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RESEARCH ARTICLE

DENTAL PARTONOMY IN ARABIC SPOKEN IN SAUDI ARABIA

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Abstract

Semantic relations play an important role in every language and it resolves the ambiguity of a polysemous word. Partonomy relations are important in many domains, but typically receive less attention than subsumption relation. This paper is an attempt to present a complete picture, as much as possible, of dental partonomy in Arabic by adopting the applicable model that best explains its nature. This is the first attempt where dentistry of Arabic brings its relationship with linguistics. Till this date semantic relations have not been used in the base line of dentistry. This paper investigates the role of partonomy in dental terminology spoken in Saudi Arabia and it attempts to analyze the nature of partonomy and its properties in Arabic.

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Introduction:-

An important and interesting type of semantic relation, expressed in language, 'is the relation between the parts of things and the wholes which they comprise' (Winston et al. 1987). Relationships which are expressed either with the term part, or which by their position in a part-whole expression signal part, are meronymic and to 'structure semantic space in a hierarchical fashion' (1987)¹. This semantic relation has been lexicalized in many languages and can be used appropriately in some contexts and not in others (Chaffin 1992). Chaffin (1992) summarizes the elements of meronymy that characterize the types of connections between parts and wholes. Briefly, they are whether the part can be separated from the whole, whether the parts are spatial or temporal, whether the part has a functional role in relation to the whole, and whether the parts are homeomeric (parts are the same kind of thing as a whole). Meronymy is a structural sense relation between meanings while part-whole is a relation between two physical entities (Croft & Cruse, 2004). Lyons (1977), Eikmeyer & Reiser (1981), Halliday (1985), Grains & Redman (1986), Saeed (1997), Kearns (2000), Finch (2000), Murphy (2003) define partonomy as a structural sense/semantic relation holding between lexical items denoting parts (meronyms) and that denoting their corresponding wholes (holonyms). The existence of meronymic relations, namely super- and hypo- relations, creates a state of convergence and intersection (of course in the lexical hierarchy as stated by Cruse (1986).

Arabic is a VSO (verb-subject-object) language which is the third most common word order among the world's languages (Broadwell, 2005). Arabic is spoken nearly a half billion of people and is the official language of Saudi Arabia. The Arabic language is considered the defining property of Arabic identity (Suleiman, 1994) and there is no other language that so uniquely defines the identity of its own people. Until the 7th century AD, the world knew

¹The term partonomy is the term used to differentiate part-whole taxonomies from other taxonomic relations.

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very little about the Arabic people or the Arabic language (Versteegh, 1997). Before Islam, Arabic was only a minor member of the southern branch of the Semitic language family. It was spoken primarily in the Arabian Peninsula and only by small groups in the wider area outside the peninsula as a minority language because Aramaic was the 'lingua franca' in the region. With the emergence of Islam, the Arabs emerged from the Arabian Peninsula to call other nations to convert to Islam and within fifty years they succeeded in controlling the entire Middle East region and within a hundred years, they reached the Atlantic Ocean via North Africa and Spain. With the creation of the Islamic Empire, Arabic became a major world language, and the world could no longer afford to ignore the Arabic language nor the Arab people. Partonomy in Arabic was not handled systematically. To put Arabic at semantic level, it was hardly given such type of attention and that needs description and explanation on its own. This is one of the reasons that a need has been felt to bring Arabic spoken in Saudi Arabia at semantic level in case of partonomy.

Method:-

This study is based on the analysis of the speech of the students at King Khalid University studying dentistry. To find the dental partonomy, a questionnaire was framed containing sentences, words other verbal behaviors. For the sake of analysis, the language experts were consulted, and their speech was recorded in natural settings. Sony digital voice recorder was used to record the data. The recorded data were transcribed and analyzed. The recordings were made in different social settings and from different levels of students studying dentistry. All the precautions were taken during the recording by the researchers to obtain a more thorough analysis and an understanding of the Arabic language. Although this is a first attempt to find the relationship between the two fields in semantics point of view.

Analysis:

Claims about partonomy in the biological sciences typically concern types or kinds of objects, not tokens. For instance, all individuals of the kind lichen are composed of green algae and fungi, not only a particular lichen. The fact that science is often concerned with kinds of partonomy, however, does not imply that the part-whole relation itself holds between types or kinds².

Same is the case with dental relations in Arabic. Although in this field no such work has been done so far. This is the first attempt to relate dentistry with linguistics. All of us know that vocal tract is an important organ of human body. without vocal tract no human being can produce any speech sound. In vocal tract, dental organs are essential parts and they play an important role in uttering speech sound. Here our focus is on dental partonomy in Arabic, which has the close relationship with semantics. The description of dental partonomy in Arabic is discussed below in detail:

Partonomy of different surfaces of tooth

When identifying teeth and referring to specific areas of a tooth, it is necessary to utilize named surfaces and directions designated according to where it is located. It's partonomy is as:

Labial:

The surface towards the lips.

Palatal:

This is the surface of a tooth that is closest or next to tongue.

Lingual:

The surface that faces the tongue.

Buccal:

The surface towards the cheeks.

Mesial:

The surface that is closet to the midline of the face.

² This is not a trivial point because some authors claim that part-whole or constitutive relations exist between properties or types of events (e.g., Harbecke 2010).

Distal:

The surface that is away from the midline of the face.

Below is the figure which shows the surface of the teeth.

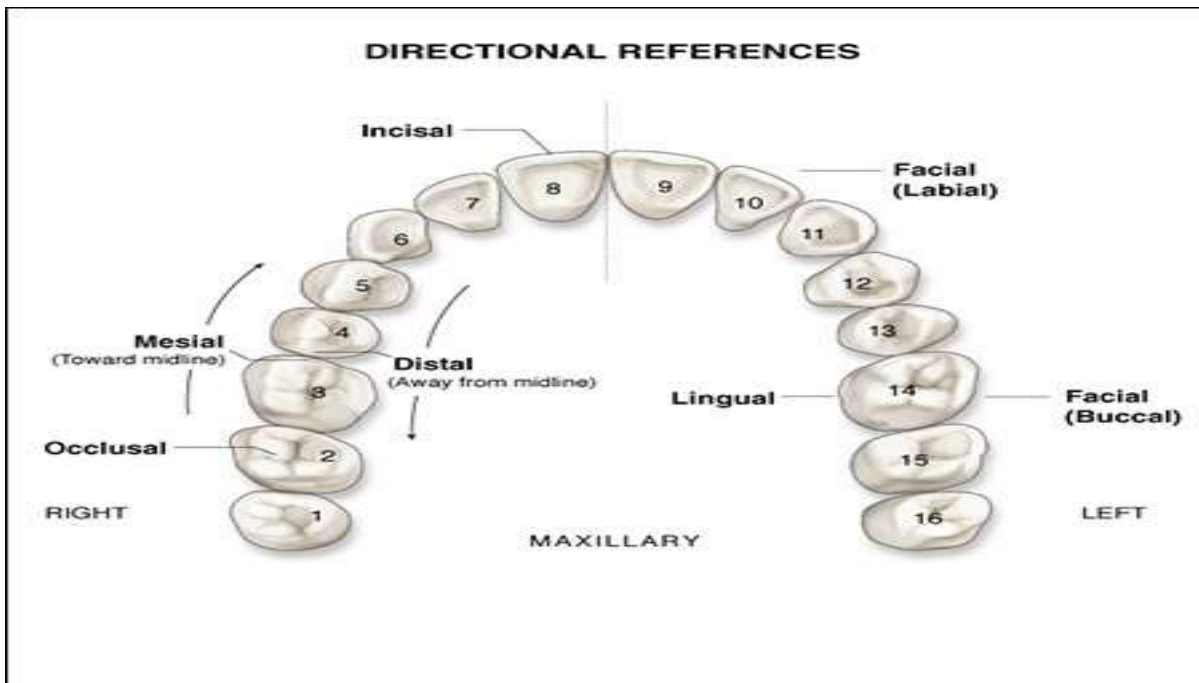


Figure 1:- Surfaces of the tooth.

The partonomy of surfaces of the tooth is described below.

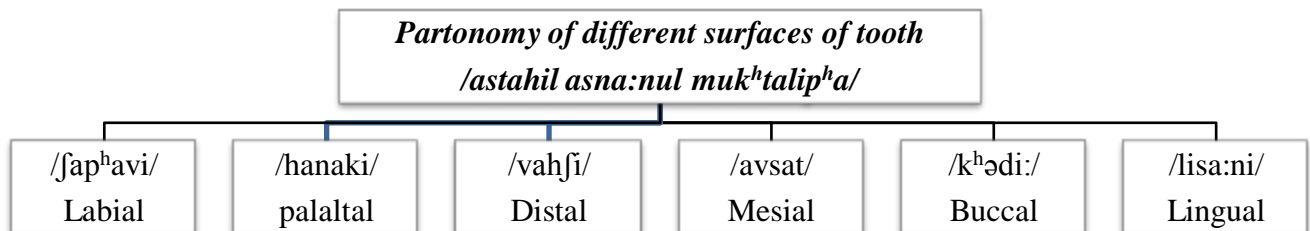


Figure 2:- Partonomy of different surfaces of tooth.

Oral Cavity:

In Arabic oral cavity is called as /taɖvi:p^halp^ham/. The oral cavity, better known as the mouth, is the start of the alimentary canal³. This oral cavity is divided into many parts and all parts have its equivalent in Arabic. From the figure we can get the idea of oral cavity.

³ <https://teachmeanatomy.info/head/organs/oral-cavity/>

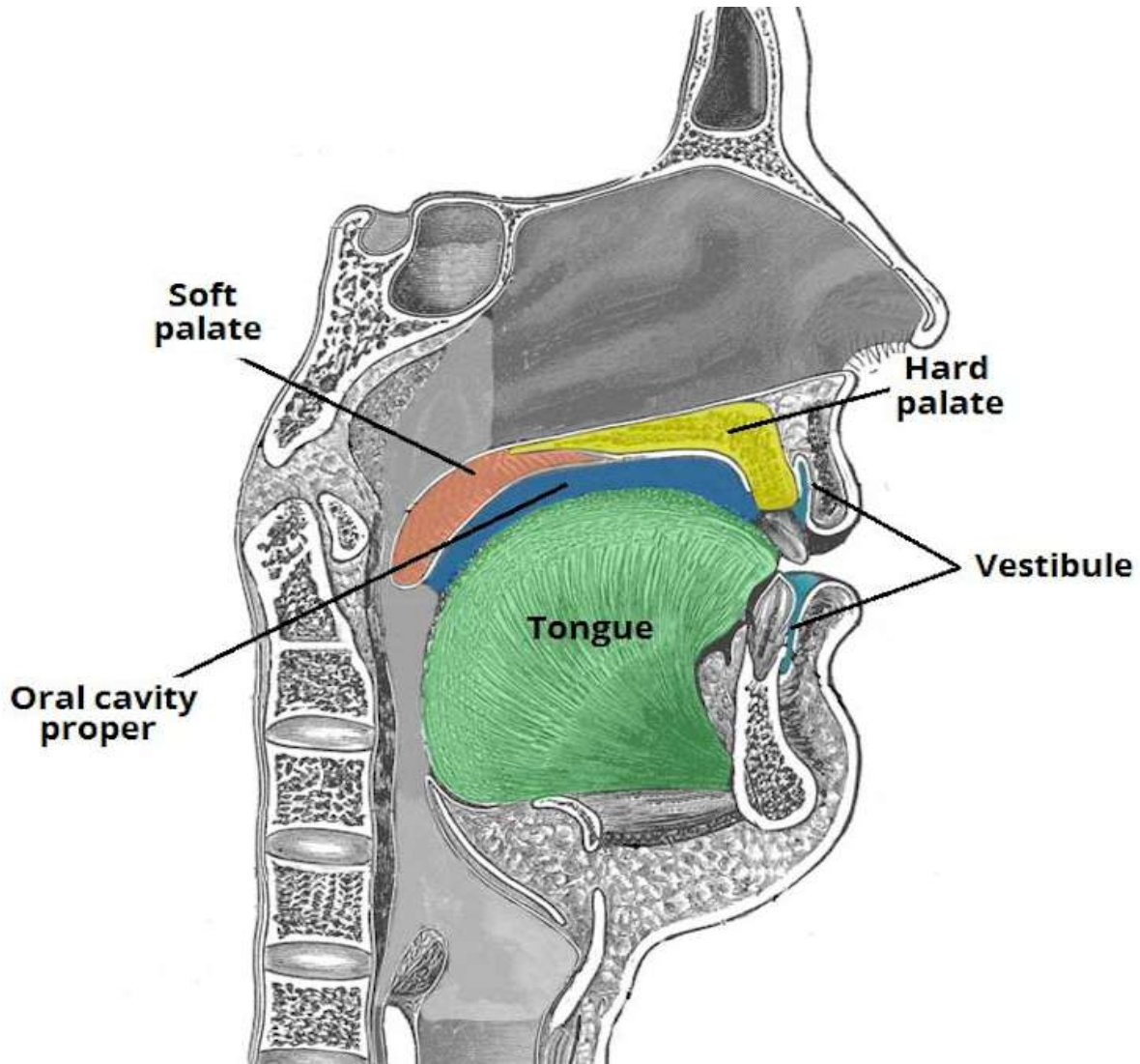


Figure 3:- Parts of Oral Cavity.

Different parts of oral cavity are shown below in partonomy structure which has its equivalents in Arabic.

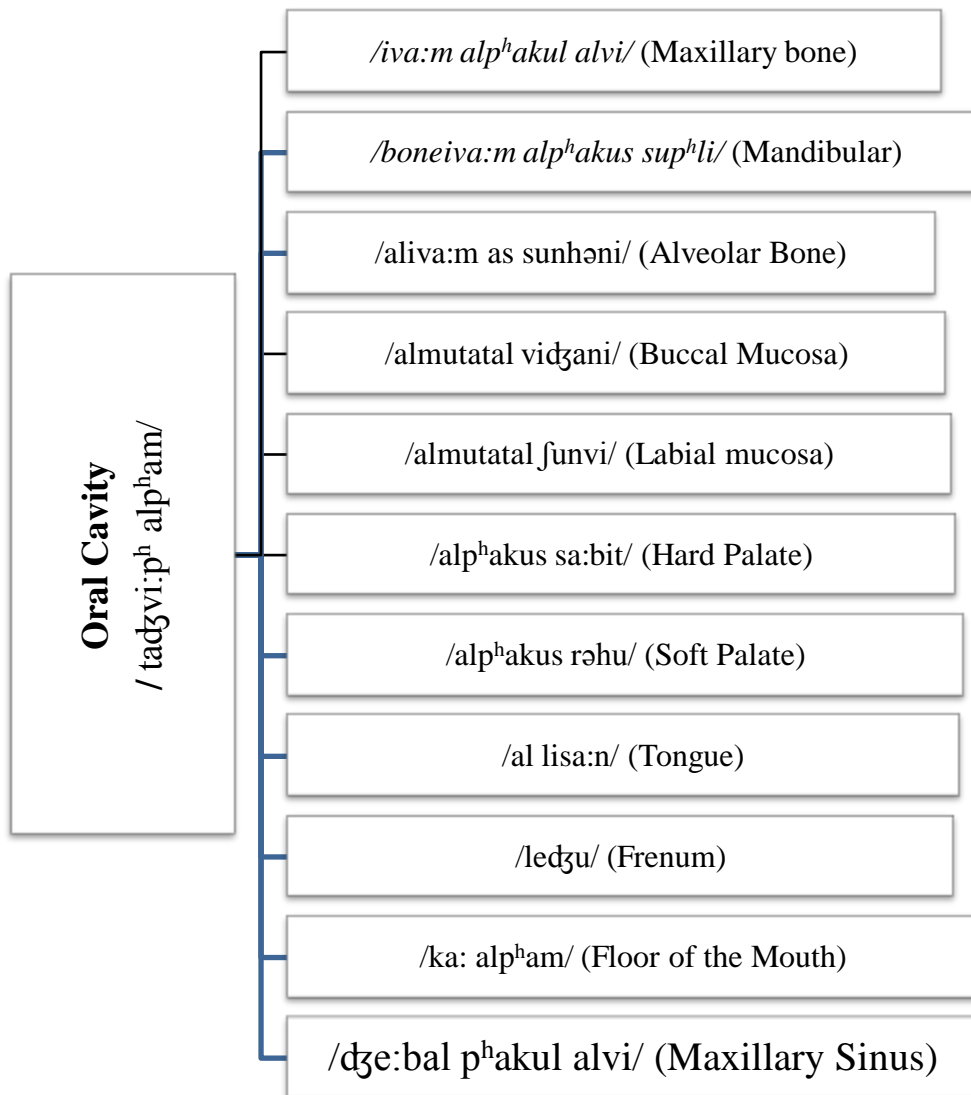


Figure 4:- Partonomy of Oral Cavity.

Here in oral speech, hard palate, soft palate, and tongue plays an important role.

Sets of Teeth:

Humans have two sets of teeth: Primary teeth and permanent teeth. Primary teeth are smaller and look like whiter than permanent teeth. Its partonomy is shown below.

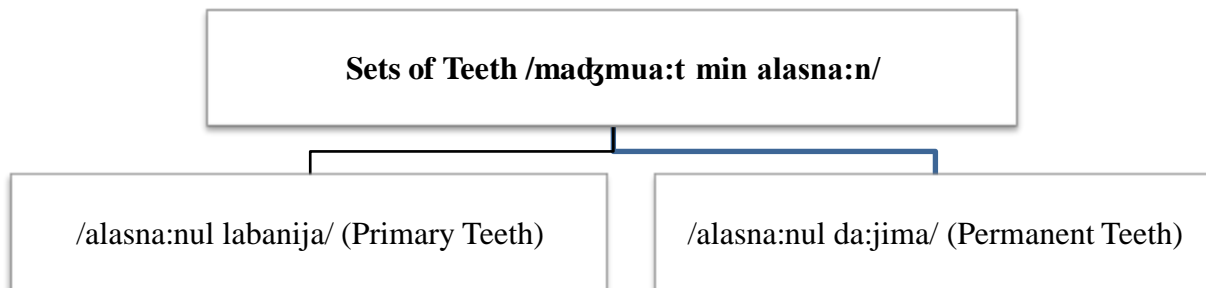


Figure 5:- Partonomy of Sets of Teeth.

Arrangement of Teeth:

Human beings have 32 teeth. Out them 8 are incisors, 4 are canines, 8 are premolars, and 12 are molars which includes 4 wisdom teeth. Its partonomy is shown below.

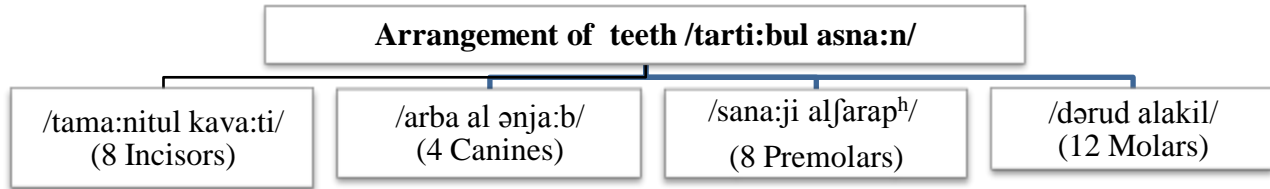


Figure 6:- Partonomy of Arrangement of Teeth.

Structure of tooth:

All true teeth have the same general structure and consist of three layers. In mammals an outer layer of enamel, which is wholly inorganic and is the hardest tissue in the body, covers part or all the crown of the tooth. The middle layer of the tooth is composed of dentine, which is less hard than enamel and similar in composition, to bone. The dentine forms the main bulk, or core, of each tooth and extends almost the entire length of the tooth, being covered by enamel on the crown portion and by cementum on the roots. Dentine is nourished by the pulp, which is the innermost portion of the tooth. The pulp consists of cells, tiny blood vessels, and a nerve and occupies a cavity located in the center of the tooth. The pulp canal is long and narrow with an enlargement, called the pulp chamber, in the coronal end. The pulp canal extends almost the whole length of the tooth and communicates with the body's general nutritional and nervous systems through the apical foramina (holes) at the end of the roots. Below the gumline extends the root of the tooth, which is covered at least partially by cementum⁴. Its partonomy is shown below in figure.

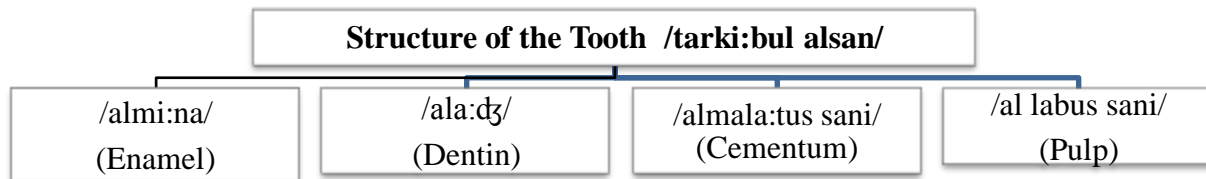


Figure:- Partonomy of Structure of Tooth.

Parts of tooth:

There are two parts of tooth, one is crown and another one is root. In most of the cases only the crown of the tooth is visible in the mouth. The root is below the gumline and is anchored to the bone⁵. Partonomy of parts of tooth is shown below in figure.

⁴ <https://www.britannica.com/science/tooth-anatomy>

⁵ <https://www.dentalcare.com/en-us/ce-courses/ce542/parts-of-the-tooth>

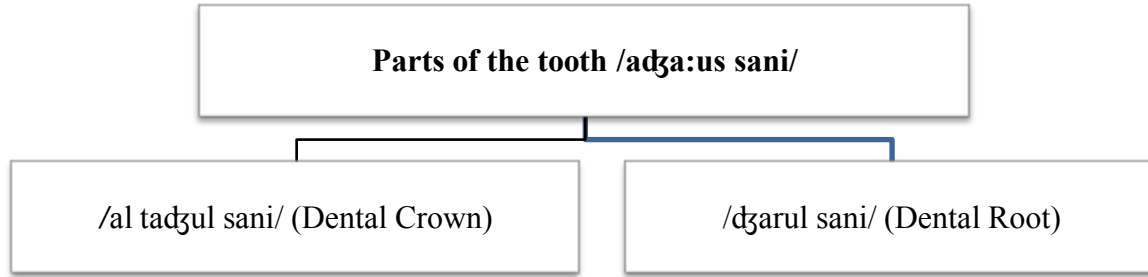


Figure:- Partonomy of Parts of Tooth.

Conclusion:-

Dealing with partonomy in Arabic is the gateway for initiating new problems in semantics. Arabic is rich in culture and almost for all scientific and non-scientific equivalents are available. This study was a small attempt to bring relationship between dentistry and linguistics. In dentistry major oral part of human body is involved and in linguistics same case is happening. Here in this study partonomy was the major focus and dental relations of Arabic have been exclusively used in this study. In this study focus was on dental partonomy in Arabic in area like different surfaces of tooth, oral cavity, sets of teeth, arrangement of teeth, structure of tooth, and parts of tooth.

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