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PROCESSING OF INTERNAL AND EXTERNAL ARGUMENTS IN FOCUS IN SIMPLE DECLARATIVE SENTENCES IN TURKISH

Türkçe Basit Bildirim Tümcelerinde Odaklanılan İçsel ve Dışsal Yüklem Öğelerinin İşlenmesi

Engin Evrim ÖNEM[1]

Erciyes University

ORCID ID: 0000-0002-2711-7511

Abstract: Information structuring is the organization of information within a sentence. Among the segments of information structuring, *focus* is considered as the linguistic element bearing new information in a sentence and monotransitive verbs require one external and one internal argument, either of which can be focused. This paper investigates the effect of different preverbal positions of separately focused arguments on processing simple declarative sentences in Turkish. To achieve this, 128 sets of question-answer pairs hosting focused NPs functioning as either internal or external arguments in different preverbal positions are administered to 28 native speakers of Turkish via a self-paced reading test. The statistical analyses reveal a difference in reading time of simple declarative sentences containing separately focused internal and external arguments scrambled into different preverbal positions in Turkish. Although the difference in reading time of

[1] Erciyes University, School of Foreign Languages, Department of Basic English
eonem@erciyes.edu.tr

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sentences focusing on external arguments is not statistically significant, the reading time difference for internal arguments depending on the preverbal positions is statistically significant. The study reveals that internal arguments are processed faster in the immediate preverbal position, but this position does not make a difference in the processing of external arguments. The findings suggest that low memory load and adjacency to the verb have an important role in the processing of the focus in simple declarative sentences in Turkish.

Keywords: *Turkish, Scrambling, Focus, Focus position, Immediate preverbal position, Sentence-initial position*.

Öz: Bilgi yapılandırması, bir tümce içindeki bilginin düzenlenmesidir. Bilgi yapılandırma parçalarından biri olarak *odak,* bir tümcede yeni bilgi taşıyan dilbilimsel unsur olarak değerlendirilir ve tek geçişli (monotransitive) eylemler herhangi biri odak olabilen içsel veya dışsal yüklem öğesi gerektirir. Bu makale, ayrı ayrı odaklanmış yüklem öğesinin farklı söz öncesi konumlarının Türkçede basit bildirim tümcelerini işlemleme üzerindeki etkisini araştırmaktadır. Bunun için farklı eylem öncesi konumlarda içsel veya dışsal yüklem öğesi işlevinde bulunan odaklanmış AÖ'leri barındıran 128 soru-cevap seti, kendi hızında okuma testi aracılığıyla anadili Türkçe olan 28 kişiye uygulanmıştır. İstatistiksel analizler, Türkçede farklı eylem öncesi pozisyonlarda ayrı ayrı odaklanmış içsel ve dışsal yüklem öğelerini içeren basit bildirim tümcelerinin okuma süresinde bir fark olduğunu ortaya koymuştur. Dışsal yüklem öğelerine odaklanan tümcelerin okuma süresindeki fark istatistiksel olarak anlamlı olmasa da içsel yüklem öğeleri için eylem öncesi pozisyonlara bağlı okuma süresi farkı istatistiksel olarak anlamlı olarak görülmüştür. Çalışma sonucunda içsel yüklem öğelerinin eylem öncesi konumdayken daha hızlı işlemlemlendiği ama bu konumun dışsal yüklem öğelerinin işlemlenmesinde fark yaratmadığı ortaya çıkmıştır. Bulgular, düşük bellek yükünün ve eyleme bitişikliğin Türkçedeki basit bildirim tümcelerindeki odağın işlenmesinde önemli bir rolü olduğunu göstermektedir.

Anahtar sözcükler: *Türkçe, Çalkalama, Odak, Odak konumu, Hemen eylem öncesi konum, Tümce başı konumu.*

1. INTRODUCTION

In a language exchange, the incorporation of new information into the existing body of knowledge is crucial. The differentiation between old and new information plays a significant role, and while various models

have been proposed for information structuring, this study adopts the perspective of Vallduvi (1990) and Vallduvi and Engdahl (1996), which has also been observed in Turkish by Erguvanlı (1984), Hoffman (1995), and İşsever (2003). Simply, *focus* is presumed as the new information put forward by the addresser while *link* (or *topic*) is the connection between both parties taking place in the linguistic exchange, and *tail* (or *background*) is the already existing information (Erguvanlı, 1984; Vallduvi, 1990; Vallduvi and Engdahl, 1996). The linguistic element that carries new information is the focus of an utterance and the already present information within the discourse or the context is the topic. In this sense, I like to consider *focus* as the key, *topic* as the lock, and a successful linguistic exchange as the joint achievement of the addresser and the addressee opening a lock.

There are different views on focus regarding the effects of prosody (e.g. İşsever, 2003; Özge and Bozşahin, 2010; Özge, 2003) and as Stolterfoht et al. (2007) suggest, prosody has an important effect on processing and shifts in pitch and voice as well as loudness and duration affect processing. Therefore, the present study aims to take a more syntactic approach towards focus and its position in simple declarative sentences to limit the effects of prosody on processing via presenting sentences in a written context. Considering the focus position in Turkish from a syntactic view, the discussion in the literature takes place concerning the preverbal area. For instance, According to Erguvanlı (1984), Hoffman (1994), and Hoffman (1995), the immediate preverbal position is designated for focus, indicating that any constituent occupying this position is considered to be in the focus position and this view is supported by Kılıçaslan (1994), Kennelly (1997), Kornfilt (1997). However, Göksel and Özsoy (2000) and Göksel and Özsoy (2003) put forward a more inclusive position for the focus. They consider any constituent positioned in the preverbal area to be in focus and this area is referred to as the *focus field* (Göksel and Özsoy 2000). Even though the *focus field* covers the whole preverbal positions, studies concerning focus in Turkish seem to point to a facilitative effect of the immediate preverbal position, which is closely related to the canonical word order of Turkish since the immediate preverbal position is the unmarked position for NPs acting as internal arguments or direct objects in Turkish (Göksel and Kerslake, 2005; Yarar, 2018). For example, Kurt and Dinçtopal-Deniz (2023) conduct a study utilizing a sentence completion task and an eye-tracking experiment to investigate potential differences in the processing of focus in sentences with canonical or non-canonical word order. Their

findings indicate that the immediate preverbal position is linked to focus when no other focus markers, such as pitch or accentuation, are present. They conclude that presenting the focus closer to the verb facilitates easier processing, resulting in reduced memory load and potential costs. Similarly, Aydın and Cedden (2010) compare the processing time of Turkish canonical SOV sentences, the scrambled SVO sentences, and SVO wh-clauses and report that sentences following the canonical word order are the fastest. In another study, Kahraman and Hirose (2018) compare the processing of sentences following SOV and OSV word order and report that sentences with canonical word order are processed faster unless a context is presented.

To my knowledge, studies analyzing the effects of the positions of focused constituents on processing are scarce. In addition to the aforementioned studies, as part of his research, Önem (2022) examines the disparities in reading times between focused noun phrases (NPs) positioned at the beginning of a clause (clause-initial) and immediately before the verb (immediate preverbal). The findings indicate that focused NPs are read faster when positioned at the immediate verbal position than at the clause-initial position. Based on these findings, Önem (2022) concludes that the immediate preverbal position has a positive effect on the processing of focused NPs. In this sense, both Önem (2022) and Kurt and Dinçtopal-Deniz (2023) seem to support the claim that NPs in the immediate preverbal position require less memory capacity for processing. Consequently, this results in faster processing of NPs situated in the immediate preverbal position.

Following Önem (2022), this study aims to find whether the positions of the constituents in focus in simple declarative sentences in Turkish affect processing or not. However, one difference between Önem (2022) and the present study is critical. Even though it is mentioned as one of the limitations of the study, due to the research design, the reading time of arguments is analyzed cumulatively in Önem (2022). However, argument structure is the bridge between the semantic and syntactic requirements of the verb. For instance, while intransitive verbs require external arguments only, transitive verbs require both internal and external arguments. Also, while NPs acting as internal arguments can either be animate or inanimate (functioning as theme or recipient), NPs acting as external arguments must be animate in simple declarative sentences in Turkish as they function as the agent. Therefore, their differences should be kept in mind while studying processing and that is why arguments and reading time are taken into

account separately in the current study. Even though the present paper can be regarded as a follow-up study on Önem (2022) to some extent, the findings will further clarify the relationship between focus position and arguments in Turkish concerning simple declarative sentences. As a result, this study aims to answer the following research questions:

- Is the reading time of a focused NP functioning as an external argument affected by preverbal scrambling?
- Is the reading time of a focused NP functioning as an internal argument affected by preverbal scrambling?

Another important point that should be made here is the classification of the *focus field* (Göksel and Özsoy, 2000; 2003). As mentioned above, the *focus field* is considered to cover the whole preverbal area, including the immediate preverbal position as well. In this study, the *focus field* is divided into two positions, the sentence-initial position and the immediate preverbal position, and external and internal arguments are scrambled into different positions to find out whether the processing is affected by the different positions.

2. METHODOLOGY

The present paper aims to contribute to the discussion on focus position in Turkish by scrambling focused arguments in simple declarative sentences in Turkish. To achieve this, a self-paced reading test presented via *PsychoPy* (Peirce, 2019) is used. Self-paced reading tests have advantages over other online data collection tools such as ERP or eye-tracking because they are practical, easier to set up and control, cheaper, and more user/participant friendly. Also, there are many studies utilizing self-paced reading tests for various studies focusing on linguistic processing (see Marinis, 2010 for a list of studies), and self-paced reading tests are considered valid and reliable tools to study processing. In the end, in essence, the current study aims to investigate whether scrambling a focused NP functioning as either an internal or external argument in preverbal positions affects the reading time of the sentences.

Regarding the participants, a convenience sampling approach is employed before the data collection process. A total of 28 native speakers of Turkish (17 male and 11 female), aged between 18 and 22 ($M = 19.25$, $SD = .74$), are volunteers to take part in the study. All

participants are university students of various departments (excluding the linguistics department to minimize the possible effect of linguistic awareness) and report no visual impairments or history of neurological disorders. Additionally, a post-hoc power analysis using G*Power 3.1.9.7 (Faul et al., 2009) reveals that the statistical analysis possesses sufficient sensitivity with a medium effect size (d = .5) to detect differences in reading time within the research group (α = .05, power = .58).

As for the linguistic test material, the same set of 32 question-answer pairs used in Önem (2022) is utilized in the study since the set is considered to be reliable. There are simple declarative sentences and questions used as primers for each answer. The answers consist of a monotransitive verb, an inanimate accusative marked NP functioning as the internal argument (object), and an animate common NP acting as the external argument (subject). Since monotransitive verbs are the simplest type of transitive verbs, they are easier to study and they can be used to study a wide variety of linguistic phenomena. Also, as monotransitive verbs are common in all languages, the findings of the present study can be generalized to other languages. Therefore, the present study is limited to monotransitive verbs. The verb in each question-answer pair is marked with the present simple tense marker *-Ir*. As for the sentences used as answers, each question is formed by replacing the argument to be focused with a related *wh*-question word. In simpler terms, the *wh*-question word *ne-yi* (what-ACC) is utilized in the questions to focus on accusative case-marked internal arguments (objects), while the *wh*-question word *kim-Ø* (who-NOM) is employed in the questions for nominative case-marked external arguments (subjects) in the answers. On the other hand, zero marked NPs can also function as direct objects can, which is exemplified below in (1) (a) and (b).

(1)

(a)

çocuk-Ø	kek-Ø	ye-di.
child-NOM	*cake*-NOM	*eat*-3SG.PAST

‘(The) child ate (a/the) cake’

(b)

çocuk-Ø	kek-i	ye-di.
child-NOM	*cake*-ACC	*eat*-3SG.PAST

‘(The) child ate the cake’

As can be seen in (1), the difference between (a) and (b) is limited to

the NP acting as a direct object, *kek* (cake). In (a), the sentence includes a zero-marked internal argument but the sentence in (b) includes an accusative-marked internal argument. However, the inclusion of NPs acting as the internal argument in the present study bearing accusative case marker has one main reason. While nominative case-marked NPs can function as objects and/or subjects, accusative case-marked NPs can only function as direct objects. Therefore, to create a clear-cut difference between objects and subjects in the study, NPs acting as internal arguments are marked with accusative case markers in the study.

Two of the pairs used in the study can be seen in (2) and (3) below, where answers for (2) and (3) are presented in (a) and (b).

(2)

çocuk-Ø ne-yi sev-er
child-NOM *what*-ACC? *like*-3SG.PRS
'what does (the) child like?'

(a)
çocuk-Ø oyun-u sev-er.
child-NOM *game*-ACC *like*-3SG.PRS
'(The) child likes the game'

(b)
oyun-u çocuk-Ø sev-er.
game-ACC *child*-NOM *like*-3SG.PRS
'(The) child likes the game'

(3)

kim-Ø oyun-u sev-er
who-Ø *game*-ACC? *like*-3SG.PRS
'who likes (the) game?'

(a)
çocuk-Ø oyun-u sev-er.
child-NOM *game*-ACC *like*-3SG.PRS
'(The) child likes the game'

(b)
oyun-u çocuk-Ø sev-er.
game-ACC *child*-NOM *like*-3SG.PRS
'(The) child likes the game'

As evident in examples (2) and (3), each pair of questions employs

either the *wh*-question word *ne-yi* (what-ACC) or *kim-Ø* (who-NOM) to direct attention to a specific argument in the corresponding answer in canonical word order. Furthermore, the focused argument in each answer sentence is intentionally rearranged to various positions. For instance, in (2) (a), the accusative case marked direct object *oyun-u* (*game*-ACC) is in the immediate preverbal position, and in (2) (b), the direct object is in the sentence-initial position. Similarly, in (3) (a), the nominative case marked subject *çocuk-Ø* (*child*-NOM) is in sentence-initial position while it is in immediate preverbal position in (3) (b). In the end, although there are 32 question-answer pairs in Önem (2022), considering the scrambled focused arguments in every question-answer pair, the pairs are designed in a 1 X 2 fashion depending on the focused argument, which leads to the creation of 64 object-focused question-answer pairs and 64 subject-focused question-answer pairs.

The test material is administered to the participants as a self-paced reading test on computers via *PscyhoPy* (Peirce, 2009). The process of collecting data commences with a training session designed to familiarize participants with the software, hardware, and sentence pairs, without influencing the results (Racine, 2014). Both during the training session and the data collection phase, randomly presented loops of routines are employed. A routine loop consists of the display of a "+" symbol on the monitor as a fixation point, the presentation of a designated *wh*-question word as a cue, the appearance of an answer in a cumulative and centrally positioned manner on the monitor, and the inclusion of a brief yes/no comprehension question to prevent habituation. Participants have full control over the pace of the task by pressing a key on the keyboard. The loops of routines continue until the end of the test material. The training session consists of 24 question-answer pairs and the data collection process starts after the training session, in which the 128 question-answer pairs are presented in a random order on a computer screen. Given that the reading task is self-paced, there are no specific time constraints imposed. However, the data collection process typically lasts between 10 and 15 minutes for each participant (M = 12. 25, SD = 2. 39).

Regarding the data analysis, the duration between the onset of the visual presentation of an answer and the participant-generated response (measured in milliseconds) is regarded as the reading time. The analysis entails comparing the mean reading time scores, specifically focusing on the positions of the focused arguments, taking

into account their distinct structural characteristics. After initial statistical analyses, a normal distribution of the reading time is seen and the *Independent samples t-test* is employed to compare the mean scores of reading time on SPSS 22.

3. RESULTS AND DISCUSSION

Since there are two separate groups of question-answer pairs depending on the focused NP, the reading data is analyzed separately. In terms of the reading time concerning the positions of the focused NP in object-focused question-answer pairs, a statistically significant difference is seen. To be more precise, the reading time of an NP held in the immediate preverbal position is lower than (M = 1.579, SD = 4.028) of an NP placed in the sentence-initial position (M = 2.405, SD = 5.897) and the difference is statistically significant (t (1580.580) = 3.462, p = 0.001) in object-focused sentences. In simpler terms, internal arguments are observed to be read at a faster pace when positioned in the immediate preverbal position. However, no statistically significant difference in reading time is found between the positions of the focused word in subject-focused question-answer pairs. It is seen that although an NP in the immediate preverbal position (M = 1.664, SD = 2.497) exhibits a lower reading time compared to an NP in the sentence-initial position (M = 1.734, SD = 3.475, t (1624.806) = .493, $p > 0.05$), the difference is not statistically significant. Consequently, it can be concluded that in this study, even though external arguments are read faster when situated in the immediate preverbal position rather than the sentence-initial position, the difference in their reading time is not statistically significant.

The findings point to a difference between internal and external arguments and should be discussed separately. First, though the findings should be treated with care, the *focus field* might apply to internal arguments but might not be as inclusive as it is claimed to be for external arguments. The occurrence of a statistically significant difference between the sentence-initial and the immediate preverbal position concerning internal arguments might mean that the areas *focus field* are accepted to cover lead to differences in reading time and processing. In other words, if focus can be placed in any preverbal position, no differences should be seen but the findings suggest otherwise, at least for internal arguments.

Second, as mentioned earlier, the discussion in the literature regarding the focus position in Turkish takes place around the preverbal area as long as prosodic markers are left aside and only written discourse is taken into consideration. For example, any word placed in the immediate preverbal position is in the focus position (Kural, 1992; Erkü, 1983; Kılıçaslan, 1994; Erguvanlı, 1984; Hoffman, 1994, 1995). This view is supported by Kurt and Dinçtopal-Deniz (2023) and Önem (2022). Both studies suggest that there might be a close relationship between the focused word and its proximity to the verb, which causes a lower memory load and processing cost. On the other hand, the *focus field*, the position concerning any place in the preverbal area (Göksel and Özsoy 2000), is also argued to be a place for the focus in a sentence (Göksel and Özsoy 2000, 2003). According to their reasoning, the structural properties of the preverbal position cause this position to allow percolation of stress and a neutral focus reading. Concerning the present study, the findings concerning internal arguments seem to support the affirmative effect of the immediate preverbal position over the sentence initial position. As evident from the findings, sentences containing focused NPs functioning as the object in the immediate preverbal position demonstrate faster reading times when compared to sentences hosting focused NPs in the sentence-initial position. In this sense, adjacency to the verb seems to have an overarching effect in terms of focus (İşsever, 2006; Valluduvi and Engdahl, 1996; Kural, 1992), especially for internal arguments. As İşsever (2006) highlights, linguistic items are required to be adjacent to the verb to be focused. Although İşsever (2006) suggests a difference between types of focus along with taking prosody into account as well, the findings of the present study seem to confirm the effect of verb adjacency. The sentences hosting the focused internal argument in the immediate preverbal position are read fast, which signals the effect of verb adjacency. Although the difference in the reading time for external arguments is not statistically significant, when positioned in the immediate preverbal position, sentences focusing on external arguments are read faster. Therefore, it can be said that proximity to a verb might have a positive effect on focus and processing.

Parallel with that, the memory load required for processing might be at play as well. Since an internal argument is contained in the maximal projection of a verb, it is reasonable to process internal arguments together with the verb, which might result in faster processing due to a lower memory load. The lower memory load required for processing can be further supported by two main effects: unmarked position for the

direct object and accusative case marker in Turkish. Despite Turkish being a language with flexible word order, the immediate preverbal position is reserved for the direct object following the canonical word order (Yarar, 2018; Göksel and Kerslake, 2005). However, when small clause constructions are present in a sentence, this situation changes. According to Moro (2000), small clause constructions in Turkish are non-finite clauses that can be embedded in larger sentences. They are typically headed by a participle or an adjective, and they can express a variety of meanings, including predication, modification, and adverbialization. An example of small clause construction including predication can be seen in the sentences presented in (4) below.

(4)

(a)
Ali-Ø öğretmen olmuş
Ali-NOM *teacher*-Ø *become*-3SG.PERF.P
'Ali has become (a) teacher'

(b)
Ali-Ø olmuş öğretmen
Ali-NOM *become*-3SG.PERF.P *teacher*-Ø
'Ali has become (a) teacher'

(c)
öğretmen olmuş Ali-Ø
teacher-Ø *become*-3SG.PERF.P *Ali*-NOM
'Ali has become (a) teacher'

(d)
*öğretmen Ali-Ø olmuş
teacher-Ø *Ali*-NOM *become*-3SG.PERF.P
'Ali has become (a) teacher'

When the sentences above in (4) are studied, it can be seen that although the immediate preverbal position is occupied by the NP *öğretmen*, (teacher), which acts as an adjective, (a), (b), and (c) are grammatically correct since the verb *olmuş* (has become) is raised to the main clause and adjective *öğretmen,* (teacher) is left behind as the predicate of the small clause. On the other hand, even though the immediate preverbal position in (d) is occupied by the external argument, *Ali*, it violates the constraints of predicate raising and is ungrammatical. Therefore, the findings of the present study should be considered concerning the design of the study set which is limited to the simple declarative sentences with no small clause constructions.

Monotransitive verbs in Turkish have a subject and a direct object and the parser needs to identify the agent and the recipient/theme correctly to understand the proposition of the sentence. While processing, cues such as word order or case marking have effects on identifying linguistic elements (Özge et al., 2009) and therefore, creating meaning leads to a cognitive load. In this sense, there is a closely connected relationship between memory load and processing (Tun et al., 2010) and the ease of identifying elements require a lower cognitive load while the opposite lead to a higher load. In this sense, the findings of the current study seem to comply with the suggestions concerning cognitive load and processing speed to some extent. For instance, adjacency to the verb seems to have a matching and/or interacting effect on the reading time of the arguments, causing the argument placed in the immediate preverbal position to be read faster. As the immediately preverbal position is considered the default position for the focus in the literature (Erguvanlı, 1984), processing focused NPs seem to have required less cognitive capacity, which, in turn, leads to faster processing.

The findings might also be implying a hierarchical difference between internal and external arguments in processing. As mentioned, internal arguments are contained in the predicate and are maximally projected outside of the VP. That might be another reason for the statistically significant difference in reading time of direct objects as scrambling them in the sentence initial position causes them to move to a higher position or node and affect the bonds of VP projection. Subjects (external arguments) occur outside VP and scrambling them into different positions does not lead to a statistically significant difference, though immediately preverbal position does seem to have a facilitating effect. Also, as direct objects are marked with accusative case markers obligatorily, the NPs acting as the direct objects are identified and processed faster as the accusative case marker might be taken as a cue (Önem, 2022). Indeed, several studies provide evidence that case marking can influence processing differences in free word order languages like Indian, Korean, and Persian (e.g., Kamide et al., 2003a; Kamide et al., 2003b; Chung and Lee, 2017; Jasbi, 2015), and Turkish (e.g., Önem, 2022; Özge et al., 2009). Consequently, the immediate preverbal position, serving as the unmarked position for direct objects, contributes to faster reading, primarily due to the reduced cognitive load they impose.

On the other hand, the findings concerning the reading time of the sentences hosting the focused NPs as subjects are surprising to a certain extent. The canonical position for the external arguments, NPs acting as subjects, is the sentence-initial position (Göksel and Kerslake, 2005) but our findings suggest that, although the difference is not statistically significant, they have faster reading time when they are placed in the immediate preverbal position. Normally, sentences with non-canonical word order would be expected to have adverse effects on processing due to the cognitive load they would require. However, due to the design of the study, this might, again, be related to the verb proximity (İşsever, 2006). Immediate preverbal position means adjacency to the verb in the current study and this seems to affect the reading time and processing of the sentences.

Also, it is seen that the reading time for external arguments in *the focus field*, regardless of their position, seems to follow the suggestion proposed above. Namely, if focus can be placed in any preverbal position, as claimed by the concept of *focus field*, no differences should be seen when a focused NP is scrambled to different positions but the findings concerning external arguments suggest otherwise. As the results show, the position of an external argument leads to differences in reading time, even though the difference is not statistically significant. This might mean that NPs acting as external arguments could take any position in the *focus field* and still be the focus. Another suggestion for the results concerning external arguments might be related to the maximal projection of the verb as well. Since they are contained inside the maximal projection of the verb, processing external arguments might require more memory load, which, in turn, leads to differences in the reading time regardless of their proximity to the verb. However, factors such as the design of the present study, the exclusion of prosody, etc. could have caused this result (suggestions for further research are made in the next section).

4. CONCLUSION

The present paper aims to find whether scrambling the positions of the focused NPs acting as either internal or external arguments affects the reading time in simple declarative sentences in Turkish via an experimental study. The findings of our study indicate that sentences containing focused noun phrases (NPs) functioning as internal

arguments positioned in the immediate preverbal position are read at a quicker pace compared to sentences where the focused NPs are placed in the sentence-initial position and the difference is statistically significant. On the other hand, even though a similar difference in reading time is seen for sentences containing focused noun phrases (NPs) functioning as external arguments, the difference is not statistically significant. This implies that the position of the focused word in simple declarative sentences in Turkish has the potential to influence reading time and processing. Notably, these positions, namely sentence-initial and immediate preverbal, appear to function as positional variations within the *focus field* and can lead to disparities in processing.

The findings of the study can contribute to our knowledge of the effects of immediate preverbal position in terms of focusing an argument in Turkish. However, the present study has some limitations. First, the number of participants might not be ideal for solid testing. Therefore, the findings should be treated with care. Also, all direct objects in the present study are accusative case marked. However, as mentioned above, they can also take other case markers or even be non-case-marked NPs. Such NPs are excluded in the present study and their potential effects on processing and whether they would have caused differences in reading time are left for another study.

There are other questions left aside for future studies. For instance, while this study focused only on the written discourse relying on the effect of silent reading (Fodor, 2002), the effect of prosody on focus and processing is excluded to some extent since changes in word order are included only. In a future study, a self-paced listening test might be utilized to analyze the effects of varying positions of arguments in terms of focus and processing in Turkish. For example, scrambling a prosodically focus-marked argument in sentences could show results concerning the relationship between prosody, syntax, and processing focus. In this sense, such a study could present results showing whether there is a difference between prosody and word order in the processing of a focused NP or not. Another suggestion for further studies is concerned with the variety of case-marked direct objects. As mentioned, all the NPs functioning as the direct objects bear accusative case marker. In a future study, focusing on the reading time of focused NPs bearing different case markers could show whether there is a case-marking-related difference in processing in Turkish.

REFERENCES

Aydın, Ö., & Cedden, G. (2010). Sözdizim işlemlemesinde sağa taşıma etkisi. *Dilbilim Araştırmaları* (1), 1-13.

Chung, E. S., & Lee, E. K. (2017). Morpho-syntactic processing of Korean case-marking and case drop. *Linguistic Research, 34*(2), 191-204.

Dalyrmple, M., & Nikolaeva, I. (2011). *Objects and information structure.* Cambridge University Press.

Erguvanlı, E. E. (1984). *The function of word order in Turkish grammar*. University of California Press.

Erkü, F. (1983). *Discourse pragmatics and word order in Turkish* [Unpublished doctoral dissertation]. Univ. of Minnesota.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods,* (41), 1149-1160.

Fodor, J. D. (2002). Prosodic disambiguation in silent reading. In M. Hirotani (Ed.), *Proceedings of the thirty-second annual meeting of the North-Eastern linguistic society* (pp. 113-137). University of Massachusetts.

Göksel, A., & Kerslake, C. (2005). *Turkish: A comprehensive grammar*. Routledge.

Göksel, A., & Özsoy, A. S. (2000). Is there a focus position in Turkish? In A. Göksel, & C. Kerlake, *Studies on Turkish and Turkic languages* (pp. 219-228). Harrasowitz Verlag. Retrieved Feb. 28th, 2018, from https://linguistics.boun.edu.tr/sites/linguistics.boun.edu.tr/files/uploads/Go%CC%88ksel%26Ozsoy.2000.pdf

Göksel, A., & Özsoy, A. S. (2003). dA: A focus/topic associated clitic in Turkish. *Lingua,* 113, 1143-1167.

Hoffman, B. (1994). Generating context-appropriate word orders in Turkish. *Proceedings of seventh international workshop on natural language generation*, (pp. 117-126). Kennebunkport, Maine.

Hoffman, B. (1995). *The computational analysis of the syntax and interpretation of "free" word order in Turkish* [Unpublished doctoral dissertation] University of Pennsylvania.

İşsever, S. (2003). Information structure in Turkish: the word order-prosody interface. *Lingua,* 113, 1025-1053.

İşsever, S. (2006). On the NSR and Focus Projection in Turkish. In S. Yağcıoğu, & A. C. Değer (Eds.), *Advances in Turkish Linguistics: proceedings of the 12th international conference on Turkish linguistics* (pp. 421-435). Dokuz Eylül University Press. Retrieved May 31st, 2023, from https://selcukissever.files.wordpress.com/2010/04/issever-ictl2004.pdf

Jasbi, M. (2015). Semantics of differential object marking in Persian. 89th meeting of the Linguistics Society of America. Retrieved December 19th, 2020, from https://jasbi.github.io/research/persian_dom_semantics_draft.pdf

Kahraman, B., & Hirose, Y. (2018). Online comprehension of SOV and OSV sentences in Turkish with a supporting context. In T. Levin, & R. Masuda (Eds.), *The proceedings of 10th workshop on Altaic formal linguistics. MIT working papers in linguistics*, 87. Cambridge, MA.

Kamide, Y., Scheepers, C., & Altmann, G. M. (2003a). Integration of syntactic and semantic information in predictive processing: Cross-linguistic Evidence from German and English. *Journal of Psycholinguistic Research, 32*(1), 37-55

Kamide, Y., Altmann, G. M., & Haywood, S. L. (2003b). The time-course of prediction in incremental sentence processing: Evidence from anticipatory eye movements. *Journal of Memory and Language, 49*, 133-156.

Kennelly, S. D. (1997). The presentational focus position of nonspecific objects in Turkish. In K. İmer, & N. E. Uzun (Ed.), *Proceedings of the VIIIth International Conference on Turkish Linguistics* (pp. 25-36). Ankara University Press.

Kılıçaslan, Y. (1994). *Information packaging in Turkish*. [Unpublished master's thesis]. University of Edinburgh.

Kornfilt, J. (1997). *Turkish*. Routledge.

Kural, M. (1992). Properties of scrambling in Turkish. UCLA.

Marinis, T. (2010). Using on-line processing methods in language acquisition research. In S. Unsworth, & E. Blom (Eds.), *Experimental methods in language acquisition research* (pp. 139-162). John Benjamins Publishing Company.

Moro, A. (2000). *Dynamic antisymmetry.* MIT Press.

Önem, E. E. (2022). *Processing of preverbal scrambling in Turkish* [Unpublished doctoral dissertation]. Hacettepe University.

Özge, D., Marinis, T., & Zeyrek Bozşahin, D. (2009). Comprehension of subject and object relative clauses in monolingual Turkish children. In S. Ay, Ö. Aydın, İ. Ergenç, S. Gökmen, S. İşsever, & S. Peçenek (Eds.), *Essays on Turkish Linguistics, Proceedings of the Fourteenth International Conference of Turkish Linguistics (ICTL).* Harrasowitz Verlag.

Özge, U. (2003). *A tune-based account of Turkish information structure*. [Unpublished master's thesis]. Middle East Technical University.

Özge, U., & Bozşahin, C. (2010). Intonation in the grammar of Turkish. *Lingua*, 120, 132-175.

Peirce, J. W. (2009). Generating stimuli for neuroscience using PsychoPy. *Frontiers in Neuroinformatics, 2*(10), 1-8. doi:10.3389/neuro.11.010.2008

Stolterfoht, B., Friederici, A. D., Alter, K., & Steube, A. (2007). Processing focus structure and implicit prosody during reading: Differential ERP effects. *Cognition, 104*(3), 565-590.

Tun, P. A., Benichov, J., & Wingfield, A. (2010). Response latencies in auditory sentence comprehension: Effects of linguistic versus perceptual challenge. *Psychology and Aging, 25*(3), 730-735.

Vallduvi, E. (1990). *The informational component.* [Unpublished doctoral dissertation]. University of Pennsylvania.

Vallduvi, E., & Engdahl, E. (1996). The linguistic realization of information packaging. *Linguistics*, 34, 459-519.

Yarar, E. (2018). Differential case marking in Turkish wh-object phrases. *SOAS Working Papers in Linguistics*, 19, 29-46.