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## ENGLISH and ARABIC SIGN LANGUAGE PHONOLOGY and MORPHOLOGY

### A B S T R A C T

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This visual-manual modality is used in sign language to transfer meaning. Sign language is strongly related to manual groups of deaf people. Sign language is used by deaf people for a very long time, most written records about sign language trace based to the fifth century.

Sign languages are seen as complex as many spoken language besides they are not real language as most people think.

Sign languages are thought to be mime in some words, typical and arbitrary. It is not important for this type of language to have a visual relationship to their references. Spoken language is quite different from iconicity while the first is not onomatopoeic, the second is more systematic and more common use in sign language.

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### لغة الاشارة باللغتين العربية والانجليزية ( صوتياً و صرفياً )

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#### الخلاصة:

تستخدم هذه الطريقة اليدوية المرئية في لغة الاشارة لنقل المعنى. ترتبط لغة الاشارة ارتباطاً وثيقاً بمجموعات الصم اليدوية. يستخدم الصم لغة الاشارة لفترة طويلة جداً ، ومعظم السجلات المكتوبة حول تتبع لغة الاشارة تعود إلى القرن الخامس.

تعتبر لغة الاشارة معقدة حيث أن العديد من اللغات المنطوقة ليست لغة حقيقية كما يعتقد معظم الناس. يُعتقد أن لغات الإشارة عبارة عن الصمت في بعض الكلمات. ليس من المهم أن يكون لهذا النوع من اللغة عالقة مرئية بمراجعهم. تختلف اللغة المنطوقة تماماً عن لغة الإشارة بينما لا تكون اللغة المحكية أولية ، أما الثانية فهي أكثر منهجية واستخدامها أكثر شيوعاً

## **1.Introduction.**

This study tries to focus on phonological and morph systematic structure of English sign language and Arabic sign language paying a special attention to Iraqi sign language. Contrastive studies of sign languages are regarded as a new event.

Communication is concerned with the process of transferring meaning or information from a certain person to another. Communication may be divided into two types: verbal and nonverbal communication. The first one refers to the process of sending and receiving a word message. The second is related strongly to wordless message like gesture, body language, facial expressions and eye contact. Sign language attributes to verbal communication system. They refer to a collection of gestures, facial expressions, postures and movements(Al-abd,2007).

Sounds are of great importance to language since our center communication is concerned with both sound waves and apparatus received by ears. This happens without using hands, face and body but it depends on the eyes.

Communication is the process of transferring information from one person to another. It is divided into verbal communication and non-verbal; verbal communication is achieved through sending and receiving word message, whereas non-verbal communication is the process of communicating through sending and receiving wordless message such as gestures, body language, facial expressions and eye contact. Sign language belongs to verbal communication system. It is a collection of gestures, movements, postures and facial expressions corresponding to letters and words(Al-abd,2007).

### **1.1 Definitions**

Before developing into the world of the deaf and exploring their sign language as a 'language', it should be explained why sign language is considered a natural human language. Emmorey (2002) declares that "once signed languages are recognized as natural human languages, a world of exploration opens up"(p.1). Language is "a systematic means of communicating ideas or feelings by the use of conventionalized signs, sounds, gestures, or marks having understood meanings " (Merriam Websters 11<sup>th</sup> Collegiate Dictionary). Charlotte Baker and Dennis Cokely(1980) provide the following definition:

A language is a difficult mean of communication that has a vocabulary of traditional grammatical systemrules.The rules are popular in community and

passed on from one generation to another. It develops across time, and that is used to expand an eternal range of notions and thoughts, emotions and intentions. (Johnston & Schembri, 2007, p.1).

Throughout the investigation above, sign language can be characterized by the following traits: children need sign language to practice in different stages of their age as spoken language, it is considered as a natural language that must be treated as a native language and it is used by the deaf.

Beginning with single signs/words stage at nearly one year and a half, then two signs/words stage at 2 years and finally reaching adult-like proficiency at the early school years. There are also some morphological generalizations in early signing similar to those in spoken language such as 'goed' 'wented' 'gived' (Sandler & Corina, 1993, p.166).

spoken language is not the origin or the source of sign language, since sign language expressions are not quite related to spoken language. Sign language is mere influenced by the language of surrounding community. It is presented by the hands, face and body, and understood through vision, which differs completely from spoken language that is presented by the speech organs and grasped by hearing. However, several studies spent proving that sign and spoken languages are composed in the brain in an amazingly similar ways. Human brain is split into two hemispheres. The left hemisphere dominates plentiful language functions, where the right hemisphere dominates many visual-spatial skills. A small harm to parts of the right hemisphere could result in a loss of the ability to draw. And any damage in the left hemisphere may cause some language problems, which is called an aphasia, like the failure to present grammatically right constructions. Thus it was assumed that sign language must be completely processed by the right hemisphere, because it is a visual language that makes use of space. Yet research also believes that deaf signers with harm to part of certain areas of the left hemisphere had the same kind of aphasia to people who hear who use spoken language. Signers with left hemisphere harm had obstacles with sign language grammatical proficiencies, and yet keep the capability to draw. Moreover, some signers with right hemisphere harm expose a breakdown of visual locative skills, and yet were still able to manage some concepts of sign language grammar (Johnston & Schembri, 2007, p.17).

To conclude, the misconception of sign language as a collection of gestures representing spoken language has completely altered to the view that sign language is a natural language with all the properties of natural languages. Meir

and Sandler(2008) insist that sign languages "are like spoken languages: languages in both modalities are fully fledged human languages, the product of the human brain" (p.277). Although "people have an intuitive feeling that sign languages are made of gestures that represent in pictorial fashion the concept being conveyed", research reveals that every sign language has its privet unique linguistic structure and vocabulary(Meir & Sandler 2008,p.2).

## **1.2 Objectives of the Study**

The objective of this study is to demonstrate the phonology, morphology and syntax of English and Arabic sign language in order to arrive at some universal properties.

## **1.3 Review of Literature**

Realization of sign language isbased on Plato'sin ancient Greece. In his philosophical work Cratylus (written in 360 BC), Plato believes that if we lack voice or tongue, why don't we do like the deaf and dumb, making signs and postures with the head, hand and the total body?(Johnston &Schembri, p.21). In the eighteenth century, the French philosopher Ren'e Descartes argues that the sign language is antype of proper human language (Re'e, 1999). In 1776, the French priest Abbe Charles-Michel de L'Epe'e, published his genuine(maniered'instruire les sourds et muets), "The actual manner of teaching the deaf and dumb", in which he explains the utilizing of sign language that he had taught from his students or which he fabricates to reconcile to French grammar. Thus, de L'Epe'e established his place in history as the founder of sign language. This pedagogical technique was progressed to teach written and spoken French to the deaf students at the Paris asylum. Then the sign language technique extended tomany European countries, undergoing amendments in each for the correspondence to the spoken language of the country. This sign language was called Old French sign Language OFSL. It consists of a number of lexical items, and it also had its own syntactic structure.

Sign language started to be performed in America and was founded by Thomas Gallaudet in 1816. American Asylum in Hartford was the first school for deaf in U.S.A. A lot of linguists even in London or Paris followed the principles of this school. For Thomas Gallaudet had met L'Epe'e successor, The Abbe Sicard, in London, and had followed him to Paris to detect what signs are. He insisted to

know the methods to teach signs to deaf children well. Gallaudet and Laurent Clerc returned to America, and together they accommodated French signs to the American context. Then signs started to change from their pantomimic and traditional origins to qualitative shapes with easier articulation and easier perception on a level analogous to the phonological one (Frishberg, 1975).

Success of the Hartford Asylum gives the opportunity for opening other schools wherever there was sufficient density of population, and thus of deaf students. In 1864, the congress authorized the Columbia institution for the Deaf and the Blind in Washington, D.C., to become a national deaf college, the first institution of higher learning specifically for the Deaf. Its first principle was Edward Gallaudet, the son of Thomas Gallaudet. Then this college was rechristened as Gallaudet. It is now known as Gallaudet University and it is still the only liberal arts college for deaf students in the world (Sacks, 1990).

In the early 1950s, Ben Tervoort noticed the way of communication of some deaf children, and recorded the properties of that communication. He noticed that signs have a constant form with constant meaning. Tervoort wrote a dissertation in 1953 about what he called "the esoteric system" of signs used by deaf school children. His evidence was from a survey on the use of sign language in 28 European countries. During 1955 and the next two years, the main focus was on learning science, not sign language. In 1957, the Summer linguistics institute declared that segmental analysis would not work and that the manual words of a sign language could not be analyzed precisely, as spoken words are analyzed, into sequential sub morphemic segments. The difference, as Hockett studied later on, springs from "a significant difference in syntactic dimensionality" (1978, P.274). In other words, elements in spoken language can only be arranged linearly in the dimension of time, except for stress and intention, but sign language includes "three dimension of space and one of time" (Hockett, 1978, P.274).

Two years of intensive study followed the work of the Summer linguistics institute. Many sign language utterances and conversations were filmed and studied components of signs. The assimilation of the components of signs causes a problem compared to the linguistic analysis that deals with the segmental, successive arrangement of word components. Moreover, The problem is to see what composes signs, when signs are taken as equivalents of words or morphemes of spoken languages. Performing one concept of Signs at a time is something difficult as speakers at that can utter one segment of a sound at a time.

The Gallaudet English Professor William Stokoe (1960) solved this problem by imagining that one could look at a sign as if he sees its action only, or its active element only, or its location only, or its location only. In this way three aspects of a manual sign of sign language are distinguished, not by segmentation, but by imagination. Stokoe further developed a system for describing signs at the level of form and formulated phonological building blocks or 'parameters' (in Stokoe's terminology) for signs, namely hand-shape 'designator', movement 'signation', and place of articulation 'tabulation'. Stokoe compared the values of these parameters to phonemes, but he coined the term 'chereme' (from the Greek word for 'hand') instead. Each of these parameters has a finite number of values. He demonstrates that sign language, despite being soundless, has a structure that can correspond to the phonological level. Structure of sign language consists of finite list of meaningless units that combine to form lexical items of the language. Stokoe proposes that the phonological categories of signs are executed simultaneously not linearly as is the case in spoken language. Stokoe's organization can be illustrated by an example for the sign INTELLIGENT. This sign starts with a closed fist and extended index finger, at a location in contact with the forehead, and then the index finger moves forward away from the signer as follows:



Before Stokoe's pioneering work, the sign of sign language was viewed as a holistic unit that cannot be divided into smaller units. Thus Stokoe was the first one to demonstrate that signs are made up of smaller meaningless building blocks (Stokoe, 1960).

## **2. spoken language and sign language**

Much energy was spent on showing parallels between descriptions of sign language and spoken language. Then researchers started to pay attention to differences between sign language and spoken language. In addition, there was

a commonly held view that there was one universal sign language used by deaf people all over the world, but research showed that sign languages are fully fledged separate linguistic systems. They developed independently of each other.

Universally, all cultures use faces, hands, arms and other body parts to signal signs. When organized into word-forming and sentence-forming systems, as is the case in sign language, these bodily expressed signals and their syntactic combinations are linguistic signs belonging to a unique grammatical-lexical system. However, Stokoe declares that deaf signers from different countries can communicate easily through gestures, miming and other ways of non-vocal communication:

**This** international communication is established and maintained, either consciously or out of awareness, by relaxing the strict rules of the communicator's sign language and using gestures, mime, and whatever people do to communicate across language barriers. (Stokoe, 1980, p.366).

Just as each country has its own spoken language, all deaf communities in their own sign language, developed over the years. Studies show that most of the signs used in different countries are no more alike than the words of different spoken languages are. Even the signs of Britain and America, where the spoken language is nearly the same, are very different. However, since all sign languages use vision and are produced by human body in space, different countries have similar commonsense ways of expressing certain ideas. For example, the signs used to express the past, the present and the future are nearly the same in all sign languages. This kind of visual common sense has produced similar language patterns in different sign languages. To conclude, each country has its own unique sign language and there is no fully universal sign language (Miles & Ladd, 1998).

This commonly held view that sign language is universal was also common among researchers and professionals who worked with the Deaf. Berthier, a nineteenth century deaf writer, declares "for centuries scholars from every country have sought after a universal language and failed. Well, it exists all around, it is sign language" (as cited in Battison & Jordan, 1976, p.54). This was a result of the aforementioned visual common sense or 'naturalist sense' (Meir & Sandle, 2008, p.256) in iconic signs such as 'ball', 'rectangle' and 'up' etc. But since there are lots of non-iconic signs in each sign language, and that not all iconic signs are represented in the same way, sign languages do not have the same

vocabulary. In addition, there are lots of concepts that cannot be represented iconically, in other words they are represented arbitrarily.

Ferdinand de Saussure's semiotic-linguistic theory, represents that some linguistic signs are arbitrary, i.e. There is no link between form and meaning, and some are iconic, i.e. The form reflects the meaning. Thus arbitrariness or iconicity depends on sign- signified relationship. In sign language, there are sign nouns similar in appearance to the signified object, and also some verbs" resemble in motion, direction, or manner some characteristic of the action, process, or state that they denote"(Stokoe,1980). This does not entail that these signs can be understood by anyone ignorant of a specific sign language, which in turn proves that sign language is not universal.

## **2.1 Movements and Segments**

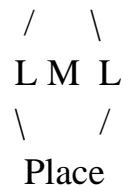
Stokoe's paradigm of simultaneous properties of sign language dominated sign language research till 1984 when Liddell argues for sequential/linear segments in sign language. Thus locations and movements follow one another in a sequence. 1989, Liddell and Johnson proposed a model for sign language consisting of two types of units, that is hold and movements to which features of hand shape belongs. The main focus in this Movement-Hold model is on the sequential characteristics in a sign's form, stressing the initial and final positions of the hand in the formation of a sign. In that autosegmental model, signs consist of sequentially ordered units. Each unit is defined by whether the hands are static(Hold segments) or dynamic (Movement segments). Each segment is an articulatory bundle that includes the features of hand shape, location, palm orientation, and non-manual signals(facial expressions). States of the hands, location, palm orientation, and finger configuration (or hand shape) are thus described as articulatory features attaching to Hold and Movement segments.

.... The claim that signs are simultaneous bundles of primes is not a claim that there are no sequential organization is phonologically unimportant. Thus while Stoke and more recent workers recognize sequence within signs, they typically hold it to be phonologically unimportant.(pp.196-197).

Sandler(1989) modified this model and represented hand shape on a separate auto segmental tier "Hand Tier Model". Thus handshape is separated from the

linear sequence of static location L and dynamic movement M. She also represented a place unit that is linked to the linear segment. This can be represented as follows:

handshape



Perlmutter(1992) compares the compares the LML organization to CVC syllabic organization. He suggests that movements count as the peak of the syllable in sign language. Corina (1993) and Brentari(1993) developed that syllabic organization and added a kind of hand movement that involves rotation of the hand or movements of the fingers. Thus these non-path movements imply that the parameters for handshape may have two linearly organized values which can be compared to complex segments like affricates.

## 2.2 sign language morphology

In 1979, Klima and Bellugi uncovered exciting phenomena in American Sign Language morphology. They concluded that American Sign Language is a highly inflected language, especially in terms of aspect marking. Like words in spoken languages, signs belong to lexical categories such as noun,verb, adjective, adverb, pronoun and determiner. Sign language has a lexicon of sign forms and a system for creating new signs in which meaningful elements, i.e, morphemes are combined. However, sign language differs from spoken language in the type of combinatorial process that most often creates morphologically complex words.

In spoken languages, complex words are formed by adding prefixes or suffixes to a word root,whereas in sign language, these forms result from "nonconcatenative processes" (Emmorey,2002, p.14) in which a sign root is nested within various movement contours and planes in space (Klima&Bellugi, 1979). Suppala and Newport (1978), have also shown how nouns are derived from verbs via repetition i.e. changing the movement pattern. " the movement of the verb"(Emmorrey,2002,p.15).

American sign language syntax is best characterized as being highly spatial in nature. For example, pronouns are established as locations in space on which verbs operate.

(Friedman1975). Additionally, research shows that facial expression and head and torso movements serve syntactic functions in the generation of time adverbials and relative clauses(Liddell 1978) and conditionals(Baker &Padden 1978). In sign language, signs combine to form grammatically well-formed sentences governed by phrase structure rules and principles. Like users of spoken language, signers can distinguish grammatical combinations of signs from ungrammatical ones(Emmorey,2002,p.43).

### **2.3 Arabic Sign Language**

Arabic sign language is still in its developmental stages(Abdel-fattah,2005). Although it has existed on par with spoken language, but it is only recently that Arabic signs have been gathered and codified. These signs are starting to spread forming acknowledged sign language.

Arabic sign language is not interpretation of standard Arabic or spoken vernaculars. The sources of Arabic sign language are: borrowing; especially from European and American signs, creations; which are initialization of conceptual signs usually by gestural repertoire of spoken varieties, miming actions, shapes and objects in nature, expanding means; such as compounding and blending, dumb regional signs; which are used by deaf people and inherited over years(Abdel-fattah,2005).

Abdel-fattah(2005) states that there is no attempt to write down Arabic sign language, whereas American Sign Language, for instance, has established writing system, but they are not widely spread to record American Sign Language Literature. However, there is large corpus of American Sign Language literature recorded in films, videotapes, and compact disks(Wicox&Kreeft, 1999). Arabic sign language has also a considerable body of literature in movies, news bulletins, and TV series, but it is not recorded or archived.

Allam(2007) conducted a research on the acquisition of ESL. This research examines the ways in which ESL learners invent new signs and tests the degree

of iconicity of ESL. In addition, it compares the acquisition of constituent order of ASL and ESL.

Al-ban'ali and Samrin(2010) states that the first attempt to document Arabic sign language was Egyptian Sign Language Dictionary(1972) by National Association of the Deaf. In 1984, the project of Arabic finger alphabet was launched by the professional committee in Damascus. In 1986, Arabic finger alphabet was accredited and printed in all Arab countries and still used till now. Then, Jordan Sign Language Dictionary(1990) was printed and other national dictionaries followed. In 1999, the first Unified Arabic Sign Language dictionary was published by the League of Arab States.

Arabic sign language is affected by other sign languages(Miller,1996). It is basically a manual language made up of cheremes that include the three elements of handshape, movement and place of articulation. In addition, Arabic sign language involves non-manual features, like those of the face, and tongue. Arabic sign language also exhibit similar forms to other sign language, such as the link between form and meaning that may be iconic, pictorial, conventional, or arbitrary(Brennan,1987).

Arabic sign language word correspondence is limited to two basic classes, noun/adjectives and verbs. Unlike standard Arabic, it lacks many particles, such as prepositions and some adverbs or intensifiers. Arabic sign language syntax is similar to American sign language in its spatial-gestural nature. The Arabic nominal signed sentence is usually made up from a subject and predicate(Suwed,1984). There is no singular, dual or plural agreement as is the case in standard Arabic signed sentences do not use tense. Tense is only indicated at the beginning of a conversation and only shifted when there is a need to switch to a different tense.

### **3. Sign Language and Body Language**

Body language is a type of nonverbal communication in which physical behaviors, as opposite to words, are used to express or convey the information. Such behavior includes facial expressions, body gestures, eye movement, touch and the use of space. Body language exists in both animals and humans.

Although body language is an important part of communication, most of it happens without conscious awareness.

Body language falls into the category of paralanguages which describes any form of communication which does not use the spoken word. Sign language also belongs in that category. Body language is as old as mankind and powerful tool of communication. It is estimated that about 50-65% of all communication is conducted by body language, a fact which shows how important the use and interpretation of body language is in the context of human intercourse. It is important to know that body language is understood and interpreted differently in different cultures and countries. The same gesture does by no means mean the same thing in one country as it does in another.

### **3.1. General Body Postures**

Emotions can also be detected through body postures. The body postures are more accurately recognized when an emotion is compared with a different or neutral emotion. For example a person feeling angry would portray dominance over the other, and their posture which display approach tendencies. Comparing this to a person feeling fearful: they would feel weak, submissive and their posture would display avoidance tendencies, the opposite of an angry person

Sitting or standing postures also indicate one's emotions. A person's sitting posture tells the rest of their charges, lean forward with their head nodding along with their discussion implies that they are open, relaxed and generally ready to listen. On the other hand, persons who have their legs and arms crossed with foot kicking slightly implies that they are feeling impatient and emotionally detached. The most popular postures: chest specially, shoulders gestures, hands shakes and birthing (William, 1978).

### **3.2 methods used in sign language**

Sign languages are different from one country to another in interpreting the meaning of signs in general. The following are some methods in conveying sign language.

1. Hand movements: such as the movements of the fingers indicating numbers and letters
2. Facial expressions: to express personal feelings, and they are often combined with hand movements to give new structures and multiple meanings

3. Lip movements: this skill is an advanced skill; this is because of the strength of observation you need, as the deaf reads words directly from the lips.
4. Body movements: uses meager movements, such as referring to the shoulders, head, chest, abdomen for suggestive use.(Carol&Tom,1988).

### **3.3 Conclusion**

Sign language is the language that use visual manual modality to convey meaning. Sign language is expressed through manual articulation in combination with non manual elements. Sign language is a whole experienced natural language with its own grammatical and lexical entities. Sign language is an extremely important communication device for all deaf and hard hearing people.

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