

The Theory of Linguistic Zero and Its Manifestations in Arabic

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Abstract

This article examines the theory of linguistic zero as one of the central concepts in contemporary linguistic analysis while attempting to apply it to the Arabic language. The study is based on three complementary theoretical frameworks: the formal framework developed by Mel'čuk (2002), concerning the concept of the zero sign; the semiotic framework formulated by Ohnuki-Tierney (1994), which centres on the power of absence; and the functional framework proposed by Givón (2017). This article also aims to offer a synthetic reading of the manifestations of linguistic zero in Arabic at the phonological, morphological, syntactic, and discursive levels while drawing on the Arabic grammatical tradition. The study concludes that Arabic offers a rich model for the interaction between zero and nonzero signs and that what Arab grammarians refer to as *ellipsis* (*iḍmār*), the *implicit* or *covert element* (*al-mustatir*), and *suppletion by estimation* or *underlying reconstruction* (*taqdīr*) may be reformulated in light of the concept of the zero sign.

Keywords: linguistic zero; zero sign; power of absence; covert subject.

Introduction

The theory of the linguistic zero is among the most prominent modern concepts in linguistics, as it focuses on the study of the void or absence that may carry a semantic, grammatical, phonological, or pragmatic effect in language.

It is a theory that assumes the existence of unspoken grammatical elements, which are not pronounced but are present in the deep structure of the sentence and can be inferred from the context or from grammatical rules. They are represented by “Ø” or “zero”.

The concept of “zero” or linguistic absence (Ø) represents one of the most precise and controversial concepts in modern and contemporary linguistic analysis. While the ordinary speaker tends to regard language as a tangible phonic entity, linguists assume the existence of zero units that have no sound but perform specific grammatical, semantic, and pragmatic functions. The epistemological paradox lies in a fundamental and essential question: How can a communicative system effectively rely on emptiness? How can the existence of an element that cannot be directly observed be established? A further subsidiary question is whether the Arabic grammatical tradition addressed this emptiness as a functional signifier.

1. Concept of Linguistic Zero

In linguistics, zero refers to deleted or unexpressed elements in a linguistic structure, which are implicitly understood on the basis of context. What is meant by “linguistic zero” is a linguistic unit that is not verbally expressed but performs a specific grammatical or semantic function, as occurs in many languages in cases of subject deletion or implicit deletion within the sentence.

It is, therefore, an invisible and unspoken element, but one whose existence is assumed within the linguistic structure of the sentence.

This concept has been addressed by many linguists, each of whom proceeds from a distinct theoretical framework, such as the formal framework in Igor Mel’čuk, the functional framework in Talmy Givón, or even the framework of the power of absence in Emiko Ohnuki-Tierney.

1.1. The Concept as the Form of the Zero Sign in Igor Mel’čuk

In his article “Towards a Formal Notion of the Zero Linguistic Sign”, Igor Mel’čuk presents a practical, rigorous, and systematic framework for determining when linguistic absence is to be considered a “zero sign”.

On this basis, he defines the linguistic sign as an ordered triad: $X = (X'; \emptyset); \Sigma$.

Here, X' is the signified, or meaning; N is the phonic substance; and Σ_0 refers to the combinations, that is, the set of syntactic properties (Mel'čuk, 2002, p. 243). On the basis of this definition, the zero sign is a special case in which the signifier is allowed to be empty. However, this definition alone remains insufficient because it introduces zero into every case of absence without justification. For this reason, Mel'čuk stipulates three conditions for introducing the principle of the zero sign:

First, **expressiveness**: the expression must carry a particular meaning or the value of a particular grammatical feature that is attributed to the zero sign. In other words, zero must carry an “informational load”.

Second, **exclusiveness**: the expression must not contain a nonzero signifier to which that grammatical value or meaning may be attributed.

Third, **opposability**: There must be semantic opposition between this zero sign and a nonzero sign in the same position.

Fourth, **obligatoriness**: the meaning carried by the zero sign must be morphological or grammatical and not derivational.

1.2. The Power of Absence in Emiko Ohnuki-Tierney

In her article “The Power of Absence: Zero Signifiers and Their Transgressions”, Emiko Ohnuki-Tierney goes one step further in the analysis. Instead of asking when absence becomes a sign, she asks what the power of this sign is (Ohnuki-Tierney, 1994, pp. 59–60).

To explain her theses, she relies on three main intellectual currents in formulating her concept.

The first is Jakobson's phonological zero within a functional opposition, as Jakobson relies on binaries in which "zero" represents the negative pole, that is, the absence of a feature, in contrast to "one", that is, the presence of a feature.

For example, in the opposition between "voiced" and "voiceless", phonological zero may represent the absence of voicing and is therefore a voiceless sound (Ohnuki-Tierney, 1994, p. 61).

The second current is represented by Lévi-Strauss and his concept of the floating signifier, which is itself empty of meaning but is the condition of possibility for carrying meanings. The floating signifier in Lévi-Strauss is an "empty signifier" that absorbs the surplus of meaning in culture, enabling human beings to organise and interpret the phenomena of a world that is not fully filled with meaning.

For example, the floating signifier allows the cultural structure to be interconnected: in myths or beliefs, when human beings do not perceive a logical explanation, they use a "floating signifier" to link unrelated elements (Ohnuki-Tierney, 1994, p. 61).

The third current is represented by Roland Barthes's signifying zero, whereby "the absence of any explicit signifier itself functions as a signifier", and the zero degree is a "meaningful absence" (Ohnuki-Tierney, 1994, p. 62).

1.3. Zero from the Evolutionary Functional Perspective

Talmy Givón, in his book *The Story of Zero*, offers a more comprehensive approach to the phenomenon of the linguistic zero. Givón adopts a perspective that is radically different from the generative approach. He states that zero coding of the referent or of other clausal constituents is one of the most natural and transparent grammatical strategies, both communicatively and cognitively, in human language. Together with its functional counterpart, namely, obligatory pronominal agreement, zero coding is extremely widespread across different languages and is very common in natural texts (Givón, 2017, p. 3).

His argument is that zero is not an exceptional or “typologically strange” phenomenon, as it was portrayed by the generative approach for thirty years, but rather a natural, universal, and highly systematic device in human languages. His approach is based on four interconnected methods (Givón, 2017, p. 5): distribution in natural texts, typological distribution across languages, historical evolutionary emergence, and cognitive and communicative function.

a. Cognitive and Communicative Function

The concept of “cognitive and communicative function” is among the four most important methods adopted by Talmy Givón in studying the phenomenon of linguistic zero, with the aim of understanding how zero reflects the functioning of the human brain, especially memory and attention, during the processing of coherent discourse.

Reference may be made to the Iraqi researcher Sanaa al-Bayati, who argues that, in the brain, a connection is established between the things contained in the idea and that the stage preceding the birth of sentences is the stage of zero in language, whose location is the human brain (al-Bayati, 2005, p. 2).

Talmy Givón proceeds from the premise that zero is not an exceptional phenomenon but rather a natural and transparent device from the communicative and cognitive perspectives.

This “cognitive transparency” means that zero directly reflects the functioning of human memory, whereby the elements that remain active and present within the hearer’s focus of attention do not require explicit renaming. Zero therefore remains the “default option” selected by the human mind when the referent is already under current processing.

Givón addresses the relationship between memory capacity and linguistic processing and explains that working memory, the cognitive system responsible for the temporary retention of information during processing, has a limited capacity. The literature indicates that this capacity amounts to approximately 7 ± 2 units of information at a time. To manage this limited capacity, the human mind develops effective strategies, the most important of which is the sequencing of information, meaning the grouping of small

informational units into larger chunks that can be processed as a single unit (Givón, 2017, pp. 85–92).

With respect to how zero reflects memory activity, once the referent has been introduced in the opening clause of the chain, usually by means of a full noun, this referent becomes “under active processing” in working memory. Throughout the rest of the chain, this referent remains available in the focus of attention without the need to reactivate it through explicit linguistic means. Zero is the linguistic device indicating that the referent remains “active” in memory.

In contrast, the use of a full noun or an independent pronoun in this context would constitute a “false signal”, indicating that the referent is no longer active, thereby confusing the hearer and creating an additional cognitive cost (Givón, 2017, p. 94).

Givón also treats referential coherence as instructions for mental processing, proceeding from a central thesis according to which the linguistic rules governing referential coherence can be understood as “instructions for mental processing” that guide the hearer or reader in constructing mental representations of discourse rather than merely as abstract formal systems.

Types of Instructions for Mental Processing

The First Type

Instructions for initiating a new chain. These instructions are realised through the use of a full noun or a newly definite noun phrase. The following cognitive message is then sent to the hearer: “new referent: create a new mental representation for it and enter it into working memory” (Givón, 2017, p. 85).

The Second Type

Instructions for continuing the current chain. These instructions are realised through the use of zero (\emptyset), or what is known as pronominal agreement, such as bound pronouns. In this case, the cognitive message sent to the hearer is that the same referent remains active; therefore, the mental representation does not need to change.

The Third Type

Instructions for changing the chain or redirecting it. These instructions are realised through the use of independent pronouns or temporal and spatial adverbials. Consequently, the cognitive message sent to the hearer is that the previous referent is no longer the focus of attention; therefore, it either deactivates it or retrieves a previous referent from long-term memory.

Patterns of Processing

Givón distinguishes between two types of discourse processing on a referential basis (Givón, 2017, p. 89).

The First Type: Single-Referent Discourse

In this type, the same referent remains stable across a long chain of sentences. Here, the least phonetically explicit coding devices, namely, zero and pronominal agreement, are used almost exclusively. For example:

“Dakhala al-rajulu al-ghurfata, Ø jalasa ‘ala al-kursiyyi, Ø fataha al-kitaba, Ø qara’a, Ø aghlaqa al-kitaba, Ø kharaja.”

In this sequence, after the referent has been introduced in the first sentence, this referent becomes the “current focus of attention”. Hence, zero can maintain this focus without any additional effort.

The Second Type: Multi-Referent Discourse

In this type, reference shifts between two or more agents. Here, the use of phonetically heavier coding devices emerges: full nouns to introduce new referents, independent pronouns to redirect the trajectory toward a previous noncentral referent, and temporal and spatial adverbials for redirection.

To clarify these concepts, Givón supports his theses through the findings of experimental studies in psycholinguistics. These studies have shown that reading chains in which zero is used appropriately are faster and require less processing time, whereas the use of a full

noun or an independent pronoun where zero is expected, that is, in contexts of high continuity, produces a negative cognitive effect, as the reader experiences an unnatural interruption or a false signal of a change in reference.

2. Manifestations of the Theory of Linguistic Zero in Arabic

The concepts of the theory of linguistic zero appear at several levels in Arabic, as may be observed in the following.

2.1. Zero at the Syntactic Level

At this level, several phenomena appear, including the following.

The Phenomenon of the Covert Subject

This is one of the most prominent manifestations of zero in Arabic, such as the deletion of the subject of the imperative verb. For example, in the verbs *qum*, *uktub*, and *ijlis*, all are verbs in which the subject does not appear in the structure: *qum* Ø, *uktub* Ø, and *ijlis* Ø. The subject here is a pronoun, and Arab grammarians stipulate that when the imperative verb is addressed to the second-person singular, it is *anta*.

In Arabic, it is not correct to add the pronoun *anta* here; thus, one does not say *qum anta*. *Anta* is not a subject but rather an emphasiser. The main reason for not mentioning the subject is the clarity of the subject, namely, the addressee, and its being understood from the imperative form itself. There is, therefore, no need to mention it. For this reason, Sibawayh states that one does not point the addressee to himself, nor is there any need for that (Sibawayh, 1988).

Similarly, in the verb *safartu ams*, the subject is zero, appearing in the covert pronoun. In Arabic, one does not say *ana safartu*.

In addition, zero exists in the subject of exception with *illa*, as in the sentence *ma qama illa Hind*.

This is because what follows *illa* is not in fact the subject but rather an apposition to an estimated subject before *illa*, namely, the expected element (Ibn Hisham al-Ansari, 2004, p. 170). In the deep structure, the sentence is *ma qama ahadun illa Hind*.

In the section on substitution, the phenomenon of linguistic zero is manifested in the covert deputy subject in the passive verb, as in *wa qudiya al-amru*. The original structure is *qada Allahu al-amra*. There is, therefore, an empty position found in a deeper structure (Ibn Hisham al-Ansari, 2004, p. 174).

Mel'čuk's three conditions may be applied to test the legitimacy of this zero.

Expressiveness: The verbs *qum*, *uktub*, and *ijlis* carry the meanings of “standing”, “writing”, and “sitting”, respectively, and indicate an absent masculine singular subject. This meaning needs to be attributed to some sign.

Exclusiveness: In the sentence *uktub* or *qum*, as it occurs in the previous context, the sentence contains no nonzero signifier to which the meaning of the subject can be attributed.

Opposability: This zero stands in opposition to the overt pronoun *huwa* in the context of emphasis.

The zero existence of the verb is also manifested, for example, in the vocative construction, such as *ya Muhammad*. Here, the verb is implicit:

ya Ø Muhammad

Arabic deletes this verb because of frequent usage until it replaces the utterance of the estimated verb, namely, *unadi*, *uridu*, or *ad'u* (Ibn Ya'ish, 2001, p. 315).

It is also found in the covert object, as in the utterance *akaltu*, in answer to the question “Did you eat?”, meaning *akaltu al-ta'ama*, which represents the object. For example, *wa Allahu yad'u ila dar al-salam*, meaning that He calls His servants. This is a functional empty position. 'Abd al-Qahir al-Jurjani considers absence more eloquent than presence. Among his examples is *fulan ya'mur wa yanha*, as stated by 'Abd al-Qahir al-Jurjani (al-Jurjani, n.d., p. 154).

2.2. Zero at the Phonological Level

These are phonological changes that lead to the deletion of certain letters or sounds without affecting the understanding of meaning, as in some morphological inflections. It is thus a material absence of sounds.

Zero is manifested at the phonological level of Arabic through the system of hamzas, especially *hamzat al-wasl*. In words beginning with *hamzat al-wasl*, such as *ibn*, the hamza is pronounced when the word occurs initially but is dropped when it is connected to what precedes it, as in *Muhammad ibn 'Abd Allah* and *wa-ibn al-Haytham*.

Zero existence also appears, for example, in assimilation in Qur'anic readings, such as the pronunciation of *min rabbihim*, which becomes *mirrabbihim*, where the sound *n* in *min* is assimilated into the sound *r* in *rabbihim*. Here, the sound *n* and its feature are transformed into zero, while its temporal duration remains in the geminated sound *r*, which is an indication of its original existence. Contemporary researchers have demonstrated that the human mind treats the absence of sound as a structural position and that the zero position has temporal timing in speech planning that is exactly equivalent to that of any consonantal sound.

2.3. Zero at the Morphological Level

A morphological zero represents one of the manifestations of zero in Arabic, owing to its direct connection with word formation and inflection. It concerns the absence of the “morpheme”, that is, the minimal morphological unit carrying meaning, while the effect of this absence remains operative in the linguistic system.

The zero morpheme is defined as “a morphological unit that has no phonic substance but performs a specific morphological and semantic function” (Mel'čuk, 2002).

In diptotic nouns, the manifestations of the zero morpheme emerge in the Arabic nominal system. These nouns do not take nunation and are not put in the genitive by means of the

kasra; rather, they take the damma in the nominative and the fatha in both the accusative and the genitive (Mustafa al-Ghalayini, 1993, p. 215).

Since this case represents an “exception” to the general pattern, it may be considered that the ordinary nominative marker, the damma, is replaced by a zero marker in the context of bare nominative marking.

This may be clarified in the following example by distinguishing between the triptotic and the diptotic noun.

The triptotic noun *ja' a Muhammadun*: Here, the nominative is marked by the damma and nunation.

ra'aytu Muhammadan: Here, the fatha and nunation occur.

marartu bi-Muhammadin: Here, the kasra and nunation occur.

The diptotic noun: *ja' a Ahmadu*: nominative marked by the damma only.

ra'aytu Ahmada: fatha only.

marartu bi-Ahmada: Genitive marked by the fatha in substitution for the kasra.

In the nominative case: *Muhammad*: damma + nunation.

Ahmad: damma + Ø, a zero morpheme indicating the nominative in the diptotic noun.

In the accusative case: *Muhammad*: fatha + nunation.

Ahmad: fatha – nunation.

In the genitive case: *Muhammadin*: kasra + nunation.

Ahmad: fatha Ø, represented by the kasra and nunation.

Thus, zero is not in the damma itself or in the fatha but in the absence of the nunation that would have been expected.

That is, \emptyset occupies the position of “nutation” in the morphological structure.

In the diptotic noun: root + damma, as the nominative marker, + \emptyset , in place of nunation, as an indication of diptosis, because the noun loses the feature of nunation, which is a marker of morphological completeness.

This corresponds to the principle of opposability, since \emptyset stands in opposition to nunation in triptotic nouns. The cognitive dimension of morphology also appears in the fact that the hearer recognises that the absence of nunation and of the kasra in the genitive is not random but that this noun is diptotic.

In nouns such as *fulk*, the singular and plural forms are identical; therefore, the plural marker may be considered \emptyset , and the plural is realised through zero morphology. Sibawayh confirms this in his statement that some Arabs say *hadha fulk* and *hadhihi fulk* so that the singular and the plural are identical (Sibawayh, 1988). Among instances of zero pluralisation is also *jund*, in which the singular and plural forms do not change. One says *hadha jund Allah* and *hadhihi jund Allah*.

2.4. Zero at the Discursive Level

This level goes beyond the boundaries of the single sentence, and zero is not confined to them; rather, it extends to broad sets of sentences and encompasses entire discourses. The zero element becomes known in the addressee’s memory through the preceding discursive context. Thus, zero at the discursive level concerns the absence of the referent, whether a noun or a pronoun, in a chain of successive sentences, while this referent remains active and present in the recipient’s mind.

Talmy Givón (2017) argues that zero at the discursive level represents “the highest degree of referential continuity”, whereby the human mind groups sentences sharing the same referent into a single “chunk” that is processed as one cognitive unit. This embodiment reduces the load on working memory and makes discourse processing more efficient.

In the previous example:

Dakhala al-rajulu al-ghurfata wa-huwa yufakkiru fima sayaqulu, Øjalasa, Øwajada al-kitaba alladhi Økana yabhathu ‘anhu, Øfa-fatahahu.

In this text:

1. Ø in *jalasa* is a discursive zero referring back to the man in the preceding sentence.
2. Ø in *wajada* is a discursive zero with the same referent.
3. Ø in *fa-fatahahu* is a discursive zero with the same referent.

It may be observed that zero anaphora occupies the highest point on this scale, which means that it is the optimal device for encoding the highest degrees of referential continuity. Deletion is not at all chaotic; rather, it is governed by strict discursive conditions related to referential continuity. The greater the continuity of the referent across successive sentences is, the greater the tendency of the linguistic system toward the use of zero.

An example of this is the following discourse, which is a passage from the Qur’an:

“When the youths took refuge in the cave and said: Our Lord, grant us mercy from Yourself and prepare for us right guidance in our affair. (10) Therefore, we cast a veil over their ears in the cave for a number of years” (11), Surah al-Kahf.

What may be observed in this discourse is the repetition of zero (Ø) after the introduction of the linguistic element “the youth” as an antecedent in the first instance. The verbs then follow in succession: *faqalu*, *atina*, and *hayyi’ lana*. They all contain bound or covert pronouns that refer to the same referent, which ensures a high degree of discursive cohesion.

Another example of a referential shift is the following discourse:

“After the distress, he sent down upon you security, a slumber overcoming a group of you, while another group, concerned only with themselves, thought of Allah other than the truth, the thought of ignorance. They said: Is there anything for us in the matter?”
Surah Al ‘Imran, verse 154.

Here, we find a sequence of sentences, together with the following verbs: *anzala*, *yaghsha*, *ahammathum*, *yazunnun*, and *yaqulun*. Referentiality shifts between “one group” and “another group”, and zero, bound pronouns, and independent pronouns are used precisely to organise these referential relations.

Discursive zero shows that “absence” is not merely a grammatical phenomenon but rather an advanced cognitive strategy that reflects the functioning of the human mind. A referent that remains active in working memory does not require renaming. Zero is therefore the linguistic device that signals this activity. What Arab grammarians call “the continuation of the pronoun” or “the deletion of the repeated element” is nothing other than an expression of this cognitive reality.

Conclusion

It may be said that the theory of linguistic zero has developed from being merely a tool for describing anomalous phenomena to being a cornerstone in understanding the interaction between grammar and discourse. Research on sentence chaining has demonstrated that what appears to be an “empty space” is, in fact, a structural position that occupies a particular meaning, which is retrieved through context. The cognitive and communicative function of zero also represents a qualitative shift in the understanding of this linguistic phenomenon. By linking zero to the nature of human memory and mechanisms of attention, Givón offers a natural explanation of the paradox of “present absence”. Absence is not a deficiency in the system but rather a direct reflection of how the human mind operates. This analysis reveals new research prospects for applied

studies, especially in the field of second-language teaching. Teaching learners of Arabic as a foreign language how to use zero sentence chains correctly is not merely the teaching of a grammatical rule; rather, it is the teaching of how to think and communicate in a more natural and effective manner. The future of the zero theory depends on its ability to benefit from developments in neurolinguistics and computational modelling. The phenomenon of zero appears in Arabic at all levels, from the phonological level to the covert pronoun in the verb and to the deleted plural chain in discourse, which reveals the richness of this language and its ability to adapt to the principles of referential continuity. Thus, it may be said that the concept of zero, in light of this analysis, is not merely a descriptive tool but a real functional entity in the linguistic system of Arabic. The early Arab grammarians were aware of this, but they did not call it linguistic zero; rather, they referred to it as covert realisation, ellipsis, and estimation, and it has a semantic function.

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