → /miyzaan/ (Al-Farahidi, 2007: 250).
- it occurs finally preceded by /i/ and followed by /a/: شقو /ʃaʔiwa/ ("miserable")  
→ /ʃaʔiya/ (Al-Hawaamda, 2010: 100).
- it occurs as a second consonant in المصدر /ʔalmaʃdar/ and جمع التكسير /jamʃul taksiir/ ("broken plural") where it should be preceded by /i/ and followed by /aa/:
- صوام siwaam/ ("fasting") → /siyaam/. ثواب /ʔiwaab/ ("garments") → /ʔiyaab/ (Ibid: 102).
- it immediately follows /y/: سيود /saywid/ ("mister") → /sayyid/ (Ibid: 105).
- it occurs as a fourth consonant in a word: اغزوت /ʔaǧzawtu/ ("I have invaded")  
→ /ʔaǧzaytu/ (Al-Isterabaathi, 1975: 818).

2. /awa/ changes into /aa/: صوم /ʃawam/ ("He fasted") → /ʃaam/ (Al-Farahidi, 2007: 89).

/y/ changes into /w/ when:

- preceded by /u/: ييقنون /yuyqinuun/ ("They are sure") → /yuwqinuun/ (Al-Hawaamda, 2010: 106).
  - it occurs as a third consonant of a verb whose morphological measure is /faʃula/:
  - نهى /nahuya/ ("He was prohibited") → /nahuwa/.
  - it occurs as a second consonant of a noun whose morphological measure is /fuʃlaa/:
  - ٢٩ قال تعالى: ... طوبى لهم وحسن ماب. الرعد. الآية /qaala taʃaalaa: ... " ʔuwbaa lahum waḥusnu maʔaab/ (... "a good final state shall be theirs and a goodly return") (Shakir, 2005: 303).
  - طيبى /ʔuybaa/ → /ʔuwbaa/ (Bukhdood, 1994: 173)
  - it occurs as a third consonant of a word whose morphological structure is /faʃlaa/: تقيا /taqyaa/ ("piety")  
→ /taqwaa/ (Al-Asmar, n.d.: 125).
3. /aya/ changes into /aa/: بيض /bayada/ ("It became white") → /baada/ (Al-Hawaamda, 2010: 92).
- /w/ and /y/ change into a glottal stop /ʔ/ when:
  - they occur in a word consisting of three consonants in the middle of which there is a vowel:
  - ناوم /naawim/ ("asleep") → /naaʔim/.
  - بايع /baayiʃ/ ("seller") → /baaʔiʃ/ (Ibid: 106).
  - They occur finally preceded by /aa/: سماو /samaaw/ ("sky") → /samaaʔ/.
  - وفاي /wafaay/ ("loyalty") → /wafaaʔ/ (Ibid: 108).
  - Preceded by /aa/ in plural forms: عراوس /ʃaraawis/ ("brides") → /ʃaraaʔis/.
  - جرايد /jaraayid/ ("newspapers") → /jaraaʔid/ (Ibid: 111).
  - /w/ of the plural form whose morphological structure is /mafaaʃil/ occurs between two vowels in a noun ending in a consonant: او اول /ʔawaawil/ ("the first") → /ʔawaaʔil/.
  - the initial /w/ is separated from the second one by /u/ in a noun: وول /wuwal/ ("Those who are first") → /ʔuwal/ (Al-Asmar, n.d. 130).

4. /iya/ and /uwa/ change into /aa/ when:

- followed and preceded by vowels: رمى /ramiya/ ("He threw") → /ramaa/
  - دعو /daʃuwa/ ("He invited") → /daʃaa/.
5. /ʔ/ changes into /w/: اجوه /ʔujuuh/ ("faces") → /wujuuh/ (Al-Farahidi, 2007: 265).

In (IA), there are very few examples of changing as in:

1. سياح /siyyaah/ ("tourists") → /suwwaah/.
2. نيام /niyaam/ ("asleep") → /nooma/.
3. يكول /yguul/ ("to say") → /gawwaal/.
4. يميل /ymiil/ ("to incline") → /mayyaal/.
5. يبيع /ybiiʃ/ ("to sell") → /bayyaaʃ/.

## 6. Contrastive Analysis

This section is devoted to show similar and different patterns of substitution and changing in Modern Standard English (MSE), (MSA) and (IA). Different patterns can, to a large extent, be attributed to the existing differences in the sound system of English and Arabic.

### 6.1 Changing

#### 6.1.1 Patterns of changing in Modern Standard Arabic

1. /w/ → /y/:
  - موزان /miwzaan/ → /miyzaan/.
  - شقو /ʃaʒiwa/ → /ʃaʒiya/. صوام /ʃiwaam/ → /ʃiwaam/.
  - ثواب /ʔiwaab/ → /ʔiyaab/.
  - سيود /saywid/ → /sayyid/. اغزوت /ʔaǧzawtu/ → /ʔaǧzaytu/.
2. /awa/ → /aa/: صوم /ʃawam/ → /ʃaam/.
3. /y/ → /w/:
  - بيقتون /yuyqinuun/ → /yuwqinuun/. نهى /nahuya/ → /nahuwa/.
  - طيبي /ʔuybaa/ → /ʔuwbaa/. تقيا /taqyaa/ → /taqwaa/.
4. /aya/ → /aa/: بيض /bayaḍa/ → /baaḍa/.
5. /w/ and /y/ → /ʔ/:
  - ناوم /naawim/ → /naaʔim/. بايع /baayiʃ/ → /baaʔiʃ/.
  - سماو /samaaw/ → /samaaʔ/. وفاي /wafaay/ → /wafaaʔ/.
  - عراوس /ʃaraawis/ → /ʃaraaʔis/. جرايد /jaraayid/ → /jaraaʔid/.
  - اوول /ʔawawil/ → /ʔawaaʔil/. وول /wuwal/ → /ʔuwal/.
6. /iya/ and /uwa/ → /aa/:
  - رمي /ramiya/ → /ramaa/. دعو /daʃuwa/ → /daʃaa/.
7. /ʔ/ → /w/: اجوه /ʔujuuh/ → /wujuuh/.

#### 6.1.2 Patterns of Changing in Iraqi Arabic

1. سياح /siyyaah/ → /suwwaah/. 2. نيام /niyaam/ → /nooma/.
3. يگول /yguul/ → /gawwaal/. 4. يميل /ymiil/ → /mayyaal/.
5. يبيع /ybiif/ → /bayyaaʃ/.

## 6.2 Substitution

### 6.2.1 Patterns of Substitution in Modern Standard English

Substitution means that the speaker uses one sound in place of another. /w/, for instance, substitutes /l/ and /r/ as in:

1. /r/ → /w/: rabbit → wabbit. 2. /l/ → /w/: little → wittle.
3. /k/ → /g/: key → gey. 4. /k/ → /t/: key → tey.
5. /ʃ/ → /s/: shoe → sue. 6. /ʃ/ → /s/: chin → sin.
7. /z/ → /d/: zipper → dipper. 8. /l/ → /y/: lake → ake.
9. /θ/ → /s/: thank → sank.

### 6.2.2 Patterns of Substitution in Modern Standard Arabic

1. /ʔ/ → /h/: اردت /ʔaradtu/ → /haradtu/.
2. /t/ → /ʔ/: اصتليح /ʔiʃtalaḥa/ → /ʔiʃtalaḥa/.
3. /s/ → /ʃ/: السراط /ʔassiraat/ → /ʔaʃsiraat/.
4. /f/ → /θ/: فوم /fuum/ → /θuum/.
5. /ʃ/ → /d/: قبصة /qabʃa/ → /qabḍa/.
6. /ʔ/ → /ʃ/: حطب /ḥaʔab/ → /ḥaʃab/.
7. /w/ → /t/: وراثت /wuraaθ/ → /turaaθ/.
8. /n/ → /m/: بنان /banaan/ → /banaam/.
9. /s/ → /t/: الناس /ʔannaas/ → /ʔannaat/.
10. /ʃ/ /i:/ → /ʔ/: الضفادع /ʔaḍḍafaadiʃ/ → /ʔaḍḍafaadi/.

### 6.2.3 Patterns of Substitution in Iraqi Arabic

1. /ð/ → /ʃ/: ذاق /ðaʔaq/ → /ʃaʔaq/. The final /g/ substitutes /q/.
2. /J/ → /y/: جار /jaar/ → /yaar/.
3. /q/ → /g/: قال /qaal/ → /gaal/.
4. /q/ → /j/: طريق /ʔariiq/ → /ʔiriij/.
5. /k/ → /tʃ/: كتف /katf/ → /ʔʃatf/.
6. /ʔ/ → /ʕ/: سؤال /suʔaal/ → /suʕaal/.
7. /ʕ/ → /n/: اعطي /ʔaʕʔi/ → /ʔantʔi/.
8. /j/ → /ʃ/: مجتمع /mujtamaʕ/ → /muʃtamaʕ/.
9. /ʔ/ → /ii/: نئب /ʔiʔb/ → /ʔiib/.
10. /ʔ/ → /aa/: يأكل /yaʔkul/ → /yaakul/.
11. /ʔ/ → /uu/: مؤمن /muʔmin/ → /muumin/.

### 7. Conclusions

This section is concerned with points of similarities and differences among (MSE), (MSA) and (IA) regarding the phonological processes such as substitution and changing.

#### 7.1 Similarities between (MSA) and (IA) without Counterparts in (MSE)

(MSA) is similar to (IA) in the following points without counterparts in (MSE):

1. Changing referred to as [ʔalʔiqlaab] is concerned with vowels and semi-vowels such as /y/ and /w/.
2. Substitution is conditioned by a phonological relation between substituted sounds such as neighboring in places of articulation or that such sounds share the same feature such as voicing or tenseness.
3. Substitution is of two types: regular and irregular.

#### 7.2 Features of (MSE) without counterparts in (MSA) and (IA)

(MSE) has the following features regarding the phonological processes under investigation:

1. Substitution may affect the meaning of words.
2. There are nine patterns of substitution as in (6.2.1).

#### 7.3 Features of (MSA) without counterparts in (MSE) and (IA)

1. There are seven patterns of changing as in (6.1.1).
2. There are ten patterns of substitution as in (6.2.2).

#### 7.4 Features of (IA) without counterparts in (MSE) and (MSA)

(IA) can be characterized by the following points:

1. There are five patterns of changing as in (6.1.2).
2. There are eleven patterns of substitution as in (6.2.3).

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