

Zero Morphemes in Turkish Relative Clauses¹

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ABSTRACT

Zero morpheme is a phenomenon encountered in many languages due to various reasons such as aesthetical concerns and the least effort law in which it is posited that a speaker will express a message making use of the linguistic structures as economically as possible. Having an agglutinating morphology, zero morpheme is not a common characteristic of Turkish. Therefore, the literature on zero morphemes in Turkish is relatively limited. This study hypothesizes that the case markers of the comitative, dative, locative and ablative cases are omitted in the relative clauses in Turkish, based on example sentences and their morphological analyses. For the analysis method, interlinear gloss was used. Example sentences with relative clauses were analyzed by dividing them into two independent clauses. The analysis showed that the case markers normally available on the independent clauses were omitted when they were merged to form a relative clause. This omission occurs when the objects bearing the aforementioned cases are relativized with the suffixes *-Dik* and *-(y)AcAk*. In the suffix *-(y)An*, however, we cannot see such omission as this suffix is used to relativize the subject unlike *-Dik* and *-(y)AcAk*, which relativize the object.

1. Introduction

1.1. Zero Morphemes

The study of morphology draws its strength heavily from its most basic unit, the *morpheme*, which is defined as the smallest unit of language with a meaning (Lieber, 2010). Morphemes cannot be divided further into meaningful units, but they consist of clusters of sounds (Brinton & Brinton, 2010). In this regard, we see an interaction between phonology and morphology at the very beginning of the word formation. This interaction can also manifest itself at a peripheral level. When circumfixing the verbs to form a past participle in Dutch, for example, the participial prefix *ge-* is not licensed if the verb begins with an unstressed prefix. In the case of the verb *ontváng* ‘to receive,’ the verb has to be suffixed as *ontvangen* for the past participle (Booij, 2005).

There are also, however, some cases in which we cannot see such an interaction. In linguistic morphology, zero or null morphemes are the type of morphemes that do not have a phonological realization on the surface, but still contribute a meaning to

1 I would like to express my profound gratitude to the anonymous reviewers of LingUU, and PhD students Esra Ataman and Ozan Can Çağlar, who I believe will be promising linguistics scholars in the future, for their invaluable comments and suggestions on this article.

the word to which they attach. Zero morphemes are represented with empty set symbol \emptyset . English is an Indo-European language in which zero morphemes are relatively often encountered. Therefore, examples from this language are in place. The most common example is the irregular singular-plural pairs:

- 1) Singular - Plural
fish fish
sheep sheep

An example can be the plural word *fish*. Whether native or non-native speaker of English, we all know that there is no such word as **fishes*. The correct form is the same as the singular form, *fish*. The morphological analysis of the plural form, therefore, is as follows:

- 2) "A lot of fish are caught in this lake."
 FISH (sg.) + \emptyset (pl.) \longrightarrow FISH (pl.)²

In the English language, the same process is also seen in some of the irregular past tense forms of the verbs such as *put-put*, *bet-bet*, *cut-cut*, *let-let*, etc. The present simple and past participle forms are the same, constituting a linguistic process called *zero inflection*. Despite being relatively common, zero morphemes are not idiosyncratic to English. Hungarian, an agglutinating Uralic language, also features them in the formation of the present tense (Comrie, 2009):

- 3) mën- \emptyset -tëk 'you (pl.) go' (present)
 mën-te-tëk 'you (pl.) went' (past)

Gitxan, an endangered indigenous language in Canada, presents another interesting case for this process. In this language, non-future tense is zero marked in contrast to the future tense that is marked with the function word *dim* (Jóhannsdóttir & Matthewson, 2008):

- 4) Yookw-t James 'James eats/ate' (present/past)
 Dim yookw-t James 'James will eat' (future)

Ferdinand de Saussure, a prominent founder of the 20th century linguistics, was one of the first scholars who first drew attention to the zero signs in language. By contrasting the Czech word *ženy* 'women' with the genitive marked form *žen* 'of women', which was originally *zenĭ* in the Old Church Slavonic, he postulated a zero sign to account for the lack of an overt corresponding linguistic form (as cited in Kastovsky, 1980). Kastovsky (1980) strikingly states that this process has to be seen as "meaningful absence" (p. 216). Regarding the causes of this absence, Aydın (2012) attributes it to a few motivations such as the least effort law in language and aesthetical concerns. Zeynep Korkmaz, a prominent Turkish linguist, defines least effort law as "the law that causes events such as elision, as-

² Glossing is a method employed often throughout this paper. Some lesser known used categorical abbreviations are: GER: gerund, PSB: possibility/ability, COP: copula, COM: comitative case

similation and contraction to provide convenience by saving time and labor during speech” (as cited in Aydın, 2011, p. 1). This law can be realized in many forms in any language. An example from Spanish would be the use of the short forms *profe*, *bici*, and *pelí* instead of *profesor* ‘teacher’, *bicicleta* ‘bicycle’ and *película* ‘movie’ respectively at an orthographic level. Also, the common use of word *abi* instead of the word *ağabey* ‘brother’ is a common phonological application of this law in Turkish. Aydın (2011) classifies the realization of this law in Turkish under seven conditions. These conditions are avoidance of repetitions, use of affix instead of word, affix deletion, use of defined units, non-linguistic references, idioms and proverbs and phonological changes. Zero morpheme is a phenomenon that is part of the affix deletion.

In fact, this phenomenon being in line with the least effort law in language can be clearly seen in zero derivation or conversion. This is a common strategy used by children during language acquisition. To give an example from the English language, it has been observed that many children use the nominal cases of the nouns in order to express the corresponding verb meaning. For example, Eve V. Clark got the following output from the experiments with children (as cited in Aronoff & Fudeman, 2011):

- 5) “I’m **supermanning**” (pretending to be Superman)
 “Will you **chocolate** my milk?”
 “Don’t **hair** me.” (to his mother brushing his hair)

Even though some linguists such as Laurie Bauer find analyses with zero morphemes controversial (as cited in Kosch, 2004), it should be noted that there is neurolinguistic evidence regarding the zero affixation. In an fMRI experiment, Pliatsikas and his colleagues (2014) tested the processing of English zero-derivational words inflected with *-ing* suffix. They observed a significantly increased brain activity in their participants when they were presented with ‘two-step’ (e.g. (bridging < bridge-V) < bridge-N) gerund English words in a lexical decision task, because the recognition of these words required a more complex processing in which the verb *bridge* is first derived from its base noun form, and then affixed with the *-ing* suffix. This activity was stronger than the other condition where they were supposed to make a decision on the ‘one-step’ (e.g. soaking < soak-V) words that requires only one affixation. From these findings, it is strikingly concluded that morphological processing cannot boil down to a surface-based segmentation (Pliatsikas et al., 2014).

When it comes to Turkish, there are not many articles written about zero morphemes. To be more specific, to my knowledge, there is no article published to date regarding the zero morphemes in the relative clauses in Turkish. In the literature, we see only a few articles focusing on zero morphemes in Turkish. For instance, Ahmed (2008) reviews the zero morphemes and the cases in which they occur in Turkish. He primarily categorizes them in two groups, which are real null morphemes and null morphemes as a result of dropped morphemes. Within these two categories, again, he describes them further into more detail. The first group,

the real null morphemes, are realized in the nominative case, personal suffixes (mostly 3rd) and imperative mode:

- 6) Anne-m ben-a bir hediye-Ø al-dı-Ø
 mother-1POS me-DAT a gift-NOM buy-PST-3SG
 'My mother bought me a gift.'
- 7) Ben-a kalem-i ver-Ø-Ø
 me-DAT pencil-ACC give-IMP-2SG
 'Give me the pencil.'

(Ahmed, 2008: 144, (3))

As can be seen in the example (6) above, the word *hediye* 'gift' has no overt nominative case marker as the bare nouns already denote this meaning by themselves in Turkish. In other words, this nominative marker is 'covert', i.e. phonologically empty. Likewise, there is no marker of imperative mood in Turkish. In example (7), *ver-* 'give' as a bare verb form suffices to convey a meaning of imperative mood for the second-person singular conjugation. It is worth noting that the verb does not have a person suffix either, unlike the conjugation for second-person plural *verin!* 'You all, give!' which features a personal ending *-in* for the plural *you*. With the lack of both an imperative mood marker and a personal suffix to denote the mood for second-person singular, the sentence (7) sets a remarkable example of least effort law.

Ahmed (2008) also draws attention to the lack of a personal suffix for the third-person singular in the temporal and modal conjugations:

- 8) Ali bütün gün o kitap-ı oku-yor-Ø.
 Ali all day that book-ACC read-PROG-3SG
 'Ali reads that book all day.'

(Adapted from Ahmed, 2008: 144)

In contrast to the languages such as English³ and German where third-person singular is marked in the present tense, Turkish does not have an overt marking for this grammatical person in the temporal and modal expressions as in the example above (8).

The second category, which is a case of zero morphemes a result of dropped morphemes, includes the (negative) aorist in the first, negative forms of possibility/ability verbs and all adhered uses of copular verb 'i-' (Ahmed, 2008):

- 9) Ben bu-nu ye-me-Ø-m.
 I this-ACC eat-NEG-AOR-1SG
 'I don't eat this.'

3 I would like to draw attention to the fact that this is the case for mainstream English. In some dialects such as Norfolk English, the present tense suffix *-s* for the third-person singular is not marked. See: Joby, C. (2014). Third-person singular zero in the Norfolk dialect: A re-assessment. *Folia Linguistica*, 48 (Historica-vol-35), 135-172.

- 10) Bugün okul-a git-e-Ø-me-di-m.
today school-DAT go-GER-PSB -NEG-PST-1SG
'I couldn't go to the school today.'
- 11) Sen çok güzel-Ø-Ø-sin.
you very beautiful-COP-PRES -2SG
'You are very beautiful.'

(Ahmed, 2008: 149, (21))

In example (9), the negative aorist marker is realized as a zero form, while the affirmative aorist form in Turkish is an overt form *-Ar*. Example (10) shows the negative zero marking of possibility/ability whose affirmative form is normally *-Abil*. When the meaning has to be negated, this morpheme is dropped. Finally, example (11) demonstrates the long-standing omission of the copula verb *-imek* (to be) in Turkish. Especially when adhered, this form is not realized on the surface.

Aydın (2012), on the other hand, reviews the zero morpheme instances in Turkish and categorizes those in nine forms, which are: primary subject suffix, primary object suffix, genitive suffix, third person suffix, imperative mode second person suffix, nominative case, predicator suffix, possessive suffix and person and tense suffixes used jointly. A more recent study by Uçar (2017) focuses on Chagatai Turkish. The zero morphemes in this dialect are elaborated in two categories, which are the zero morphemes in nouns and verbs. As previously mentioned, none of these studies includes the zero morpheme realization in the relative clauses.

1.2. Relative Clauses in Turkish

For the readers who are not familiar with Turkish, a short description of relative clause formation is in place. In Turkish, the relative clauses are formed with the participial suffixes *-(y)An*, *-Dik*, *-(y)AcAk* (Göksel & Kerlake, 2005). To summarize it briefly, *-(y)An* is to relativize the subjects within the relative clauses. In the example below, the noun and participle-inflected verb exchange places in the translation of English due to the head-directionality parameter: Turkish is a head-final language, while English is a head-initial language. This morpheme has temporal ambiguity, which may inflect the verb in both present and past tense. Note that *koşan adam* in example (12) may mean either 'the man who ran' or 'the man who is running', depending on the context.

- 12) Koş-an adam-ı gör-dü-n mü?
run-PTCP man-ACC see-PAST-2SG 2Q
'I see the man who is running/ran.'

-Dik and *-(y)AcAk*, on the other hand, are used to relativize objects within the relative clause. The former indicates a tense depending on the context (see examples 13-14), while the latter indicates that the object is treated in the future (see example 15) (Göksel & Kerlake, 2005).

- 13) Şu an oku-duk-um makale çok zor-Ø
 now read-PTCP-1SG article very difficult-PRS.COP
 'The article that I am reading now is very difficult.'
- 14) Dün oku-duk-um makale çok zor-du.
 yesterday read-PTCP-1SG article very difficult-PST.COP
 'The article that I read yesterday was very difficult'
- 15) Yap-acak-ım ödev çok sıkıcı-Ø
 do-PTCP-1SG homework very boring-PRS.COP
 'The homework that I will do is very boring.'

The glosses in (13) and (14) are almost identical, with the only difference being past/present copulas and the matching adverbs for them (yesterday, now). These contrasting structures were included in order to resolve the ambiguity of the suffix *-Dik*, which has a function to relativize an object in the both present and past tense.

With these formation rules in mind, the motivation of the researcher was the odd argument structure in the surface realization of the Turkish relative clauses, which will be explained below in detail. The phrase *kaldığım oda* 'The room in which/where I stayed', for example, is grammatical but tends to correspond to a surface structure in Turkish that reads 'the room I stayed', leaving out the relative *-and* locative- pronouns *which* or *where*. In other words, there is not a morpho-semantic structure in the Turkish phrase that denotes a case of location. In this regard, the present study seeks to answer the following two questions:

- 1- Does a zero morpheme realization occur in Turkish relative clauses containing nouns inflected with a case marker?
- 2- If there is such realization, where is the actual position of these omitted morphemes?

As mentioned above, the existing literature on Turkish linguistics do not seem to shed light on these questions. This study will therefore constitute one of the first attempts to investigate this phenomenon. In the subsequent sections of the paper, the researcher will inform about the method, results and conclusion of the study. The sentences with relative clauses from both languages will be compared at morphological level in order to support the theoretical focus of the paper with evidence in the results section with the help of implementation of the methods addressed in the next section.

2. Methods

Being utilized as a means of foreign language instruction in the past, interlinear gloss has always been a tremendously useful instrument of annotation. In linguistic morphology, it basically has a function of segmenting a string of words into their morphemes and providing their translations in the target language at the same time. For the readers who are not familiar with this procedure, an example from Turkish would be helpful:

- 16) Çocuk-lar-ımız-ın geleceğ-i çok önemli-dir.
 child-PL-1PL.POSS-GEN future-GEN very important-PRES.COP
 ‘The future of our children is very important’

Interlinear gloss was considered a relevant method for the purpose of this study since it has the capacity to identify zero morphemes differentially. As testing material, five Turkish sentences containing relative clauses were generated by the researcher. Each sentence was tested to identify the omission of a different case marker. The tested markers that are hypothesized to be omitted were *-(y)A*, *-(y/n)A*, *-DEn*, *-DE*, which respectively correspond to comitative, dative, ablative and dative cases. The generated sentences (and their translations) were as follows:

- 17) *Yemek yediğimiz arkadaşını hatırlıyor musun?* (Do you remember the friend with whom we ate food?)
 18) *Gideceği şehri araştırdı.* (He investigated the city to which he will go.)
 19) *Geldiğim sokağı unuttum.* (I forgot the street from which I came.)
 20) *Yaşadığı ülke çok kötüydü.* (The country in which he lived was very bad.)
 21) *Beni ısırın köpek kaçtı.* (The dog that bit me ran away)

The analysis consisted of mainly two steps. First, the sentences were analyzed using interlinear gloss. Secondly, they were divided into two separate sentences by transforming the relative clause into an independent clause. At this stage, the two separate sentences were again analyzed with the help of gloss. For consistency with the literature norms, The Leipzig Glossing Rules were followed. Finally, in order to identify the actual position of these morphemes, i.e. where they are omitted, the sentences with relative clauses were each converted into a sentence with finite Turkish relative clause preceded by the relativizer particle *-ki*. In this stage, non-defining relative clause structure was followed in the English translation of the sentences as finite relative clauses in Turkish and non-defining relative clauses in English virtually have the same function, providing additional information. In all of the glosses, consonant transformations, which is a common characteristic of Turkish, were left out and morphemes were segmented in their bare forms so that those who cannot speak the language are not confused. In addition, the examples provided above was examined under the multi-level numbering in the results section for the convenience of readers. For instance, main example (17) *yemek yediğimiz arkadaşını hatırlıyor musun?* (‘do you remember the friend with whom we ate food?’) was examined using interlinear gloss under the main number 17, while it is divided into two independent sentences under 17. a. at the second stage. When identifying the position of omitted case markers with ‘the finite relative clause test’, was examined in 17. b. The same procedure was followed in the rest of the examples.

3. Results

3.1. Omission of case markers

Before elaborating on the evidence for the zero morphemes in Turkish relative clauses, it is noteworthy that in many Indo-European languages (e.g. English and Spanish), a preposition is required when forming a relative clause in some situati-

ons (except for subjective and objective case). These situations can be observed when referring to a place (*to which, from which, in which etc. = where*) or a means (*with which/whom, instrumental and comitative case*). In the two English sentences below with their Spanish translation (22 and 23), this can be clearly seen. The relative pronouns in both languages contain a preposition (e.g. *in* and *with* for English, *en* and *con* for Spanish) especially when expressing mainly instrumental/collaborative or locational relations with the relativized noun:

- 22) The box **in which (=where)** the books are kept is lost.
La caja **en la que (=donde)** se guardan los libros se pierde.
- 23) The sword **with which** he killed the enemy is exhibited in the museum.
La espada **con la que** mató al enemigo se exhibe en el museo.

As for Turkish, in which we form the relative clauses with *-(y)An*, *-Dik* and *-(y)AcAk*, the case marker postpositions⁴ are not realized in the relative clauses which convey thematic roles with comitative (instrument), dative (theme), ablative (source) and locative cases.

3.1.1. Comitative case

To start with, the example of a relative clause with a comitative case is in place:

- 17) Yemek ye-dik-imiz arkadaş-ı hatırla-yor-musun?
food eat -PTCP-1PL friend-ACC remember-PROG-2Q
'Do you remember the friend with whom we ate food?'

In Turkish, the comitative case is *-(y)lA*, which is the equivalent of the preposition 'with' in English. As can be seen in the gloss above, the morphemic realization of comitative case is missing in the Turkish sentence, whereas we see a function word to that effect, *with*, in the English corresponding sentence. Even though the sentence (17) is clear in denoting a collaborative action of eating together on the surface, it does not feature any morphological form that expresses this action. Therefore, the surface Turkish sentence tends to be comprehended as 'do you remember the friend we ate food?' with no structure corresponding to *with* and intrasentence items ordered in a linear manner. As a result, the lack of a postpositional relativization causes the word *arkadaş* 'friend' to sound like a second direct object with no intervening conjunction such as *and* that coordinates *arkadaş* with the actual direct object *yemek* 'food'. The picture, however, changes when we break down the sentence into two independent sentences:

17. a. Arkadaş-ı hatırla-yor musun? O-nun-la yemek ye-di-k.
friend-ACC remember-PROG 2Q him-GEN-COM food eat-PST-1PL
'Do you remember the friend? We ate food with him.'

4 As Turkish is a head-final language, a notion of preposition is not available. Instead, there are postpositions to mark spatial and temporal relations. Henceforth, the term postposition will be used.

The analysis indicates that the comitative case *-(y)IA* is actually available at the end of the word 'onunla' (with him) in the second sentence. In other words, the comitative case marker covertly attached to the noun *arkadaş* (the friend) to indicate a collaborative action of eating together in the sentence surfaces when the sentence is partitioned in a way that the main clause is headed by the question 'do you remember...?' and subordinate relative clause becomes two separate stand-alone, i.e. independent, clauses. The comitative is not the only grammatical case that undergoes this operation, though. In the other grammatical cases, we observe the same situation as well.

3.1.2. Dative Case

The same phenomenon can be observed when expressing an indirect object inflected with the dative case marker to denote a *goal* as thematic role within the relative clause.

- 18) Git-ecek-i şehir-i araştır-dı-Ø
 go-PTCP-3SG city-ACC investigate-PAST-3SG
 'He investigated the city to which⁵ he will go.'

The Turkish verb *git-* 'to go' is normally an intransitive verb as in most languages. Though the correct English equivalent of the sentence (18) is 'He investigated the city to which he will go', the sentence gets comprehended in the Turkish speakers' mind as 'He investigated the city which he will go' as there is no postposition in the relative clause unlike English, which requires prepositions in these subordinate clauses. In terms of argument structure, the indirect object *şehir* 'city' sounds like a direct object due to lack of postpositional relativization as in the previous example (17). However, any Turkish speaker will understand that there is an action of going *to* a direction in the above example of relative clause of *gideceği şehir* 'the city to which he will go' despite the fact that s/he may not be able to realize the eccentric argument structure aforementioned at first. To be clearer, this sentence with a relative clause will be divided into two independent clauses.

- 18.a. Şehir-i araştır-dı-Ø. ora-ya git-ecek-Ø.
 city-ACC investigate-PST-3SG there-DAT go-FUT-3SG
 'He investigated the city. He will go there.'

The second sentence *Oraya gidecek* has a dative marker in it even though it is realized in the demonstrative pronoun *ora* 'there'. However, when we relativize this sentence and attach it to the first sentence, the dative marker is not realized any more. Therefore, the relative clause does not include the case marker *-(y/n)A* as in the original sentence (18).

5 In order to emphasize the prepositional aspect of the relative clauses, the relative pronouns *to which*, *from which* and *in which* are used instead of *where* in this paper.

3.1.3. Ablative case

The same process of omission is also seen in the ablative case:

- 19) Gel-dik-im sokak-ı unut-tu-m.
 come-PTCP-1SG street-ACC forget-PST-1SG
 'I forgot the street from which I came.'

In the gloss above, there is no postposition implying the meaning of 'from (which)' in the Turkish sentence. Again, the lack of this postposition within the relative clause *geldiğim sokak* 'the street from which I came' causes the noun *sokak* to be perceived as the direct object of the *gel* 'come', which is against the transitivity rules of the language because you cannot 'come a street' in Turkish. To clarify this point further, this sentence will be divided into two independent clauses as well:

- 19.a. Sokak-ı unut-tu-m. Ora-dan gel-di-m.
 street-ACC forget-PST-1SG there-ABL come-PST-1SG
 'I forgot the street. I came *from* there.'

In Turkish, *-DEn* 'from' is used to indicate ablative case, i.e. source. In the second sentence, which has not been merged into a relative clause yet, we clearly see that this morpheme is realized on the surface as in *oradan* 'from there'. However, when we relativize this clause, this morpheme is not on the surface anymore as shown in sentences (19.a.), where *-DEn* is nowhere to be found. Therefore, a structure corresponding to 'from which' again appears to be absent in Turkish due to the lack of postpositional relativization. Therefore, this sentence sounds like 'I forgot the street I came' in Turkish.

3.1.4. Locative case

The final grammatical case that we can observe this omission with is locative case, *-DE*. Like in the other grammatical case markers indicating a spatial and temporal position, i.e. dative (goal) and ablative (source), the same process is also seen in the Turkish relative clauses that include a noun inflected with the locative case marker *-DE*, which corresponds to *in*, *at*, *on* in English :

- 20) Yaşa-dık-ı ülke çok kötü-ydü
 live-PTCP-3SG country very bad-PST.COP
 'The country in which he lived was very bad.'

The gloss above clearly displays an English relative pronoun *in which* that has a prepositional property in the translation. Still, we do not see a structure corresponding in meaning to 'where' or 'in which' in the Turkish sentence, indicating an absence of the locative case *-DA*. The division of this sentence into two independent clauses proves this as well:

20. a. Ülke çok kötü-ydü. Ora-da yaşa-dı-Ø.
 country very bad-PST.COP there-LOC live-PST-3SG
 'The country was very bad. He lived there.'

When we divide it again, we get two independent clauses. In the second independent clause, we see the locative case *-DE*, which is omitted in the relative clause. Therefore, again, the sentence (20), which is grammatically correct, sounds like 'He left the country he lived' in Turkish. Due to the lack of postpositional relativization, *ülke* 'country' sounds like the direct object of *yaşa-* 'live'. However, we cannot 'live a country'; we can "live in a country", which lends support to the existence of a covert marker in this relative clause.

3.1.5. Subject relativization

In the participle *-(y)An* suffix, an omission at morphological level cannot be observed because it is realized in the subjective position, attaching to the verb within a relative clause. The subject participle formed by this concatenation describes the noun it precedes as subject. *-Dik* and *-(y)AcAk*, on the other hand, describe the noun they precede as an object. For the omission to occur, we need nouns inflected with case markers first and they require the use of *-Dik* and *-(y)AcAk* in the object position of the relative clause. In other words, *-(y)An* does not lead to an omission of this kind:

21) Ben-i ısır-an köpek kaç-tı-Ø.
me-ACC bite-PTCP dog run away-PST-3SG
'The dog that bit me ran away.'

If we divide this sentence into two parts, we will see that there is no additional case marker coming up. All the morphemes that are realized in the former sentence are also in place in the divided sentences (except for the participle suffix) since there is no objective case marker, whether direct or indirect, to be omitted.

21.a. Köpek kaç-tı-Ø Ben-i ısır-dı-Ø
dog return-PST-3SG me-ACC bite-PST-3SG
'The dog ran away. He bit me.'

In the light of this analysis's findings, the answer to the first research question is largely affirmative, with the only exception of subject relativization that does not display the omission of case markers.

3.2. Actual position of the zero morphemes

This analysis may bring about the question of where the actual place of these zero morphemes is in a sentence if there is such a phonological loss. In order to identify the position of the zero morphemes, it is sensible to use a finite relative clause test employing the particle *ki*, one of whose functions is to form finite relative clauses, though rare in use. In other words, this test is based on converting the non-finite Turkish relative clauses into finite ones. To turn to the 17th example, the finite version of the sentence would be as follows if *ki* is inserted:

17. b. Arkadaş-ı hatırla-yor musun, ki o-nun-la yemek ye-di-k?
friend-ACC remember-PROG 2Q REL him-GEN-COM food eat-PST-1PL
'Do you remember the friend, with whom we ate food?'

In the gloss above, it is observed that the comitative case that is omitted in the finite relative clause is realized before the relativized verb phrase *yemek yedik* ('we ate food'). However, this does not necessarily mean that it is realized *just before* the relativized verb phrase. There are situations in which additional supporting phrases such as *beraber* 'together' can come between the comitative case and relativized verb phrase:

17. c. Arkadaş-ı hatırla-yor musun, ki o-nun-la beraber yemek
 friend-ACC remember-PROG 2Q REL him-GEN-COM together food
 ye-di-k?
 eat-PST-1PL
 'Do you remember the friend, with whom we ate food together?'

In spite of these situations, the fact that the case marker is realized before, if not just before, the relativized verb does not change. Having settled this problem, the new gloss of the sentence can be done as follows:

- 17) -Ø Yemek ye-dik-imiz arkadaş-ı hatırla-yor musun?
 COM food eat-PTCP-1PL friend-ACC remember-PROG 2Q
 'Do you remember the friend with whom we ate food?'

If we used the surface *-(y)IA* morpheme before the relativized verb instead of zero morpheme, the sentence would translate '*-(y)IA yemek yediğimiz arkadaş hatırlıyor musun?*' In this way, the comitative argument is semantically completed and it has not disappeared. However, the sentence does not sound grammatical at all today. Therefore, the Turkish speakers may have started to omit this morpheme a long time ago and produce '*yemek yediğimiz arkadaş hatırlıyor musun?*' instead for either aesthetical or economical concerns. It would be in place if the same test were used for the dative case as well:

18. b. Şehir-i araştır-dı-Ø ki ora-ya git-ecek-Ø.
 city-ACC investigate-PST-3SG REL there-DAT go-FUT-3SG
 'He investigated the city, to which he will go.'

The same situation is also observed with the dative marker. When the non-finite relative clause with a dative marker in it is converted into a finite one, it is clearly seen that the dative marker is realized before the verb *gidecek* 's/he will go'. Therefore, the new gloss of the second example sentence would be as follows:

- 18) Ø Git-ecek-i şehiri araştır-dı-Ø
 DAT go-PTCP-3SG city-ACC investigate-PAST-3SG
 'He investigated the city to which he will go.'

We get the same results if we apply the finite test to the other two remaining example sentences, with the ablative and locative markers overtly realizing before the relativized verbs:

19. b. Sokak-ı unut-tu-m ki ora-dan gel-di-m.
 street-ACC forget-PST-1SG REL there-ABL come-PST-1SG
 'I forgot the street, from which I came.'
20. b. Ülke çok kötü-ydü ki ora-da yaşa-dı-Ø.
 country very bad-PST.COP REL there-LOC live-PST-3SG
 'The country, in which he lived, was very bad.'

As a result, the complete glossing of these sentences would be as follows:

- 19) -Ø Gel-dik-im sokak-ı unut-tu-m.
 ABL come-PTCP-1SG street-ACC forget-PST-1SG
 'I forgot the street from which I came.'
- 20) -Ø Yaşa-dık-ı ülke çok kötü-ydü
 DAT live-PTCP-3SG country very bad-PST.COP
 'The country in which he lived was very bad.'

Since the test was successfully implemented on all the four cases, it can be definitely said that the case markers are realized as zero morphemes before the relativized verbs. It may be early to theorize about the exact position but it is certain that it precedes the relativized verb, irrespective of whether a word or phrase may intervene between the case marker and relativized verb.

4. Conclusion

Zero morphemes in the Turkish language is an issue that has previously not gained much research attention in the literature of linguistics. This partly comes from the fact Turkish is an agglutinating language, which makes zero morphemes a rare characteristic of Turkish (Ahmed, 2008). In this paper, the omission of case markers in the relativized position has been shed light on and it is theorized that this phenomenon is a zero morpheme realization which may have started in the language a long time ago. This omission happens when a sentence includes the participle suffixes *-Dik* and *-(y)AcAk*, requiring a postpositional indirect object. The omitted case markers are *-(y)lA*, *-y/nA*, *-DAn* and *-DA*, which are respectively comitative, dative, ablative and locative cases. In the suffix *-yAn*, there is no such omission because it does not require the aforementioned case markers as an argument. Since the present study constitutes one of the first works about the topic, it needs further research, irrespective of being theoretical and experimental, to be supported more.

Above all, this paper has only focused on the theoretical aspect of zero morphemes. As Kırkıcı and Clahsen (2012) state, testing the linguistic theories against the psycholinguistic data is a necessity frequently emphasized. In this regard, experimental studies of psycholinguistics can be conducted to verify the omission examined in this paper. L1 transfer studies, for example, can be helpful in that they can test whether the L1 knowledge of the Turkish learners of L2 English – especially those who are low proficient – interfere with their ability to form relative clauses in English, causing them to produce faulty sentences like "I forgot the

street which I came". These studies could indirectly provide insights about the morphological gaps in Turkish. Especially, historical linguistic studies are of utmost importance to shed light on the least effort phenomena because humans tend to adapt the languages they speak over time in order to express themselves in a most economical and efficient way. In our case, historical studies of the Turkish language can help clarify whether the speakers of Turkish actually used an overt case marker when forming relative clauses and started to omit it afterwards. To give an example from phonological changes, the word *postane* 'post office' was originally *postahane* (lit. post house) in Turkish. However, the speakers apparently started to apply consonant deletion when they realize that pronouncing /h/ right after a vowel is less economic for them. In fact, Sevan Nişanyan, a Turkish-Armenian linguist, documents an instance of the old form *postahane* dating back to 1874 in his etymology dictionary *Nişanyan Dictionary* ("Postane", n.d.). Even this single example shows the importance of the historical linguistic studies. Since the present study focused merely on the theoretical inferences to discuss the operation of case marker omission in the relative clauses as stated above, future studies focusing on authentic data will definitely shed more light on this matter. ■

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