The wh-adverbal&which-NP construction asymmetry within island structures in Turkish

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Abstract
The present study is a follow-up study of Çakır (2016b) which focused on the adverbial & which NP constructions asymmetry within island structures in Turkish. The characteristics of wh-adverbial nasıl “how” is compared with the which-NP constructions hangiüçüklde “in what way” and hangiühalde “in what condition”. The island constraints that are focused on in the study are Complex NP Constraint, Sentential Subject Constraint and Adjunct Island Constraint. The data have been collected through a Self-Paced Reading Task, a Grammaticality Judgment Test and a Multiple Choice Test from 297 participants. The findings of the present study are consistent with the ones obtained in the previous one. It seems that the wh-operators whose wh-phrases include nominal elements in their structures can license the lower CP with [+wh] feature through spec-head agreement while the operators of the single-word wh-adverbials cannot do the same thing.

Keywords: Turkish; generative syntax; island constraints; wh-phrases; wh-adjuncts

1. Introduction

In general, languages differ with respect to the strategies they employ for wh-question formation. While in some languages wh-expressions are forced to move to matrix spec CP positions to form wh-questions, in some others, such obligatory movements to sentence initial positions are not observed. The wh-expressions in these languages can stay in their base positions in interrogative sentences. In that respect, languages have been mainly classified into wh-movement languages and wh-in-situ languages.

For instance, English has overt syntactic wh-movement. As Adger (2003) expresses, languages like English that have overt wh-movement possess a [uwh*] feature in their CP’s, which forces the wh-expressions to move to the specifier position of this phrase. This uninterpretable feature makes it impossible for the wh-expression to stay in-situ if the [uclausetype] feature in C is [Q], that is to say, if it is an interrogative sentence.

In Turkish, wh-phrases are said to remain in-situ both in main and embedded clauses (Kornfilt, 2003; 2008; İşsever, 2009 and many others). Wh-in-situ languages lack the uninterpretable[uwh*]
feature, and do not have overt wh-movement. That is to say, the wh-words do not have to move to sentence initial position to form wh-questions. Wh-phrases like *ne “what”, kime “whoDAT”, and ne zaman “when” respectively occur in the positions in which their NP-counterparts would be found in a regular Turkish sentence.

There is a close relationship between (not) having compulsory wh-movement and island effects. Island constraints are strictly obeyed in wh-movement languages, which is not the case for the wh-in-situ languages. Such constraints are the structures out of which it is not possible to move. As defined by Munn (2007: 2):

‘there are a number of constraints on movement. These constraints have been traditionally called island constraints based on the metaphor that a syntactic island is a phrase of which elements cannot get off, just as a person cannot get off of an island without extra help of a bridge or a boat’.

Wh-island Constraint, Complex NP Constraint, Sentential Subject Constraint, Adjunct Island Constraint, Coordinate Structure Constraint, Factive Island Constraint, Negative Island Constraint are some of such constraints proposed by different scholars up to date (Ross 1967; Kiparsky and Kiparsky, 1970; Chomsky, 1973; Ross, 1984; Schafer, 1995). As the number of the island constraints were extended, the scholars started to search for principles or conditions to unify such constraints. Subjacency (Chomsky, 1973), CED (Huang, 1982), Barriers (Chomsky, 1986) were the GB-based accounts on this issue. Phase Impenetrability Condition (Chomsky, 2001), Criterial Freezing (Rizzi, 2006), Late Adjunction Hypothesis (Stepanov, 2007) were the ones developed in accordance with minimalist terminology. In the present paper, however, the original names of the constraints will be used. One of such constraints is exemplified below:

Movement is prohibited out of a noun phrase which includes a clause, either a nominal complement clause, or a relative clause. For instance;

(1) * When do you remember the young girl who you met?

In this derivation, the wh-expression ‘when’ originates within the lower CP and moves to the specifier position of the matrix CP. However, this movement is prohibited by the DP that c-commands.
the lower CP. The derivation crashes and results in ungrammaticality. This constraint is called the Complex NP Constraint.

As exemplified above, while overt wh-movement languages like English obey island constraints firmly; such effects display different characteristics in wh-in situ languages like Turkish. For instance, the interpretation of the wh-adverbials in Turkish are always problematic within syntactic islands while that of wh-arguments do not have similar problems in such structures. This case is often uttered as adjunct & argument asymmetry in Turkish (Özsoy, 1996; Arslan, 1999; Görgülü, 2006; Çakır, 2015; 2016a; 2016b). The following sentences exemplify this asymmetry:

(2) [[Kim-in yaz-diğ-i] mektub-u oku-du-n?]
   Who-GEN write-NOM-POSS letter-ACC read-PAST-2sg
   * “Who did you read [the letter[t wrote]]?”

(3) *[[Adam-in neden-yaz-diğ-i] mektupuzun?]
   Man-GEN why write-NOM-POSS letter long
   * “why is [the letter [the man wrote t] long?”

Çakır (2016b) focuses on the question of whether this generalization is valid for all types of wh-adjuncts or not, and he analyzes different types of wh-adjuncts in Turkish. These wh-adjuncts in Turkish can be categorized into three groups: (1) wh-adverbials: e.g. neden, niye, niçin “why”; (2) which-NP constructions: e.g. hangiamaça “for what reason”, hangisebeple “with what purpose” and (3) wh-pronominals within post positional phrases: e.g. ne için, ne diye “for what”. The island structures focused on in his study are: The Complex NP Constraint (DP Island), Sentential Subject Constraint (Subject Condition) and Adjunct Island Constraint. He tries to find empirical support for the question of whether all types of wh-adjuncts in Turkish behave similarly or not. The findings of his study indicate that all wh-adjuncts do not behave similarly. The acceptability of wh-adverbials, wh-pronominals in postpositional phrases and the which-NP constructions differ from one another. The ones that contain nominal elements in their structure are more acceptable than one-word wh-adverbials.

Çakır (2016b) provides syntactic explanations for the different behaviors of these adjuncts as well. The operator of a wh-adjunct in Turkish merges to the derivation in the lower CPs in the same node with its wh-phrase in-situ. After binding the wh-element, it first moves to the lower spec CP and then to the matrix spec CP position for checking purposes. The problem here is how its copy in the embedded CP can be bound after its movement from lower CP to matrix CP when there are island structures between them. As Arslan (1999) proposes following Cheng (1997), it might be claimed that the presence of the Qu operator in Spec of the embedded CP position triggers Spec-Head agreement by which the embedded C acquires the [+wh] feature. By having the [+wh] feature, the embedded C can in turn license the constituent in the spec position. Before the movement of the Qu operator to the matrix spec position, the embedded C receives the [+wh] feature of Qu via spec-head agreement. After the movement of the Qu operator to the matrix spec position to take scope over the entire clause, the copy in the embedded spec position gets licensed by the [+wh] marked the embedded C. However, Çağır (2016b) argues that this process is only valid for the wh-operators whose wh-phrases include nominal elements in their structures. In other words, he asserts that the embedded C can only receive the [+wh] feature from the wh-operator of a wh-NP, not a wh-adverbial.

The question that arises at this point is whether the findings of Çağır (2016b) are valid for all types of wh-adjuncts or not. In his study, he focuses on the reason and purpose denoting wh-adjuncts. The assertions of his study should be checked on other wh-adjuncts as well. One of such wh-adjuncts in Turkish is nasıl “how”. This one-word wh-adverbial can be replaced by the wh-adjuncts like ne şekilde
“in what way” or ne halde “in what condition” in many cases. If what Çakır (2016b) proposes is valid, the wh-adverbial nasıl “how” should behave differently compared to other wh-adjuncts hangişekilde “in what way” and hangihalde “in what condition”. Hence, in the present study, these wh-adjuncts are focused on. Having such a study might provide further evidence for the claim that only the operators of the wh-elements that have a nominal element in their structure can license the embedded C with the [+wh] feature, not that of single-word wh-adverbials.

2. Method

The island constraints that are focused on in the study are Complex NP Constraint, Sentential Subject Constraint and Adjunct Island Constraint. The wh-words in all test items are subject to one of these island constraints.

2.1. Instruments

The data of the study were collected through a Self-Paced Reading Task, a Grammaticality Judgment Test and a Multiple Choice Test.

The Self-Paced Reading Task (SPR hereafter) contained 10 items. 34 monolingual Turkish speakers (19 female, 15 male; mean age: 20.4) took part in this task individually in front of a computer screen. For all test items, firstly, two declarative sentences appeared in the screen. The participants had 10 seconds to read these sentences. Then, the target wh-question about these declarative sentences appeared in the screen word for word. That is to say, the interrogative sentence did not appear in the computer screen altogether. When a new word was revealed in the screen, the previous word disappeared. The participants pressed a predefined key on the computer keyboard (the [SPACE] bar) and read the interrogative sentence in their own reading pace. Then, two options for this interrogative sentence were given to the participants and they answered it by pressing the predefined keys (left and right arrow keys). The program recorded if they gave the correct answer or not. Besides, their response times, that is, their self-paced reading speeds were recorded by the program as well. At the onset of the study, it was hypothesized that their response times would be slower when they thought that the sentence was grammaticality less acceptable. Hence, when their response times differed in the test items that contained different types of wh-adjuncts, it was possible to conclude that these wh-adjuncts have different level of acceptability in Turkish.

The first test item in SPR was a sample one. Its aim was to make participants familiar with the activity. 3 of the other 9 items contained the use of wh-arguments like neyi “what-ACC”, and kiimi “who-ACC”. Another 3 of them contained the use of wh-adjunct nasıl “how”, and the final 3 of them contained the use of wh-adjunct hangişekilde “in what way”. The test items were prepared in such a way that the focused wh-adjuncts can adjoin both to the matrix clause and the embedded clause. When they adjoin to the matrix clause, they are not subject to any island effects. On the other hand, when they adjoin to embedded clause, they are subject to such effects. In order to control the variables like sentence complexity or word choice, the SPR task was carried out in two applications. In these applications, the wh-adjuncts were replaced with each other. That is to say, in the second application, nasıl “how” was replaced with hangişekilde “in what way” and in a similar vein, hangişekilde “in what way” was replaced with nasıl “how”. Equal amount of data were collected for both applications. Hence, the variables like sentence complexity or word choice were controlled since similar sentence structures were used for these adjuncts. The following test item exemplifies this task:

TEST ITEM 5.
Declarative Sentences: Öğrencilerbussahabokulayürüyerek geldiler. Okulagelirgelmezbirbirleriyleşakalaşaraksınıflarına çıktılar. “This morning, the students came to school on foot. After coming to school, they climbed up their classrooms joking one another”.

The Target Question: Öğrenciler + okula + nasıl + geldikten + sonra + sınıflarına + çıktılar? “How did the students climb up their classrooms after they came to school?”

The Options given: yürüyerek “on foot”, şakalaşarak “joking one another”

The Grammaticality Judgment test contained 18 items, 6 of which contained the use of wh-arguments like neyi “whatACC” or kimi “whoACC”. 6 other test items contained the use of wh-adverbial nasıl “how”. The final 6 items contained the use of wh-adjuncts ne halde “in what condition” and ne şekilde “in what way”. 90 participants (56 female, 34 male) assessed the grammatical acceptability of the 18 items in a -2,+2 Likert scale: -2: Totally Grammatically Unacceptable, -1 Grammatically Unacceptable, 0: I am not sure, 1: Grammatically Acceptable, 2: Totally Grammatically Acceptable. All of the participants are native speakers of Turkish who live in different parts of Turkey. Their age ranges from 18 to 42 (mean age: 22.4). They are either university students or university graduates. They have no prior knowledge of the island constraints on wh-movement. The following test item exemplifies this test:

TEST ITEM 7. Gençkadının kocasına ne şekildeverdiğihabereşi çok üzüldü? “In what way did the news the young woman give to her husband made him very unhappy?”

The Multiple Choice Test contained 12 items. In these test items, the wh-words were missing in the interrogative sentences, and the participants were required to fill in these gaps by using nasıl “how”, ne şekilde “in what way” or ne halde “in what condition”. 173 participants (91 male, 82 female) took part in the test. Their age ranges from 19 to 21 (mean age 19.6). They are all university students. The following test item exemplifies this test:

TEST ITEM 1. Askerlerinkışlaya ______________ dönümselikotulanlarınıkızdırdı? “____ did that soldiers turn back to the quarters made their commander angry?”

a) nehalde “in what condition” b) nasıl “how” c) ne şekilde “in what way”

3. Results

The findings of the study were statistically analyzed and presented below.

3.2. The results for the Self-paced Reading Task

The results for the Self-Paced Reading Task are demonstrated in Table 1 below. In this table, response times of the participants for each single word in the target interrogative sentences as well as the total durations they spent for different groups of test items are demonstrated.

<table>
<thead>
<tr>
<th></th>
<th>No Island Effect</th>
<th></th>
<th>Under Island Effect</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Total</td>
<td>Average</td>
<td>Total</td>
</tr>
<tr>
<td>Wh-Arguments</td>
<td>0,568</td>
<td>203,05</td>
<td>0,575</td>
<td>205,39</td>
</tr>
<tr>
<td>Wh-Adject: Nasıl “How”</td>
<td>0,569</td>
<td>203,37</td>
<td>0,608</td>
<td>217,18</td>
</tr>
<tr>
<td>Wh-Adject: HangiŞekilde “In what way”</td>
<td>0,589</td>
<td>210,52</td>
<td>0,581</td>
<td>207,74</td>
</tr>
</tbody>
</table>

*Data show response times of the participants for seconds
The one way ANOVA results indicate that there are statistically significant differences in the acceptability of these sets of test items: \[ F(5, 2136) = 2.685, p = 0.020 \]. The response times of the participants were recorded to be the fastest while dealing with the interrogative sentences that contain wh-arguments. Both in the main clauses that are not subject to any island effects (0.568 seconds per word) and in the embedded clauses that are subject to any of the three target island constraints (0.575 second per word), the processing of the wh-arguments were faster than the wh-adjuncts existing in similar sentence structures.

The performance of the participants for the test items containing the wh-adjunct *nasıl* “how” differed in the structures that are subject to and not subject to island effects. When there are no island effects, the response times for these interrogative sentences were almost as fast as the ones containing wh-arguments (0.569 second per word). Post hoc comparisons using the Tukey HSD test indicate that there is not a statistically significant difference among them as well \( (M=8.96, S=1.45, p=0.999) \). On the other hand, under island effects, there is a significant difference among these groups: \( (M=4.77, S=1.48, p=0.017) \). Besides, the slowest response times of the study were recorded when the wh-adverbial *nasıl* “how” was under island effects: 0.608 seconds per word and 217.18 seconds in total. As these data indicate, island constraints seem to cause problem for the processing of the wh-adverbial *nasıl* “how”.

As for the data obtained for the test items containing the wh-adjunct *hangişekilde* “in what way”, island structures do not seem to cause problem for the processing of this set of test items. There is not a significant difference between the items containing the wh-arguments and the wh-adjunct *hangişekilde* “in what way” \( (M=1.31, S=1.45, p=0.999) \). These results show that wh-adjuncts *nasıl* “how” and *hangişekilde* “in what way” behave differently under island effects and the latter is more preferable in such structures.

3.2. The results for the Grammaticality Judgment Test

The results for the Grammaticality Judgment Test (GJT hereafter) are analysed and demonstrated in the figure below. It presents the assessments of the participants on the test items in \(-1 \rightarrow +1\) scale. In this scale, getting closer to \(-1\) indicates that the participants regarded the test items as grammatically unacceptable, whereas getting closer to \(+1\) means that they assessed these test items as grammatically acceptable. Although the test was carried out on \(-2,+2\) scale, the findings were transformed to \(+1,-1\) scale for the ease of the readers.

![Figure 1](image-url)
As it is seen in the figure, only the test items that contain wh-adverbial *nasıl* “how” were assessed to be grammatically unacceptable by more than half of the rates. Only the rates for these test items are closer to -1 in this correlation with the total score of -0.24. The other test items, namely, the ones that contain wh-arguments like *neyi* “whatACC” or *kimi* “whoACC” and the wh-adjuncts *hangi*şekilde “in what way” and *hangi*halde “in what condition”, were rated to be rather grammatically acceptable compared to the ones in this group with the total score of 0.75 and 0.28 respectively. Though their acceptability differs from one another significantly as well, these sets of test items are both on the +1 side of the correlation. The one way ANOVA and post-hoc test results for different sets of test items are presented below.

The one way ANOVA results indicate that there are statistically significant differences in the acceptability of these sets of test items: \[F (2, 1937) = 152.76, p = 0.001\]. When they are compared as pairs, post hoc comparisons using the Tukey HSD test indicate that there is a statistically significant difference among them as well. The mean score for the test items that contain the wh-adverbial *nasıl* “how” is significantly worse than the ones that contain the wh-arguments like *neyi* “whatACC” or *kimi* “whoACC” (\(M=1.06, S=0.06, p=0.001\)) and the wh-adjuncts *hangi*şekilde “in what way” and *hangi*halde “in what condition” (\(M=1.30, S=0.07, p=0.001\)). The mean scores for the test items containing the wh-adjuncts *hangi*şekilde “in what way” and *hangi*halde “in what condition” are significantly worse than the wh-arguments: (\(M=1.30, S=0.07, p=0.001\)).

3.2. The results for the Multiple Choice Test

The figure below demonstrates the distribution of the 2076 responses that the participants produced in the Multiple Choice Test:

![Figure 2. The results for the Multiple Choice Test](image)

The results for the Multiple Choice Test (MCT hereafter) are consistent with the ones obtained in SPR and GJT. In 74 per cent of the responses, participants preferred to fill in the blanks by using the wh-adjuncts *hangi*şekilde “in what way” and *hangi*halde “in what condition”. In 851 responses, they preferred to use the wh-adjunct *hangi*halde “in what condition” to complete the interrogative sentence. In a similar vein, in 682 responses, they preferred to use the wh-adjunct “*hangi*şekilde “in what way” to fill in the blanks. When these numbers are added, the final result is 1533, which is remarkable higher than 534 usages for the wh-adverbial *nasıl* “how”. Just like in the other tests of the study, this wh-adverbial was preferred by the participants far less than other wh-adjuncts focused on in the study: Only 26 per cent of the responses, participants preferred to use this wh-adjunct in the interrogative sentences that are subject any of the three target island constraints.
4. Discussion

As the results for the three tests of the study indicate, the wh-adjuncts *nasil* “how” and *hangihalde/şekilde* “in what way/condition” behave differently under island effects in Turkish. While the which-NP phrases are regarded to be grammatically acceptable in Turkish, the wh-advverbial *nasil* “how” has been observed to be far less acceptable. These results are consistent with the findings of Çakır (2016b). Just like in the case of *niçin* “why” & *hangisebeple* “for what reason” and *niye* ”why” & *hangiamaçla* “with what purpose” comparisons of the previous study, the results of the present study indicate that there is difference in the acceptability of the wh-advverbials and which-NP phrases in Turkish when they exist in the structures that are subject to island effects. The reason for this difference arises from the status of Empty Category Principle in such cases. It appears that ECP is violated in the case of wh-advverbials while it is obeyed in the case of which-NP constructions. Hence, it seems that the wh-operators whose wh-phrases include nominal elements in their structures can license the lower CP with [+wh] feature through spec-head agreement while the operators of the single-word wh-advverbials cannot do the same thing.

It is true that the GB-based terms like lexical government and ECP have been abandoned in Minimalist Program. With respect to the issue of locality, some of the prominent approaches in minimalism are Minimal Link Condition (Chomsky, 1995), Phase Impenetrability Condition (Chomsky, 2001), Criterial Freezing (Rizzi, 2006), Late Adjunction Hypothesis (Stepanov, 2007). With varying degrees of success, these new approaches could provide minimalist accounts for the issues like superiority, barriers, condition on extraction domain, adjunct condition or subject condition. However, they do not provide any refinement for the asymmetry observed in the movement of wh-adjuncts and wh-arguments out of adjuncts/subjects. That is to say, while the approaches like Criterial Freezing and Late Adjunction Hypothesis can provide minimalist explanations for the subject condition and adjunct condition (in general for CED), they do not provide any explanation for the asymmetry observed in the movement of different types of wh-words (argument or adjunct) out of these structures. In languages like Turkish, while the movement of arguments out of island structures does not yield any ungrammaticality, the movement of adjuncts out of such structures results in ungrammaticality. This difference indicates that adjuncts and arguments are handled differently in such languages. ECP, the GB based approach to locality, can explain this asymmetry successfully. Hence, in this paper, these terms will continue to be used while providing syntactic explanations for Turkish syntax.

In turn to the previous discussion, one can claim that the asymmetry between wh-advverbials and which NP constructions may not be valid for just the structures that are subject to island effects. It might be claimed that wh-advverbials may behave worse than which-NP constructions in simplex clauses as well. However, as the findings of the SPR task reveal, the wh-advverbial *nasil* “how” is rather acceptable when it adjoins to the matrix clause that is not subject to any island effects. It is processed even faster than the which-NP phrase *hangişekilde* “in what way” in such structures as explained in section 3. Therefore, it is possible to conclude that wh-advverbials are problematic only when they originate within the embedded CPs which are subject to island effects. The reason for this ungrammaticality should stem from the spec-head licensing mechanism that take place in the lower CP. That is, the operator of the wh-advverbials cannot license the lower CP with [+wh] feature while the operators of which-NP constructions can do it.

The following examples and their tree derivations show the different behavior of wh-advverbials and which-NP constructions.
(4) Metin odasını nasıl bıraktı dışarıya?
Metin room-GEN-ACC how leave-GER out go-PAST
(How did Metin go out leaving his room _t_)
In this derivation, the wh-operator first moves to the lower CP position from its base position. At this node, it can license the lower CP with [+wh] feature since it has nominal characteristics. Therefore, the ECP is not violated in the derivation. Then, it moves to the matrix CP position crossing the PP which constitutes an island for the upper movement of the elements. Yet, since ECP is not violated, it is grammatically more acceptable than (4) above in which both adjunct island violation and ECP violation take place.

5. Conclusions

The present study is a follow-up study of Çakır (2016b). It aims to assess the findings of Çakır (2016b) in a different context by collecting empirical data. In the previous study, he analyzed different types of reason and purpose denoting wh-adjuncts and concluded that the lower CP can acquire the [+wh] feature only from the operators of the wh-phrases that have nominal characteristics. The present study has focused on different wh-adjuncts within island structures. The characteristics of wh-adverbial nasıl “how” is compared with the which-NP constructions hangișekilde “in what way” and hangihalde “in what condition”. The findings of the present study are consistent with the ones obtained in the previous one. It appears that only the operators of the wh-elements that have a nominal element in their structure can license the embedded C with the [+wh] feature, not that of single-word wh-adverbials. This difference changes the status of ECP: while it is obeyed in the case of which-NP phrases, it is violated in the case of single-word wh-adverbials. That is why, the interpretation of these wh-adjuncts differ considerably within island structures.
References

Türkçede ada yapıları içerisinde ne-zarfı & hangi-AÖ yapısı bakımısızlığı

Öz

Anahtar sözcükler: Türkçe; üretimsel sözdizim; ada kısıtlamaları; ne öbekleri; ne-eklentileri

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