Slips of the Tongue:
More Examples from Qatari Dialect

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1. Abstract

There are various abstract units of linguistic performance that linguists hypothesized in order to describe the grammars of languages. These are segments, features, morphemes, words and syntactic categories. Yet, actual speech is not only characterized by these grammatical utterances but there are also ungrammatical utterances, incomplete sentences, restarts, stutterings, hesitations and errors (Boomer and Laver 1968). Therefore, human daily speech is far from being perfect; rather it is intermixed with irregularities and errors of various types. On the top of all the idiosyncrasies, utterances are distorted by spontaneous slips of the tongue. We all experience this phenomenon of slips of the tongue. Some of these mistakes are made because we are talking too fast or not paying attention as we think about something other than what we are talking about. According to (Pfau, 2009:1), in slips, two linguistic elements interact. "Two segments may change place in a sound exchange and two synonymous words may fuse into one in a blend".

The purpose of this research is to explore slips of the tongue. A qualitative descriptive approach was used to collect and analyze a corpus of 500 utterances that involves Qatari Arabic (QA) tongue slips. This study, then, is an attempt to shed more light on this somehow neglected area of research in the Arab world and to offer further support to the argument for the psychological reality of some linguistic units on phonological, syntactic and lexical levels. In addition, the goal of this study is to present a full review of the phenomenon of speech errors, its definition, types, as well as some psychological and linguistic classifications about the occurring of them. Furthermore, it presents some of the famous models of speech errors production as defined by scholars via Qatari dialect.

2. Introduction

Over the past century, slips of the tongue have been examined as scientific evidence within the context of two different traditions: psychological and linguistic. Slips of the tongue are another form of "mistakes" (according to Corder, 1981) that can help us understand the process of speech production better. Slips can happen at many levels, at the syntactic level, at the phrasal level, at the lexical semantic level, at the morphological level and at the phonological level. In addition, they can take more than one form like additions, substations, deletion, exchange, anticipation, perseveration, shifts, and haplologies (Garrett, 1975). Slips are orderly because language production is orderly.

However, the fact that both the speakers and the listeners focus on the content of the message and not on the phonological components makes errors slip away unobserved. The speakers are unaware of the slip they committed because of knowing exactly what they want to say. On the other hand, the listeners hear what they expect to hear (i.e. grammatical, correct utterances) (see Boomer and Laver 1968; Clark and Clark 1977; Goldrick et al. 2016; Moller et al. 2007; Nooteboom 2005; Nooteboom and Quene 2008).

3. Review of Literature

Tanenhaus (1988) credits Chomsky's 1957 view of transformational grammar for shaping the first decade of research in psycholinguistics, where Standard Theory (Chomsky 1965) formed the basis for much of the psycholinguistic research forged in the 1960s and early 1970s. The components of the standard theory grammar of phonology, syntax and interpretive semantics; as well as the distinction proposed between surface structure and deep structure influenced the design of psycholinguistic research that followed. In the past, psycholinguistic research focused on experimental studies of largely off-line processing designed mainly to infer the nature of the linguistic units and the role of transformations (Clark and Clark 1977). However, the focus has shifted to research performed on on-line data collected from a range of different sources (slips of the tongue, aphasia, on-line priming effects, etc.). This type of data is used to clarify the nature of processes or operations of the language system (i.e. competence) that the linguistic theories attempt to model. In addition to data elicited from pathology, normal transient speech errors have been for a long time considered a great source of evidence for the levels of structure and the mechanisms involved in speech production. Directly, they point out to how the system can go wrong and indirectly they indicate how the system normally operates Refer to Al-Buainain, (2021) for detailed review.

4. The Present Study

Drawing evidence from more than 500 speech errors in Qatari Arabic, this qualitative study attempts to explore and investigate the validity of the psychological reality of some performance units on various linguistic levels. On the phonological level of analysis, the paper investigates the psychological reality of the following units: the segment or phone (consonants and vowels), the syllable, phonetic features and consonant clusters. On the syntactic level, the study addresses the reality of the syntactic features, syntactic categories and the morpheme. The paper also discusses the reality of the word as a linguistic unit based on the speech errors data of this research.

4.1. Reason for studying Tongue Slips

In this study, the reasons for studying tongue slips are as follows:

a) To my knowledge, virtually no systematic linguistic or psycholinguistic research on tongue slips has been conducted on Qatari Arabic. This is the first study. In the past, studies of speech errors have been based on a narrow range of very similar languages.
b) The study of errors now constitutes a rather lively domain which is shedding new light on the various cognitive processes involved in speech and writing. Psychologists and linguists have known for some time that slips of the tongue can provide enlightening glimpses into the mechanisms of language. By studying such errors, much can be learned about the mind without undertaking any formal experiments.
c) One of the advantages of using slips of the tongue as one's window onto the mechanisms of language and thought is that there is an infinite supply of fresh new data being produced every day. Speech errors of all kinds fly in our linguistic environment like crowds of variegated creatures waiting to be caught, labeled, and categorized.
d) Slips of the tongue is one method used to explore the nature of the mental lexicon. Through tongue slips, researchers are able to know how words and phrases are stored and retrieved in the mind. Furthermore, slips of the tongue help to know to what extent they (words and phrases) are linked by semantic associations and to what extent by phonetic or grammatical aspects. Error researchers routinely use evidence from linguistic phenomena such as malapropisms (e.g., Fay and Cutler, 1977) to deduce facts about the mental lexicon. One of the most important current models of lexical storage and retrieval involves the notion of "spreading activation", and several researchers studying speech errors have begun to develop theories based on this mechanism (e.g., Dell, 1986).

e) Speech errors have been useful in the construction of performance models. To discover how the various low-level and high-level language processes interact in the flow of speech. Moreover, to what extent are the higher-level semantic and syntactic processes and the lower-level phonetic and articulatory processes independent? Fromkin (1973, 1980), Dell and Reich (1980, 1981), Garrett (1980b) and others have used evidence from speech errors to construct models of speech production. Nooteboom (1980), Motley (1985) and other researchers have used phenomena observed in errors to argue for the existence of phonological, syntactic, and semantic editing mechanisms in the process of speech production.

f) Cognitive scientists are also interested in tongue slips because errors can reveal much about how people form concepts and categories; how they make analogies and judgments, and how the mind interprets and makes sense of the world. Psychologist Norman (1981) has studied various kinds of high-level "action slips" and their implications for perception and cognition. Speech errors are interesting to researchers in language and cognition because in error-free speech and writing the various processes that go into language production are often hidden. It is only when a tell-tale error crops up that all the competing and interacting forces reveal themselves. This is similar to when a magic trick goes wrong the techniques of the magician are revealed to the audience.

g) Tongue slips are also important tools for understanding the normal processes of speech. Most people use the wrong word or misspeak from time to time; for example people may say "squirrel" when they mean "chipmunk," or may swap sounds to utter "Yew Nork" instead of "New York" or may call a partner by a friend's name. "We have the ability not only to produce language, but to catch our errors when we make them. How do we detect those errors, apply corrections to them and prevent them from coming up again?" (Weir, 2018).

h) Linguistic theories attempt to describe and explain (where possible) as clearly as possible those structural elements and components of language competence that are shared by all native speakers. Observed data (normal as well as impaired) can be used to test grammars or models of language structure or language processing. Models and theories that are incompatible with the data are obviously suspect. On the other hand, compatible ones are not necessarily the most felicitous. Thus, models or grammars must be able to account for and to correlate with impaired speech productions. There has been a development of testing techniques where performance on a particular task, for example, reading a list of content words, may be disrupted while performance on another task which required access to the same structural units is not, for example, using the same content words in spontaneous speech. As a result, research has shifted its focus from deficits to the language structural components (i.e. a deficit to the competence) to deficits in the access of language components (i.e. a performance deficit) where the components themselves are intact.

5. Data

5.1. Data Collection

The data are a collection of spontaneous speech errors collected by the traditional pen-and-pad method over a four-year period. The slip collection followed the traditional notebook technique of recording naturally occurring slips in the speech of close family, friends, students and colleagues. The slips were written down in Arabic orthography immediately after being uttered, and then broadly transcribed. Notes on who said the utterance to whom, participants, context, etc., that may have contributed to the error were recorded next to each slip at the time of utterance. It consists of more than 500 spontaneous utterances that involved slips of the tongue. However, we encountered many errors we chose not to include in the data. This was mainly because neither the author nor the speaker was sure of exactly what the speaker said or meant to say.

5.2. Data Categorisation

A qualitative descriptive approach was used to analyze the data. The data were classified according to the type of error, the linguistic level, the unit involved in the error and the source of error.

5.2.1. Type of Error

When classifying errors in speech, the first task is to determine the types of errors which occurred. This is decided according to the relation between the units involved in the error. Errors are categorized into Five major types: exchange errors, blend errors, substitution errors, deletion errors and addition errors.

5.2.2. Source of Error

There are three main sources of speech errors: syntagmatic, paradigmatic and non-plan internal. In the syntagmatic source, the slip of the tongue is present within the utterance itself. Phonological, morpho-syntactic and lexical perseverations and anticipations fall within this category. Second, the paradigmatic source takes place when the slip of the tongue lies not in the utterance but within the system of elements from which the form is selected. The prototypical paradigmatic error is an incorrect lexical choice. A paradigmatic error can also include morpheme or phoneme substitutions in which the source did not occur in the utterance. These are referred to as non-contextual errors. (Nayef, and El-Nashar, 2014). As for non-plan internal errors their defining characteristic is the intrusion of a word that is not directly related to the utterance being spoken. In environmental contamination errors, an intended item may be ousted by a word whose availability is due to the speaker's visual processing at the time of speaking. (Harley, 1984).

6. Findings

The Findings of the study can be summarized as follows.

Table (1): Classification of Slips of the Tongue   (Refer to Al-Buainain, 2021)

	Types and Definitions	Actual Utterance	Intended Utterances
1	**Substitution:** One segment is replaced by an intruder. The source of the intrusion is not in the sentence. To say a word when you mean another. You try to pull something from your mental dictionary, but you pull something else.	يمَتِّن من الضحك	يمَوّت من الضحك
		جَرعِيَّة	جمعية
		افتحي القرقاص	افتحي القرطاس
		بيج	بيض
		هرم خوخو	هرم خوفو
		يوم السكت	يوم السبت
		بيض مفلوح	بيض مفيوح
		منة ثانية	مرة ثانية
		ادريولنا ايطور	ادريولنا ايدور
		توفي البيت طافي	شوفي البيت طافي
		التالسة في الطاسة	الصلصة في الطاسة
		بندي الباب وفتحي الليت	افتحي الباب و بندي الليت
		خرقتي العباي	حرقتي العباي
2	**Anticipation:** A unit in the stream of speech appears too soon. It replaces the unit that should have appeared. A later segment takes the place of an earlier segment.	شبكتوني	كبتشينو
		الدانمارك	اللاندمارك
		شوسي	سوشي
		أشعر الشعراء	أشهر الشعراء
		طبيخة	بطيخة

		خلص مرضان	خلص رمضان
		مهشورة	مشهورة
		تسفير	تفسير
		انكشر السر	انكسر الشر
		مَضَاويع	مواضيع
		رَعْبَه	ربعه
		معلوم	معمول
		ننطحه	نطحنه
		يتبع	يتعب
		زحينة	حزينة
		اكستي	اسكتي
		مكزمة	مزكمة
3	**Spoonerism:** Switching of initial sounds of two separate words. A spoonerism is a kind of metathesis. They are named after Reverend William Archibald Spooner.	سحلج كايح	كحلج سايح
		صربت الشبح	شربت الصبح
		بد دانبة	دب باندة
		فلح و ململ	ملح و فلفل
		عدام اصدموه	صدام اعدموه
		راس تاجي	تاج راسي
		شوب نثل	ثوب نشل
		فورك كليفس	كورن فليكس
		صكتهم مشقوقة	شقتهم مصكوكة
4	**Deletion/ Omission**: Deletions or omissions leave some linguistic material out.	شمبو	شامبو
		فنميه	فكره جهنميه
		ابة	علبة
		الدانمارك	اللاندمارك
		الناس راح	الناس راحوا
		قناة الجيرة	قناة الجزيرة

5	**Word-exchange error:** It is a subcategory of lexical selection errors. Two words are switched. Whole phrase exchange.	بندي الباب وفتحي الليت	افتحي الباب و بندي الليت
		يمه جاكم الدرايش سكروا الغبار	يمه جاكم الغبار سكروا الدرايش
		عصير وحليب توت	حليب وعصير توت
		خالتي سكر احط لج عاشه	خالتي عاشه احط لج سكر
		شوفي مكياجك وعدلي المنظرة	شوفي المنظرة وعدلي ميكاجك
		ما قدرت العب لانش في الكورة	ما قدرت العب كورة في اللانش (فترة الغداء)
		صكتهم مشقوقه	شقتهم مصكوكه
		قعدت من العيزة	عيزت من القعدة
		حرارة الدرجة	درجة الحرارة
		راس تاجي	تاج راسي
		شرط ليش تعرفين	شرط ما تعرفين
		اسألي الورقه وين الدكتور	اسألي الدكتور وين الورقه
6	**Addition**: To add linguistic material.	يكيل بمكلالين	يكيل بمكيالين
		فورك كليفس	كورن فليكس
		صلاح	صح
		مغناطه	مغطاه
7	**Haplologies / Blends:** Mixture of two words: half from one word and half from the other. They are a subcategory of lexical selection errors. More than one item is being considered during speech production. Consequently, the two intended items fuse together. Combine two words together to produce non-word.	زهيق	شهيق و زفير
		باقعد في النسط	باقعد في النص / الوسط
		فنميه	فكره جهنميه
		العواشر	العشرة الأواخر
		شمين	شمال و يمين
		اسْكِمي	اسكتي + انطمي
		رابِعي	دائري + مربع
		تسقي الشرع	تسقي الشجر + الزرع
		تهقت	اتهقين تعدت
		قاذوفية	قاذفة + بازوكة

#	Category		
		مكياب	مكياج + ميك اب
8	**Metathesis/ Sound-exchange error:** Two sounds switch places. Switching of two sounds, each taking the place of the other.	كيسو كولا	كيلو كوسا
		دريولنا ايتور	دريولنا ايدور
		اخير كياس	كيس اخيار
		اشقاقه مدلوغ	ادلاغه مشقوق
		مسبوط جبيسي	مجبوس اسبيطي
		شمبوسة	سمبوسة شبس
		ما كي ويفيبيديا	ما في ويكيبيديا
		حرارة الدرجة	درجة الحرارة
9	**Lexical selection error:** The speaker has "problems with selecting the correct word".	لو دعم بريك	لو ضرب بريك
		سمعت الريحه؟	شميت الريحه؟
		لا تلخبطين المواعين	لا تلخبطين المواضيع في بعض
		رحت بكرة	رحت أمس
10	**Malapropism:** Are caused by the confusion of two similar sounds. The speaker has the wrong beliefs about the meaning of a word. Consequently, he produces the intended word, which is semantically inadequate. Therefore, this is rather a competence error than a performance error. Malapropisms are named after a character from Richard B. Sheridan's eighteenth-century play "The Rivals".	علشان ما تحنين	علشان ما تحاتين
		يمَتّن من الضحك	يمَوّت من الضحك

We can also specifically categorize speech errors as follows:

Table (2): Classification of Slips of the Tongue: Based on Phonological substitutions (only lexemes)

	Type	Definition	Utterances	Intended Utterances
1	Perseveration	An earlier segment replaces a later item.	طبيخة	بطيخة
2	Feature Substitution	The switch between voiced and voiceless sound, etc.	دريولنا ايتور	دريولنا ايدور
3	Anticipation	A later segment takes the place of an earlier segment.	شوسي	سوشي
4	Sound-exchange error	Two sounds switch places.	يتبع	يتعب
5	Metathesis	Switching of two sounds, each taking the place of the other.	وتلك الفرعه الحامره	وتلك الفرحه العامره

Table (3): Classification of Slips of the Tongue: Lexical (Word) Selection Errors (Only Lexemes)

	Type	Definition	Utterances	Intended Utterances
1	Lexical selection error	The speaker has problems in selecting the correct form.	وين الجبله في سيادتج؟	وين الجبله في حجرتج؟
2	Blends	More than one item is being considered during speech production. Consequently, the two intended items fuse together.	باقعد في النسط	باقعد في النص / الوسط
3	Malapropism, classical	The speaker produces the intended word which is semantically inadequate. Malapropism refers to a character from Sheridan''s eighteenth-century play "The Rivals".	سمعت الريحه؟	شميت الريحه؟
4	Morpheme stranding	Morphemes remain in place but are attached to the wrong words.	راس تاجي	تاج راسي
5	Spoonerism	Switching of initial sounds of two separate words. It is named after Reverend William Archibald Spooner.	سحلج كايح	كحلج سايح
6	Substitution	One segment is replaced by an intruder. The source of the intrusion is not in the sentence.	يمَيِّن من الضحك	يمَوِّت من الضحك
7	Exchange	Exchanges are double shifts. Two linguistic units change places.	شوب نثّل	ثوب نشل
			شاري شال	شالي شار
8	Addition	Additions add linguistic material.	دياي مسحوب	دياي مسحب
			مغناطة	مغطاة
9	Word-exchange error	A word-exchange error is a subcategory of lexical selection errors. Two words are switched	اشقاقه مدلوغ	ادلاغه مشقوق

Table (4): Classification of Slips of the Tongue: Morphological Error (Only Morphemes)

	Type	Definition	Utterances	Intended Utterances
1	Morpheme-exchange error	Morphemes change places	راس تاجي	تاج راسي
2	Deletion/ Omission	Deletions or omissions leave some linguistic material out.	الناس راح	الناس راحوا
3	Shift	One speech segment disappears from its appropriate location and appears somewhere else.	قوطي نيدو فوق قيطو نودي	قوطي نيدو فوق قوطي نيدو

7. Discussion

Human speech structure is similar to a household electrical system, which is composed of some quite independent circuits. When sockets and lamps are working perfectly, one cannot find out much about these circuits. However, if an animal "gnaws" through a cable and fuses one circuit, then one can immediately discover which sockets are linked together (Nayef and El-Nashrar, 2014). Thus, speech mistakes (the fused circuits), seen as breakdowns in the language system, are studied for insights into speech production (Atchison 1989).

7.1. Psycholinguistic classification

According to Freud (1915, 1924), the soul resorts to the condensation and symbolic displacement processes, which we often use in our daily life, and it appears in our actual behavior through the slips of the tongue, the pen fills, or slips in our conversations, or even the joke, all of which are expressions of desires that the soul hides in the inability to confront publicity. Hockett (1973) explains that "whenever a speaker feels some anxiety about possible lapse, he will be led to focus attention more than normally on what he has just said and on what he is just about to say. These are ideal breeding grounds for stuttering."

There are few speech errors that clearly fall into only one category. Most speech errors can be interpreted in different ways and thus fall into more than one category. The study of speech errors gave rise to different terminologies and different ways of classifying speech errors. Here are some examples found in the study.

Example One:

Target: انطمي /اسكتي
Error: /askmi/
The Freudian slip is invoked to explain some strange and embarrassing behavior. "Shut up" and "Stop talking/ Be silent" are both appropriate words in this context. Due to the pressure to continue speaking, the speaker has to make a quick decision which word should be selected. This pressure leads to the speaker's attempt to utter the two words simultaneously, which resulted in the creation of a blend. There are many possible blends of "shut up" and "stop talking". Why did the speaker choose "askmi" and not one of the other alternatives? The speaker obeyed unconscious linguistic rules because she selected the blend, which satisfied the linguistic demands of these rules the best. Illegal non-words are for example instantaneously rejected. It has a psychological explanation too. In Arabic the word /inthami/ has a negative connotation. It is very impolite. It is usually used when quarreling and the one who is using it usually superior than the addressee or thinks the other is inferior. In conclusion, the rules which tell language users how to produce speech must also be part of our mental organization of language. According to Freud's theory, all emotions and experiences get stored in the subconscious mind. In some cases, however, some of those experiences get repressed. Emotions could get internalized, because expressing them might cause trouble to the individual.

Substitution errors, for instance, disclose parts of the organization and structure of the mental lexicon. In case of substitution errors, both segments mostly belong to the same category, which means; for example that a noun is substituted for a noun. Lexical selection errors are based on semantic relations such as synonymy, antonymy or membership of the same lexical field. For this reason, the mental lexicon is structured in terms of semantic relationships. Some substitution errors which are based on phonological similarities supply evidence that the mental lexicon is also organized in terms of sound.

It could have a psychological explanation too. Refer to Example Two below. In Arabic, the word /thneen/ has a negative connotation. In this situation, a girl talking to her mother on the phone, wants to tell her mother not to worry. However, because her mother usually worries a lot and nagging her, the product was this word.

Example Two:

Target: عشان لا تحاتين (so that you do not to worry)
Error: عشان لا   تحنين (so that you do not nag)
Freud would likely have insisted that a repressed thought or motive in the daughter's unconscious reared its ungovernable head. The Viennese psychiatrist might have subjected the daughter to the couch and asked him about her childhood, her feelings about her mother, her relationship with her mother—and in the telling, an explanation would emerge. She revealed her hidden thought about her nagging mother.

7.2. Linguistic classification

Linguistic research has focused on speech production, mainly how the brain translates thoughts into words. Dell (1981) asserts that slips of the tongue are indeed revealing an individual's capacity for using language and its components. In his "cognitive science approach", concepts, words, and sounds are interconnected in three networks in the brain—the semantic, lexical, and phonological—and speech occurs from their interaction. However, every so often, the networks, which operate through a process he calls "spreading activation," trip over each other. The result is a tongue slip. He believes that is a good thing. A language-production system that is error-prone allows for the "new production" of words. This is a clear evidence of linguistic flexibility, and a proof of the great skill of the human mind. Imagine that someone would like to express the word 'study'. The person's mind activates his/her semantic network, which represents the meanings of many thousand words in Man's vocabulary. In getting to 'study', neural nodes that have something to do with the concept (nurturing, tending, developing, fostering) are set in motion until the one word with the strongest activation, study, is selected, and placed in the frame of the sentence.

Sometimes nodes for a sound that occurs later in a sentence are activated prematurely and the later sound is substituted for the correct one. The result is a slip known as an anticipation, or forward error. Spreading activation helps explain another type of slip: perseveration, or backwards error. "I love you" becomes "I love loo" because the node for the l sound remains activated too long. When one node for a phrase is activated prematurely and another is delayed, we make spoonerisms; for example, "fork flex" for "corn flex."

Introspection and research have suggested that models of speech production need to incorporate the following stages:

- A conceptual stage, where the proposition that is to be expressed is identified, but in abstract form at the competence level.
- A syntactic stage, where an appropriate frame is chosen, into which words are to be inserted.
- A lexical stage, where a meaning-driven search of the lexicon takes place, supported by cues as to the form of the target word. Once the lexical entry for a word is accessed, information about the word becomes available (its sense, collocational potential, phonology and morphology).
- A phonological stage, where the abstract information gathered so far is converted into a speech-like form.
- A phonetic stage, where features such as assimilation are introduced, and instructions are prepared to the muscles that control the articulators.

In addition, a model of speech must allow for:

- A forward-planning mechanism at discourse level which determines which parts of the message are to receive informational focus by way of intonation.
- A buffer (a barrier) in which the whole of a planned clause can be held while the clause is being articulated.
- A monitoring mechanism which enables a speaker to check their own speech for errors or for lack of clarity.
- Performance errors supply evidence for the psychological existence of discrete linguistic units. (Field, 2004)

7.3. Slips of the Tongue and the Sounds of Language

It is a well-known fact that the sounds humans produce when they speak and those they hear when they understand speech are continuous. That is, when humans say the word 'life' we do not say L and then stop and say I and then F and finally E. People produce one continuous sound 'life'. The same is true of entire sentences. While these units are not normally noticed in error free speech, speech errors which move or substitute, delete or add sounds or words or phrases clearly demonstrate the existence of such units. For linguists, the simplest explanation for all verbal mistakes, is that they occur "as the brain shifts from planning to executing or back again." They also, most linguists agree, follow the structure of the language. (Erard, 2007).

7.4. Slips of the Tongue and the Mental Dictionary

Furthermore, speech errors also reveal a great deal about the structure and organization of the mental dictionary—the storage house of all the words a speaker of a language knows. Think about the tongue slips in which an unintended word substitute for the intended one. Note that it is not just any word that is substituted, but one that is related in meaning. Moreover, nouns are substituted for nouns, verbs for verbs, and prepositions for prepositions. So even if speakers have never had a class in English grammar, they must know unconsciously what grammatical classes these words are in. There are word substitutions in which the two words—intended and uttered —are not related in meaning but are similar in their sounds such as 'persecuted' for 'prosecuted'. The similarity of these words in sound or meaning suggest that we store words in our mental dictionary in semantic classes (according to their related meanings) as well as by their sounds (similar to the spelling sequences in a printed dictionary).

One of the most persuasive explanations cited by Erard is the "spreading activation theory" advanced by Dell (1981), a cognitive scientist at the University of Illinois. In Professor Dell's view, the brain, in speech mode, electrically activates linked words, sounds and meanings that occasionally overlap and produce not only errors like "every crook and nanny" but also conceptual reversals such as saying "open the door" when you mean "close the door," a problem created because the idea of "openness" has registered on the brain and intruded on speech.

In the following sections, evidence drawn from speech errors in this study is given for the reality of some linguistic units.

7.5. The Reality of the Segment or Phone (Consonants and Vowels)

The data showed that the highest percentage of tongue slips of all types is that which involves replacement, exchange, substitution, addition or deletion of segments of the size of phone, which occurs within or across word boundaries (90% of the phonological errors). And almost all these errors cannot be accounted for unless one realizes the existence of the segment. Consider the following examples:

Table (5): The Reality of the Segment or Phone (Consonants and Vowels)

	Intended Utterances	Actual Utterance
1	افتحي القرطاس	افتحي القرقاص
2	هرم خوفو	هرم خوخو
3	أشهر الشعراء	أشعر الشعراء
4	خلص رمضان	خلص مرضان
5	بيض مفيوح	بيض مفلوح
6	ادريولنا ايدور	ادريولنا ايتور / ايطور
7	كورن فليكس	فورك كليفس
8	شقتهم مصكوكه	صكتهم مشقوقه
9	يكيل بمكيالين	يكيل بمكلالين
10	صح	صلاح
11	شامبو	شمبو
12	قناة الجزيرة	قناة الجيرة
13	شامبو	سامبو
14	خافت	حافت

The only way one can explain these error cases is by realizing the existence of segments in the light of which examples (1-4) are considered as illustrative of replacement of a segment by another segment present in the utterance. Furthermore, examples (5 and 6) illustrate the substitution of a segment by another segment which is not part of the intended utterance. Examples (7) and (8) show complete exchanges of segments and example (9 and 10) show addition of segments while (11 and 12) are examples of segment deletion. Shattuck- Hufnagel (1979:319) suggests that omissions be treated as anticipation/preservations with the intruding segment being 0. She proposes that "the source of the null intrusion segment is a nearby slot that has a position similar to the target slot, but that contains the null segment as its target."

The /sh/ of the target in item (13) and the /s/ of the error differ only in the place of articulation, the former being palatal and the latter alveolar. The same is true in Example (14); the (H) and /x/ are both voiceless fricatives and differ only in the place of articulation. /H/ is pharyngeal whereas /x/ is velar. Such mistakes could be explained in terms of Shattuck- Hufnagel's (1979) model as a malfunction of two operators. First, the scan copier, which incorrectly copied a segment from the neighboring lexeme and second the check off monitor, which did not check the copied segment off after it was used. In both cases the segment was copied into the same syllable position.

All of the above examples reflect errors involving consonants and vowels, which are replaced, exchanged, substituted and deleted. The above-cited error cases give substantial evidence of the existence of segments as psychologically real units of performance.

7.6.   The Reality of the Syllable

It has been observed by many researchers in different languages that the syllable structure is important and that segmental slips abide by a structural rule with regard to syllable place; that is, initial segments in the origin syllable replace initial segments in the target syllable, "nuclear replace nuclear, and final replace final" (Boomer and Laver 1968; Fromkin 1973; Jaeger 1992b; Jensen 1999; Mackay 1970). The data under investigation supported this. Furthermore, it has been found that the majority of segments in their interactions work according to this sequential ordering. Thus, onsets tend to interact with other onsets; nuclei with nuclei and codas with codas, in errors that occur both within and across word boundaries.

As speech errors data were used to prove the psychological reality of segments and features, they also gave evidence of the existence of the syllable – a unit larger than the segment and feature – as part of speech performance. That is because the reality of the segment and feature does not negate the existence of the syllable.

Table (6): The Reality of the Syllable

		Intended Utterances	Actual Utterance
	1	انكسر الشر	انكشر السر
	2	صدام اعدموه	عدام اصدموه
	3	أشهر الشعراء	أشعر الشعراء
	4	كورن فليكس	فورك كليفس
	5	شقتهم مصكوكه	صكتهم مشقوقه
6		باقعد في النص / الوسط	باقعد في النسط
7		كل بيدك اليمين مب الشمال	كل بيدك اليمال مب الشمين

For example, in this corpus, like other corpora in other languages, there have been cases of tongue slips which involved the movement of a whole syllable. These examples prove the importance of the syllable structure. This point is further confirmed by the fact that in speech errors, replacements are more common than deletions and additions – a phenomenon which can be explained in terms of the importance of the syllable structure. That is why it is suggested that replacement, unlike addition and deletion, does not change the syllable structure. Additional evidence which further substantiates the existence of the syllable as a unit of performance can be drawn from the cases termed 'haplologies' or 'sequential blending' (Example no. 6). The example proves the importance of the syllable structure. This point is further confirmed by the fact that in speech errors, replacements are more common than deletions and additions – a phenomenon which can be explained in terms of the importance of the syllable structure.

In the above example (no. 6), the first syllable is added to the second syllable in /anaseth/ resulting in one word instead of two. Though not all sequential blend cases (haplologies) follow this behaviour, the fact remains that the majority of cases are best explained in terms of a whole-syllable movement.

In example #7 above, the nucleus /i:/ of /ʔil-ji-mi:n/ exchanges places with the nucleus /a:/ of /ʔiʃ-ʃi-ma:l/, producing /ʔil-ji-ma:l/ and /ʔiʃ-ʃi-mi:n/. Another explanation for the previous example would be that the whole final syllable /mi:n/ in /ʔil-ji-mi:n/ switches position with the final syllable /ma:l/ in /ʔiʃ-ʃi-ma:l/. A third explanation would be that the two syllables /ma:l/ and /mi:n/ were broken down and that the vowel-consonant sequence of each switched position with the other. Thus, all the above explanations prove the importance of the syllable structure.

Dell and Reich (1981) point out that the probability of word substitutions is higher than chance when the target and error show strong semantic and phonologic similarities. Although this may be true with form related substitutions examined below, none of the meaning-based substitutions in the Arabic data bear any phonological similarity. Fay and Cutler (1977) studied form based substitutions and found that target and error shared initial segments, were of comparable length and had the same stress pattern. They point out that the likelihood for substitutions increases if they also shared morphological prefixes. Garrett (1982) adds that there is also a grammatical constraint such that the target and error correspond in grammatical category. Stemberger (1985) has argued that the phonological similarities of meaning based substitutions argues for a one-step processing (instead of Garrett's proposed two steps), where spreading activation of meaning and form is done in one-step. However, Garrett (1984) argues that the "segmental overlap" for form related errors is much higher than that for semantic related errors. In addition, he points out that within a semantic field, a higher likelihood of occurrence of form-determined substitutions should be observed, but "no consistent effects were found." This motivated Garrett to postulate that form-based lexical substitution errors occur at the Positional Level during the second lexical look up.

Hotopf (1980) pointed out that synonymous substitution errors rarely occur and if they do, they go unnoticed except by the speakers themselves. However, he pointed out that errors of synonymy occur, but they result in lexical blends. Garrett argues that lexical blends involve both the functional and positional levels of processing. Their locus originates at the Functional Level during the first meaning based lexical look up where two synonymous lexemes are simultaneously selected. They are carried subsequently to the Positional Level where both forms are selected during the second lexical look up. The resultant error combines parts of each, and the switch usually occurs at some shared segment (Cutler, 1982). Items (6) and (7) in Table (6) exemplify this.

7.7. The Reality of Morphemes and Syntactic Categories and Features

Speech errors also provide evidence that morphemes are real units involved in speech production and not just hypothetical abstract units in the minds of linguists. There are many error cases involving the movement, exchange, substitution, addition and deletion of morphemes. Consider the following examples:

Table (7): The Reality of Morphemes and Syntactic Categories and Features

	Intended Utterances	Actual Utterance
1	كحلج سايح	سحلج كايح
2	درجة الحرارة	حرارة الدرجة
3	أربعة و ستين مرة	ستة و أربعين مرة
4	ما قدرت العب كورة في اللانش	ما قدرت العب لانش في الكورة
5	باروح معاكم	باروح معاك

The data showed two facts that (1) stems and affixes do not interact and (2) suffixes and prefixes do not replace each other. This gives substantial evidence that these are real discrete units, stored as such in the mental lexicon, or else how can it be explained that they do not interact with one another? Examples (3) illustrate this point. The two stems /arbe/ in / arbet/ and /sitth/ in / sityyn/ travel to each other's places, resulting in / sitth / and / arabaein /. Furthermore, tongue slips provide evidence of the reality of syntactic categories. The fact that when whole words and clitics interact, they tend to interact with words and clitics of the same syntactic group – a case which proves the reality of these units.

There were many cases in the present study in which when a word of a syntactic category shifts its place within the utterance, it changes its syntactic category to be of the same category of the word it replaces (Example 4). In this example, the prefix /?il/, which is the definite article/marker, was deleted from the word (lunch) and added to the word /kurah/ when the two words shifted positions. Another significant point here is that there has not been a single case in the data in which the prefix [?il-] interacted with any other affix or stem on any of the three (phonological, morpho-syntactic and lexical) levels. In other words, [?il-] has not replaced, or has not been replaced by, any other linguistic unit. Besides, it was not broken down into its constituent segments; i.e., /?/, /i/ and /l/. The only error cases [?il-] was involved in were either a complete addition or omission of this definite marker. In example (1), the suffix /ch/, which is the feminine marker in / kahlach / is anticipated to be added to / sahlich /. In example (5), the syntactic feature [+plural] in /ma'a:kum/ was replaced by [- plural] resulting in /ma'a:k/.

These cases were recurrent in the syntagmatic lexical errors. They constituted "more cases than are expected in random distribution," to borrow Nooteboom's (1973) expression. If the fact that words interact with words belonging to the same syntactic category is used as evidence of the reality and discreteness of these units, we hold that the behavior of some syntagmatic errors provides further evidence of the reality of these categories, not less strong than the first. A reason for this, is that the present data have proved that units of the same syntactic category substitute one another. Moreover, in syntagmatic interactions, if the two interacting units are of different syntactic classes, the replacing unit changes its syntactic class to suit that of the unit it replaces as if a syntactic slot were assigned to this unit and any unit occupying this slot must be of the same syntactic class.

7.8. The Reality of the Word

Speech errors are also used to prove the reality of the word as a unit in linguistic performance. There are many error cases which cannot be accounted for unless one realizes the existence of the word as a discrete unit. Speech errors literature abounds in cases involving the movement, substitution, deletion and addition of whole words. The Semantic substitution of one word for another can often provide information about the semantic halo surrounding a specific word, as well as information about category boundaries and distances between concepts in the mind. The fact that so many substitution errors involve opposite concepts or concepts from the same region of semantic space is evidence for a spreading-activation model of language processing, which features active concepts spreading their activation to other close neighboring concepts, one of those close neighbors being, of course, the opposite concept. This is an area of error-making in which one would expect to find exactly the same kinds of phenomena in both Arabic and English (or any language), in that this domain seems unlikely to have differing frequencies based on language-specific effects. I will, however, give examples where the general mechanism of spreading activation and specific facts of the language both play a role in the explanation of the slip of the tongue. Consider the following examples:

Table (8): The Reality of the Word

	Intended Utterance	Actual Utterance
1	اسألي الدكتور وين الورقه	اسألي الورقه وين الدكتور
2	وين الجبله في حجرتج؟	وين الجبله في سيادتج؟
3	أشهر الشعراء	أشعر الشعراء
4	كورن فليكس	فورك كليفس
5	شقتهم مصكوكه	صكتهم مشقوقه
6	باقعد في النص / الوسط	باقعد في النسط
7	كل بيدك اليمين مب الشمال	كل بيدك اليمال مب الشمين
8	يموت من الضحك	يمتن من الضحك
9	كليت السندويش و شربت العصير	كليت العصير و شربت السندويش
10	افتحي الباب و بندي الليت	بندي الباب وفتحي الليت
11	الهريس حار و الفيمتو بارد	الهريس بارد و الفيمتو حار
12	حطيت الكتب و القلامه في الشنطة	حطيت الشنطة و القلامه في الكتب
13	اشحني لي تيلفوني	اشحني لي تيلفونك
14	عمتي هيا و يدتي حصة	عمتي حصة و يدتي هيا
15	سلم عليكم خالي محمد وخالي سعد	سلم عليكم خالي راشد وخالي سعد ، لا قصدي خالي محمد و سعد
16	كلمت ثلاثين بنت	كلمت ثلاثين بنات

The previous examples in Table # 8 cannot be explained unless one realizes the reality of the word as a unit of performance. Thus, in example (1) the Intended Utterances is / ais'ali alduktur wayn alwaraqh / (Ask Dr. where the paper is?). However, the Actual Utterance is / as'ali alwarquh wayn alduktur/ Ask the paper where the Dr is? Example (2) is considered as an anticipation case in which the word / sayatech /(your (F) prayer mat) replaces / hujretch / (your (F) room). Example (3) is a substitution case in which the word / ashhar / (most famous) is substituted by /'asheur / (the best poet). Number (4) is an example of exchange error with the two words /forn/ and /klyfes/ switching positions. Number (5) is, also, an example of exchange error with the two words /sekthm/ and /mashqooqh/.

Lexical exchanges according to Garrett's model (refer to Figure #1 below) occur at the Functional Level during the first lexical assignment to functional slots and they usually occur in parallel constructions. As with the English data, lexical exchanges in the Arabic corpus occurred between members of the same grammatical categories. In example (9) the exchange took place between two verbs, /kaelyt/ (ate) and /sharibt/ (drank), both acting as main verbs. The exchange demonstrates the two clause range at the Functional Level of Garrett's model. Intended utterance was /kaelyt alsndwish wa sharibt ala'seer/ (I ate the sandwich and drank the juice), however, the actual utterance was /kaelyt ala'seer wa sharibt alsndwish/ (I drank the sandwich and ate the juice). Both exchanged elements retained their past tense status, and both retained their imperative form. The exchange here also demonstrates the two clause involvement at the Functional Level.

In example (10), the exchange took place between two nouns, /elbab/ (the door) and / ellit/ (the light) in the Intended utterance was /eftihi elbab wu bandi ellit/ (Open (F) the door and switch off the light), but the actual utterance was / eftihi ellit wu bandi elbab / (Open (F) the door and switch off the light). Both nouns are acting as direct objects of their respective verbs, /eftihi/ (open) and / bandi/ (switch off). Both exchanged elements retained their definite status. In general, the /l/ of the definite article /al/ assimilates to the place and manner of articulation of the following sound, if that sound is produced around the alveolar region. In addition, the vowel /a/ is deleted if the preceding word ends with a vowel to maintain the preferred CVCV structure.

Garrett points out that post-error, correct accommodation processes argue for the existence of a subsequent phonetic level of representation, since the phonetic character of sound exchanges and shift errors that occur at the positional level remains undisturbed - being computed later in the processing. When adjectives exchange, they occupy the same phrasal position. In Arabic, that position follows the noun that is modified. For example, when the adjectives /barid/ (cold) and /haar/ (hot) exchanged in example (11) they followed the head nouns /alhris/ (the mash) and /alvimto/ (the vimto). The Intended utterance /alhris haar wa alvimto barid/ (The mash is hot and the vimto is cold). The contrast between English, where the adjective precedes the noun, and Arabic, where it follows it, provides evidence that these errors follow language specific word order restrictions.

As opposed to English errors where inflections such as past tense and plural are stranded in exchange slips, the Arabic plural in example (12) was moved along with the exchanged noun. This would imply that the full plural form is stored in the lexicon along with the singular, especially since irregular "broken" plurals in Arabic are not the result of affixation. Thus, the plural of /kitab/ (book) is /kutub/ (books), while the plural of /galam/ (pen) is (?aglaamh/ (pens) and so on. The Intended utterance was /hatayat alkutub wa ?alqlaamh fi alshunta/ (I put (past tense) the books and the pens in the bag), however, the actual utterance was /hatayat alkutub wa ?alqlaamh fi alshunta/ ((I put (past tense) the bag and the pens in the books).

Only few errors involved the grammatical morpheme marking plurality. Example (16) in Table (8) above /kalimat thlathyn banaat/ instead of /kalimat thlathyn bint/ shows an incorrect addition of the regular feminine plural -aat to the intended singular feminine noun /bint/ 'girl', /thlathyn banaat/ Thirty girls. Arabic nouns preceded by numbers above ten retain their singular form. irregular plural forms marked by internal modifications rather than by an additive suffix similar to the regular plural marker -aat shown above. The plural here was irregular plural forms marked by internal modifications rather than by an additive suffix similar to the regular plural marker -aat as in /darajh/ (mark) /darajaat/ (marks). Evidence from slips mistakes shows that irregular plurals are treated by the processor as whole units (lexical exchanges involving irregular plurals moved their plural with them) while regular plurals are treated as separable units. The slip data lend support to Kiparsky's (1982) proposal of a two-level lexical morphology; where Level (I) is responsible for irregular morphological forms, and Level (II) morphology is responsible for regular morphological forms. Level (1) includes irregular inflectional /derivational morphemes (infixes) that trigger phonological modifications, such as choose - chose and divine divinity, in the base.

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Irregular plural forms in the Arabic data appear to be stronger than regular forms and have not been subject to slip mistakes. Thus, Kiparsky's (1982) Level (I) would have separate entries in the lexicon and can be accessed without morphological parsing.

Level (II), on the other hand, includes suffixes which do not trigger any phonological processes that affect the root morpheme such as -s, -ed, and -ing. Level (II) (suffixes) has a single entry and would involve morphological decomposition during access. Irregular plural marking in Arabic would belong to Level (I) morphology, since it conditions a quality change with the vocalic pattern for the derivation of the form similar to Example (16) above. At the same time, regular plural markings belong to Level (II) morphology, since they do not trigger any major changes in the root; for example, /darajh/ (mark) /darajaat/ (marks). Level (I) morphology seems to require that there are separate lexical entries in the lexicon for all related forms, while Level (II) morphology is more likely computed at the planning frame of Garrett's Positional Level, the root forms alone being stored in the lexicon.

The examples mentioned above are not atypical or only unique to Arabic. Job and Sartori (1984) report a dyslexic Italian patient who makes more errors reading regular verb forms than reading irregular forms. This pattern of error, they pointed out, can only be explained if irregular forms do not undergo any morphological analysis, have separate lexical entries, and are processed as whole units. They also indicated that regular verbs are subject to more errors, since they require decomposition. The same finding was also reported by Kehayia; et.al., (1984) for agrammatic aphasia patients who had more difficulty repeating words affixed with Level (II) morphology (goodness, worthless) than words affixed with Level (I) morphology (national, continuity). Thus, it appears that Level (I) has separate entries in the lexicon for morpheme alternates, which can be read without morphological parsing. It is not clear, however, how lexical items affixed with Level (II) morphology (regular inflection and derivation) are stored or accessed. Jean-Francois et. al. (2000:609), suggested that "roots can be accessed as independent morphological units".

For over a decade, the syllable constituent structure and syllable Markedness have been understood to provide the framework for the language productive mechanism during the processing of segments (Fromkin, (1971); Kahn (1976); Blumstein (1978); Buckingham (1980, 1986); and Stemberger (1982)) and have been used to account for diverse phenomena such as child language, tip-of-the-tongue, slips-of-the-tongue as well as aphasia. These researchers have all argued that segmental errors affect segments in analogous syllabic slots and obey structural syllable position constraints.

The linear segmental errors in Arabic analysed in this study do not obey the syllabic slot constraints proposed for Western languages such as English, where onsets move to onset positions, codas to codas, etc. (Buckingham 1980). Consonantal segments involved in movement errors move to non-corresponding syllable positions. Evidently, there may be a misordering of root consonants at their tier, which is dissociated from vocalic segments. The misordered consonants would pay no notice to their ultimate slotting vis a vis the vowels. These segmental errors also demonstrate a detachment of consonantal roots and vocalic patterns, since they affect only the consonants in the phonological representations. Further evidence for this dissociation is observed with errors involving complete consonantal root exchanges as well as with lexical blend errors. The dissociation of consonantal roots and vocalic patterns, which has not been observed in error data from Western languages, supports McCarthy's (1979) proposed two-tier autosegmental representation for Semitic languages. According to McCarthy, one tier contains the consonantal roots while the other tier contains the vocalic patterns and challenges the universal applicability of the syllable position constraint in segmental linear ordering errors.

From the data presented here, it appears that the formal representation of lexical items in Arabic is decomposed into consonantal roots and vocalic patterns. It is possible to speculate that the skeletal framework proposed by Shattuck- Hufnagel (1983), which represents the rhythmic and syllabic structural representations, and which constitutes the 'stable' part of the phonological entries, must also compute the vocalic pattern representations in Arabic. The consonantal units form the 'movable' part of the phonological representations placed in the Buffer, and, therefore, subjected to movement errors.

An exchange between nouns in a genitive construction where the possessive role is indicated by the cliticized forms /i/ and /k/ of the personal possessive pronouns results in interesting errors. In example (13) above, the Intended utterance was /ashhuni li teleyfunni/ (Charge my phone), but the actual utterance was / ashhuni li teleyfuunk/ (Charge me your phone). The exchanged nouns in the above are not in a parallel construction, and the exchange resulted in stranding the possessive bound pronouns /k/ (your) and /i/ (mine) which are morphophonemic accommodations of the genitive case.

This error implies that the mechanism involved in pronoun processing is not the same one responsible for processing major lexical items. This would also imply that these clitic pronouns are psychologically realized as features of the planning frame at the positional level, since they are not involved in errors on the semantic level.

In the data, clitic pronouns were not involved in exchange or movement errors nor did they undergo any shift. They did not violate grammatical categories in that their subjective or objective forms appeared on verbs and the genitives appeared appropriately on nouns. However, they are involved in errors of mis selection internal to their category. Meaning based lexical substitutions were more numerous in the corpus than form based lexical substitutions. The substitutions covered all major grammatical categories, nouns substituting for nouns and adjectives for adjectives and so on.

Proper names were substituted when addressing or referring to one member of a group producing the name of another person in the group. For example, /'amiti hessa w yuditi haya/ instead of /'amiti haya w yuditi hessa/ and /salam ealaykum khali rashid w khali saed , la qasdi khali muhamad w saed/ (Examples 14 and 15 in Table #21). Substitutions of proper names have been reported before by Abd-El-Jawad and Abu-Salim (1987).   Hotopf (1980) argues that the frequent use of names in similar verbal contexts causes them to lose some of their distinctiveness and trigger their substitutions. The highly frequent and common intonational pattern of Arabic words mentioned above should result in more meaning based substitutions that are also closely form related according to the activation models proposed by Dell and Reich (1981) and Fromkin, (1985). However, this does not hold. The majority of meaning-based substitutions did not share any phonological similarity whether of the vocalic pattern or the consonantal root.

It is important to point out that Lapointe (1985:103) writes that the difference in behavior between function words either omitted or substituted is related to the semantic load of each item in each language. In other words, those elements that do not (at the point of message construction) carry a high load of morphosemantic complexity are deleted, while those that do carry a semantic load seem to be retained.

It is the simplification of the semantic notions (functions), not of the verb 'form', that is the feature of aphasic syntactic deficits. Lapointe (ibid) further elaborates these different semantic notions expressed by verb markers including notions such as the speaker's attitude about the truth of the utterance, voice, aspect, tense, and agreement. Within every semantic notion there is a hierarchy of sub-notions. For example, within the semantic notion of agreement, subject is less complex than direct object, singular is less complex than plural, which in turn is less complex than dual. Third person is less complex than second person, which is less complex than first person. Within the semantic notion of tense, present is less complex than past and future, which are less complex than nonfinite verb forms. Therefore, in substitutions, the replacing item is one of the least complex combinations of these semantic notions. Lapointe points out that one is not dealing with an absolute restriction on what is and is not produced but rather with a hierarchical gradation of some sort - some forms are very likely to occur, other forms are produced sometimes but are less likely to occur, while others are rarely found at all.

Fay and Cutler (1977) argued that the existence of two types of word substitution suggests that the processes of word production and comprehension use the same lexicon, but in opposite directions. Items in the lexicon are arranged phonologically for spoken word recognition, so that words that sound similar are close together. The lexicon is accessed in production by traversing a semantic network. Semantic errors occur when traversing the decision tree, and phonological errors occur when the final phonological form is selected. Although the idea that lexicalisation occurs in two stages appears to be supported by evidence from other sources such as picture naming, tip-of-the-tongue states, studies of people with anomia, and brain imaging, there is nevertheless some dissent.

The previous examples cannot be accounted for unless the reality of the word as a unit of performance is realized. As it is shown above, any attempt to understand and explain the types of speech errors that occur in natural speech will not be possible without the basic linguistic units (feature, segment, syllable, stem, affix, word). This obligation of the existence of the various linguistic units to account for speech errors is evidence of the linguistic and psychological reality of these units. Furthermore, the speech error data, as it was seen, are rich in evidence of the discreteness of these units.

According to Garrett's (1980) model, generating a sentence for speech includes at least three different levels of representation: the message level, the functional level, and the positional level (See Figure 1). The message level entails a speaker's communicative goals and the non-linguistic representation of the message that is to be conveyed.

This requires perspective taking, selection of content to transmit, and understanding of causality, agency, and temporal ordering of events. Next, functional-level processing entails three operations: (1) semantic search (activation of meaning-related representations of the ideas to be conveyed and grammatical categories associated with corresponding concepts); (2) creation of the predicate-argument structure (determining the number of arguments associated with the main verb, and the thematic role of each argument), and (3) assignment of each semantic representation activated in (1) to a thematic role in the predicate argument structure created in (2). Finally, three other processes take place to form the positional level representation: (1) selection of an ordered sequence of syntactic features and slots for insertion of syntactic morphemes (Rofes, et.al. 2019).

The slips data can be meaningfully characterized by recourse to the two psycholinguistic levels of processing proposed by Garrett, where meaning and membership of grammatical category are relevant for the computations of one level (the Functional Level), while the formal decomposition of consonantal roots and vowels (and the irrelevancy of grammatical category classifications) is appreciated during the computations of the other (the Posititonal Level). Lower level accommodation processes at the phonetic level remain intact, thereby, assuring that the errors will for the most part abide by CV canonical constraints.

Figure (1) Based on Garrett's (1980) Model
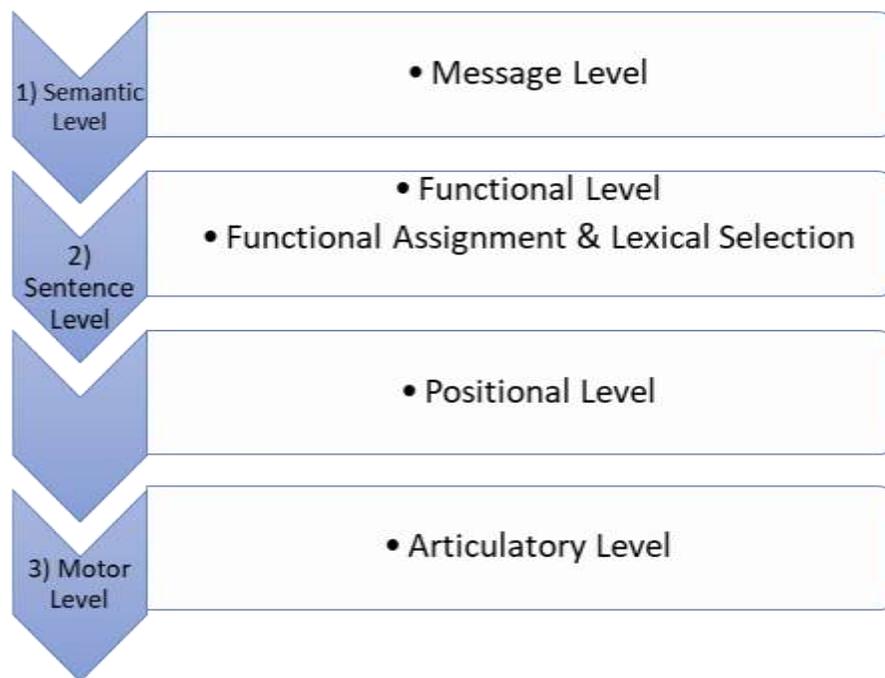
In Garrett's model, there are two major stages of syntactic planning. At the earlier functional level, word order is not clearly represented. The semantic content of words is specified and assigned to roles such as subject and object. At the positional level, words are explicitly ordered. There is a dissociation between syntactic planning and lexical recovery. There is a further dissociation within lexical retrieval. Garrett argued that content and function words play very different roles in language production, with content words selected at the functional level, whereas function words are not selected until the positional level. In this model, word exchanges occur at the functional level. As only the functional roles of the words and not their absolute positions are specified at this level, word exchanges are constrained by syntactic category but not by the distance between the exchanging words. Next, we generate a syntactic frame for the planned sentence. The phonological representations of content words are then accessed from the lexicon using the semantic representation. Content words are then inserted into the syntactic planning frame where final positions are specified to form the positional level. The function words and other grammatical elements are then phonologically specified to give the sound-level representation. Sound exchanges occur at this stage and, as their absolute position is now specified, such errors are constrained by distance.

8. Summary and Conclusion

The findings of the study support the previous results found in literature of slips of the tongue. By examining carefully, the tables given above, we reach to the conclusion that the entire phrase must be planned in advance or else we couldn't switch segments, morphemes, words and phrases like that. This reveals hints about the way sentence and phrase production is planned in the mind. It shows how words are organized in the mind (i.e. the mental lexicon). Access of the mental lexicon must be very quick, since word recognition takes just 1/3 of a second. In order for these exchanges to occur, the sentence would have to be planned out before the person begins to say it. Speech errors also involve 'mixing and matching' morphemes within the words.

This data from Qatari Arabic can be added to the existing corpus of slips from other languages of the world. The slips here provide additional evidence for the psychological reality of linguistic units such as features, phonemes, syllables, lexical units and grammatical categories. In addition, the analysis shows that the processes involved are similar across languages; thus, providing strong evidence that the cognitive processes at work are universal and are shared by speakers of all languages.

In the light of the previous discussion, it has been concluded the following:

1. Tongue slips are kinds of speech problems that happen unconsciously, and the speaker has a difficulty in remembering the suitable word. It is a matter of confusion with words that have similar sounds, meanings and morphemes.
2. The most common error of tongue slips is the substitution error which occurs between words that have similar sounds or meanings, i.e., similarity effect.
3. When committing tongue slips, people can produce acceptable sequence of language structure which has a linguistic importance. Thus, there is a strong relationship between tongue slips and linguistic field, i. e, syntactic, semantic, and phonetic fields. This relationship can be summarized as follows: (i) Syntactic slips like inflectional suffixes, morpheme substitution, and blends. (ii) Semantic slips like antonym and synonym substitution and this substitution of words occurs with the same grammatical classes of these words. (iii) Phonetic slips like voicing, nasality, and voice lessness features. Syllable deletion and syllable reversal obey the structural law of syllable place.
4. Arabic grammatical morphology appears to be stored independently, which corresponds with the models of lexical phonology. The feminine gender seems to be marked in the lexicon. The data suggests that the buffer does not hold already chosen segments but features that uniquely specify each segment.
5. The data revealed that the highest percentage of speech slips is that which involves substitution, replacement, exchange, addition or deletion of segments of the size of phone which occurs within or across word boundaries. Moreover, almost all of these errors (90% of the phonological errors) cannot be accounted for unless one recognizes the existence of the segment.
6. The research about tongue slips is helpful to reveal the language law, deeply study the process of language production with the help of psychology and analyze the relationship between language and thought. Tongue slips is one type of speech mistakes that are often occurs due to physical or psychological reasons; for example, when speakers are exhausted, nervous; etc. It is the result of the problem of controlling the speech production process.
7. It could be that slips of the tongue have not contributed much to our understanding of how and why languages change. Yet, they reveal a great deal about what we seem to know about our language and how we use this knowledge to speak and to understand what others say to us. We can look at some speech slips and see what they reveal about our linguistic knowledge, for example:
    a. We know that there is pre-planning before the sentence occurs.
    b. The morpheme is a fundamental building block.
    c. Morphological components of words can function independently during sentence production.
8. The findings discussed in the present study reveal a striking preservation of many elements of grammar in Arabic slips of the tongue. In such a highly inflected language, grammatical morphemes carry a heavier functional load than in analytical languages, such as English, which are word order dependent. This semantic load plays an important role in the manifestation of grammatical deficits. Those elements that do not carry a high informational load are deleted, whereas those that do are retained. Clitic pronouns are very robust and resist errors in the slips of the tongue. They carry high informational values indicating subjects, objects and indirect objects, and therefore, are preserved in Arabic errors.

9. In this study, we present a modest start at collecting and analyzing tongue slips in Qatari Dialect that have fairly clear or even exact counterpart categories in English. It would be perhaps even more instructive to discover and classify errors that are specific to Qatari Arabic and that have no clear counterparts in English or other Western languages. What is needed is a large corpus of Qatari linguistic errors for more systematic study. Careful analysis of such a corpus would raise some new issues as well as further validate some theories of error making that have become mainstream over the past couple of decades.

10. At the beginning, speech errors were studied mainly to shed light into the hidden internal workings of various speech processes. Yet, with the advent of the study of speech errors, researchers started to use the results of their studies to validate or refute various hypotheses on language, production, processing and learning. The psychological reality of various linguistic units is one of these issues. The study aims at proving that the hypothetical abstract linguistic units scattered on various pages of linguistic books are psychologically real units of performance. Using evidence from the corpus of 500 spontaneous Qatari Dialect tongue slips, the study addresses three levels of analysis: phonological, syntactic and lexical. At the phonological level, the study shows that segment or phone (consonants and vowels), phonetic features and the syllable are all psychologically real units of performance. At the syntactic and lexical levels, it is shown that the only way one can account for various tongue slips that occur at those two levels is to assume the existence of syntactic features, syntactic categories, the morpheme, and the word as real performance units and not just hypothetical descriptive ones.

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