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Subjectivity and objectivity in Turkish causal connectives? Results from a first corpus study on *çünkü* and *için*

Abstract: Corpus studies from European languages have shown that some causal connectives are used preferentially to express subjective versus objective meanings (e.g., *omdat* vs. *want* in Dutch). However, there is not much empirical work on non-European languages on this cognitive perspective of causal connectives. In this study, we explored whether two Turkish causal connectives which belong to different lexical categories, namely, *çünkü* (a conjunction) and *için* (a postposition functioning as a complex subordinator) are sensitive to propositional attitudes and whether such sensitivity varies according to genre (academic vs. narrative). Consistent with previous findings from European language corpus studies, our logistic mixed regression models offered new insights into subjectivity in the distribution of Turkish causal connectives *çünkü* and *için*: there seems to be a division of labour between the two connectives, in that *çünkü* has a preference for expressing subjective relations, whereas *için* mainly expresses objective relations. An exception is that speech act relations (e.g., a question, advice, command, or promise) are mainly expressed by *için*. All preferences hold over genres.¹

Connectives are prototypical linguistic markers of coherence relations in discourse and can be grouped according to the type of relation they express, including: additive, temporal, causal or contrastive (e.g., Knott and Sanders 1998; Mann and Thompson 1988; Martin 1992; Pander Maat and Sanders 2006; Prasad, Webber, and Joshi 2014). In addition, different annotation schemes (e.g., Penn Discourse Treebank [PDTB], Rhetorical Structure Theory [RST], and Segmented Discourse Representation Theory [SDRT]) have been used to annotate discourse relations in

1 In Turkish, *için* conveys both cause and purpose. These different senses are distinguished by the nominalizing suffix of *için*. In the causal sense, it selects -DI(k); in its purpose sense, it selects -mA (also see footnote³). In this chapter, the purpose sense of *için* is not addressed.

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corpora, enabling the investigation of connective distribution over various types of relations. Recently, a unified annotation scheme (UniDim account) was proposed, which incorporates elements from the above-described annotation schemes (Sanders et al. 2018). A common point of agreement in all these annotation schemes is that many languages have connectives that express causal relations in discourse (Diessel and Hetterle 2011). Various languages – especially Germanic languages – have subtle systematic distinctions within the same class of causal connectives. For instance, in order to express a sequence *S1, because S2*, language users often prefer one causal connective (e.g., *want* in Dutch) over another (e.g., *omdat*, in Dutch), although the connectives are within the same causal connective class (Sanders and Spooren 2013; 2015). In (1), the state of affairs *The neighbors are not at home* is rendered as a factual explanation, while in (2), the use of *probably* indicates that *John probably won't come to the meeting* is not a fact, but the speaker's judgment or conclusion, based on circumstances. In (1) the interpretation of a consequence statement is based on a fact (i.e., the statement is objective), while in (2) it is based on a personal assumption (i.e., the statement is subjective). To express the propositional attitude (i.e. objectivity/fact) in (1), *omdat* is preferred, whereas in (2) *want* is preferred to express the speaker's conclusion.

(1) *The neighbors are not at home because they were at the office.*

(2) *John probably won't come to the meeting because he is ill.*

In this situation, several questions arise, including: (1) What is the mechanism behind the causal connective selection process? (2) Do propositional attitudes affect the selection of Turkish causal connectives, as well? (3) If Turkish causal connectives are sensitive to the type of propositional attitudes, does this sensitivity vary according to genre?

1 Findings in crosslinguistic studies

Previous corpus studies in English, Dutch, German, French, and Mandarin Chinese have explored these causal connective questions (e.g., Degand and Pander Maat 2003; Li, Evers-Vermeul, and Sanders 2013; Sanders, Sanders, and Sweetser 2012; Stukker and Sanders 2012; Sweetser 1990; Zufferey 2012). Sweetser (1990) proposed that *because* in English can be used in three domains: (a) content/objective domain, (b) epistemic use/subjective domain, and (c) speech act use.

- (3) *The temperature rose because the sun was shining.*
- (4) *I thought John loved her because he came back.*
- (5) *What are you doing tonight because there is a good movie on?*
(adapted from Sanders 2005: 106; see Sanders and Spooren 2015)

In (3), a content/objective domain is established between units, since one real event *the sun was shining* causes another event *the temperature rose* to occur. On the other hand, (4) illustrates an epistemic use/subjective domain, since the speaker's assumption *I thought John loved her* is a seemingly logical conclusion. Sentence (5) illustrates a speech-act domain because the reason clause *because there is a good movie on* justifies the implicit question in the main clause *What are you doing tonight?*²

While *because* can be used in three domains, Sweetser (1990) suggested that some connectives specialize in one domain: both English *since* and French *puisque* might be only epistemic domain connectives. In several European languages, relational differences in causality (i.e., objective vs. subjective relation or epistemic/speech acts vs. content domains) explain language users' preference for one lexical item over another to express causal relations between units (see Table 1). For instance, while *want* in Dutch, *denn* in German and *puisque* in French are more often used to signal subjective relations between units, *omdat* in Dutch, *weil* in German, and *parce que* in French are most often preferred to express objective relations.

While these corpus studies show that distributions of causal connectives are related to causal relational differences, they have at least one serious limitation: all are concerned with a limited set of closely-related European languages. To the best of our knowledge, there are only a few studies on causal connective categorization from typologically different languages (Li, Evers-Vermeul, and Sanders 2013; Wei et al. 2019) and this study is intended to fill this gap from the perspective of Turkish.

Previous results from European languages reveal causal connectives that express variations of English *because* (Degand and Pander Maat 2003; Sanders, Sanders, and Sweetser 2012; Sanders and Spooren 2015; Stukker and Sanders 2012; Sweetser 1990; Zufferey 2012). In most corpus studies, causal connective preferences of subjective or objective relations are stable across genres (i.e.,

² The existing annotation schemes attempt to capture such differences such as the PDTB 3.0 relation hierarchy, which includes implicit belief and implicit speech act as features (Webber et al. 2016).

Table 1: A short summary of some corpus studies on causal connectives in European languages.

Languages	Some corpus studies	Types of backward relations	
		Epistemic use/subjective (a)	Content domain/objective (b)
		(a)	(b)
Dutch	Degand and Pander Maat 2003; Sander, Sanders, and Sweetser 2009; Sanders and Spooren 2015	<i>want</i>	<i>omdat</i>
German	Keller 1995; Pit 2003; Wegener 2000	<i>denn</i>	<i>weil</i>
French	Degand and Pander Maat 2003; Zufferey 2012	<i>Car;</i> <i>Puisque</i>	<i>Parce que</i>
		Types of forward relations	
		Epistemic use/subjective (a)	Content domain/objective (b)
		(a)	(b)
Dutch	Pander Maat and Sanders 2000, 2001	<i>dus</i>	<i>daarom</i>
French	Pander Maat and Degand 2001	<i>alors;</i> <i>donc</i>	<i>de ce fait;</i> <i>c'est pourquoi</i>

independent of genre types) (Pander Maat and Degand 2001; Pander Maat and Sanders 2000, 2001; Degand 2001; Verhagen 2005; Pit 2007; Sanders and Spooren 2015; Zufferey 2012). Li, Evers-Vermeul, and Sanders' (2013) study of Mandarin Chinese reveals that various causal connectives (i.e., *kějiàn*, *suǒyǐ*, *yīncǐ*, *yīn'ér*, and *yúshì*) have clear and robust profiles and signal different degrees of subjectivity. Notably, *kějiàn*, *yúshì*, and *yīn'ér* had robust profiles across genres, and the subjective meanings of *suǒyǐ* and *yīncǐ* (two common connectors) were genre sensitive (Li, Evers-Vermeul, and Sanders 2013).

Importantly, the preferences that connectives show to express either subjective or objective relations are not black-and-white distinctions. The differences are usually gradual, with profiles ranging from 40–60% to 90–100%. Since there are *prototypical cases* and *counter-examples* (Stukker and Sanders 2012; Sanders and Spooren 2013), it makes sense to categorize causal connectives in terms of objective and subjective domains (Pander Maat and Sanders 2000; Pander Maat and Degand 2001; Stukker, Sanders, and Verhagen 2009). In addition, in order to characterize various cases in terms of subjectivity, a fine-grained analysis is needed. The analytic components include the following: (a) presence of subject of consciousness (SoC), (b) narrator type, and (c) genre type effect. For instance,

dus (cf. English *so*) in Dutch expresses an epistemic and content volition domain (i.e., intentional act), but not a non-volitional (i.e., non-intentional act) domain. On the other hand, *daarom* (in Dutch) expresses relations in a volitional domain but can also express content and epistemic relations. Such examples suggest that epistemic and volitional causality are related because both “have an animate subject, whose intentionality is conceptualized as the ultimate source of the causal event and who can be an act of reasoning or some ‘real-world’ activity” (Sanders 2005: 106). However, some events originate from *non-intentional causes* and are situated in the animate/outside world (Pander Maat and Sanders 2001; Stein and Wright 1995). Such non-intentional (i.e., non-volitional) cases are related to the objective domain.

All this suggests that causes can be the subject of consciousness (SoC) (i.e., events originating from some *mind*) and thus can be the actual speaker, the character(s) in the text, or some third-person in context. For instance, in the utterance ‘I think that the Anatolian civilization museum is great’ the use of first-person singular pronoun ‘I’ (i.e., first-person narration) demonstrates that the speaker is sharing his/her personal feelings with the listener. On the other hand, in the utterance, ‘He thinks that the Anatolian civilization museum is great’ the third-person pronoun (i.e., third-person narration) signals that the idea in the embedded clause ‘Anatolian civilization museum is great’ reflects the feelings and thoughts of someone other than the speaker. The difference between these utterances is the speaker/writer vs. a third-person character as a SoC. According to the deictic center of communication theory (Sanders, Sanders, and Sweetser 2009; Sanders and Spooren 2015; cf. Sanders, Sanders, and Sweetser 2009 for further details of deictic center of communication theory), an actual speaker/first person narration is seen as being more subjective than a third person-narration. This proposal relies on Traugott’s (1995) view on *subjectivity* as closeness to the communicative “here and now”. In a first-person narration, the speaker “here and now” asserts that a particular state of affairs holds, whereas in a third-person narration, a character is distant from the deictic center of communication. In order to mark subjectivity between the utterances, the SoC’s thoughts, feelings, and point-of-view must be determined. The type of narrator (i.e., first-person vs. third-person), the use of evaluative verbs, modal expressions, and scalar predicates can define the SoC. However, determination of the SoC may not always depend on all elements. Sometimes the SoC – author/speaker – can be implicit and off stage (cf. Langacker (1990) for speaker’s implicitness) but still produce subjective utterances. Therefore, such implicit cases between utterances are also subsumed under the category of subjectivity. For instance, (6) is an example for an epistemic relation. The SoC is third-person narration (Willem), but not the speaker as in (4) above (Sanders and Spooren 2015: 61).

- (6) *That Saturday morning, Willem was sad. Now all soccer games would be cancelled, because it had rained a lot that week.*

Genre or media type has also been seen to affect the causal connective choice. For instance, in Mandarin Chinese, *kějiàn* and *yīn'ér* show robust usage patterns across genres (i.e., argumentative, informative and narrative genres) in terms of objective/subjective domains, but their usage varies across genres when the identity of the SoC is concerned. In addition, *yīncǐ* and *suǒyǐ* are genre-sensitive: they are more epistemic in argumentative and informative discourse, less subjective when occurring with physical facts, in a volitional domain, and/or a SoC in narrative texts and novels. Similar genre-sensitivity was also found in previous studies on different languages. While French *car*, German *denn*, and Dutch *want* have a strong preference for subjective domain across text types (i.e., newspaper, novels, periodicals), French *parce que*, German *weil*, and Dutch *omdat* show a less clear profile in newspapers (Stukker and Sanders 2012). However, when spoken-Dutch and chat media causal connectives are directly compared to written texts, the profiles of the two connectives are very clear: *want* occurs more often in subjective domains than *omdat* and they do not vary across genre or media types (Sanders and Spooren 2015). For English *because*, more linguistic cues are identified as possibly reliable predictors of subjective and objective uses: modality, semantics of subjects, the semantic class of the verbal predicate, tense and the presence of evaluative adjectives (Levshina and Degand 2017).

All these findings reveal that certain underlying semantic-pragmatic categories, such as objective/non-epistemic, subjective/epistemic and speech-act can be identified for causal connectives. Recent work on the Europarl corpus provides new evidence of this categorization in European languages including a new language (Spanish) and reveals that a relation's expectedness (determined on the basis of cognitive complexity) influences linguistic marking of coherence relations across languages (Hoek et al. 2017). A recent study of Spanish used automatic means to determine the degree to which causal connectives encode subjectivity across different text types (Santana et al. 2018). If subjective vs. objective causal categories have a general cognitive basis, they should also play a role in the description of connectives in other less-related languages. Therefore, investigating non-European languages (e.g., Turkish) is important, because it may help determine the possible cognitive mechanism behind the meaning and use of causal connectives in the discourse of such languages.

2 Turkish studies on causal connectives

Studies on Turkish causal connectives are scarce but they exist. In an early work within a relevance-theoretic approach, where the conceptual/procedural distinction of connectives has been identified (Blakemore 1987; Fraser 2006; Wilson and Sperber 1993), Ruhi (2007) argues that Turkish causal connectives provide *processing instructions* that show readers/writers how to establish relations between units/utterances. More recent studies (e.g., Cetintaş-Yıldırım 2015; Uzun 2018) suggest that Turkish causal connectives are sensitive to propositional attitudes, with text genre making this sensitivity clear-cut (Uzun 2018). Uzun's (2018) frequency analysis of causal connective tokens in newspapers and academic texts has shown that *nedeniyle* 'for the reason that', *bu/o nedenle* 'for this/that reason' and *bunun sebebi* 'the reason for this' are most often used in objective relations, whereas *bunun için* 'for this' and *-dAn dolayı* 'because of' are used in subjective relations in newspapers.

Thus, although previous studies on Turkish discourse connectives have touched upon the issue of subjectivity in causal marking, a systematic and fine-grained investigation exploring conceptual differences between specific causal connectives such as *çünkü* and *için* and whether and how subjectivity categorizes them has not yet been undertaken.

3 Current study

We analysed two Turkish causal connectives: *çünkü* and *için* following Sanders and Spooren's (2015) integrative approach to subjectivity. We dealt with two connectives belonging to different lexical categories: *için* is a postposition and to function as a complex subordinator, it needs the nominalizing suffix -DI(k)³ followed by person agreement markers on the verb of its complement as in (7) (Zeyrek and Webber 2008). In Turkish, complex subordinators relate a (main) clause with a subordinate clause and always take such specific morphosyntactic form. As all complex subordinators, *için* is always used inter-sententially. In the examples that follow, each discourse segment is shown between square

³ This is a morphophonemic representation of the nominalizing suffix. The capital letter D shows the consonant can be either d or t depending on consonant harmony rules. The letter I shows there is a high vowel in mid position, and depending on vowel harmony rules, it may be realized as any of the high vowels in the language (i.e., ı, i, u, or ü). Finally, the stem-final k (shown in parentheses) is never realized phonetically. When it occurs before a vowel (as is always the case in our data), it changes to a consonant represented by the letter ğ (the 'soft g').

brackets⁴ and subscripted as S1 or S2, where S1 and S2 denote the linear order of the discourse segments related by the connectives. The connectives are underlined.

- (7) [*Dedem çok erken öldüğü*]_{S1} için, [*Ø⁵ erken yaşta dul kaldı*]._{S2}
 [*Since my grandpa died at a very early age*]_{S1} [*Ø became a young widow*]._{S2}

‘*Since my grandpa died at a very early age, my grandmother became a young widow.*’

Çünkü, a borrowed word from Persian, is syntactically a coordinator and always relates two finite clauses (Johanson 1975). *Çünkü* is used both intra- and inter-sententially as in (8a and 8b).

- (8a) (intra-sentential)

[*Bir Bizans yapısının harabesi olsa gerekti*]_{S1} çünkü [*taşları eşelediğinizde renk renk mozaik parçaları bulabiliyordunuz*]._{S2}
 [They were Byzantine ruins, I guess],_{S1} because [when you scrape the stones, you uncover coloured mosaic pieces]._{S2}
 ‘I guess they were Byzantine ruins, because when you scrape the stones, you uncover coloured mosaic pieces.’

- (8b) (inter-sentential)

[*Bir Bizans yapısının harabesi olsa gerekti*]._{S1} Çünkü [*taşları eşelediğinizde renk renk mozaik parçaları bulabiliyordunuz*]._{S2}
 [They were Byzantine ruins, I guess]._{S1} Because [when you scrape the stones, you uncover coloured mosaic pieces]._{S2}
 ‘I guess they were Byzantine ruins. Because when you scrape the stones, you uncover coloured mosaic pieces.’

An important characteristic of causal connectives is directionality, or the order the segments in a relation. The order is (i) basic (antecedent-consequence) or (ii) non-basic (consequence-antecedent). For example, in (9), two segments related by *çünkü* are in a basic order. In the first segment, the cause *Attention was paid to insure the channel did not go through any private lands* is an antecedent, followed by the consequence or claim *not having the problem of expropriation* in the second segment.

⁴ Brackets enclose discourse, or text segments. Text segments related to a connective are listed by linear order. Thus, the first segment is labeled segment1 (_{S1}) and the second as segment2 (_{S2}).

⁵ Turkish is a null-subject language, and the symbol Ø stands for the dropped subject of the tensed clause.

- (9) *[Yapılacak kanalın hiç kimsenin özel arazisinden geçmemesine dikkat edildi]._{S1}* *Çünkü [bu sayede istimlak sorunu ortaya çıkmayacaktı]._{S2}*

[Attention was paid to insure the channel did not go through any private lands]._{S1} Because [this would eliminate the problem of expropriation]._{S2}
 ‘Attention was paid to insure the channel did not go through any private lands. Because this would eliminate the problem of expropriation.’

On the other hand, in a non-basic order the consequence comes first, followed by a cause or claim. Two segments in (10) are in a non-basic order. *The number of pre-primary schools and teachers across the country does not even meet today’s needs* is the consequence/state in the first segment and the second segment gives the reason why this has happened (*Republican education policies have not prioritized pre-school education*).

- (10) *[Okul öncesi eğitim kurumları, öğretmen sayısı ve ülke çapındaki dağılımı bugün dahi ihtiyaca cevap vermekten uzaktır]._{S1}* *Çünkü [Cumhuriyet’in eğitim politikaları içinde okul öncesi eğitime başlangıçta istenen önem verilememiştir]._{S2}*

[The number of pre-primary schools and teachers across the country does not even meet today’s needs]._{S1} Because [Republican education policies have not prioritized pre-school education]._{S2}

‘The number of pre-primary schools and teachers across the country does not even meet today’s needs. Because Republican education policies have not prioritized pre-school education.’

Based on previous literature and theoretical considerations reviewed above, we developed the following research questions:

- RQ1: Can the distribution of Turkish causal connectives *çünkü* and *için* be explained in terms of objective versus subjective relations?
 RQ2: Will discourse genre type (i.e., academic vs. narrative) affect the distribution of *çünkü* and *için* for the identified propositional attitudes?
 RQ3: When speech act relations are used, will the occurrence of *için* in subjective domains be higher than that of *çünkü*?
 RQ4: Will the use of *çünkü* and *için*, with or without subject of consciousness (SoC), be affected by genre type?
 RQ5: Regardless of genre types, will the use of causal connectives depend on narrator type?

4 Method

Our tokens ($n = 300$) consisted of clauses or groups of clauses related with *çünkü* or *için* obtained from two corpora: (a) 75 *çünkü* and 75 *için* tokens were chosen randomly from the narrative texts (novels and short stories) of the Middle East Technical University (METU) Turkish Corpus, and (b) 75 *çünkü* and 75 *için* tokens were selected from the academic texts of *Dergipark*, an online platform developed by the Turkish National Research Institute (TUBITAK) that includes academic journals published in Turkey ($n = 1.925$).

4.1 Annotation and linguistic variables

4.1.1 The annotation cycle

The annotation cycle of the data involved two steps. In the first step, two authors (DC and DZ) annotated narrative and academic text tokens. We firstly characterized discourse segments (S) and annotated them as S1 and S2. Then, we specified and annotated the linguistic variables, i.e. subjectivity features of each causal connective token as explained below. Cohen's kappa was run to determine the degree of inter-rater reliability on the use of *çünkü* and *için* tokens regarding the subjectivity features (Table 2). Cohen's kappa analysis revealed substantial inter-rater agreement on *çünkü* (.75–.80). High inter-rater reliability on *için* was observed (.80–.90).

Table 2: Inter-rater reliability for *çünkü* and *için* in each relation type across academic and narrative texts.

	Narrative texts		Academic texts	
	<i>çünkü</i>	<i>için</i>	<i>çünkü</i>	<i>için</i>
Propositional attitudes	.78*	.85	.75	.90
Subjective domains	.80	.80	-----	-----
SoC	.80	.85	.78	.80
Narrator type	.85	.90	.80	.80

*Kappa < .70–.80 is a substantial inter-rater agreement; < .81 is perfect agreement.

In the second step of the annotation process, the three authors discussed and reached unanimous agreement on all questionable or disagreed-upon cases. All analyses were carried out on the agreed tokens.

4.2 Linguistic variables

In line with earlier analyses, we annotated the following linguistic characteristics related to Subjectivity. To annotate each characteristic, we used a specific paraphrase, as described below.

1. Propositional attitudes: We distinguished between two categories: (a) objective/content domains or (b) subjective/epistemic relations between segments.

1a. Objective/content domains: A causal relation was annotated as objective if it mentioned a factual statement, and subjective if it referred to a narrator/speaker's personal beliefs or interpretation. For example, if the paraphrase of the causally related clauses was in the following form: "Situation (X) leads to the fact (Y)", then the causality relation is taken to be objective. In (11), for example, *S1 election eligibility was changed in 1969* leads to the fact *the proportion of university graduates who vote has dropped to 74%*. Thus, (11) is annotated as a relation that holds in the objective domain.

- (11) *[Daha sonraki 1969 seçimlerinde seçim yöntemi değiştirildiği] için* _{S1} *[üniversite mezunlarının oranı %74'ler seviyesini kadar düşmüştür.]* _{S2}
 [Because election eligibility was changed in 1969] _{S1} [the proportion of university graduates who vote has dropped to 74%]. _{S2}

'Because election eligibility was changed in 1969, the proportion of university graduates who vote has dropped to 74%.'

Objective/content domain relationships may involve two subtypes (Stukker, Sanders, and Verhagen 2009): (i) volitional and (ii) non-volitional. A volitional content domain includes subject involvement (subject of consciousness [SoC]) and thus the intentional act. In narrative texts, for a volitional domain, our paraphrase was "Situation X led to a fact that involves an intentional act". For example, in (12), an objective relation holds between S1 and S2: He wore an old suit to the wedding, and this situation led to the family members' intentional and volitional acts of despise and loathing.

- (12) *Fakat [düğüne eski lâcivert takım ile katıldığı] için* _{S1} *[surat astılar, arkasından da horladılar].* _{S2}
 Yet, [because he wore an old suit to the wedding], _{S1} [family members despised and loathed him behind him]. _{S2}
 'Because he wore an old suit to the wedding family members despised and loathed him.'

On the other hand, a non-volitional content domain does not include any subject involvement or an intentional act. Our test for a non-volitional domain was the paraphrase: “Situation X lead to a fact that does not involve an intentional act”. In example (13), the causality relation holds in the non-volitional content domain: The fact that the instructor did not know Kurdish caused her not to show any reaction to Miss Perisan’s stories. Her not reacting to the stories was not an intentional act.

- (13) [*Öğretmenimiz Perişan Bacı'nın masallarını donuk bir ifadeyle dinlerdi*]._{S1} *Çünkü [Kürtçe bilmezdi]*._{S2}
 [Our instructor would listen to Miss Perisan’s stories stone-faced]_{S1} [because s/he did not know Kurdish]._{S2}
 ‘Our instructor would listen to Miss Perisan’s stories stone-faced because s/he did not know Kurdish.’

In our study, it was often difficult to reach agreement on the annotation of volitional/non-volitional acts in academic texts. This may be because in academic discourse, writers often fail to explicitly articulate whether or not the act is intentional. For example, *çünkü* ‘because’ in (14) it was difficult or impossible to annotate an intentional or non-intentional act. Consequently, we did not include volitional/non-volitional variables in the annotation of academic texts.

- (14) [*Kadın sanatçıların sayısal yönden erkeklere oranla daha az olduğu görülür*]._{S1} *Çünkü [çağlar boyunca kadınlar hep ezilmişler, özgürlüklerine kavuşamamışlar, birçok toplumda birer köle gibi yaşamışlardır]*._{S2}
 [There are fewer female artists than male artists],_{S1} because [through the ages women have always been oppressed, have not been free, and have been kept as slaves in many societies]._{S2}
 ‘There are fewer female artists than male artists because through the ages women have always been oppressed, have not been free, and have been kept as slaves in many societies.’

1b. Subjective/epistemic relations: To determine subjective/epistemic relations, the paraphrase we used was as follows: “Situation (X) leads me to conclude, surmise or believe (Y)”. In (15), the fact that *it was a reaction to the scholastic mindset and thus to the whole of the Middle Ages* leads some cultural historians to believe it is important enough to be the initiator of Renaissance.

- (15) *[Bazı kültür tarihçileri, dindeki reformasyonu Rönesans'ın başlatıcısı sayacak kadar önemli bulmuşlardır].* **S1** *Çünkü, [onda da skolastik zihniyete ve dolayısıyla bütünüyle Orta Çağ'a karşı bir tepki vardır].* **S2**
 [Some cultural historians believe the reformation movement was important enough to initiate the Renaissance], **S1** because [it was a reaction to the scholastic mindset and the whole of the Middle Ages]. **S2**
 'Some cultural historians believe the reformation movement was important enough to initiate the Renaissance because it was a reaction to the scholastic mindset and the whole of the Middle Ages.'

In addition to using the paraphrase test, we also considered the role of the modality marker *-Dir* (cf. Tura 1986) in causality segments to determine whether the relation between units is subjective or objective. For example, in (16), the suffix *-Dir*⁶ in S1 (rendered in bold fonts) gives the writer the voice of authority but also indicates that the proposition in S1 is the author's personal opinion rather than a fact (i.e., the difficulty of revealing the effects of these action on the employees does not lead to the fact that the employees hide the fact that they have undergone mobbing but to the author's conclusion, judgement, and evaluation that it is very difficult to reveal the effects of these actions on the employees). By the same token, the intensifier *oldukça* 'quite' in S1 indicates this is the writer's view and leads to the author's claim/judgement expressed in S2.

- (16) *[Çalışanların işyerlerinde karşı karşıya kaldıkları bu eylemlerin etkilerini ortaya çıkarmak oldukça güç-tür].* **S1** *Çünkü [çalışanlar işlerini kaybetmemek yada toplum içinde utanç verici bir duruma düşmemek için çoğu kez mobbing'e maruz kaldıklarını gizlemektedirler].* **S2**
 [It is very difficult to reveal the effects of these actions on the employees]. **S1** since – out of fear of losing their job or being embarrassed – they often do not acknowledge that they are being mobbed]. **S2**
 'It is very difficult to reveal the effects of these actions on the employees since – out of fear of losing their job or being embarrassed – they often do not acknowledge that they are being mobbed.'

⁶ As the majority of suffixes in Turkish, *-Dir* exhibits morphophonemic alternation depending on vowel harmony as well as consonant harmony; thus, in example (16) it takes the form *-tür*.

2. Subjective domains: Subjective domains were also analyzed using two categories, including epistemic causality, which we discussed in section (1b) above. Consequently, only speech acts will be discussed in this section. For speech act cases, the paraphrase we used as a guide was “Situation X leads to a question, advice, command, promise about Y”. For example, in (17), *için* is used in a speech act domain: ‘having money and guns’ answers the question of how long they will control the government (for further details on speech act see: Pander Maat and Degand 2001; Pander Maat, Degand, and Sanders 1999; Sanders 2005; Sweetser 1990).

- (17) [*Top ve para sahibi oldukları için*]_{S1} [*iktidarlarını sürdürecekler -dir ama ne zamana kadar?*]_{S2}
 [They have money and guns],_{S1} so [they’ll always control the government but what time until?]_{S2}
 ‘They have money and guns, so they’ll always control the government but until when will they control?’

3. Presence of subject of consciousness: We analyzed the presence of subject of consciousness (SoC) in the data. The SoC is the person responsible for the constructed causal relation. In discourse, the SoC can either be absent or present while annotating the SoC in our corpus, we used the following questions as guides: (a) “Who is responsible for the causality?” and (b) “Does the argument specify who is responsible for the causality?” Crucially, the SoC involves an addresser’s intentionality that is conceptualized as the ultimate source of reasoning and evaluation. For instance, (18) was specified as “yes SoC (i.e., an author SoC)” because *the high probability of the truth of the stories about Mehmed Ali Pasha* is based on the narrator’s evaluation of Mehmed Ali Pasha’s excessive spending/attitude and being rebuked by the sultan.

- (18) [*Mehmed Ali Paşa ile ilgili bu konudaki rivayetlerin gerçek olma ihtimali yüksektir.*]_{S1} Çünkü [*aşırı masraflar ve hanedana yakışmayan tavırlar sergileyen Paşa, defalarca padişah tarafından azarlanmış ve tenzil-i rütbe, sürgün vs. ile cezalandırılmıştır.*]_{S2}
 [There is a high probability that the stories related to Mehmed Ali Pasha are real],_{S1} because [the Pasha, whose excessive spending and attitude do not fit the dynasty principles, has already been rebuked by the sultan many times]._{S2}

‘There is a high probability that the stories related to Mehmed Ali Pasha are real, because the Pasha, whose excessive spending and attitude do not fit the dynasty principles, has already been rebuked by the sultan many times.’

On the other hand, (13) above was coded as “no SoC” because the instructor’s stone-faced expression while a story being told is a consequence of his/her not understanding Kurdish, not the speaker’s evaluation or judgment.

4. Types of narrator: We annotated narrator types as: (i) third-person singular/plural, (ii) first-person singular/plural, and (iii) first-person with impersonal passives or the suffix *-Dir*.

To illustrate, we annotated narrator type as ‘third person’ in (12) above: his wearing an old suit leads to the family members’ despising him, where the eventuality is attributed to a third-person ‘the family’ rather than the author. At this juncture, it is worth mentioning that in Turkish academic texts, there are numerous instances where an author uses *impersonal passives*⁷:

The addition of a passive suffix to an intransitive verb produces an impersonal passive construction ... In such constructions there is no particular person or group of persons that is understood as performing the action denoted by the verb, hence such sentences cannot have agent phrases (Göksel and Kerslake 2005: 136).

For instance, in (19), we understand that the author did not include 6-year-old children in his/her study because no 6-year-old children attended the sampled kindergarten. In such cases, authors do not tend to use first-person narration (e.g., first-person singular/plural) to describe the situation but instead they prefer to use impersonal passives. When the SoC was an author as in (19), the text was coded as ‘first person with an impersonal passive.’

- (19) [*Çalışılan anaokullarında 6 yaşında çocuk olmadığı için*]_{S1} [6 yaş grubu çocuklarla çalışılmamıştır]._{S2}
 [The six-year old group was not because [no 6-year-old children included in the study] _{S1} attended the sampled kinder gardens]._{S2}
 ‘The six-year old group was not included in the study because no 6-year-old children attended the sampled kinder gardens.’

⁷ Some examples for impersonal passives are: (1) *Kitap oku-PASS-PST* ‘the book was read’; (2) *Ada-ya-gid-PASS-PST* ‘the island was gone to’. PASS is a shortened form of the passive; PST is the abbreviation for past tense (also see Kornfilt 2000 for further details and examples).

5 Data analysis

Because the data of the current study were categorical, the statistical analyses made use of logistic mixed effects regression (LMER),⁸ taking the causality connectives (*çünkü* vs. *için*) and genre type (academic vs. narrative texts) as the fixed effects and including crossed-random intercepts and slopes for items in a single step. Prior to analysis, factor labels (i.e., causality connectives and genre types) were transformed into numerical values and centered to have a mean of 0 and a range of 1. The results provide coefficients, standard errors, and z-values for each fixed effect and interaction. Except for the *subjective domain* (i.e., speech acts vs. the *epistemic domain*) and *type of narrator* (i.e., first and third person), the analyses reported below for propositional attitudes and the presence of the SoC incorporated crossed-random intercepts for items. Random slope parameters (levels of causal connectives, i.e. *çünkü* vs. *için*), two levels of genre type (academic vs. narrative texts), and interaction in the slopes (causal connectives * genre type+1|items) were included in the maximal model for items.

A logistic regression model on subjective domains and type of narrator, including random slope parameters for items in the maximal model, did not converge. We ran a simple model that included only random intercepts by item (causal connectives * genre type + (1|items)). For subjective domains, we coded the data as follows: (0) for speech acts, (1) for epistemic relations and (2) for objective relations. We conducted a logistic mixed effects regression in which the variables coded with (2) were excluded.

As already explained, causal segments were difficult to annotate for volitional/non-volitional acts in academic texts. Therefore, we decided not to annotate ‘volitional/non-volitional relations’ in academic texts. Since we had only one fixed factor (causal connectives) and no genre type, it was impossible to run a logistic regression model. Thus, we only report the percentages of *çünkü* and *için* in volitional/nonvolitional relations in narrative texts.

⁸ The analyses were computed by the lme4 package in R programming language (see <http://lme4.r-forge.r-project.org>). The official number of lme4 was 999375-35. R 3.0 for Windows was used.

6 Results

6.1 Propositional attitudes (subjective/epistemic vs. objective/non-epistemic relations)

The analysis yielded a significant effect of causal connectives in the use of propositional attitudes ($\beta = -0.92$, $Z = -3.811$, $SE = 0.24$, $p < .05$). The likelihood of *için* in objective relations was higher than that of *çünkü* in both academic and narrative texts. Similarly, the likelihood of *çünkü* was higher than *için* in subjective relations in these genres. There was no statistically significant interaction between causal connectives and genre types ($\beta = -0.31$, $Z = -0.629$, $SE = 0.49$, $p > .05$), which reflects the fact that the semantic-pragmatic profile in the meaning and use of causal connectives regarding propositional attitudes was not affected by genre types (see Table 3). In addition, there was no main effect of genre type in the use of propositional attitudes ($\beta = -0.37$, $Z = -1.499$, $SE = 0.247$, $p > .05$).

Table 3: Percentage of *çünkü* and *için* for each relation type across academic and narrative texts.

	Academic		Narrative	
	<i>çünkü</i>	<i>için</i>	<i>çünkü</i>	<i>için</i>
Subjective %	56	37	51	25
Objective %	44	63	49	75
Total %	100	100	100	100

In narrative discourse, while *çünkü* was overwhelmingly used in the volitional content domain (volitional content: *çünkü*: 88.24%; *için*: 43.44%), *için* was preferred in non-volitional content domains (non-volitional content domains: *için*: 43.44%; *çünkü*: 11.24%).

6.2 Subjective domains (speech acts and epistemic relations)

Our analysis revealed main effects of causal connectives ($\beta = -3.061$, $Z = -2.739$, $SE = 1.11$, $p < .05$) and genre types ($\beta = -3.51$, $Z = -2.654$, $SE = 0.132$, $p < .05$). While in narrative discourse, the likelihood of *için* in a speech act relation was higher than that of *çünkü* (*için*: 21% vs. *çünkü*: 3%), the likelihood of both connectives occurring in speech acts in academic discourse was low (*için*: 1% vs. *çünkü*: 1%)

(see Table 4). Regardless of genre type, the likelihood of *çünkü* to appear in epistemic relations was higher than that of *için*. (In academic texts, epistemically used *çünkü* occurred at a frequency of 56% while epistemically used *için* appeared at a frequency of 37%. In narrative texts, the occurrence of epistemically used *çünkü* was 50% while that of *için* was 20%).

Table 4: Percentage of each connective for speech acts, epistemic, and objective relations.

	Academic		Narrative	
	<i>çünkü</i>	<i>için</i>	<i>çünkü</i>	<i>için</i>
Speech act %	1	1	3	21
Epistemic %	56	37	50	20
*Others %	43	62	47	59
Total %	100	100	100	100

*The aim of this analysis was to compare distributions of each connective for speech acts and epistemic cases. Occurrences with objective relations were coded as ‘other’ and excluded in the logistic mixed regression analysis.

6.3 Presence of Subject of Consciousness (SoC)

Our analysis revealed significant effects of causal connectives ($\beta = -1.30$, $Z = -3.651$, $SE = 0.36$, $p < .05$) and genre types ($\beta = 0.17$, $Z = 0.48$, $SE = 0.35$, $p > .05$), as well as an interaction between these factors ($\beta = -1.713$, $Z = -2.400$, $SE = 0.71$, $p < .05$), demonstrating that type of SoC in causality segments depends on the type of discourse genre and causality connectives (see Table 5).

Table 5: Percentage of *çünkü* and *için* for subject of consciousness across academic and narrative texts.

	Academic		Narrative	
	<i>çünkü</i>	<i>için</i>	<i>çünkü</i>	<i>için</i>
No SoC %	15	21	6	35
Yes SoC%	85	79	94	74
Total%	100	100	100	100

The probability of “no SoC” in narrative texts with *için* was higher than with *çünkü*. In narrative texts, the likelihood of *çünkü* for “yes SoC” cases was greater than *için*. The same connective patterns were observed in academic texts, but preferences were slightly stronger in the narrative than the academic genre.

6.4 Types of narrators

The analysis did not reveal a significant interaction between genre type, types of narrator, and causal connectives ($\beta = -0.27$, $Z = -0.046$, $SE = 0.59$, $p > .05$). In addition, the main effect of connective was not significant (causal connective: ($\beta = -0.471$, $Z = -1.597$, $SE = 0.29$, $p > .05$, genre type: $\beta = 1.84$, $Z = 6.223$, $SE = 0.29$, $p < .05$ (see Table 6). These results showed that while genre type might play a role in narrator type, the use of *çünkü* and *için* does not depend on narrator type in academic and narrative texts. However, while in academic texts the likelihood of first-person narration was higher than those of third-person narration, in narrative texts, both narration types were used.

Table 6: Percentage of *çünkü* and *için* for types of narrator across academic and narrative texts.

	Academic		Narrative	
	<i>Çünkü</i>	<i>için</i>	<i>Çünkü</i>	<i>için</i>
First-person %	91	84	56	45
Third-person %	14	16	44	55
Total	100	100	100	100

Having a high-percent of first-person narration type in academic texts lead us to further explore the distribution of first-person narration with an impersonal passive, the suffix *-Dir* and “other” variables, i.e. third-person and first-person narration with singular/plural suffixes⁹ (see Table 7). Table 7 shows that in narrative texts, the likelihood of the suffix *-Dir* and impersonal passive were very low. The use of the suffix *-Dir* was high in academic texts. However, since our sample

⁹ Morphophonemic representations of the first-person singular suffix are: -im, -ım, -üm, -um, -yim, -yım, -yüm, -yum; morphophonemic representations of the first-person plural are: -iz, -ız, -üz, -uz / -yiz, -yız, -yüz, -yuz.

size of suffixes and impersonal passives was very small, we could not run a 3-way interactional analysis in the logistic mixed regression model.

Table 7: Percentage of *çünkü* and *için* for first-person narration with the suffix *-Dir* and impersonal passives across academic and narrative texts.

	Academic			Narrative			Total
	Suffix- <i>Dir</i>	Impersonal passive	Others	Suffix- <i>Dir</i>	Impersonal passive	Others	
<i>çünkü</i> %	77	3	20	9	0.00	91	100
<i>için</i> %	39	26	35	0.00	3	98	100

7 Discussion

Our first and overarching research question was whether the distribution of Turkish causal connectives *çünkü* and *için* could be explained in terms of objective versus subjective relations. Our results revealed that the probability of *çünkü* to occur in subjective relations was higher than that of *için*, while the probability of *için* expressing objective relations was higher than that of *çünkü*. Even though these differences between *çünkü* and *için* are statistically significant, it should be noted that they were relative and gradual, with profiles ranging from 40 to 75% (See Table 3). These modest and relative preferences indicate that neither subjective nor objective relations are black-and-white distinctions and thus differences are gradual.

The second research question was whether discourse genre type (i.e., academic vs. narrative) would affect the distributions of *çünkü* and *için* for the identified propositional attitudes. Logistic mixed regression analyses showed that the distribution of *çünkü* and *için* for propositional attitudes would not change based upon genre type. These results align with the previous results on European languages where the use of causal connectives expressing (variants of) English *because* is displayed (Degand and Pander Maat 2003; Sanders, Sanders, and Sweetser 2012; Sanders and Spooren 2015; Stukker and Sanders 2012; Sweetser 1990; Zufferey 2012). Similarly, *çünkü* and *için* can be explained in terms of objective versus subjective relations. Our findings on the sensitivity of these causal connectives to propositional attitudes (i.e., objective versus subjective relations) suggested that they did not vary across genre types and hence support the findings on European languages.

In most corpus studies on European languages, the preferences of causal connective for subjective or objective relations were stable across genres (i.e., independent of genre types) (Pander Maat and Degand 2001; Pander Maat and Sanders 2000, 2001; Degand 2001; Verhagen 2005; Pit 2007; Sanders and Spooren 2015; Zufferey 2012). Exceptionally, one corpus study from Mandarin Chinese revealed that while *kějiàn*, *yúshì*, and *yīn'ér* had robust profiles across genres, the subjective meanings of *suǒyǐ* and *yīncǐ* (two common connectors in the language) were genre sensitive (Li, Evers-Vermeul, and Sanders 2013). Our study has also shown that the causal connectives under investigation are stable across genres.

To answer our third research question (when speech act relations are used, will the occurrence of *için* in subjective domains be higher than that of *çünkü*?), we first explored which connectives were used to express speech act relations. On the basis of the Subjectivity literature, we would expect that *çünkü*, the connective with a preference for epistemic relations, would also be the likely candidate to express speech acts. This regularity has been observed for other languages and is one of the reasons for adopting a category of subjective connectives having a preference for expressing both epistemic and speech act relations. However, our analysis can only provide a partial and tentative answer to this question, since speech act use was very infrequent in our corpus, especially in academic texts. Surprisingly, we found that in narrative texts, *için* was more often used in speech act relations than *çünkü* (i.e., *için*: 21% vs. *çünkü*: 3%). This finding would suggest that the category of connectives with a preference to express subjective relations is not robust, but that an analysis in Sweetser's domains – content versus epistemic versus speech acts – covers the data better (cf. Pander Maat and Sanders 2000, for exactly this discussion). Sweetser's functionally and cognitively oriented approach seems to be more promising for Turkish causal connectives to capture the differences and/or parallelism between classifications of relations and connectives. Especially, it seems to capture semantic or pragmatic types of coherence relations (i.e., speech acts) they can express. However interesting this discussion may be, since we did not have a large enough sample to argue that this result was stable, we should approach this finding expressing speech acts on *için* cautiously.

The fourth research question was whether the use of *çünkü* and *için* – with or without subject of consciousness (SoC) – would be affected by genre type. Our findings suggest that *için* and *çünkü* were robust in “yes SoC” across genres, but we had a significant three-way interaction between genre type, connectives, and presence of SoC. Consequently, there was a slight but significant preference of *için* with no SoC and *çünkü* with SoC in narrative texts. Similar patterns for *çünkü* and *için* were observed in academic texts, but preferences in narrative genre were slightly stronger than those in the academic genre.

Our last research question was whether, regardless of genre type, the use of causal connectives would depend on narrator type. Interestingly, our results revealed that while genre type might play a role in the use of narrator type, the likelihood of *çünkü* and *için* does not depend on narrator type in academic and narrative texts. However, in academic texts the likelihood of first-person narration was higher than those of third-person narration. On the other hand, in narrative texts, both narration types were used, which we take as an important contribution to Turkish linguistic research. In academic texts, in first-person narrations, authors use impersonal passives or the suffix *-Dir*. In such cases, instead of saying, ‘This is my/our idea’ or ‘This is my/our statistical method/analysis’, authors distance themselves from their proposition. For instance, in (20), instead of saying we did not include 6-year-old children in the study, the author stated that the 6-year-old group was not included in the study.

The current analysis was limited to only two causal connectives, whereas Turkish has many more causal connectives, such as the anaphoric connectives (*bu/o nedenle/yüzden* ‘for this/that reason’) and a complex subordinator (*-Dan dolayı* ‘due to’) among others (cf. Zeyrek and Webber 2008 for a preliminary list). Given our limited dataset, the role of narration type in the use of additional Turkish causal connectives should be investigated in future work.

In summary, this study has identified that there seems to be a division of labour between the two connectives: *çünkü* has a preference for expressing subjective relations, whereas *için* mainly expresses objective relations. A tentative but intriguing finding is the possible exception that speech act relations are mainly expressed by *için*. Future work should further investigate whether the use of *için* with speech acts is indeed stable in larger sample sizes and across genres and media, including spoken discourse, where many more cases of speech act relations can be found.

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