To alternate or not to alternate? L2 acquisition of English causative/inchoative transitivity alternations

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1. Introduction

Transitivity alternations exist in all languages, however, the way such alternations are represented is not universal. Some languages, like Turkish, have derivational processes to mark transitivity alternations while others, such as English, have no overt morphology in the formation of such alternations. Montrul (2001) states that transitivity alternations cause problems for an L2 learner as they require the knowledge of both the lexical and syntactic information a verb carries.

Transitivity alternations can come in different forms: middle alternation, causative alternation, substance/source alternation or causative/inchoative alternation (Levin 1993). Not all verbs can alternate in transitivity, however, in all languages there are change-of-state verbs which participate in causative /inchoative alternations. *melt, freeze, rise, drop, clean, feed, dry, burn* are some examples of alternating causative/inchoative verbs in English. These verbs can act as transitive and intransitive. When they are used to convey a causative meaning, they act as transitive verbs.

(1a) She burned the paper.
(1b) The paper burned.

In (1a), burn has two arguments (agent and theme) which can be roughly said to be a causer (she) and a causee (the paper). However, (1b) has only one argument (theme) and burn expresses a change of state as it focuses on the final state of the theme. This kind of alternation is called causative/inchoative alternation and it is represented in a different way in English and Turkish. Turkish, unlike English, has a special grammatical device that changes the valency of verbs.

(2a) *Ahmet* *kağıdı* *yırttı.*
Ahmet paper-acc tear-past
Ahmet tore the paper apart.

(2b) *Kağıt* *yırt-ıl-dı.*
Paper tear-anticaus-past
The paper tore.

As Montrul (2000) suggests, the acquisition of causative/inchoative transitivity alternations require a more informed understanding of the relationship between semantic and

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syntactic properties of verbs. Being fundamentally different in forming causative structures, we expect that Turkish native speakers of L2 English will encounter difficulties in distinguishing verb behavior in causative/inchoative transitivity alternations.

Özhan and Zeyrek (2006) investigated the judgments of Turkish learners of L2 English about the alternating and non-alternating unaccusative verbs in English. Their study focused on examining whether Turkish learners of English are more likely to passivize unaccusatives in externally caused events than in internally caused events and whether they are more likely to passivize unaccusatives with a transitive counterpart than those without. Their findings pertaining to the first question revealed that learners rely on universal principles when they lack the knowledge of semantic structure of unaccusative verbs. However, their secondary finding revealed that learners overgeneralize the rule in their L1.

Montrul (2001) also investigated the L1 effect in the acquisition of causative/inchoative transitivity alternations in English by Spanish and Turkish learners. She found that although some of the argument structure alternation errors could be stemming from L1 influence, UG could also be at play to some extent since learners with different L1 backgrounds seem to follow a similar developmental path.

As suggested by Montrul (2000), the acquisition of causative/inchoative alternations requires the knowledge of complex lexical properties of a verb. Given that Turkish and English differ in how they represent this alternation, it is assumed that Turkish learners of L2 English will have difficulties in identifying and producing such transitivity alternations. In this study, we aimed to determine the role of L1 in identifying and using causative/inchoative transitivity alternations in English by Turkish learners. Turkish students learning English as a foreign language are reputed to have difficulty in recognizing transitivity alternations in causative/inchoative verbs in English. It is not very unlikely for an English teacher to hear sentences like [*I slept the baby] or [*He felled the book] from the learners. This type of learner errors usually stem from lack of knowledge of deep lexical meaning of verbs.

2. Methodology

2.1. Participants

The participants in this study were selected from the students attending English Language Teaching Department of Çukurova University, Adana. In total there were 41 participants involved in the study. The ages of the participants ranged between 18 and 23. None of the participants ever lived in a country where English was spoken as a native language. Gender is not a variable in the study, so the participants were chosen randomly regardless of their gender.

2.2. Instruments

2.2.1. Grammaticality Judgment and Correction Task

Grammaticality Judgment and Correction Task (GJCT) consists of 40 items. In this task, participants are asked to read sentences and judge them as Correct or Incorrect and if they judge a sentence incorrect to correct it. The purpose of the GJCT is to test Turkish native speakers' intuitions about grammaticality regarding causative/inchoative transitivity alternations in English. The reason for having them correct the sentences they judge as incorrect is to ensure that they find the sentence incorrect in terms of causative / inchoative transitivity alternation. With this task, we aim to find out which alternating verbs are rejected and which non-alternating verbs are accepted when presented in an ungrammatical sentence as an alternating verb.

In the task there are 10 alternating and 10 non-alternating causative / inchoative verbs chosen from Levin's book (1993) on English verb classes. Each verb appears twice in the task. All the alternating verbs are grammatical whereas non-alternating verbs come in grammatical/ungrammatical pairs. Hence, there are 30 grammatical and 10 ungrammatical sentences in the task. Some of the non-alternating verbs are originally transitive while some are intransitive.

The grammatical sentences used in this task were created with the help of a software called Grey's Vocabulary Teacher. This software consists of over 2,600 words which are all presented in an authentic context in over 50,000 sentences. The researcher scanned the verbs to be used in the task and chose from the sentences among the search results tailoring them where necessary.

2.2.2. Preference Task

Preference Task (PT) has 10 pictures. Each picture is given with two grammatical sentences. The 10 verbs used in this task are alternating inchoative verbs taken from the GJCT. The verbs used in these sentences are:

(1) alternating verbs used as lexical causatives and with an object
E.g. The sun dried my clothes.

(2) alternating verbs used in a periphrastic causative construction
E.g. The sun made my clothes dry.

2.2.3. Translation Task

Translation Task (TT) has 17 sentences in Turkish and participants are asked to translate these sentences into English using the verbs given in the parenthesis. Seven sentences in the task are used as distractors. The rest of the ten verbs given are all non-alternating inchoative verbs taken from the GJCT. The purpose of the task is to see whether participants prefer to construct the given sentences as periphrastic causatives or whether they

will treat the verbs as lexical causatives. In other words, we want to find out whether the participants will alternate these non-alternating verbs in transitivity and we will compare the ungrammatical usage of a verb to its Turkish counterpart to see a possible L1 effect.

3. Results and Discussion

3.1. GJCT results

Table 1 below shows descriptive statistics of correct and incorrect judgments for alternating verbs in the GJCT.

Table 1. Distribution of correct/incorrect judgments of alternating verbs in GJCT

Verb	*TR*						*INTR*					
	Correct		Incorrect		Total		Correct		Incorrect		Total	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Dry	37	90.2	4	9.8	41	100.0	30	73.2	11	26.8	41	100.0
Open	38	92.7	3	7.3	41	100.0	14	34.1	27	65.9	41	100.0
Freeze	25	61.0	16	39.0	41	100.0	36	87.8	5	12.2	41	100.0
Melt	28	68.3	13	31.7	41	100.0	36	87.8	5	12.2	41	100.0
Burn	31	75.6	10	24.4	41	100.0	28	68.3	13	31.7	41	100.0
Shrink	28	68.3	13	31.7	41	100.0	35	85.4	6	14.6	41	100.0
Soften	38	92.7	3	7.3	41	100.0	29	70.7	12	29.3	41	100.0
Warm	34	82.9	7	17.1	41	100.0	32	78.0	9	22.0	41	100.0
Increase	29	70.7	12	29.3	41	100.0	39	95.1	2	4.9	41	100.0
Fade	26	63.4	15	36.6	41	100.0	32	78.0	9	22.0	41	100.0

TR: Transitive sentence INTR: Intransitive sentence

As can be seen from Table 1, participants performed better on the task when dealing with sentences containing *open*, *soften* and *dry* in the transitive form. Majority of the participants could recognize transitive sentences with alternating verbs *open*, *soften* and *dry* (over 90% for all three verbs). On the other hand, what is interesting in this data is that participants' intuitions plummet dramatically when *open* is used in the intransitive form. Only 34.1% of the participants judge the intransitive *open* correctly.

When asked to correct the sentence if they judged it as incorrect, all of the students corrected it reconstructing it in passive. This can suggest two things. The low performance of participants in judging *open* as correct in the intransitive form may be resulting from the fact that participants have not encountered such sentences before. Considering that the frequency of *open* used in the transitive form outnumbers the intransitive use in the second language learning context, it is only normal for the participants to have difficulty in recognizing sentences like (3). Another reason for the low performance of the

participants might be linked to the L1 effect. The exact counterpart of the sentence in (3) in Turkish would be:

Kapı *aç-ıl-dı.*
Door open-anticaus/pass-past-3sg
The door opened./The door is/was opened.

The Turkish sentence has two readings unlike its English counterpart. The *-ıl* morpheme stands for both passive and anti-causative morpheme in Turkish. If the corrections of the participants are considered, we might conclude that the participants treated this sentence as passive rather than the anti-causative while the sentence in (3) is in the inchoative form in English. Since both forms are not distinguishable in Turkish and since such transitivity alternations are never formally taught, participants might be unaware of the fact that such a form exists in either Turkish or English.

When we look at Table 1, we also see that although participants performed better on transitive verbs than intransitive verbs in general, they were the least successful in judging the transitive sentence with *freeze*. Sixteen participants (out of 41) judged the transitive sentence incorrectly. Participants who judged the transitive *freeze* incorrectly reconstructed it as a periphrastic causative sentence. This might again imply that participants prefer periphrastic causatives over lexical causatives due to the fact that the knowledge of lexical causatives is not taught explicitly unlike periphrastic causatives. Since students are rarely, if at all, taught deep lexical properties of verbs in class, and since *freeze* is more commonly used in periphrastic causative constructions, it is not very surprising for the participants to come up with the correction they provided. It is still surprising to see that they *feel* (23) is incorrect, though.

Same can be said for *increase*. Although most participants do not have a problem with *increase* in the intransitive sentence, their performance decreases if we look at the transitive sentence. Twelve out of 41 participants judged the transitive sentence incorrectly rejecting it in a transitive sentence.

From the data in Table 1, it is also apparent that participants slightly performed better in judging the alternating verbs in the transitive form. This might also be due to the fact that the inchoative form is almost never explicitly taught to Turkish second language learners of English.

Table 2. Distribution of correct/incorrect judgments of non-alternating verbs in GJCT

	Verb		Correct judgment		Incorrect judgment	
			f	%	*f*	%
Intr.	Bleed	Tr.	29	70.7	12	29.3
		Intr.	28	68.3	13	31.7
	Appear	Tr.	26	63.4	15	36.6
		Intr.	40	97.6	1	2.4
	Die	Tr.	37	90.2	4	9.8
		Intr.	37	90.2	4	9.8
	Laugh	Tr.	38	92.7	3	7.3
		Intr.	41	100.0	0	0.0
	Total	Tr.	130	79.27	34	20.73
		Intr.	146	89.02	18	10.98
Tr.	Cut	Tr.	33	80.5	8	19.5
		Intr.	33	80.5	8	19.5
	Write	Tr.	40	97.6	1	2.4
		Intr.	35	85.4	6	14.6
	Kick	Tr.	39	95.1	2	4.9
		Intr.	34	82.9	7	17.1
	Destroy	Tr.	37	90.2	4	9.8
		Intr.	35	85.4	6	14.6
	Kill	Tr.	39	95.1	2	4.9
		Intr.	38	92.7	3	7.3
	Hit	Tr.	39	95.1	2	4.9
		Intr.	31	75.6	10	24.4
	Total	Tr.	227	92.28	19	7.72
		Intr.	206	83.74	40	16.26

The results obtained from the descriptive analysis of correct and incorrect judgments regarding the non-alternating verbs are presented in Table 2 above. The first column in the table shows whether the verbs are originally considered as transitive or intransitive.

The Tr./Intr. next to each verb in the third column is used to indicate whether the verb is used in the transitive or intransitive form in the sentence in question.

The most striking result to emerge from the data is that the participants' performance on the verb *appear* shows a great contrast. When used in the intransitive form, almost all of the subjects except for one (97.6%) could judge the sentence as correct. While participants had no difficulty in judging the intransitive sentence as correct, their judgment for the transitive sentence was far less uniform. Only 26 participants could judge the transitive as incorrect.

Generally, participants were successful in judging *laugh* in both forms. While 38 participants could judge *laugh* in the transitive form correctly, all of the participants could judge it correctly in the intransitive form. This result is not surprising when we consider that *laugh* is originally an intransitive verb.

When we look at the judgments for the transitive verbs, we see that the overall performance for *write* was high. Only one participant failed to judge it correctly in the transitive form whereas 6 participants did so in the intransitive form. This might again be due to the fact that *write* is originally transitive.

If we turn to *hit*, we see that participants did better in judging it correctly in the transitive form. Thirty-nine of the participants judged it correctly in the transitive form while only 31 participants could do so in the intranstive. Comparatively, participants did better in judging *write* and *hit* in the transitive form. This fact leads us to conclude that generally, participants who fail to judge these verbs correctly in the intransitive form lack the knowledge of the lexical properties of verbs in question.

Table 3. Group statistics for alternating and non-alternating verb categories

	n	Mean*	Std. Deviation
Alternating	41	13,75	2,54
Non-alternating	41	18,78	2,86

*20 sentences for each category (Total 40 sentences)

To assess the GJCT, we looked at two different verb categories. Our first group consisted of alternating and non-alternating verbs. In order to see whether there was a statistically significant difference between these verb groups, we ran an independent samples t-test. Table 3 above illustrates the group statistics for the GJCT for the first verb group. That means they were more correct in their judgments on the non-alternating verbs.

Table 4. T-test results for alternating and non-alternating verbs

	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Equal variances assumed	,009	,936	-8,401	80	,00	-5,024	,598
Equal variances not assumed			-8,401	78,83	,00	-5,024	,598

$t_{(39)} = 8,401$ (sig= 0,00), $p<0,05$

When we look at the group statistics for alternating and non-alternating verb categories in Table 3, we see that participants (n=41) were correct in their judgments with a mean score of 13,75/20 for alternating verbs and 18,78/20 for non-alternating verbs. That means they were more correct in their judgments on the non-alternating verbs. Table 4 above presents the t-test results for the GJCT with the alternating and non-alternating verbs as variables. The t-test score $t_{(39)}$=8,401(sig.=0,000), p<0,05 shows that there is a statistically significant difference between alternating and non-alternating verbs in favor of non-alternating verbs (see Table 4). Put in a different way, participants were significantly better in judging the sentences with non-alternating verbs.

Table 5. Group statistics for transitive and intransitive verbs

	n	Mean*	Std. Deviation
Transitive	41	15,46	2,54
Intransitive	41	17,07	2,76

*20 sentences for each category (Total 40 sentences)

We also ran an independent samples t-test with transitive and intransitive verbs as variables. Table 5 above displays the group statistics for this t-test. As with the first category of verbs (alternating and non-alternating), there were also 20 sentences for each category (transitive and intransitive). The results obtained from the preliminary analysis of Table 5 shows that participants generally performed better on intransitive sentences with a mean score of 17,07/20 (compared to transitive sentences 15,46/20). When we look at the relationship between the variables transitive and intransitive, we see that participants (n=41) performed significantly better ($t_{(39)}$ = 2,747 (sig.=0,007) p<0,05) on intransitive verbs (see Table 6).

Table 6. T-test results for transitive and intransitive verbs

	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Equal variances assumed	,000	,997	- 2,747	80	,007	- 1,609	,598
Equal variances not assumed			- 2,747	79,46	,007	-1,609	,598

$t_{(39)}$ = 2,747 (sig= 0,007), p<0,05

To sum up, we can conclude that participant judgments were significantly more correct on non-alternating and intransitive verbs. This suggests that participants lack the knowledge of causative/inchoative transitivity alternations.

3.2. PT Results

Table 7 below displays the descriptive statistics for PT.

Table 7. Descriptive statistics for PT

Verb	Lexical		Periphrastic		Total	
	f	%	*f*	%	*f*	%
Dry	15	36.6	26	63.4	41	100.0
Open	31	75.6	10	24.4	41	100.0
Freeze	20	48.8	21	51.2	41	100.0
Melt	24	58.5	17	41.5	41	100.0
Burn	25	61.0	16	39.0	41	100.0
Shrink	23	56.1	18	43.9	41	100.0
Soften	28	68.3	13	31.7	41	100.0
Warm	25	61.0	16	39.0	41	100.0
Increase	28	68.3	13	31.7	41	100.0
Fade	21	51.2	20	48.8	41	100.0

The table shows that generally participants preferred lexical causatives over periphrastic causatives except for the verbs *dry* and freeze. In the GJCT, participants were more correct in their judgments for *dry* when it was used as a transitive verb. This result is surprising. While 37 participants (n=41) accepted *dry* as a lexical causative in the GJCT, only 15 preferred it as a lexical causative in the PT. The reason for this might be that in the GJCT sentence, there was another verb involved and this complicated the processing of the sentence by the participants. They might have resembled the sentence to a periphrastic causative for this reason.

Freeze was judged more correctly when it was used as an intransitive verb. Fourteen participants corrected the transitive verb changing it to a periphrastic causative. For this reason, we expected the participants to prefer the periphrastic causative in the PT with a higher frequency.

Another interesting finding from the PT analysis is related to the preference of *open*. Thirty one participants preferred *open* in a lexical causative whereas only 10 preferred it in a periphrastic causative. This result is consistent with the GJCT. In the GJCT, almost all of the participants (38, n=41) accepted *open* when used in a transitive sentence which is very similar to the one in the PT.

GJCT sentence: The children opened the door.
PT sentence: The wind opened the door.

Comparison of preferences for *soften* and *increase* with the GJCT judgments also reveals striking findings. *Soften* was judged as correct in a transitive sentence by 38 participants and only by 29 participants when used in an intransitive sentence in the GJCT. In the PT, only 13 participants preferred the periphrastic causative with *soften*. This means participants' preference to accept *soften* as a transitive verb is consistent with their judgments. On the contrary, *increase* was preferred as a lexical causative by 28 participants,

and only 13 participants preferred it in a periphrastic causative. This is inconsistent with the GJCT judgments. For the rest of the verbs, participants' preferences seem to be more or less equally distributed between lexical and periphrastic causatives.

To sum up, although there is consistency with the judgments and the preferences for some verbs (e.g. *open*, *soften*), there is inconsistency for others (e.g. *increase*, *freeze*). For example, although *freeze* was judged incorrect as a transitive verb 16 times in the GJCT and was corrected as a make-causative 14 times, it was still preferred as a lexical causative in the PT by almost half of the participants. Another conclusion that can be drawn from the PT is that participants generally preferred lexical causatives over periphrastic causatives. This result is in line with Montrul's (1997) findings. Her hypothesis was that Turkish learners would prefer the periphrastic construction because of the overt causative morpheme in Turkish. However, her findings were the opposite. Her conclusion was that some learners simply did not know the periphrastic causative construction in English. In our case, though, we cannot say that the participants lacked the knowledge of make-causatives since the corrections they provided in the GJCT show that they know how to make a periphrastic causative construction.

3.3. TT Results

When we look at the Table 8 below, we see that almost all of the participants (38, n=41) could use *laugh* and *write* correctly in the translation task. This is consistent with their grammaticality judgments in which they successfully accepted the intransitive sentences and rejected the transitive sentences.

Table 8. Descriptive statistics for TT

Verb	Correct		Incorrect		Total	
	f	%	*f*	%	*f*	%
Bleed	31	75.6	10	24.4	41	100.0
Laugh	38	92.7	3	7.3	41	100.0
Cut	19	46.3	22	53.7	41	100.0
Write	38	92.7	3	7.3	41	100.0
Destroy	10	24.4	31	75.6	41	100.0
Kill	33	80.5	8	19.5	41	100.0
Appear	25	61.0	16	39.0	41	100.0
Hit	10	24.4	31	75.6	41	100.0
Kick	11	26.8	30	73.2	41	100.0
Die	34	82.9	7	17.1	41	100.0

Kick, *hit* and *destroy*, on the other hand, seem to be problematic. The majority of the participants failed to use these verbs correctly, without an object, in their translations.

The translations show that participants were aware of the fact that these verbs were intransitive, but they failed to use the correct causative type. All the Turkish sentences for these verbs required an external force, a primary causer, forcing somebody else to do

something. In all three Turkish sentences the secondary causer is hidden since Turkish allows and make uses of ellipsis frequently in such sentences. On the other hand, English does not allow ellipsis in such sentences and both causers have to be shown in the sentence. However, the translations of the participants fail to show both causers. This shows that participants lacked the knowledge of causatives in English, but still had the knowledge that these verbs are intransitive.

Another striking finding for *kick* and *hit* is that 11 and 5 participants respectively translated the sentences in the active voice decreasing the valency of the verbs even more while the Turkish sentences implied double causativization. This again might have stemmed from the lack of knowledge on causative structures in English, because the majority of the participants judged the sentences with these verbs correctly in the GJCT implying that the participants know that these verbs are intransitive. Same can be said for the verb *cut*. Only 19 participants could use it correctly in their translations, and the rest who failed came up with similar translations, either in active voice or with the wrong causative type.

However, the participants' translations with the verbs *appear* imply that they do not know that *appear* is intransitive. While almost all of the participants (40, n=41) accepted the sentence in which appear was used intransitively, 26 participants also accepted it in the transitive sentence. Similarly, in the TT 12 participants came up with the following translation in which *appear* is used with an object:

The drug that she takes appeared red pots on her face.

It is apparent from the judgments and the translation of the participants that *appear* is a problematic verb.

The suppletive pair *kill* and *die* were judged correctly by the majority of the participants (over 90% in both transitive and intransitive sentences). However, although the translations were still better than most of the other verbs, some participants still have not fully mastered the properties of these verbs.

The avoidance of using *die* might be due to not knowing how to use it in a causative structure. However, using it in the passive voice can be indicative of lack of knowledge that it is an intransitive verb. Similarly, *kill* is also used in the active and passive voice and in a periphrastic causative. This again implies some participants do not know the lexical properties of *kill*.

4. Conclusion

This study sought to find out how Turkish native speakers of L2 English react to the English causative/inchoative transitivity alternations. Our results demonstrated that participants performed poorly with alternating and transitive verb groups in the GJCT. This suggests that participants lack the knowledge of causative/inchoative transitivity alternations. Since participants are aware that non-alternating sentences do not have a causative counterpart, it is not surprising for them to reject ungrammatical sentences with non-alternating verbs. The other tasks confirmed the findings from the GJCT for most of the

verbs. There is, however, also variability in the preferences and the translations of the participants. We conclude such idiosyncratic performance might result from the usage frequency of the verbs. Another finding from our study is that participants have not yet fully mastered the causative structures in English. In their translations, it was apparent that they tend to use make-causatives more frequently ignoring the double causative meaning in the Turkish sentences. The results also indicate that there are traces of L1 influence in the interlanguage of the participants. Similar to Montrul's (2001) findings, it was found that in some cases the participants overgeneralized the causative/inchoative relationship to verbs that do not undergo transitivity alternation.

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