

An Analysis of the Functions and Temporal Semantics of Converbs in Turkish Official Written Discourse

Yazılı Türkçe Resmi Söylemde Ulaçların İşlevleri ve Zamansal Anlamlarına İlişkin Bir Çözümleme

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ABSTRACT

The aim of this study is to uncover the functions and temporal meanings of the converb clauses in Turkish official written discourse. The converbs analysed in the study include *-(y)IncA* (when), *-DIğIndA* (when), *-DIğI zaman* (when), *-(y)ken* (while), *-Ir...-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after) and *-DIkçA* (whenever). The data are collected from the government programs issued between 1923 and 2016. A total of 565 converbs are found in the corpus. The findings illustrate that these constructions are mostly used as temporal clauses. Six of them also have other discourse roles in addition to their temporal markers. The suffixes *-Ir...-mAz* (as soon as) and *-mAdAn önce* (before) are utilized only as temporal converbs. Concerning other discourse functions, it is found that most of these converbs serve as the modifier of the head nouns in relative clauses. It is also revealed that *-(y)IncA* (when) and *-DIğIndA* (when) are utilized as topic markers. Of the converbs sampled *-(y)ken* (while) is the most frequently used construction. The other converbs are used less in the government programs. The findings of the study suggest that the converb constructions are very rich in terms of their functions that they assume in the government programs.

ARTICLE HISTORY

Received 2 Mar 2025

Accepted 2 Jun 2025

KEYWORDS

Converbs, temporal semantics, functions of converbs, written official language of Turkish

Introduction

Adverbial clauses are subordinate clauses modifying the proposition in the main clause. These constructions have finite and non-finite types. Major categories of the former include concessive clauses and conditional clauses among others. Converb clauses are the non-finite types of the adverbial clauses. The term non-finite here refers to the fact that verbs suffixed with these non-finite (subordinating) constructions do not bear the full range of morphology that finite verbs do. Slobin, studying Turkish child language, explains converbs as verb forms that function to connect clauses, similar to adverbs (1995, p. 349). Kornfilt (1997) categorizes converb clauses into seven groups based on their semantic relationships: (i) time, (ii) manner, (iii) purpose, (iv) cause, (v) condition, (vi) result, (vii) degree, (ix) place, and (x) concessive. This study deals with the temporal converbs which are produced through the following suffixes: *-(y)IncA* (when), *-DIğIndA* (when), *-*

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CUJHSS (e-ISSN 3062-0112) Published by Çankaya University. © 2025 The Author(s)



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DIğl zaman (when), *-(y)ken* (while), *-Ir...-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after) and *-DIkçA* (whenever). Some of these temporal converbs are illustrated in (1):

- (1) a. [Okul-a gid-ince] Cem biz-i ara-dı.
 school-DAT go-CVB Cem we-ACC call-PST-3SG
 ‘Cem called us when he went to the school.’
- b. [Okul-a gid-erken] Cem biz-i ara-dı.
 school-DAT go-CVB Cem we-ACC call-PST-3SG
 ‘Cem called us while he was going to the school.’
- c. Okul-a gid-er git-mez Cem biz-i ara-dı.
 school-DAT go-CVB Cem we-ACC call-PST-3SG¹
 ‘Cem called us as soon as he went to the school.’

It is well established that the function of these converb constructions is not limited to express temporality. In other words, these constructions may assume other discourse functions. Although Turkish temporal converb clauses have been examined in terms of their structural properties and discursal characteristics (e.g. Hacıoğlu, 1993, Acar, 2014), their temporal meanings and functions in discourse have only partially been studied so far. In addition, these constructions have not sufficiently been analysed based on the data from authentic texts in Turkish. At this point it should be added that the infrequency of the studies on the semantic and discourse-pragmatic variation of the converbs is not limited to Turkish converbs. Such studies are also rare for other languages (Muravyev, 2018, p. 86). Similar views about these constructions can also be found in Nedjalkov’s (1998) cross-linguistic analysis of converbs, as well as in typological research on converbs by Xrakovskij (2009).

The present study aims to provide a more complete description of the temporal semantics and functions of Turkish converbs using the data from the government programs published between 1923 and 2016. The converbs examined in the study include *-(y)IncA* (when), *-DIğIndA* (when), *-DIğl zaman* (when), *-(y)ken* (while), *-Ir...-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after) and *-DIkçA* (whenever).

The article is organized as follows: The theoretical framework of the study focuses on the structural and discursal characteristics of temporal converb clauses in Turkish. Methodology section introduces the method of the study, including the corpus, converbs analysed, data collection and analysis. Then the results of the analysis and discussion of the findings are presented. After that, the conclusion of the study and suggestions about future studies together with implications of the study are given.

Theoretical Framework

Converbs in Turkish are non-finite verbal endings used to denote adverbial subordination. They mostly function as free adjuncts and have many distinct semantic roles (Johanson, 1995, p. 321). As clausal constructions, converbs in Turkish do not impose any specific actancy patterns on their main (matrix) clauses. Such clauses can be recursively embedded, meaning that a converb clause can include another converb clause within it. They can also be linked together through coordination, although conjunctions are rarely used for this purpose. As expected in predominantly head-final languages, Turkic converb clauses typically appear before the predicate in their main clauses.

There are several categories of converbs in Turkish, including temporal converbs (Kornfilt, 1997;

¹ The Leipzig Glossing Rules are employed in the examples where relevant.

Lewis, 1986). In the present study, temporal converbs in Turkish are examined in terms of their temporal meanings and their functions in official written discourse. These constructions are defined as follows: “temporal converb clauses specify the time of the situation expressed by the superordinate clause by reference to how it relates to the time of some other situation (event or state).” (Göksel & Kerslake, 2005, p. 415). The following endings are utilized to produce temporal converbs: *-(y)IncA* (when), *-DIğIndA* (when), *-DIğI zaman* (when), *-(y)ken* (while), *-Ir...-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after) and *-DIkÇA* (whenever).

Some temporal converb constructions in Turkish are headed by postpositions such as *önce* (before) in *-mAdAn önce* (before) and *sonra* (after) in *-DIktAn sonra* (after). Such converb constructions are complex subordinators, whereas plain converbs such as *-(y)ken* and *-DIkÇA* (whenever) are simple subordinators (Zeyrek & Weber, 2008).

Temporal converbs in Turkish have been studied in terms of their structural and semantic features. For instance, Çetintaş Yıldırım (2005) examined their aspectual characteristics arguing that these constructions express the following temporal semantic categories: simultaneity, anteriority and posteriority. As stated by Muravyev (2018) concerning Finno-Ugric languages, these temporal relations are often expressed by more than one converb. Similarly, one converb may communicate more than one temporal relation in Turkish (Banguoğlu, 1995). Existing descriptions of the converbs on their temporal semantics are summarized below.

Simultaneity refers to the fact that the events given in the temporal clause and in the main clause occur at the same time. This temporal relation is conveyed by *-(y)ken* (while), *-DIğI zaman* (when), *-DIğIndA* (when) and *-DIkÇA* (whenever). Anteriority denotes the events in the embedded clause occurring before those expressed in the main clause. Major converb markers of the anteriority relation in Turkish include *-(y)IncA* (when), *-DIğIndA* (when), *-DIğI zaman* (when), *-Ir...-mAz* (as soon as), *-DIğIndAn beri* (since) and *-DIktAn sonra* (after). In the posteriority relation, the events in the temporal clauses occur after the events expressed in the main clauses. This temporal meaning is communicated through the following converb markers: *-DIğIndA* (when), *-DIğI zaman* (when) and *-mAdAn önce* (before).

It is seen that some of these converbs such as *-DIğIndA* (when) and *-DIğI zaman* (when) have overlapping temporal semantics, and that the same temporal relation may be expressed by more than one converb. Discourse functions of some Turkish temporal converb clauses have been examined in authentic texts in two studies. For instance, Hacıoğlu (1993, p. 74) reports that temporal converb *-(y)IncA* (when) may function as a topic phrase as illustrated in (2):

- (2) [Çorap-lar-ım-a gel-ince], çok pis.
 sock-PL-POSS-DAT come-CVB very dirty
 ‘As for my socks, they are very dirty.’

As can be seen in (2), *-(y)IncA* (when) is used to mark the topic of the sentence which denotes the discourse-old information. Here the converb is added to the verb *gel-* “come”. Acar (2014) examines the functions of converbs, including four temporal converbs, using the data from Turkish Discourse Bank. He concludes that the temporal converbs *-DIğIndA* (when), *-(y)IncA* (when), *-(y)ken* (while) and *-DIkÇA* (whenever) appear to assume various discourse roles although their major function is to indicate temporal relations in the corpus. For instance, he reports three different roles of the *-DIğIndA* (when) clauses: a temporal converb clause, a complement of verb phrase and a discourse adverbial (Acar 2014, p. 39). When this converb is utilized as a discourse adverbial, it marks a discourse relation between two events. Its role as a complement of a verb phrase is illustrated in (3):

- (3) Tanık-lar ve kanıt-lar katil-in İbrahim Y. ol-duğunda birleş-miş-ti.

witness-PL and evidence-PL killer-GEN İbrahim Y. be-CVB converge-PFV-PST
 “The witnesses and the evidence converged on the conclusion that the killer was İbrahim Y.’

The converb *-DİkÇA* (whenever) is found to serve three distinct functions in Turkish Discourse Bank: a temporal converb, an adverbial item in discourse and a lexicalized compound word (Acar, 2014, p. 43).

In Acar’s study the *-(y)IncA* (when) clauses are found to function as a temporal converb, an adverbial expression and a lexicalized compound word (2014, p. 44). It should be stated that the category of adverbial expressions in Acar’s study (2014) refers to the category of topic phrases in the study of Hacıoğlu (1993). Both terms denote the topic marking by the converb *-(y)IncA* (when).

It is also reported that the *-(y)ken* (while) clauses may be utilized as a lexicalized discourse adverbial in addition to their temporal converb role (Acar, 2014, p. 46). In short, the function of these constructions is not limited to that of temporal converbs. Instead, they may assume various functions in discourse. However, there is no sufficient finding on their multi-functionality in Turkish.

Methodology

This section includes information on the corpus, converbs analysed, data collection procedure and data analysis.

Corpus

A self-compiled corpus was produced consisting of the government programs (GP) issued between 1923 and 2016. These texts were accessed from the website of the Turkish Parliament. The government programs contain brief information about the general policy of a newly established government and activities to be carried out. These documents were read by the prospective prime minister at the Parliament before the vote of confidence and then, were published in the Official Gazette. Therefore, they are part of the planned discourse which is produced after forethought and organizational preparation before its presentation (Ochs, 1979). At the same time these texts are representative of the official language since they are produced and used for official purposes.

A total of 65 governments was formed in the period between 1923 and 2016. However, three governments did not issue any program. Therefore, the number of the government programs from which converb constructions are elicited is 62. These texts have not been issued since 2016 when the last cabinet was formed under the parliamentarism system. This system was replaced with the presidential government system in 2017 after the referendum.

Each government program in the corpus is composed of different number of words with a mean of 7,000. Therefore, the government programs sampled contain approximately 434,000 words.

The data collection procedure was carried out manually. The converbal endings per government program were independently counted by two researchers. The consistency of their coding was assessed using Cohen’s Kappa. The Cohen’s Kappa between the raters is found to be 0.998 indicating that the coding process is reliable.

Converb Endings

In the study the following eight temporal converb endings were analysed: (1) *-(y)IncA* (when), (2) *-DİğIndA* (when), (3) *-Dİğİ zaman* (when), (4) *-(y)ken* (while), (5) *-İr...-mAz* (as soon as), (6) *-mAdAn önce* (before), (7) *-DİktAn sonra* (after) and (8) *-DİkÇA* (whenever). The reason for choosing these converb constructions is that these are the major markers of temporal converbs. Each of these converb markers is described below in terms of their temporal meanings and morphological

structures.

The converbs *-(y)IncA* (when) and *-Ir ... -mAz* (as soon as) are utilized to express events which occur before the events expressed in main clause (Gencan, 2001; Göksel & Kerslake, 2005; Lewis, 1986; Kornfilt, 1997). In other words, these constructions convey anteriority meaning. The related examples of these converbs are given in (4):

- (4) a. Çocuk ev-e gel-ince yemek ye-di.
 child-NOM home-DAT come-CVB meal eat-PST-3SG
 'When the child came home, s/he ate.'
- b. Misafir-ler oda-lar-ı-na çık-ar çık-maz uyu-du.
 guest-PL room-PL-POSS-ACC go-CVB sleep-PST-3PL
 'As soon as the guests went to their rooms, they slept.'

One of the converbs which expresses posteriority of the embedded event is *-mAdAn önce* (before). Its opposite is *-DİktAn sonra* (after) which refers to the anterior events in relation to those communicated in main clauses (Lewis, 1986). These two converb markers are complex subordinators headed by the following postpositions: *önce* (before) and *sonra* (after). Related examples of these constructions are shown in (5):

- (5) a. Kapı aç-ıl-madan önce sıra-da bekle-di-k.
 door open-PASS-CVB before queue-LOC wait-PST-1PL
 'Before the door was opened, we had waited in the queue.'
- b. Toplantı bit-tikten sonra ofis-e geç-ti-k.
 meeting finish-CVB after office-DAT go-PST-1PL
 'After the meeting had finished, we went to the office.'

There are two converb endings which express all three temporal meanings, anteriority, simultaneity and posteriority: *-DİğIndA* (when), and *-Dİğİ zaman* (when). The latter is a complex subordinator having the word *zaman* (time) as its head. Example (6) illustrates the use of these two converbs as temporal clauses:

- (6) a. Yeri-m-e dön-düğümde onlar-ı gör-me-di-m.
 place-POSS-DAT turn-CVB they-ACC see-NEG-PST-1SG
 'When I turned my place, I didn't see them.'
- b. Yemeğ-i-ni bitir-diği zaman koltuğ-u-na uzan-dı.
 meal-POSS-ACC finish-CVB time armchair-POSS-DAT lie-PST-3SG
 'When he/she finished his/her meal, he/she laid down his/her armchair.'

The converb *-DİkÇA* (whenever) communicates simultaneous events as illustrated in (7):

- (7) Kitab-ı oku-dukça merak-ım art-ar.
 book-ACC read-CVB curiosity-POSS increase-PRS
 'Whenever I read the book, my curiosity increases.'

Although major temporal meaning of *-(y)ken* (while) is that of simultaneity, due to its distinct morphological structure it may express other temporal meanings. Unlike other converbs, *-(y)ken* (while) has two allomorphs: (a) a bound morpheme *-(y)ken* which is attached to the embedded verbs, and (b) a free morpheme *iken* which is attached to the embedded nominal predicates. The use of these two constructions as temporal clauses is shown below:

- (8) a. Pazar-da gez-er-ken o-na rastla-dı-m.
 bazaar-LOC walk-PRS-CVB him/her-DAT come.across-PST-1SG
 'While I was walking in the bazaar, I came across him/her.'

- b. Okul-da iken kimse-ye karış-mı-yor.
 school-LOC CVB nobody-DAT meddle-NEG-PROG-3SG
 'He/she doesn't meddle with anybody while he/she is at the school.'

There is another difference between *-(y)ken* (while) and other converbs mentioned above. The bound variant of this converb ending is not directly attached to the verb stem (Çetintaş Yıldırım, 2005, p. 58). Instead, it is attached to the present tense suffix *-Ir* and/or the aspect markers *-(I)yor*, *-mİş* and *-AcAk*. Example (9) illustrates the use of *-(y)ken* (while) with these suffixes in temporal clauses:

- (9) a. Ali ev-e gid-iyor-ken bir kitap al-dı.
 Ali home-DAT go-PROG-CVB a book buy-PST-3SG
 'While Ali was going home, he bought a book.'
- b. Ali ev-e git-miş-ken bir çay iç-ti.
 Ali home-DAT go-PFV-CVB a tea drink-PST-3SG
 'When Ali went home, he drank tea.'
- c. Ali ev-den çık-acak-ken bir kitap al-dı.
 Ali home-ABL leave-FUT-CVB a book buy-PST-3SG
 'While Ali was about to leave, he bought a book.'

Therefore, *-(y)ken* (while) has the ability of assuming all temporal meanings when it is attached to these tense and aspect markers on the embedded verb. In short, its temporal semantics is governed by these tense and aspect suffixes on the embedded verb, whereas the temporal semantics of the other converb suffixes is governed by the tense, aspect and modality suffixes on the main verb. The morphological structures of *-(y)ken* (while) and other converb endings are summarized in (10):

- (10) a. Vemb + TAM suffixes + *-(y)ken*
 a'. NOMINAL PREDeMb+ *iken*
- b. Vemb + *-(y)InCA* (when); *-DIğIndA* (when); *-DIğİ zaman* (when); *Ir... -mAz* (as soon as); *-mAdAn önce* (before); *-DIktAn sonra* (after); *-DIkÇA* (whenever)

Based on this description of eight converbs, their temporal meanings are summarized in Table 1:

Table 1. Temporal meanings of converbs in Turkish

	Anteriority	Simultaneity	Posteriority
<i>-(y)InCA</i> (when)	+	-	-
<i>-DIğIndA</i> (when)	+	+	+
<i>-DIğİ zaman</i> (when)	+	+	+
<i>-(y)ken</i> (while)	+	+	+
<i>-Ir...-mAz</i> (as soon as)	+	-	-
<i>-mAdAn önce</i> (before)	-	-	+
<i>-DIktAn sonra</i> (after)	+	-	-
<i>-DIkÇA</i> (whenever)	-	+	-

Data Collection Procedure

All sentences containing the converbs *-(y)InCA* (when), *-DIğIndA* (when), *-DIğİ zaman* (when), *-(y)ken* (while), *-Ir...-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after), and *-DIkÇA* (whenever) were extracted from the texts. The converbs collected were grouped into two categories based on their functions: those with the temporal meanings and those with other discourse functions. Then, those converbs with temporal meanings were categorized into the

following three groups: those with anteriority meaning, those with simultaneity meaning and those with posteriority meaning. Converbs with other functions are grouped depending on their discourse functions.

Data Analysis

The data were analysed using the descriptive statistics. Frequency and percentage of the converb constructions are found to show the distribution of their functions in the corpus.

Results and Discussion of the Findings

In this section, the results of the study are presented. Then the findings on the temporal semantics of eight converbs and their discourse functions are discussed.

Functions of Converb Clauses in the Government Programs

A total of 565 converb clauses is found in the government programs. Therefore, it can be argued that these constructions are not very common in the official texts sampled. It is also important to state that the frequency of converbs is unevenly distributed. Baydal & Yazar (2024) state that the normalized frequency value for *-(y)ken* (while) converb ending is 811 in one million. in Turkish National Corpus (TNC) for both written and spoken text types. In Turkish government programmes, it is 713 in one million. These findings clearly illustrate that *-(y)ken* (while) converb ending in the government programs has a similar use rate in TNC. However, the use of other converbial endings in this study is different from their use in TNC. Therefore, it is safe to argue that the converb constructions are sensitive to distinct discourse types.

Of 565 converbs 493 are found to serve as temporal converbs (87,2%), whereas 72 assume other discourse functions (12,7%), clearly showing that the converbs sampled are mostly utilized as temporal clauses. It should be added that these constructions also serve other discourse functions albeit less frequently. The distribution of both functions by each converb is illustrated in Table 2.

Table 2. Distribution of the functions by converbs

	Temporal Clause	Other Discourse Function
<i>-(y)IncA</i> (when)	10	18
<i>-DIğIndA</i> (when)	10	19
<i>-DIğI zaman</i> (when)	6	1
<i>-(y)ken</i> (while)	403	4
<i>-Ir...-mAz</i> (as soon as)	8	0
<i>-mAdAn önce</i> (before)	13	0
<i>-DIktAn sonra</i> (after)	30	6
<i>-DIkçA</i> (whenever)	13	24

Table 2 shows that although most of the converbs are utilized as temporal clauses in the corpus, each converb has its own function pattern. More specifically, some of these constructions such as *-DIkçA* (whenever), *-DIğIndA* (when) and *-(y)IncA* (when) are more frequently used for other discourse functions in contrast to their roles as temporal converbs. It is also seen that two converbs, *-Ir...-mAz* (as soon as) and *-mAdAn önce* (before), are utilized only as temporal clauses in the corpus. In other words, these two converbs are found not to assume any other discourse role in the corpus. The remaining three converbs, *-DIğI zaman* (when), *-(y)ken* (while) and *-DIktAn sonra* (after), appear to have both temporal converb functions and other discourse functions. However, their primary function is that of temporal converb. Each of these converbs are discussed below concerning their temporal semantics and functions in the government programs.

Functions of the converb *-(y)Inca* (when)

As a temporal construction the converb *-(y)Inca* (when) expresses events which occur before the events expressed in main clause (Göksel & Kerslake 2005; Lewis, 1986; Kornfilt, 1997). Therefore, it is one of the anteriority expressions in Turkish. As reported by Hacıoğlu (1993), this construction may also function as a topic marker.

A total of 28 *-(y)Inca* constructions is found out of 565 converbs in the corpus (4,9%). This converb assumes the role of a temporal clause in ten cases (35,7%), whereas 18 *-(y)Inca* constructions are utilized as topic phrases (64,2%). Therefore, its temporal converb role is less common than its use as a topic marker in the government programs. The latter function is illustrated in (11):

- (11) Mamul madde-ler maliyet fiyat-lar-ı-nda-ki tesir-i-ne *ge-lince*
 Manufactured good-PL cost price-PL-ACC-LOC-POSS effect-GEN-DAT come-CVB
 bu ancak amele ücret-ler-i-nin hakikî kıymet-ler-i-nin düşür-ül-me-si
 this only worker wage-PL-GEN-POSS real value-PL-GEN-POSS reduce-PASS-NMLZ-GEN
 demek-tir ki yine gaye-miz-e muhalif-tir. (GP 9)
 mean-AOR that again purpose-POSS-DAT contrary-AOR
 'As for the effect on the cost prices of manufactured goods, this only means reducing the real value of workers' wages, which is again contrary to our purpose.'

Example (11) shows that *-(y)Inca* acts as the topic marker of the NP *mamul maddeler maliyet fiyatlarındaki tesiri* 'the effect on the cost prices of manufactured goods.' In this function the *-(y)Inca* construction does not express anything about temporality but marks the NP as the topic of the sentence which is the discourse-old information. It is seen that after this topic NP a demonstrative pronoun *bu* 'this' is utilized which reinforces the topicality of the NP. As reported by Hacıoğlu (1993) *-(y)Inca* is attached to the verb *gel-* 'come' when it is utilized as a topic marker. Consistent with her view it is found that all 18 *-(y)Inca* constructions are suffixed to this verb in the corpus. The use of the *-(y)Inca* converb as a temporal clause is shown in (12):

- (12) Hazırla-dığım kabine liste-si kabul buyur-ulunca, 23 Haziran 1991
 prepare-REL cabinet list-GEN accept-CVB 23 June 1991
 gün-ü, 48'inci Türkiye Cumhuriyeti Hükümet-i teşekkül et-ti. (GP 48)
 day-GEN 48th Turkey Republic Government-GEN form-PST
 'When the cabinet list I prepared was accepted, the 48th Government of the Republic of Türkiye was formed on 23 June 1991.'

As can be seen in (12) the converb *-(y)Inca* functions as a temporal construction expressing an anterior event. This converb communicates only anterior events when it is utilized as a temporal clause in the corpus. This finding is consistent with the previous findings describing it as a marker of anterior events in temporal clauses. It appears that the converb *-(y)Inca* has a stable pattern in the government programs in that it is used either as a topic marker or as a temporal converb expressing anteriority relations. It is also seen that it does not assume simultaneity or posteriority temporal meanings in the corpus.

Functions of the *-DIğIndA* (when)

The converb *-DIğIndA* (when) may express all three temporal meanings, anteriority, simultaneity and posteriority, when it is utilized as a temporal construction. Acar (2014) reports that in addition to its role as a temporal converb this construction has two more functions in discourse: a complement of verb phrase and a discourse adverbial.

There are 29 examples of this construction out of 565 converbs in the government programs (5,1%). Of 29 *-DIğIndA* (when) converbs, ten are found to assume the role of temporal clause (34,4%), whereas there are 19 *-DIğIndA* (when) clauses with other discourse functions (65,5%). In the latter

function this construction is found to serve three distinct discourse roles: a modifier of the head nouns in relative clauses, a discourse adverbial, and a topic marker. These other discourse functions of *-DIğIndA* (when) are illustrated in (13):

- (13) a. Katılım müzakere-ler-i başla-dığında ortaya kon-ul-an tam üyelik
 participation negotiation-PL-GEN start-CVB put-PASS-REL full membership
 hedef-i, AB kaynak-lı gecikme-ler-e ve engel-ler-e rağmen,
 goal-POSS EU source-ADJ delay-PL-DAT and obstacle-PL-DAT despite
 bugün de aynı şekil-de devam etmekte-dir. (GP 62)
 today also same way-LOC continue-AOR
 'The full membership goal set forth when the accession negotiations began continues
 in the same way today despite EU-related delays and obstacles.'
- b. 21. yüzyıl-ın evrensel standart ve norm-lar-ı ile birleş-tiğinde
 21st century-GEN universal standard and norm-PL-POSS with unite-CVB
 bu temel parametre-ler çeşitli alan-lar-da at-ma-mız gereken
 this basic parameter-PL various field-PL-LOC take-REL. necessary
 ilave adım-lar-ı ve yap-ıl-acak ileri reform-lar-ı büyük
 additional step-PL-ACC and do-PASS-REL advanced reform-PL-ACC large
 oran-da ifade et-mekte-dir. (GP 62)
 extent-LOC express AUX-AOR
 "When combined with the universal standards and norms of the 21st century, these
 fundamental parameters largely express the additional steps we need to take in various
 fields and the advanced reforms to be implemented."
- c. Türkiye-nin coğrafi konum-u ve bölge-de meydana gel-en
 Turkey-GEN geographical position-POSS and region-LOC occur-CVB come-REL
 gelişme-ler dikkat-e al-ın-dığında, güvenlik ve savunma
 development-PL consideration-DAT take-pass-CVB security and defence
 konu-lar-ın-da hükümet-imiz-in çok daha duyarlı ol-acağ-ı açık-tır.
 topic-PL-ACC-LOC government-POSS-GEN much more sensitive be-REL-ACC clear-AOR
 'When Turkey's geographical position and the developments occurring in the region
 are taken into account, it is clear that our government will be much more sensitive
 regarding security and defence matters.' (GP 59)

In (13a) the *-DIğIndA* (when) construction modifies the head noun *tam üyelik hedefi* 'the goal of full membership' in the relative clause. It adds a temporal description to the head noun in this example. This function of the converb *-DIğIndA* (when) has not been reported in the previous studies. In (13b) the converb *-DIğIndA* (when) functions as a discourse adverbial which is also reported in Acar's study (2014). Here it expresses a discourse relation between two entities showing their correlation in achieving a specific outcome. In (13c), the *-DIğIndA* (when) construction is utilized as a topic marker of the NP. It is found that it is suffixed to the verb *dikkate al-* 'to consider' when it is utilized as a topic marker in the corpus. This topicality function of *-DIğIndA* (when) has not been reported in the previous studies.

As mentioned above, the *-DIğIndA* (when) construction as a temporal converb may express all three temporal relations: anteriority, simultaneity and posteriority. It is found that this converb is utilized to convey anteriority and simultaneity meanings in the government programs. However, its use for posterior events is not found in the corpus. Example (14) illustrates the use of this converb as a temporal clause marker communicating anterior and simultaneous events:

- (14) a. Terör-ün ver-diğ-i zarar halk-ımız-ın da destek-i-yle
 terror-GEN give-REL damage people-POSS-GEN also support-POSS-with
 önle-n-diğ-inde ülke-miz-in ve bilhassa terör-den zarar gör-en
 prevent-PASS-CVB country-POSS-GEN and especially terror-ABL get.damage-REL
 bölge-nin gelişme potansiyel-i artır-ıl-acak-tır (GP 55)
 region-GEN development potential-POSS increase-pass-FUT-AOR
 'When the damage caused by terrorism is prevented with the support of our people,
 the development potential of our country, and especially the region affected by
 terrorism, will be increased'
- b. Amaç-ımız bu dönem sona er-diğ-inde çok daha güçlü müreffeh
 goal-POSS-1PL this period end-CVB much more strong prosperous
 ve özgür bir Türkiye-ye ulaş-mak-tır. (GP 61)
 and free a Turkey-DAT reach-INF-AOR
 'Our goal is to reach a much stronger, more prosperous, and freer Turkey when this
 period ends.'

The converb *-DIğIndA* (when) in (14a) expresses an event which occurs before the event contained in the main clause. Therefore, here it conveys an anteriority relation. Its use as an expression of a simultaneous event is illustrated in (14b). Therefore, the corpus data are partly consistent with the multi-temporal semantics of this converb in that its use as an expression of the posterior relation is not identified in the government programs.

Functions of the *-DIğI zaman* (when)

Like the converb *-DIğIndA* (when), the converb *-DIğI zaman* (when) may express all three temporal relations when it is utilized as a temporal converb: anteriority, simultaneity and posteriority. This converb is headed by the word *zaman* 'time' and therefore, is a complex construction. There is no previous finding on the other discourse roles of this converb ending.

In the analysis only seven uses of the converb *-DIğI zaman* (when) are found among 565 converb constructions (1,2%). Therefore, it is the least used converb ending in the corpus. Of seven *-DIğI zaman* (when) uses, six are utilized as temporal converbs (85,7%), whereas one functions as a modifier of the head noun within the relative clause (14,7%). These two functions of the *-DIğI zaman* (when) constructions are shown as follows:

- (15) a. Ara-da-ki fiyat fark-ı çoğal-dığı zaman, bu madde-ler-den
 between-LOC-REL price difference-POSS increase-CVB this substance-PL-ABL
 bir-i diğer-i-nin yer-in-e kaim ol-mak-ta-dır. (GP 13)
 one-POSS other-POSS-GEN place-POSS-DAT substitute be-INF-AOR
 'When the price difference increases, one of these substances substitutes for the other'
- b. Muhalefet-te bulun-duğ-umuz zaman daima riayet et-tiğ-imiz
 opposition-LOC be-CVB always adherence do-REL-1PL
 bu prensip-e, Hükümet olarak da sadık kal-acak-ız. (GP 20)
 this principle-DAT government as also loyal remain-FUT-1PL
 'To this principle, which we always adhered to when we were in opposition, we will
 also remain loyal as the Government.'

As can be seen in (15a) the converb *-DIğI zaman* (when) is used as a temporal construction expressing a simultaneous event. In the corpus it is found to be utilized only to communicate simultaneous relations. Put differently, all six temporal clauses formed with the converb *-DIğI zaman* (when) convey simultaneity. There is no example of its use as an expression of anterior

events and as an expression of posterior events in the government programs. In (15b) the ending *-DİĞİ zaman* (when) also expresses temporality. However, in this example it is not utilized as a temporal converb construction. Instead, here it modifies the head noun *bu prensip* ‘this principle’ in the relative clause adding a temporal description about it. The latter function is not reported in previous studies.

Functions of the *-(y)ken* (while)

As mentioned in Converb Endings Section, the *-(y)ken* (while) converb follows the tense or aspect endings such as *-Ir* or *-mİş* attached to the embedded verbs. Therefore, it differs from other converbs which are directly suffixed to the embedded verbs. Due to its morphological structure, *-(y)ken* (while) may refer to the simultaneous, posterior or anterior relations based on the tense or aspect ending it follows. Another difference between *-(y)ken* (while) and other converbs is that the former has a variant, *iken*, which is a free morpheme used in temporal clauses with nominal predicates. The other converb constructions analysed in this study do not have a variant like that.

A total of 407 *-(y)ken* (while) constructions is found out of 565 converbs making it the most frequent converb in the corpus (72%). There are 65 *iken* (while) forms out of 407 constructions (15,9%). The *-(y)ken* (while) constructions including *iken* forms are mostly utilized as a temporal converb (403/407, 99%). There are only four other discourse roles of this construction in the corpus (1%). All these other discourse roles are produced with the suffix *-(y)ken* (while). Put differently, *iken* is used only as a temporal clause construction in the corpus. The use of *-(y)ken* (while) and its variant *iken* as temporal converbs is illustrated in (16):

- (16) a. Yeni yol-lar yap-ıl-ır-ken şimdi mevcut iyi kötü
 new road-PL build-PASS-AOR-CVB now existing good bad
 güzergâh-lar-dan da faydalan-mak tabii-dir. (GP 15)
 route-PL-ABL also benefit-INF natural-COP
 ‘While new roads are being built, it is natural to also make use of the existing good and bad routes.’
- b. Şehir-ler ve milletler-arası otomatik konuşma yap-an köy sayı-sı
 city-PL and international automatic speech do-REL village number-POSS
 1983 yıl-ın-da sadece 12 iken, 1987 yıl-ın-da 20 bin-dir. (GP 46)
 1983 year-POSS-LOC only 12 CVB, 1987 year-POSS-LOC 20 thousand-COP
 ‘While the number of villages with automatic city and international calls was only 12 in 1983, it was 20 thousand in 1987.’

The use of *-(y)ken* (while) as a temporal converb clause in a verbal temporal clause is illustrated in (16a), and its use as a temporal converb clause in a non-verbal embedded clause is shown in (16b). It is seen that when *-(y)ken* (while) is attached to the aorist *-Ir*, it expresses a simultaneous event as in (16a). The ending *-(y)ken* (while) is also used with perfective aspect marker *-mİş* and progressive aspect marker *-mAktA* in the corpus. The temporal meaning of *-(y)ken* (while) changes depending on these suffixes. In short, these findings are consistent with the view of Çetintaş Yıldırım (1995) who argues that this converb may assume all three temporal meanings: simultaneity, anteriority and posteriority. It is also seen that *iken* (while) in (16b) expresses a posterior event. It is found that *iken* (while) is utilized to convey only posteriority relations in the corpus.

Concerning other discourse roles, *-(y)ken* (while) is utilized as a modifier of the head nouns in relative clauses as illustrated in (17):

- (17) Çalış-ır-ken işsiz kal-an-lar-ın gelir kayıp-ı-nı belirli
 work-AOR-CVB unemployed remain-REL-PL-GEN income loss-POSS-ACC certain
 bir süre telafi et-mek amaç-ı-yla işsizlik sigorta-sı

a period compensate-INF purpose-POSS-with unemployment insurance-POSS
 program-ı başlat-ıl-acak, bu program-ı yürüt-ecek olan İş ve
 program-POSS start-PASS-FUT this program-ACC conduct-FUT-REL work and
 İşçi Bulma Kurum-u yeniden yapılandır-ıl-acak-tır. (GP 57)
 worker Finding Institution-POSS again restructure-PASS-FUT-COP
 ‘To compensate for the income loss of those who become unemployed while working for
 a certain period, an unemployment insurance program will be launched, and the Work
 and Worker Finding Institution, which will implement this program, will be
 restructured.’

Example (17) shows the use of the *-(y)ken* (while) ending as a modifier of the head noun *işsiz kalanlar* ‘those who become unemployed’ in the relative clause. Although Acar (2014) documents the use of this suffix as a lexicalized discourse adverbial, its function as a modifier of the head nouns of the relative clauses is not reported in previous studies.

Functions of the -Ir... -mAz (as soon as)

The converb *-Ir ... -mAz* (as soon as) expresses anteriority relations in temporal clauses. Such events occur before those communicated in the main clause. There is no previous finding on the other discourse roles of *-Ir ... -mAz* (as soon as).

There are only eight *-Ir ... -mAz* (as soon as) clauses in the corpus (1,4%). Therefore, it is not commonly utilized in the government programs. This converb is found to serve only as a temporal converb expressing anteriority relations. It has no other discourse roles in the corpus. Example (18) below shows the use of this converb in the temporal clause in the corpus.

- (18) 3 Kasım seçim-ler-in-den başarı-yl-a çık-ar çık-maz Avrupa Birliği
 3 November election-PL-GEN-ABL success-with exit-cvb European Union
 konu-su-nda ciddî bir etkinlik üret-tik. (GP 59)
 topic-POSS-LOC serious an activity produce-PST.1PL
 ‘As soon as we successfully emerged from the 3 November elections, we generated serious
 activity regarding the European Union.’

As clearly seen in (18), the *-Ir ... -mAz* (as soon as) clause expresses an event which occurs before the one given in the main clause. This converb ending is found to convey only anterior events and is utilized only as a temporal clause. In short, its temporal meaning and function are not flexible unlike other converbs in the corpus.

Functions of the -mAdAn önce (before)

The converb *-mAdAn önce* (before) expresses posteriority of the embedded event. This converb is headed by a postposition *önce* ‘before’, making it a complex construction. There is no previous finding on its other discourse functions.

There are thirteen *-mAdAn önce* (before) constructions in the corpus all of which are temporal converb clauses (13/565, 2,3%). This converb is found to express posterior relations as seen in (19):

- (19) Maruzat-ım-a başla-ma-dan önce, Yüksek Meclis-i Hükümet-imiz
 statement-POSS-DAT start-CVB High Assembly-POSS government-POSS
 adına hürmet-le selâmla-rım. (GP 23)
 behalf respect-WITH greet-1SG
 ‘Before beginning my statement, I respectfully greet the High Assembly on behalf of our
 Government.’

As illustrated in (19) the converb *-mAdAn önce* (before) expresses a posterior event which indicates a textual temporality. In other words, it is used by the text producer to organize his message. It is found that all examples of this converb are used to communicate the posteriority relations which are utilized to arrange the messages of the text producers.

Functions of the *-DiktAn sonra* (after)

The converb *-DiktAn sonra* (after) is utilized to express anterior events in relation to those given in main clauses when it functions as a temporal clause. This complex subordinator is headed by a postposition *sonra* 'after'. There is no previous finding about its other discourse functions.

There are 36 *-DiktAn sonra* (after) constructions out of 565 converbs found in the corpus (6,3%). This converb is mostly used as a temporal clause conveying anteriority relations (30/36, 83,3%). It is also found that six *-DiktAn sonra* (after) constructions have other discourse roles (16,6%). The functions of *-DiktAn sonra* (after) are illustrated in (20):

- (20) a. Bütçe imkân-lar-ın-ı temin *et-tikten* ve tali
Budget opportunity-PL-POSS-ACC secure do-CVB and secondary
tetkik-ler-in-i de *tamamla-dıktan sonra* huzur-unuz-a gel-ecek-iz.
examination-PL-POSS-ACC also complete-CVB presence-POSS-DAT come-FUT-1PL
'After securing the budgetary resources and completing the secondary examinations,
we will come before you.' (GP 9)
- b. Beş sene sür-en çetin bir işgal devre-si *geç-ir-dikten sonra*
five year last-REL difficult an occupation period-POSS pass-caus-CVB
memleket-ler-i-nin kurtuluş-un-u kutla-yan Fransız-lar
country-PL-POSS-GEN liberation-POSS-ACC celebrate-REL French-PL
kendi-ler-i-ne has yurtsever bir gayret-le milli kalkınma-yı
self-PL-POSS-DAT unique patriotic an effort-with national development-ACC
başar-makta-dır-lar. (GP 15)
achieve-PROG-COP-3PL
- c. 55'inci hükümet *düşür-ül-dük-ten sonra* bile bu yön-de
5th government overthrow-PASS-CVB even this direction-LOC
yararlı adım-lar at-mış-tır. (GP 56)
beneficial step-PL take-PFV-COP
'Even after the 55th government was overthrown; it took beneficial steps in this
direction.'

In (20a) the *-DiktAn sonra* (after) construction functions as a temporal clause communicating an anterior event. Example (20b) shows its use as a modifier of the head noun *Fransızlar* 'The French' in the relative clause. Therefore, this converb may also appear as the modifier of the head nouns like other converbs such as *-(y)ken* (while) and *-DİĞİ zaman* (when). In (20c) *-DiktAn sonra* (after) construction is used for another discourse role. Here, it is embedded within the concessive clause adding a temporal description. As mentioned above, the other discourse functions of this construction are not reported in the former studies. The corpus data indicate that although temporal semantics of *-DiktAn sonra* (after) is stable, its discourse functions are varied.

Functions of the *-DikÇA* (whenever)

The converb *-DikÇA* (whenever) is utilized to express simultaneous events when it is used as a temporal converb. Acar (2014) reports that it serves three functions in Turkish Discourse Bank: a temporal converb, an adverbial item in discourse and a lexicalized compound word.

There are 37 *-Dikça* (whenever) constructions in the government programs (37/565, 6,5%). Temporal converb function of this ending is found to be less than its other discourse roles. More specifically, 13 *-Dikça* (whenever) constructions function as temporal clauses (13/37, 35,1%), whereas 24 *-Dikça* (whenever) constructions assume other discourse roles (24/37, 64,8%) in the corpus. Concerning the latter, it serves as the modifier of the head nouns in relative clauses and as an adverbial phrase. It is found that when it is utilized as a temporal converb, it expresses simultaneous events as argued in the earlier studies. Three functions of *-Dikça* (whenever) identified in the corpus are as follows:

- (21) a. Bunlar *tamam-ı-lan-dıkça* devamlı işletme ve bakım-lar-ın-ın
these complete-PASS-CVB continuous operation and maintenance-PL-POSS-GEN
teşkilât-a bağlan-ma-sı iş-i de program-a al-ın-mış-tır.
organization-DAT connect-GER-POSS task-POSS also program-DAT take-PASS-PFV-COP
'As these are completed, the task of linking continuous operation and maintenance to the organization has also been included in the program.' (GP 15)
- b. Sene-ler *geç-tik-çe* vazife-ler-i art-an bu iki vekâlet-in
year-PL pass-CVB duty-PL-POSS increase-REL this two ministry-GEN
gör-dük-ler-i amme hizmet-ler-i-ne nazaran bir taksim-e
perform-REL-PL-POSS public service-PL-POSS-DAT considering a division-DAT
tâbi tut-ul-ma-sı ihtiyaç-ı hissol-un-uyor-du. (GP 12)
subject keep-PASS-GER-POSS need-POSS feel-PASS-PROG-PST
'As the years passed and the responsibilities of these two ministries increased, the need to subject them to a division in consideration of the public services they performed was being felt.'
- c. Ekonomi alan-ın-da zaman-ın şart-lar-ı ve istek-ler-in-in
economy field-POSS-LOC time-GEN condition-PL-POSS and demand-PL-POSS-GEN
gittikçe zorlaş-makta ol-duğ-un-u gör-üyor-uz. (GP 8)
go-CVB be.difficult-PROG be-REL-POSS-ACC see-PROG-1PL
'We see that, in the field of economy, the conditions and demands of the time are gradually becoming more difficult.'

In (21a) *-Dikça* (whenever) is utilized as a temporal converb expressing a simultaneous event. As stated above, all temporal converbs formed with this construction only communicate the simultaneous events. Thus, the finding on its temporal meaning is consistent with the previous findings. Concerning its other discourse roles, it is found that *-Dikça* (whenever) is utilized either as a modifier of the head noun of the relative clauses as in (21b) or as an adverbial as in (21c). These findings suggest that its temporal converb role is not subject to variation, but its other discourse roles are diversified in the corpus.

Conclusion

This study examines eight converbs in terms of their temporal semantics and functions based on the corpus containing the government programs published between 1923 and 2016. The converb constructions analysed include the following: *-(y)IncA* (when), *-DIğIndA* (when), *-DIğl zaman* (when), *-(y)ken* (while), *-Ir...* *-mAz* (as soon as), *-mAdAn önce* (before), *-DIktAn sonra* (after), and *-Dikça* (whenever).

The findings reveal that these eight converbs can be categorized into the following two groups: (a) Those used only as a temporal converb: *-Ir...* *-mAz* (as soon as) and *-mAdAn önce* (before) and (b) those utilized as a temporal converb with other discourse roles: *-(y)IncA* (when), *-DIğIndA* (when), *-DIğl zaman* (when), *-(y)ken* (while), *-DIktAn sonra* (after), and *-Dikça* (whenever). Concerning the

second group it should be added that the constructions *-Dikça* (whenever), *-DiğİndA* (when) and *-(y)İncA* (when) are utilized more frequently for other discourse roles. In other words, their use as temporal converbs is less common in the government programs.

The findings on the temporal semantics of these constructions are consistent with the previous findings. The study uncovers distinct discourse roles of the converbs. Of these other functions, the following two roles are found to be common in the corpus: (a) modifiers of head nouns in relative clauses and (b) topic markers. Most of the converbs sampled are found to modify head nouns in relative clauses. It shows the complex nature of grammatical structures employed in the government programs. The findings also reveal that not only *-(y)İncA* (when) but also *-DiğİndA* (when) serve as a topic marker.

In terms of frequency *-(y)ken* (while) is found to be the most common converb in the corpus. The other converbs are less frequently used in the government programs. The reasons for the higher frequency of *-(y)ken* (while) seem to be related to its morphological structure and its temporal semantics. As stated above it has two variants, one for verbal temporal clauses and one for non-verbal embedded clauses. In addition, this converb is attached to the tense or aspect markers which makes its temporal semantics more flexible and richer. It can be argued that through this rich morphological structure and temporal meanings *-(y)ken* (while) outnumbers the other converb clauses. It seems that because of these factors, the converb *-(y)ken* (while) replaces other constructions in the corpus.

The findings reported in the study are obtained from the government programs which allow us to uncover various functions of the converbs. It is seen that using authentic texts as a data source is very fruitful in the description of these constructions. Therefore, there should be similar studies on different text types to have much more comprehensive insights about their functions. Such studies may also offer new findings on the temporal semantics of converbs.

The findings of the study may be used in the teaching of Turkish as a second language to inform learners about the complexity of these constructions. More specifically, during the teaching of these converb constructions learners may be given examples about the other functions of these constructions. It is also possible to employ these findings in translation studies involving Turkish. Such an awareness would help translators to produce much more accurate translation of Turkish converbs into other languages.

Disclosure Statement

No potential conflict of interest was reported by the authors

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