

Collostructional transfer effects in Turkish learners of English

The intransitive-unaccusative construction

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Second language acquisition studies have mainly considered transfer between two or more languages as a binary setting, it either happens or does not. However, research emerging out of usage-based approaches show that such transfer effects might be more gradient than ever thought before (e.g., Goschler & Stefanowitsch, 2019). Investigating a construction that has been reported to pose problems such as overpassivization to L2 English learners, i.e., unaccusatives, this study aims to trace gradient transfer effects between Turkish and English in the intransitive-unaccusative construction in Turkish learners of English. Following Goschler and Stefanowitsch's (2019) method to analyze, extract experimental items from English and Turkish corpora, and experiment with collostructional transfer effects, the study revealed similar findings. Findings suggest that learners are likely to transfer strongly entrenched L1 items into the L2 even at advanced proficiency levels. Interestingly, when the item is weakly entrenched in L1, speakers attune to the input in L2 with growing proficiency. Furthermore, proficiency or experience helps with preempting non-optimal constructional combinations. Pedagogically, the study suggests that colloprofiles may help teachers and students with mitigating unconventional item-construction combinations at advanced levels.

Keywords: transfer effects, collostructions, construction grammar, unaccusative, Turkish

1. L1-L2 transfer: Usage-based perspectives

There is evidence that L2 argument structure is affected by L1 (Juffs, 2000; White, 2003). Other studies have focused on collocational transfer between two languages (Phoocharoensil, 2013; Wolter & Gyllstad, 2011; Zughoul & Abdul-Fettah, 2001). While transfer studies in second language acquisition have mostly followed

a binary setting approach (e.g., Selinker, 1972), i.e., it either happens or it does not, more recent studies situated in usage-based approaches have demonstrated that transfer between two languages is rather gradient (Cabrera & Zubizarreta, 2005; Ellis & Ferreira-Junior; 2009; Martinez-Garcia & Wulff, 2012; Römer et al., 2014).

Cabrera and Zubizarreta (2005: 27) in their analysis of the causative construction in L2 Spanish and L2 English suggest the following:

at earlier stages of L2 acquisition, the constructional meaning of lexical causatives seems to trigger the overgeneralization of causatives, in particular with verbs encoding change of state or location. However, at the advanced proficiency stage, when recovering from overgeneralization, L1 lexical specific constraints seem to be at play.

In one study by Römer et al. (2014), the researchers demonstrate that L2 speakers of English are affected by their L1 with regard to their verb-argument construction knowledge and their knowledge of L2 verb-argument constructions is highly sensitive to type-token frequencies. Martinez-Garcia and Wulff (2012) also provide similar findings for Spanish and German learners of English where type-token frequencies play an important role in the production of native-like verb-argument constructions. Other studies also show similar findings for Turkish speakers of English (Römer & Yılmaz, 2019). Römer and Yılmaz (2019) provide evidence for how the knowledge of English verb-argument structures in Turkish learners of English are highly affected by strongly entrenched verb-argument structures in Turkish.

Collostructional analysis is a method analyzing the strength at which slot fillers (i.e., words, adjectives or other linguistic items) are attracted to or repelled from the slot they fill in a grammatical structure (Gries & Stefanowitsch, 2003). This method is used not only in theoretical linguistics but also applied linguistics (Goschler & Stefanowitsch, 2019). Recently, the issue of transfer has been addressed from a more fine-grained perspective of what can be named as ‘collostructional transfer’ (Matthys, 2015), i.e., transfer of items+constructions between languages. Generally, the conventional wisdom in linguistics suggests that the higher our proficiency is, the less likely we are to transfer from our L1. The findings from recent studies suggest that items that are strongly attracted to a construction in L1 can be transferred to L2, hence not complete transfer but gradient transfer. For instance, the following examples are taken from Goschler and Stefanowitsch (2019), and Gedik and Uslu (2022) for German and Turkish, respectively. If *explain/açıkla* is strongly attracted to the ditransitive in German and Turkish, e.g., *ich erkläre dir das Buch / ben sana kitabı açıklarım*, but it is strongly repelled in English, e.g., **I explain you the book*, speakers at advanced

levels were reported to transfer such items from their L1s to English as an L2 at advanced levels (Gedik & Uslu, 2022; Goschler & Stefanowitsch, 2019).

It is important to turn our attention to Goschler and Stefanowitsch's (2019) study as the present study is a partial replication of it in its methodology. They recruited 143 German learners of English at a university and categorized the participants by three proficiency levels, i.e., beginner, intermediate, advanced. Using collostructional analysis (Gries & Stefanowitsch, 2003), they observed the frequencies of items in the verbal slot of both the English and German ditransitive constructions. They then aligned these items in a contingency table with 4 possible conditions. These conditions were: the item in German and English is strongly attracted to the ditransitive construction in both languages (used very frequently, e.g., *I gave you a book*), weakly repelled in English but strongly attracted in German (i.e., an unconventional use in English, *I transfer you the money*), weakly attracted in German but weakly repelled in English (i.e., *I searched you a book*), and strongly attracted in German but strongly repelled in English (i.e., *I described you the book*). For each condition, they used 2 items and constructed experimental sentences with them. These stimuli were for an acceptability judgment task, which was the main focus of their study. Their experiment had a total of 3 stages: experimental stimuli in the English ditransitive in a acceptability judgment task, then another set of sentences with the same verbs in the English to-dative construction to see if the participants' judgment would change or be preempted in another acceptability judgment task (since items that are unconventional in the English ditransitive are allowed in the English to-dative), and finally a translation task from German into English using the same verbs and construction. This would ensure whether participants use what they deem grammatical or ungrammatical. Goschler and Stefanowitsch (2019) found out that learners transferred patterns that are strongly entrenched in German to English even at advanced levels. They concluded that simple entrenchment of items in the verbal slot in L1 may have blocked the learning of the equivalent patterns in L2. Similarly, Gedik and Uslu (2022) in a recent study replicated the findings of Goschler and Stefanowitsch (2019) in Turkish learners of English and the ditransitive construction. They report similar findings: while an increasing proficiency helps with correctly judging unattested constructs, if an item is strongly entrenched in the L1, it can be transferred over to L2 if the corresponding item is less entrenched than the L1 counterpart even at advanced levels. Therefore, following this 'collostructional transfer' approach can methodologically enrich uncovering fine-grained, frequency-sensitive transfer effects across different languages.

So far, language teaching material design has been partially influenced by usage-based approaches (e.g., Bardovi-Harlig et al., 2015). However, it seems as

if the impact of insights from usage-based constructionist approaches into language learning on language teaching design overall is still minimal (see however Gedik, 2022a; Le Foll, 2021; Viana, 2022). What is of interest to pedagogical linguistics from this strand of transfer research is arguably (a) it reminds applied linguists that transfer effects seem to happen on an item-specific basis, (b) they can occur at advanced levels, and (c) language teaching materials could include collo-profiles as an example activity that preemptively points out possible transfer effects between specific L1-L2 configurations. Collo-profiles are figures that showcase a selected construction and the items in its slots. The items are ordered by frequency and the font size for each item also follows the frequency (see Herbst, 2020). As such, linguists and learners can see which items are used in a slot most frequently. In this study, I report the results of a partial replication of Goschler and Stefanowitsch (2019) using the intransitive-unaccusative construction with Turkish speakers of English and discuss the implications for this and what findings in usage-based approaches may tell us from a pedagogical linguistics perspective.

2. L2 constructions and unaccusativity

Intransitivity was analyzed by the seminal work of Perlmutter (1978) in a generative approach. However, other scholars within generative grammar attempted to account for this phenomenon under different names prior to Perlmutter (see for instance Grady, 1969). In this work, I use intransitivity to refer to the phenomenon and only make distinctions in labeling when explaining specific instantiations of the intransitive construction. The term refers to how intransitive verbs behave, some alternating between occurring with or without objects and some strictly occurring without objects. In generative approaches, verbs were classified as intransitive or transitive. Perlmutter's Unaccusative Hypothesis (1978) analyzes English verbs from a relational grammar point-of-view, using passivizability as a test for intransitivity. Assigning theta roles, it categorizes intransitivity as unaccusative and unergative verbs. Furthermore, these unaccusative verbs are categorized under alternating and non-alternating, based on whether they can appear with or without an object. Among Perlmutter's (1978) hypothesis, there were many scholars working on the acquisition of these items, L1 and L2 alike: the Unaccusative Hierarchy Hypothesis (Sorace, 1995), the Unaccusative Trap Hypothesis (Oshita, 1997, 2001), and the Semantic Verb Class Hypothesis (Pinker 1989). The term unaccusative originates from the accusative case in English. Perlmutter (1978) proposed that unaccusative verbs' subjects, e.g., *the door* in *the door opened*, are generated in the position of an accusative object in the deep form, i.e., [---] *opened the door*, and then they are realized as objects that no

longer have accusativity in the surface form, hence the name unaccusative. The term unergative stems from the ergative case across languages as a linguistic concept. Ergative languages mark the subjects of intransitive verbs and the objects of transitive verbs with the same case, the ergative case. For instance, Basque and Eskimo, to name a few, belong to this category.

L2 acquisition studies experienced a paradigmatic shift as L1 acquisition studies were becoming more usage-based and constructionist. Many researchers have confirmed the ontological status of constructions for L2 learners (e.g., Bartning & Hammarberg, 2007; Ellis & Ferreira-Junior, 2009; Goldberg & Casenhiser, 2008; Gries & Wulff, 2005; Römer & Berger, 2019). Other studies confirm that L2 learners are capable of exhibiting constructional knowledge comparable to L1 speakers and sometimes they perform even better than L1 speakers (Gries & Wulff, 2005; Kim, Rah & Hwang, 2020; Lee & Kim, 2016; Liang, 2002; Shin, 2010; Valenzuela & Rojo, 2008). Furthermore, research also supports the claim that L2 learning is an exemplar-learning process where constructions are reconfigured in what is called a mental construct-i-con (Goldberg, 2003) on the basis of exemplars and the frequency of sequences of items. In this line of thought, it is safe to assume that L2 constructions are also emergent in and through usage-events as language unfolds over time. For instance, Valenzuela and Rojo (2008) report that L2 Spanish speakers of English showed a tendency to sort sentences in accordance with the sentences' constructional information i.e., the Spanish caused-motion, resultative, ditransitive, and transitive constructions. The authors conclude that L2 speakers must be able to derive constructional knowledge independently of their L1. As such, there is clear evidence for the ontological reality of constructions in L2 speakers.

Generativist approaches suggest that intransitive verbs are derived from unergative verbs by a lexical operation and this operation "reduces the agent from transitive verbs" and generates "a sentence often involv[ing] a syntactic movement from the object to the subject position" (Sheetreet et al., 2009: 2306). This understanding of verbs, however, implies that grammar and lexicon are separate, especially if one mentions the passivizability of a verb which assumes deriving one structure from the other, which is not assumed in a constructionist approach (see Goldberg, 2006). In the case of (un)ergativity, especially with alternating unaccusatives and unergatives, it is difficult to arrive at generalizations because verbs that are alternating unaccusatives can also appear as non-alternating. *Break* is an alternating unaccusative because it can occur in the intransitive and the transitive, i.e., *the computer broke* vs. *I broke the computer*. However, some verbs are non-alternating, such as *disappear*, and only occur in the intransitive construction i.e., *the clouds disappeared* vs. **I disappeared the clouds*. Thus, argument structure provides information as to what is to be predicted next. For instance, if NP[agent] is

the subject, what follows as a prediction should be *break/burn* + NP. If NP[theme] is the subject, then speakers arguably predict that either a passive construction or a non-alternating unergative verb will follow.

Intransitivity in English verbs has been reported to cause issues for second language learners (e.g., Burt & Kiparsky, 1972; Ju, 2000; Kellerman, 1978). Among many other groups of learners, Turkish learners of English have also been mentioned to experience problems with English (un)ergative verbs where they mainly overpassivize the verbs, e.g., **the clouds were disappeared* (Can, 2000, 2009; Karacaer, 1998). Can (2000, 2009) found out that Turkish learners of English are more likely to avoid using alternating unaccusative verbs. The scholarship on the usage of (un)ergative verbs by Turkish learners of English has been limited to few studies, investigating either the nature of these verbs or the performance of Turkish learners of English (Demirci, 2001; Can, 2000, 2009; Nakipoğlu-Demiralp, 2001), but there has not been a study investigating it from a usage-based perspective to the researcher's knowledge.

In a constructionist analysis, arguably, there are several intransitive constructions (see Figures 1–3, among many more, see Lee & Kim, 2011 for others). As is the case for many other argument structure constructions, some constructions become more entrenched with specific items in them, e.g., the *give*-ditransitive construction (e.g., Herbst, 2018, 2020) or *seem*-intransitive construction based on the current study, because those items occur much more frequently than others. These item-specific constructions are linked to the highly abstract and schematized construction via inheritance links because these more specific instantiations of the abstract constructions inherit some features of the superordinate construction (see Goldberg, 1995:50 for inheritance links). Following a constructionist approach, a number of related constructions to the intransitive constructions can be postulated, which are similar in surface form but slightly different in meaning. See The Turkish Constructicon for the Turkish equivalents of these constructions. The intransitive verb root can occur as is or some intransitives may take on -il or -n suffixes to form an intransitive verb. Then, the verb can also take on other tense/aspect suffixes. This is important as looking up intransitive verbs on the Turkish National Corpus using the similarity search is tense/aspect suffix sensitive.

In this paper, I follow a constructionist approach to the analysis of the English intransitive-unaccusative in Turkish learners of English and how collostructional transfer effects occur from Turkish to English in this construction by partially replicating Goschler and Stefanowitsch (2019).

The Intransitive Construction
FORM: NP[agent/theme]+VERB
MEANING: X acts by instigating the action or being affected by it
Example: <i>The horse jumps, Sally runs, the glass breaks...</i>

Figure 1. The intransitive superordinate construction

The Intransitive-Unergative Construction
FORM: NP[agent]+VERB
MEANING: X acts
Example: <i>The horse jumps, Sally runs, I swim...</i>

Figure 2. The intransitive-unergative construction

The Intransitive-Unaccusative Construction
FORM: NP[theme]+VERB
MEANING: X changes ontologically or physically/spatially
Example: <i>The train arrives, the window breaks, I disappear...</i>

Figure 3. The intransitive-unaccusative construction

3. Methodology

The study was designed in line with Goschler and Stefanowitsch's (2019) experiment design, namely a contingency condition where there are four possible outcomes for a grammatical or an ungrammatical structure, as seen in Figures 4–5. However, there are also differences in the replication of their study. Differently from Goschler and Stefanowitsch (2019), I reduced the number of verbs for each contingency slot from 2 to 1, as there would have been 32 sentences in the end for the whole of the study, 16 sentences for alternating, and 16 for non-alternating verbs. This could have caused experimental fatigue or the participants to complete the survey haphazardly or drop out. There were also differences in the number of tasks, which is explained later in this section. The first verbs in Figures 4–5 are alternating, the second ones are non-alternating unaccusative verbs.

As seen in Figures 4–5, there are 4 conditions. Collostructional analysis on R (Gries, 2014; R Core Team, 2021) indicates whether an item is attracted or repulsed and I used that status to identify in which figure the items would be located. Specifically, collexeme analysis was used as the degree of attraction or repulsion of an item to a slot in a specific construction was needed for the study. Strongly positive is used to describe a verb being strongly entrenched in the construction in the respective language. The collostructional strength value generated by the R script for collostructional analysis (Gries, 2014) was set to 1000, any value larger than 1000 was deemed strongly positive and anything that fell below it was considered weakly positive. Similarly, for ungrammatical stimuli the cut-off was 1000 for negative or repelled items.

Entrenchment in Turkish (GRAMMATICAL)			
		Strongly positive	Weakly positive
Entrenchment in English	Strongly positive	1. <i>grow</i> 2. <i>arise</i>	1. <i>burst</i> 2. <i>appear</i>
	Weakly positive	1. <i>sink</i> 2. <i>disappear</i>	1. <i>roll</i> 2. <i>emerge</i>

Figure 4. Grammatical Turkish*English entrenchment contingency table

Entrenchment in Turkish (UNGRAMMATICAL)			
		Strongly positive	Weakly positive
Entrenchment in English	Strongly negative	1. <i>close</i> 2. <i>last</i>	1. <i>cook</i> 2. <i>cost</i>
	Weakly negative	1. <i>boil</i> 2. <i>collapse</i>	1. <i>change</i> 2. <i>appeal</i>

Figure 5. Ungrammatical Turkish*English entrenchment contingency table

As seen in the figures, for grammatical sentences, verbs have to be strongly or weakly entrenched in either language. For ungrammatical sentences, verbs that are strongly or weakly positive in Turkish have to be repelled strongly or weakly in English. While this set of verbs are called ungrammatical, it might be misleading. To keep the study congruent with the original study, the word ungrammatical was used. What is meant here is sentences that are unconventional but still attested, e.g., *I transferred you the money*. Following a collostructional analysis (Gries & Stefanowitsch, 2003), I extracted the verbs to be used in these contin-

gency tables. More specifically, I utilized the following methodology: (a) identify unaccusative (alternating/non-alternating) verbs in English using the Erlangen Valency Patternbank (Herbst et al. 2013) and previous studies on the phenomenon (i.e., Abdullayeva, 1993; Can, 2009), (b) identify the equivalents of those verbs in Turkish. To ensure that polysemy would not be a confounding issue, two native speakers of Turkish were recruited to see if polysemy was an issue and if the English verbs matched with the Turkish equivalents that the researcher selected. Including the researcher, if 2 out of 3 intercoders disagreed, the item was discarded. (c) use the British National Corpus (BNC) and Turkish Web Corpus (TrWaC) on SketchEnginge for English and Turkish respectively to obtain frequency data, (d) utilize Gries (2014) on RStudio (2021) to calculate collostructional data, (e) fill in the contingency tables and create experimental stimuli. The stimuli were created using the third person singular and a mixture of past simple and present simple tenses. The experimental stimuli to judge were specified in <> and they were preceded by a sentence to create a context to make the experiment more naturalistic. (f) find participants through snowball sampling and contacts. The participants needed to be students at a preparatory school for English at college level to ensure their proficiency level. The results were analyzed in SPSS version 26.

The BNC was preferred over other readily available English corpora as it is a well-balanced corpus with around 100 million words. It also has lemmatization and CQL query readily available, which makes corpus queries easier. On the other hand, TrWaC, while being an internet-based corpus, was chosen over other possible candidates, i.e., Turkish Web Corpus (TrTenTen), Open Parallel Corpus Turkish (OPUS2 Turkish), Turkish Corpus. This is because other candidates lacked lemmatization, CQL, or had duplicates and were noisy, or would not work reliably. TrWaC consists of texts from the internet, mainly from *eksisozluk.com* or the Turkish Wikipedia, where most of the participants of this study would have spent at least some time as such websites cater to a young population. While this may be a concern from a methodological standpoint, there was no other available corpus that worked in accordance with the needs of this study at the time. The corpus has a total of 32,791,491 words. I followed the frequency data for the English intransitive construction in Bidgood et al. (2021: 9) as they had used an automated script to identify the construction. In the end, there were 667,300 instances of the intransitive construction in the BNC as reported by Bidgood et al. (2021). For Turkish, the Turkish National Corpus' (TNC, 2014) 'similarity search' was used to determine the frequency of intransitive uses of a verb across various tenses. This similarity search breaks down an item and its suffixes, and looks for the same combination across the corpus to retrieve the frequency. While cross-contaminating corpus frequency is not ideal, unfortunately this was the only way

to look up intransitive uses in a Turkish corpus. Furthermore, the TNC could not provide a frequency list of verbs on demand and went offline during this research study. Thus, I retrieved the frequency count for each verb in Turkish from TrWaC and the intransitive uses from the TNC. The TNC has about 50 million words and has a suffix tagger. As such, whenever a verb has the suffix *-il* or *-n*, it is intransitive (due to space issues see The Turkish Constructicon. It has a detailed explanation and a constructional analysis on the Turkish intransitive construction). Conjugating a dummy verb for each tense, frequency data for the intransitive uses of all the other verbs were collected. In the end, there were 398,562 uses of the intransitive, including other verbs that are intransitive without the use of a suffix, i.e., *eri* (*melt*). While calculating collocations, instead of using the total word count of the corpora, the sentence count was used following Gries and Stefanowitsch (2003), as the intransitive constructions in both languages are essentially argument structure constructions, which span a sentence. Thus, for the BNC, there were 6,052,184 and for TrWaC there were 2,124,374 sentences.

The experiment consisted of 5 stages, based on but slightly different from the Goschler and Stefanowitsch study. In the first stage, participants' background information was collected. This information was their age, how many years they have been learning English for, whether they have ever lived in an anglophone country for more than three months, how many years they have had English as a medium of instruction, what CEFR level they are, and whether they have had any official English exam results obtained in the last three years. If they took an official English exam, they were asked to put in the score and the name of the exam. In the second stage, the participants were given 16 sentences to rate on a scale of 1 to 10 with 1 being completely unacceptable and 10 being very acceptable. Some of the items in these sentences were attracted to the English intransitive unaccusative construction and some were repelled. If repelled English sentences were to be translated, the verbs would either be strongly or weakly attracted to the Turkish intransitive, and would be strongly/weakly attracted to the grammatical sentences and strongly/weakly repelled from the ungrammatical sentences in English. The third stage asks participants to rate the verbs in the passive construction, where the alternating ones are grammatical but the non-alternating ones are not. This was done differently from the Goschler and Stefanowitsch study to see whether there would be any differences in favoring one structure over the other. In the fourth stage, the participants were given the same verbs in the transitive (for alternating) or the causative construction (for non-alternating) to see if there would be any preemption effects. All of these sentences would be grammatical in Turkish. Finally in the fifth stage, a translation task from Turkish to English was given for the 16 verbs, which would demonstrate if participants' choices reflect their production. Differently from the Goschler

and Stefanowitsch study, as the only independent variable participants' reported CEFR level was used, because there were inconsistencies with other independent variables, e.g., lack of data in official exam results. In this study, only the results of the second stage are discussed due to space issues and as the results from other stages confirmed the findings from the second stage in an earlier analysis. Data for the other stages are available upon request.

The experiment was prepared on Google Forms and was disseminated through contacts who worked at English preparatory schools in Turkey (i.e., Atilim University English Preparatory School and Özyeğin University). I particularly sought to collect data from preparatory schools as their CEFR classification would be more robust than participants recruited via different means. Another group of students were recruited through contacts at Bilkent University. There were 88 participants. Five participants were removed from the data as they had not completed the survey fully ($n=83$). In the end, there were participants from B1 through C2: B1 and B2 ($n=17$) were categorized as intermediate, C1 ($n=44$) was categorized as advanced, and C2 ($n=22$) as upper-advanced proficiency levels.

Data analysis was two-fold. First, for the acceptability judgment tasks, the results were downloaded from Google Forms in .csv format and were imported into SPSS v26. The results were analyzed using a one-way ANOVA for item-specific statistics and a MANOVA for the testing of effects of conditions*alternation*proficiency*conventionality. The data set met all the assumptions of the tests. Second, for the translation task, the sentences were corrected of typos, tagged using (Anthony, 2014) and then imported into (Anthony, 2022) for a qualitative analysis of the verbs and the patterns participants from each level preferred. The results were then interpreted in light of previous discussions.

4. Results

4.1 Overall means of grammaticality

Descriptive statistics show that while there are observable trends across proficiency levels, there are also item-based differences. Figures 6–7 outline an overview of the general trends without accounting for proficiency levels for the test items in the first stage based on the mean of acceptability judgment task results. These figures will provide insight into cross-linguistic interference and transfer for the intransitive-unaccusative construction. TR stands for Turkish, ENG stands for English, weak stands for weakly entrenched in grammatical figures, or repelled in ungrammatical figures, and strong (notation: str) stands for strongly entrenched in grammatical figures, or repelled in ungrammatical figures

throughout the figures. Notation for the English proficiency levels used in the figures were INT for intermediate level proficiency, ADV for advanced level proficiency, UPPER for upper advanced level proficiency.

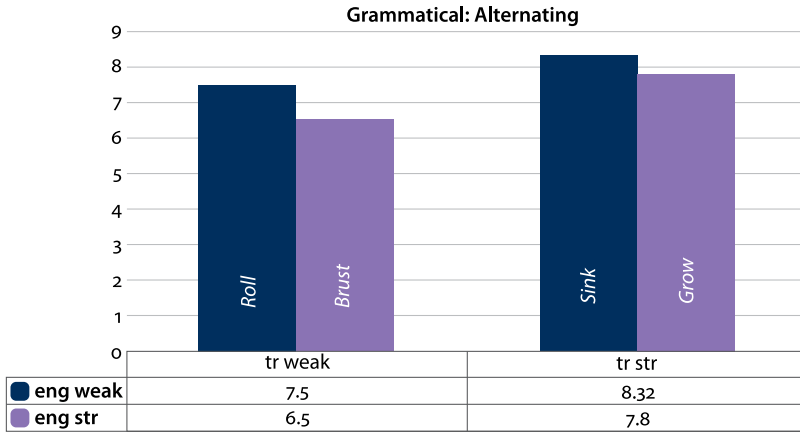


Figure 6. Overall means of acceptability judgment task for alternating grammatical stimuli

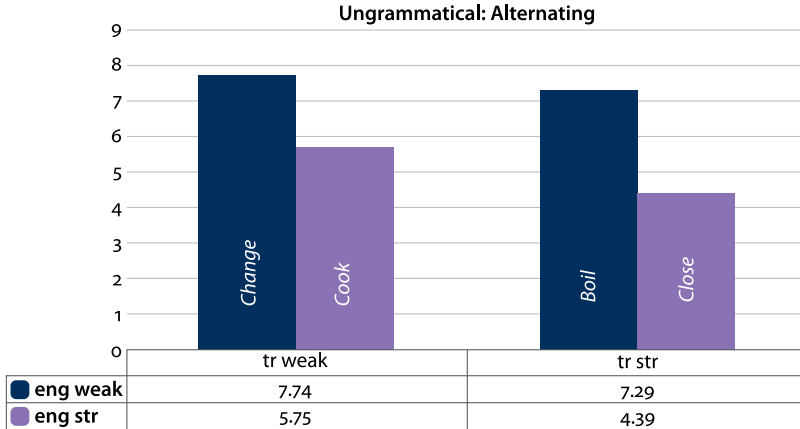


Figure 7. Overall means of acceptability judgment task for alternating ungrammatical stimuli

As seen in Figures 6–7, for the grammatical alternating item, i.e., *grow* (mean: 7.80), in the intransitive-unaccusative construction, there seems to be a training-wheel effect from Turkish for strongly entrenched items in Turkish into English. This training-wheel effect from Turkish could potentially help L2 learners with producing the item-construction combination more easily, because such a similar

combination already exists and is well established in the L1. Items that are weakly entrenched in Turkish but strongly entrenched in English seem to be judged less correctly than those that are entrenched in both languages. Furthermore, for items that are strongly entrenched in Turkish but weakly entrenched in English, the frequent verb+construction combinations in Turkish may be in effect in acceptability judgment, as in Figure 6.

As for the ungrammatical alternating item, i.e., *boil* (mean: 7.29), in the intransitive-unaccusative construction, items that are strongly entrenched in Turkish but weakly entrenched in English are judged more correctly than those items that were both strongly entrenched in both languages. For items that are weakly entrenched in Turkish, weak items in English were judged more correctly than strong items, suggesting entrenchment effects. Comparing TR WEAK and TR STR conditions, however, participants' L1 does not seem to be in effect, as such an outcome would have resulted in TR STR condition to have higher scores than the other condition.

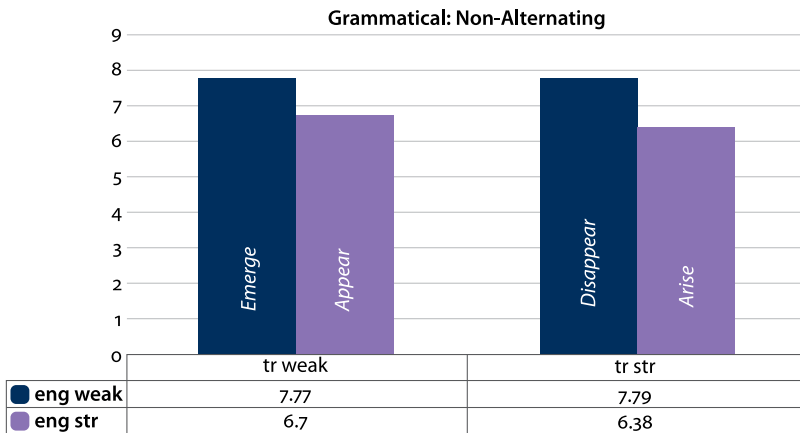


Figure 8. Overall means of acceptability judgment task for non-alternating grammatical stimuli

Moving onto the grammatical non-alternating item in Figure 8, i.e., *appear*, while there could be an incremental L1 effect in weakly entrenched English items, this is quite small (7.79>7.77). Interestingly, for items that are strongly entrenched in L2 but weakly (6.70) and strongly entrenched (6.38) in L1, there does not seem to be any transfer effects for acceptability judgment stemming from Turkish. If that was the case, TR STR*ENG STR would have been higher than TR WEAK*ENG STR.

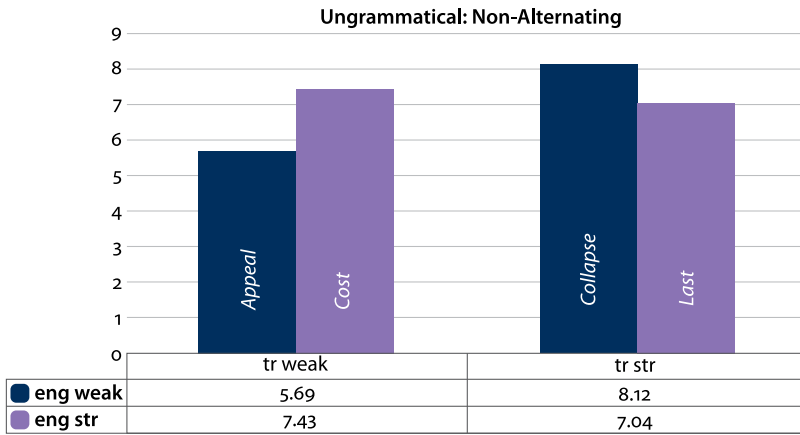


Figure 9. Overall means of acceptability judgment task for non-alternating ungrammatical stimuli

Turning to the ungrammatical non-alternating item in Figure 9, i.e., *last*, for the ENG WEAK*TR STR condition (8.12), L1 seems to be affecting the acceptability judgment scores. On the other hand, if this effect exists, it does not seem to create a difference in ENG STR*TR WEAK or ENG STR*TR STR. If it did, the mean of ENG STR*TR STR (7.04) would have been higher than ENG STR*TR WEAK (7.04).

In summary, the data here suggest that some strongly entrenched alternating and non-alternating verbs in Turkish seem to be transferred and affect participants' acceptability judgment of verb-construction combinations in English up to a certain extent. When proficiency is included in the picture, the following figures emerge.

Starting with grammatical alternating unaccusative items in the English intransitive construction, TR STR*ENG WEAK scores increase with proficiency (means from intermediate through upper-advanced: 6.94, 9.02, 9). This indicates that the participants might be more likely to transfer from L1 into L2. Similarly, when both conditions are TR STR*ENG STR, there seems to be an upward trend, possibly stemming from familiarity and items being strongly entrenched in both languages. Frequency effects become more apparent in the TR WEAK*ENG STR condition, where there is not arguably an L1 training wheel effect. In that condition, it seems that learners attune to the statistical probabilities in their L2. Interestingly, when the entrenchment of the verbs in the constructions in these languages is weak, TR WEAK*ENG WEAK, scores seem to vary across proficiencies. While it is difficult to pinpoint why this might be the case, some possible explanations could be differences in individual L2 attainment, and good-enough

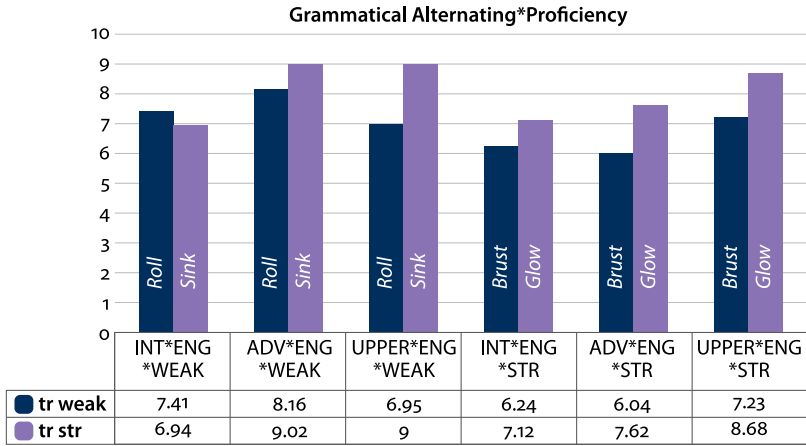


Figure 10. Overall means of acceptability judgment task for grammatical alternating stimuli per proficiency

production effects (Dąbrowska, 2018; Goldberg & Ferreira, 2022). Good-enough production is a phenomenon “when speakers (or signers) access and combine lexical and/or grammatical constructions that are in the intended ballpark semantically but are less than optimal for expressing the intended message” (Goldberg & Ferreira, 2022: 308).

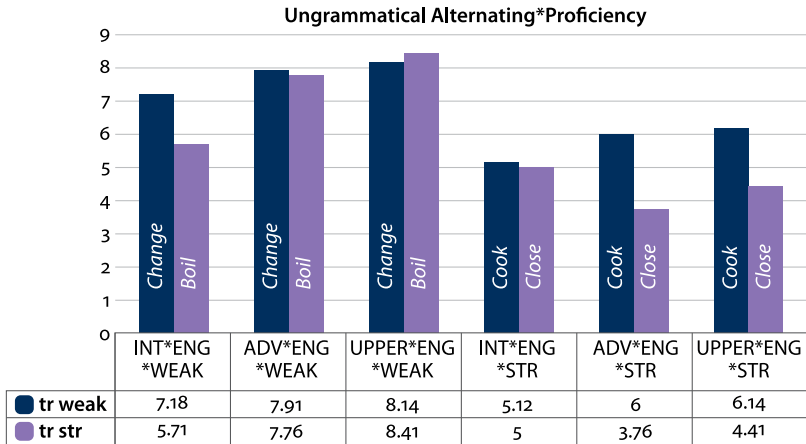


Figure 11. Overall means of acceptability judgment task for ungrammatical alternating stimuli per proficiency

Turning our attention to ungrammatical alternating items in the English intransitive construction, there is a clear divide between TR STR*ENG STR and

TR STR*ENG WEAK conditions. In this figure, lower scores are better because that would suggest that learners know that the item and the construction combinations are not conventional. Arguably, in the former condition, statistical pre-emption might be at work, suppressing the judgment scores (means from intermediate through upper-advanced: 5, 3.76, 4.41). This becomes more apparent with the scores in TR STR*ENG WEAK, where items from L1 might be transferred into L2, and with growing proficiency this effect seems to expand (means from intermediate through upper-advanced: 5.71, 7.76, 8.41). As for TR WEAK*ENG STR, the effects might be explained in terms of individual attainment or a lack of experience with the specific item (means from intermediate through upper-advanced: 5.12, 6, 6.14). The scores in TR WEAK*ENG WEAK (means from intermediate through upper-advanced: 7.18, 7.91, 8.14) point to a lack of experience in the verb-construction combination in the L2 and perhaps the acceptability judgment of such a combination in Turkish might be serving as training wheels for the corresponding L2 combination, therefore suggesting a weak transfer effect from L1.

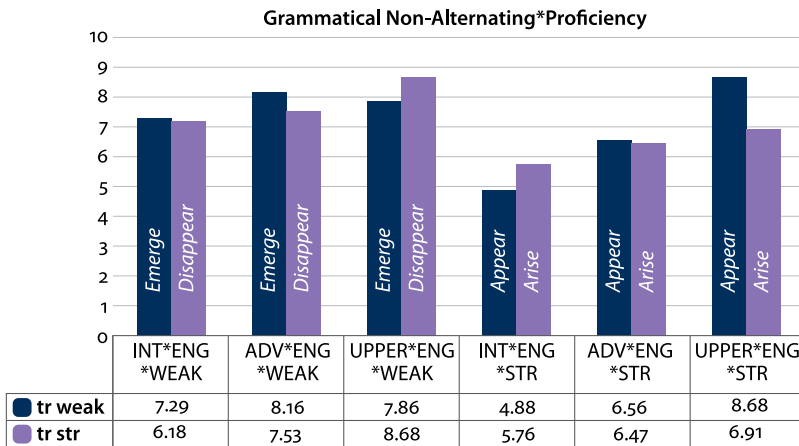


Figure 12. Overall means of acceptability judgment task for grammatical non-alternating stimuli per proficiency

In Figure 12, with grammatical non-alternating items in the English intransitive construction, speakers’ knowledge of such verb-construction combinations seems to increase with proficiency, especially in TR WEAK*ENG STR condition (means from intermediate through upper-advanced: 4.88, 6.56, 8.68). This condition, compared against TR STR*ENG STR (means from intermediate through upper-advanced: 5.76, 6.47, 6.91), suggests that L2 speakers’ knowledge increases dramatically with proficiency for weakly associated structures in the L1. However,

one surprising result is that speakers had a difficult time judging the acceptability judgment of the TR STR*ENG STR condition. Evidence up until now is suggestive that when structures are strongly entrenched in both languages, speakers would score the stimuli higher as a result of familiarity with it in the L2 as well as L1. Finally, TR STR*ENG WEAK (means from intermediate through upper-advanced: 7.18, 7.53, 8.68), when compared against TR WEAK*ENG WEAK (means from intermediate through upper-advanced: 7.29, 8.16, 7.86), might be suggestive of L1 into L2 transfer with growing proficiency.

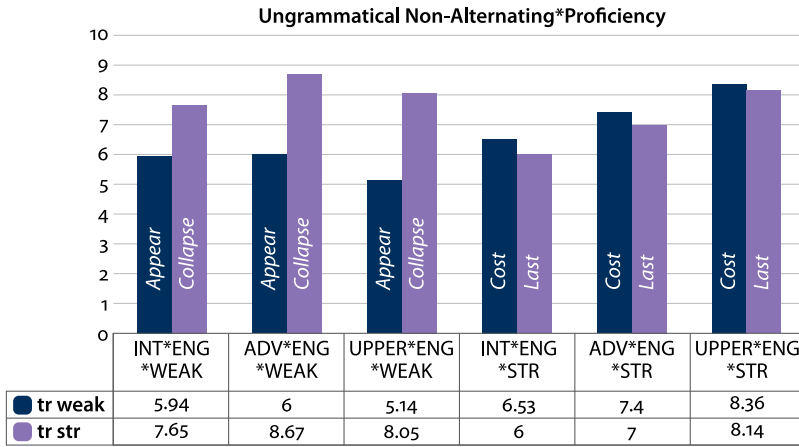


Figure 13. Overall means of acceptability judgment task for ungrammatical non-alternating stimuli per proficiency

Finally, Figure 13 displays the mean scores for unconventional non-alternating items in the English intransitive construction. Lower scores mean the item-construction combination was judged ungrammatical. The scores are suggestive of evidence pointing at statistical preemption, when TR STR*ENG WEAK (means from intermediate through upper-advanced: 7.65, 8.67, 8.05) and TR STR*ENG STR are compared (means from intermediate through upper-advanced: 6, 7, 8.14). By the looks of it, strongly repelled items in English in the latter condition preempt transfer effects. However, the effect may seem to be decreasing with growing proficiency. When they are weakly repelled, one could argue that there may be collocation transfer effects stemming from Turkish, i.e., TR STR*ENG WEAK.

4.2 Statistical analysis: ANOVA

With a one-way ANOVA, the statistically significant test conditions, i.e., collocation contingencies, were captured, see Table 1. As seen in the results, all conditions except TR STR*ENG STR were statistically significant ($p < 0.05$). However, this does not show which of the dependent variables interact with each other. To find that out, a one-way MANOVA was carried out. All the assumptions of the tests were met. Table 2 illustrates the tests of between-subjects effects for the dependent variables. Asterisks indicate statistical significance ($p < 0.05$) in all tables in this section.

Table 1. One-way ANOVA for test conditions

		ANOVA				
		Sum of squares	df	Mean square	F	Sig.
TRSTRENGSTR	Between Groups	20.761	1	20.761	2.087	.149
	Within Groups	3442.144	346	9.948		
	Total	3462.905	347			
TRSTRENGWEAK	Between Groups	200.276	1	200.276	21.469	*.000
	Within Groups	3227.644	346	9.328		
	Total	3427.920	347			
TRWEAKENGWEAK	Between Groups	235.046	1	235.046	26.781	*.000
	Within Groups	3036.667	346	8.776		
	Total	3271.713	347			
TRWEAKENGSTR	Between Groups	50.830	1	50.830	5.024	*.026
	Within Groups	3500.374	346	10.117		
	Total	3551.204	347			

In combination with the descriptives (see “Descriptives for Table 1 ANOVA” in Appendix), TR STR*ENG WEAK ($p = .000$), TR WEAK*ENG WEAK ($p = .000$), and TR WEAK*ENG STR ($p = .026$) indicates that there is a statistically significant difference between the two groups, i.e., grammatical/ungrammatical; it seems as if in unconventional stimuli, regardless of whether items in Turkish are

strongly or weakly attracted, participants judged them more correctly. This partially serves as evidence for collostructional transfer effects.

Table 2. Tests of between-subjects effects

Tests of between-subjects effects						
Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Corrected Model	PROFICIENCY	176.538	270	.654	1.836	.001
	alternation	78.331	270	.290	2.577	.000
	CONVENTIONALITY	71.005	270	.263	1.266	.110
Intercept	PROFICIENCY	1582.381	1	1582.381	4444.310	.000
	alternation	401.547	1	401.547	3566.700	.000
	CONVENTIONALITY	396.895	1	396.895	1910.704	.000
TRSTRENGSTR	PROFICIENCY	5.192	9	.577	1.620	.124
	alternation	2.174	9	.242	2.145	*.035
	CONVENTIONALITY	3.539	9	.393	1.893	.065
TRSTRENGWEAK	PROFICIENCY	6.341	9	.705	1.979	.053
	alternation	2.060	9	.229	2.033	*.047
	CONVENTIONALITY	3.556	9	.395	1.902	.064
TRWEAKENGWEAK	PROFICIENCY	5.012	9	.557	1.564	.141
	alternation	2.602	9	.289	2.568	*.012
	CONVENTIONALITY	3.422	9	.380	1.831	.076
TRWEAKENGSTR	PROFICIENCY	5.781	9	.642	1.804	.081
	alternation	2.129	9	.237	2.101	*.039
	CONVENTIONALITY	1.805	9	.201	.965	.475

After checking out multivariate test results and confirming statistically significant test results for all collostructional contingencies (see “Multivariate Tests: Table 2 MANOVA” in Appendix), it is possible to interpret Table 2 here as follows: in L1-L2 interference, only alternation showed statistically significant results across 4 contingencies ($p < 0.05$) while proficiency and conventionality did not.

Finally, Table 3 illustrates the statistical relationship between proficiency and collostructional contingencies. Except for TR WEAK*ENG WEAK, all the other conditions showed statistical significance ($p < 0.05$). A Tukey post hoc test (see “Multiple Comparisons: Table 3 ANOVA Tukey posthoc” in Appendix) was used

to find interactions between items and the test revealed and confirmed that except for TR WEAK*ENG WEAK, all the other conditions were statistically significant. Specifically:

- TR STR*ENG STR: intermediate versus upper advanced ($p=.007$), an upwards trend
- TR STR*ENG WEAK: intermediate versus advanced ($p=.009$), an upwards trend & intermediate versus upper advanced ($p=.014$) an upwards trend
- TR WEAK*ENG STR: intermediate versus advanced ($p=.032$), an upwards trend & intermediate versus upper advanced ($p=.030$), an upwards trend

This shows that L1 to L2 interference as well as attunement to L2 for this construction seems to happen at a critical level at intermediate proficiency.

Table 3. One-way ANOVA proficiency*contingencies

		ANOVA				
		Sum of squares	df	Mean square	F	Sig.
TRSTRENGSTR	Between Groups	121.302	3	40.434	4.162	*.006
	Within Groups	3341.603	344	9.714		
	Total	3462.905	347			
TRSTRENGWEAK	Between Groups	128.792	3	42.931	4.476	*.004
	Within Groups	3299.127	344	9.590		
	Total	3427.920	347			
TRWEAKENGWEAK	Between Groups	71.210	3	23.737	2.551	.056
	Within Groups	3200.503	344	9.304		
	Total	3271.713	347			
TRWEAKENGSTR	Between Groups	97.350	3	32.450	3.232	*.023
	Within Groups	3453.854	344	10.040		
	Total	3551.204	347			

Using a one-way ANOVA, it was possible to capture which test stimuli had statistically significant results for which levels. Comparing descriptive statistics (see “Descriptives for Table 3” in Appendix) against Table 3 for ANOVA results, the stimuli that posed problems in acceptability judgment become clear. Capturing this would help with understanding how to proceed with teaching this construction with which items to Turkish learners of English.

As seen in Table 4, there seem to be only 3 test stimuli whose means were statistically significant and different across proficiency levels. These were the test

Table 4. One-way ANOVA for items

		ANOVA				
		Sum of squares	df	Mean square	F	Sig.
grow	Between Groups	26.444	2	13.222	2.283	.109
	Within Groups	469.115	81	5.792		
	Total	495.560	83			
burst	Between Groups	21.202	2	10.601	1.357	.263
	Within Groups	632.834	81	7.813		
	Total	654.036	83			
sink	Between Groups	58.319	2	29.160	8.750	*.000
	Within Groups	269.919	81	3.332		
	Total	328.238	83			
roll	Between Groups	22.969	2	11.485	1.732	.183
	Within Groups	536.983	81	6.629		
	Total	559.952	83			
close	Between Groups	20.692	2	10.346	1.251	.292
	Within Groups	669.629	81	8.267		
	Total	690.321	83			
cook	Between Groups	11.930	2	5.965	.614	.543
	Within Groups	786.356	81	9.708		
	Total	798.286	83			
boil	Between Groups	75.829	2	37.915	6.104	*.003
	Within Groups	503.159	81	6.212		
	Total	578.988	83			
change	Between Groups	9.615	2	4.808	.610	.546
	Within Groups	638.706	81	7.885		
	Total	648.321	83			
arise	Between Groups	12.625	2	6.313	.833	.439
	Within Groups	614.077	81	7.581		
	Total	626.702	83			
appear	Between Groups	143.054	2	71.527	12.885	*.000
	Within Groups	449.649	81	5.551		
	Total	592.702	83			

Table 4. (continued)

		ANOVA				
		Sum of squares	df	Mean square	F	Sig.
disappear	Between Groups	26.795	2	13.397	2.134	.125
	Within Groups	508.443	81	6.277		
	Total	535.238	83			
emerge	Between Groups	9.207	2	4.603	.829	.440
	Within Groups	450.031	81	5.556		
	Total	459.238	83			
last	Between Groups	44.647	2	22.324	2.991	.056
	Within Groups	604.591	81	7.464		
	Total	649.238	83			
cost	Between Groups	32.826	2	16.413	2.097	.130
	Within Groups	634.126	81	7.829		
	Total	666.952	83			
appeal	Between Groups	11.706	2	5.853	.827	.441
	Within Groups	573.532	81	7.081		
	Total	585.238	83			
collapse	Between Groups	14.723	2	7.361	1.690	.191
	Within Groups	352.837	81	4.356		
	Total	367.560	83			

stimuli in which *sink*, *boil*, and *appear* were used ($p < 0.05$). A closer look on the descriptive statistics of these test stimuli show that with growing proficiency, they were judged as more grammatical. While *sink* (means for *intermediate*: 6.94; *advanced*: 9.02; *upper-advanced*: 9.00) and *appear* (means for *intermediate*: 4.88; *advanced*: 6.56; *upper-advanced*: 8.68) are attracted to the intransitive construction in both languages, *boil* (means for *intermediate*: 5.71; *advanced*: 7.76; *upper-advanced*: 8.41) is somewhat weakly repelled in English but is strongly attracted in Turkish. A Tukey post hoc test (see “Multiple Comparisons: Table 4 Tukey post hoc” in Appendix) revealed that out of the three statistically test stimuli, only *appear* demonstrated statistical significance across both intermediate ($p = .039$) and advanced ($p = .002$) proficiency levels. The other two stimuli, i.e., *sink* ($p = .000$) and *boil* ($p = .014$), only showed statistical significance at the intermediate level. None of the other grammatical stimuli showed statistical significance.

5. Discussion

5.1 Gradient transfer effects: An overview

Looking at Figures 6–7, it is possible to argue that conventional items in the English intransitive-unaccusative are somewhat affected by participants' L1, Turkish, especially when the transfer condition is TR STR*ENG WEAK. Contrastingly, when it is weak for both languages, it is possible to argue that speakers focus on the L2 input. Nevertheless, the results should be interpreted carefully as the differences in mean seem to be really incremental. Importantly, this study only had one verb per collostructional contingency for alternating and non-alternating verbs. This reduces the generalizability of the results and thus future work should analyze this in more detail. For unconventional items in Figure 7, L1 seems to be an important factor when the association is strongly entrenched between items and the construction, and similarly to the previous conventional condition, when it is weak for both languages, speakers appear to rely on the L2 input.

Moving onto non-alternating items in the English intransitive-unaccusative (Figures 8–9), conventional items are somewhat influenced by L1 when the condition is TR STR*ENG WEAK. Similarly, learners may be more attuned to the L2 input when positive entrenchment in both languages is weak. Nevertheless, the differences in means are minor and therefore should be interpreted carefully. However, evidence so far seems to be suggestive of a transfer effect when the transfer condition is TR STR*ENG WEAK. Turning to unconventional items in Figure 9, L1 really plays a role when the item-construction repulsion is strong. When this repulsion is weak in L1 but strong in L2, i.e., *cost*, participants judged it more correctly. This might be due to the fact that *cost* is used more transitively or ditransitively than in the pure intransitive-unaccusative form. A quick search¹ in the BNC confirms that this is the case (*cost* in the ditransitive or transitive occurs 3,409 times and in the intransitive it is 1,243).

Overall, data so far points in a direction where L1 may play a small transfer role for conventional alternating items and a somewhat stronger transfer role for non-alternating unconventional items (alternation was found statistically significant in contingencies, see Table 2). While the differences in means are small in some cases, the findings in the study suggest that L1 may very well play some role in collostructional transfer effects in non-alternating unconventional items in the L2. However, one difference in comparison to the previous studies (Goschler &

1. It was carried out on sketchengine.eu, using the CQL [word="cost"] [tag!="PP.?"] [tag!="N.*"] [tag!="RB.?"] [tag!="J.*"] [tag!="IN"] [tag!="RP"] [tag!="CC"] [tag!="CD"] and filtering using the verb tags.

Stefanowitsch, 2019; Gedik & Uslu, 2022) that used this methodology is that the variation in means was reported to be much bigger than in the present study. Thus, this might also raise another question: if transfer is gradient on a constructional basis, are all constructions subject to L1-L2 transfer equally, or are some more prone to being affected?

5.2 When proficiency is included

Similarly to the discussion in the proficiency excluded subsection, alternating conventional items seem to be somewhat affected by L1 in the TR STR*ENG WEAK and TR STR*ENG STR conditions (see Figure 10), and statistical tests also showed significant results (see Table 3), especially for all three proficiencies for TR STR*ENG WEAK and between intermediate and upper-advanced for TR STR*ENG STR. This influence seems to grow with proficiency, too. However, it is difficult to pull apart how much of an L1 or frequency effects there are in this increase. When it is TR WEAK*ENG STR, the interpretation is that there are no transfer effects, since the entrenchment of the items in L1 in this condition is not strong, which leaves frequency effects to be the only contributor in the judgment task. The findings are also similar for the TR WEAK*ENG WEAK condition, where there is not an L1 effect, but arguably, there are only frequency effects of the L2 input.

For unconventional alternating items (Figure 11), results are more convoluted. But, contrary to the findings in the previous conditions and studies, there seems to be no transfer effects in all conditions except for TR STR*ENG STR at the intermediate level, which however, is not statistically significant ($p = .067$, see Table 2). This effect then seems to be quickly preempted at higher proficiency levels.

Turning our attention to non-alternating conventional items (Figure 12), results appear inconclusive to point at solid evidence for transfer. While there is arguably somewhat of a transfer effect for TR STR*ENG WEAK and TR STR*ENG STR, they do not seem to be affected by proficiency, which is also demonstrated by non-significant results in Table 2. In other words, the effects remain the same. For conditions where the entrenchment of the item in L1 is weak, there seem to be no transfer effects, but arguably only proficiency or frequency effects, which are statistically non-significant, see Table 8.

Non-alternating unconventional items per proficiency (Figure 13) seem to demonstrate inconclusive results as for transfer effects. While for the TR STR*ENG WEAK, the TR WEAK*ENG WEAK, and the TR WEAK*ENG STR conditions there seem to be no transfer effects from the L1, the only condition that is suggestive of such an effect is TR STR*ENG STR. However, this requires fur-

ther research into the test stimulus for that condition, i.e., *last*, and its comparison against other constructions.

Overall, the picture is both similar and different from the previous studies using the same methodology (Goschler & Stefanowitsch, 2019; Gedik & Uslu, 2022). In both studies, the authors analyzed transfer effects across German-English or Turkish-English for the ditransitive construction and found statistically significant differences in the role L1 plays for the ditransitive. The similarities of the present study lies in the fact that participants rely on their L1 when the item is strongly entrenched in L1 and is weakly entrenched in L2, but they attune to the L2 input, too, when conditions allow for it. This transfer effect (or the preemption effect) seems to possibly grow with proficiency.

As for the differences, there seems to be test stimuli that do not follow a general pattern, i.e., there are item-specific tendencies, see for instance non-alternating grammatical per proficiency: TR STR*ENG STR (i.e., *arise*) and TR WEAK*ENG STR (i.e., *appear*). In other words, while collostructions are important for certain constructions, i.e., the ditransitive, this *collostructional transfer analysis* approach may not be as viable to analyze transfer effects in the intransitive-unaccusative construction. Arguably, these item-specific tendencies might be due to a number of factors such as frequency, individual attainment, transfer effects, or just textbooks covering the intransitive-unaccusative more frequently than it would have been encountered in ambient language otherwise. This does not undermine the methodology but reminds us to more carefully analyze certain collostructions. Nevertheless, the take-home message from this discussion is that there is enough evidence to claim that learners are somewhat affected by their judgment for the items in VP slot in the English intransitive-unaccusative construction when the items in question are strongly entrenched in the L1 and weakly entrenched in the L2. When the item is weakly entrenched in the L1, learners are more likely to attune to the input in their L2. This transfer effect or lack thereof appears to grow with learners' proficiency levels.

5.3 Pedagogical implications

As applied linguists, it is our responsibility to improve language teaching methods and materials with new insights and advances from cognitive and corpus linguistics. Findings here shed light on how to teach English learners the intransitive-unaccusative construction from scratch especially in relation to transfer effects from Turkish and item-specific tendencies. Findings in the present study suggest that learners, even at advanced levels, may transfer strongly entrenched L1 items from the corresponding construction into their L2. These usage-based gradient transfer effects so far are suggestive of how the L2 speakers' minds may work with

various languages that share similar constructions. As such, learners may likely be in need of activities at various stages of their language learning journey that cover common constructions between their L1 and L2. In such an approach, providing collo-profiles (see an example for the English ditransitive construction) to students and observing non-native like item-construction combinations in classrooms may be helpful. These collo-profiles, although creating them is somewhat time consuming, can be integrated in teaching materials and books to guide teachers to look for specific unconventional item-construction combinations, e.g., *I donated you the book*. This is important as when proficiency increases, students may start to overgeneralize and be influenced by strongly entrenched item-construction combinations in their L1. They may simply forget the conventional target item-construction combinations over time, as memory is lossy (Goldberg, 2019), which may result in less optimal or native-like L2 output.

The supplementary material provided in the Appendix, especially the collo-profile for the English intransitive-unaccusative construction, may prove helpful to teachers who may want to show which items are highly frequent in the verbal slot or to those who may want to create various activities to mitigate the gradient transfer effects. Such activities may be based on or revised from Garibyan et al. (2019). Finally, the findings here also point to the importance of language teachers' knowledge of their students' L1 background and the construction under scrutiny. Arguably, this insight from this strand of research is difficult to operationalize in a multilingual classroom, as teachers may not be able to observe such minute unconventional item-construction combinations and map them to students' specific L1s. However, in monolingual classroom settings, especially at advanced levels, teachers may find it useful to trace collostructional transfer effects and possibly even point them out before or after class. By doing so, learners may have a heightened attention to seek such transfer effects and can minimize them in theory. Moreover, teachers can prepare worksheets or Kahoot quizzes to draw students' attention to collostructional transfer effects from learners' L1 to English as an L2 to make learning more enjoyable. At the moment, how these collostructional transfer activities can be operationalized is somewhat vague and needs experimentation. However, one possibility is by finding L1-L2 specific collostructions that may be prone to being transferred from the L1 to English in the intransitive-unaccusative construction. Similarly, the teacher can instruct learners to look up these collostructions in an English corpus. The point of this activity would be to point to the frequency of each collostruction and by extension its salience in language (or how likely it is that this combination may occur). Furthermore, if an item+construction combination occurs more frequently in another construction, the teacher can draw the attention of the learners to the fact that both are possible, but the use of the said item is more conventional in the con-

struction with which it occurs more frequently. As mentioned previously, for instance *cost* occurs twice as frequently in the ditransitive or transitive constructions than in the intransitive-unaccusative. Showing to students using different activities can help them to use *cost* more conventionally and not be surprised when they see *cost* in the intransitive-unaccusative construction.

Assuming our teaching methodologies and materials comply with the tenets of a usage-based perspective (see also Herbst, 2016 for principles to follow for a constructionist approach in language teaching and material design), when teaching the English intransitive-unaccusative construction, there are at least 2 things to consider integrating in material design and teaching based on the present study and previous discussions, and possibly more:

1. Explicit teaching of the construction
2. Fostering learning of the construction with collo-profiles

With these principles, the materials aim to provide learners with an opportunity to provide an opportunity for an optimal production of the construction, helping to sound idiomatic and to avoid unconventional uses of the construction.

5.3.1 *Explicit teaching of the construction*

The term explicit here refers to allocating a unit or series of units to teach the construction. Looking at the state of the relationship between unaccusatives and textbooks, most studies were done in the Japanese, Korean, or Chinese English as a foreign language (EFL) contexts for their respective English textbooks (e.g., Chung, 2011; Kondo et al., 2016) with one exception being Balcom (2001) as it was carried out in the Canadian EFL context. The general tendency for textbooks seem to be that they lack a sustained input of unaccusatives (Chung, 2011; Kondo et al. 2016), and that teachers lack the necessary knowledge to teach it explicitly (e.g., Chung, 2011). In the Canadian EFL context, Balcom (2001) reports a similar trend for English textbooks. However, Balcom also reports that there are textbooks that teach such verbs explicitly or implicitly. While there are no studies on the presentation of the intransitive in English textbooks used in Turkey, previous studies on English textbooks used in Turkey point to a lack of lexical, syntactic, and a lexicogrammatical diversity (Gedik & Kolsal, 2022; Gedik, 2022b). In this vein, it is safe to assume that the textbooks in Turkey may possibly suffer from the same lack of sustained input for the unaccusative verbs mentioned in previous literature. Thus, by putting a special emphasis on this construction in our teaching, we also open up the potential to teach its frequency profile and help avoid collostructional transfer effects. Without a doubt, materials and accompanying lesson plans on this phenomenon should be prepared in a way that is comprehensible by everyone, without requiring a specialization in linguistics, so that teachers can explicitly teach this construction.

5.3.2 *Fostering learning of the construction with collo-profiles*

There is evidence that prototypical items, i.e., items that occur more frequently in a construction, aid the learning of that construction, the so-called ‘skewed frequency hypothesis’ (e.g., Goldberg, 2006; Ellis et al., 2014) as it reflects the Zipfian nature of languages and constructions. There exists a tendency in constructions where one or two verbs will be ‘pathbreaking verbs’ (Goldberg, 2006), because their frequency almost accounts for half the usage of the construction. Therefore, using the collo-profile of the intransitive construction, it is possible to represent the most prototypically used item in the VP slot which can aid the learning of semantics of the construction as well as items. Following the results of Madlener (2016), another suggestion for aiding the teaching of this construction is skewing the input of the target construction in classrooms. Madlener (2016) showed that while teaching a construction in German as an L2, learners benefited from being exposed to constructional input that resembled a Zipfian-like distribution. This distribution or skewing consists of a couple of the high-frequency types with a high token number and many low-frequency types with only a few tokens each (see Madlener, 2015: 114 *mid_skew*). This method has proven useful and efficient in experimental settings to teach a variety of constructions (e.g., Azazil, 2020; Kim & Hwang, 2022). With this, high-frequency types serve the purpose of acting as training wheels, providing the learner with the construction’s basic meaning. The low-frequency items, on the other hand, ensure the construction’s productivity, leading the learner to detect the productivity of the construction. As shown in Madlener (2016), not providing enough types can result in a non-productive construction. To guide material creation, teaching of the construction, and as a pedagogical guide, this study proposes the use of collo-profiles in future endeavors. This may also help with achieving more optimal or native-like output by incrementally providing learners with items that are attracted to the construction.

6. Conclusion





This study tested collostructional transfer effects on Turkish speakers of English with the intransitive-unaccusative construction. The findings are similar to previous usage-based applications of transfer studies. Findings suggest that learners are likely to transfer strongly entrenched L1 items into the L2 even at advanced proficiency levels. Nevertheless, when the item is weakly entrenched in L1, speakers attune to the input in L2 with growing proficiency. Furthermore, proficiency or experience helps with preempting non-optimal constructional combinations.

From a pedagogical perspective, this is significant as it reminds us that transfer as a phenomenon is not a binary setting but rather gradient. Furthermore, it shows the importance of teacher training programs and how teachers should be aware of their students' linguistic backgrounds. To mitigate collostructional transfer effects, it is possible to create activities or explicitly point out these transfers to the students based on the collo-profiles (see Appendix) of constructions.

Acknowledgments

The author is grateful for the insightful feedback provided by the reviewers and the editors. The author would like to thank contacts and colleagues at Bilkent University, especially Dr. Scott Kennedy and Dr. Kara McCormack for their help during the making of this study.







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Appendix

Further descriptive statistics, association measures, stimuli used in the experiment, and a collo-profile of the English intransitive-unaccusative construction can be found at the following link: https://docs.google.com/document/d/1lkJooGoZk1PloaLoe711NBTEo5YgoyKJRuI_zpdht5c/edit.

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Publication history

Date received: 29 August 2022

Date accepted: 5 January 2023

Published online: 30 January 2023