

EXTRACTION IN L2 ENGLISH: ARE FACTIVE VERBS ALL ALIKE?

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Abstract: Factive verbs are traditionally said to induce weak island effects, banning the extraction of adjuncts, but not that of arguments, out of their post-verbal clause. However, many studies in the literature (Karttunen 1971, Hooper & Thompson 1973, Djarv 2019) show that not all factive verbs are alike and distinguish between emotive factives (true factives) and cognitive factives (semi-factives). These two sub-classes evince different syntactic behaviour, cognitive factives being seen as more permissive. With such verbs, event adjunct extraction is reported to be allowed, in some cases (Djarv & Romero 2021). The aim of this paper is to test the availability of adjunct extraction in L2 English. Testing native speakers of Romanian, at an intermediate and advanced level of English, I show that the extraction of adjuncts out of the post-verbal clause of a factive verb is banned in L2, irrespective of predicate type or level of proficiency.

Keywords: island effects, factive verbs, adjunct extraction, islands in L2

1. Introduction

Movement has been a matter of debate in theoretical linguistics for decades, ever since Ross's (1967) seminal work. A wide range of structures are now seen as islands, restraining movement either completely (the so-called strong islands, e.g. subject islands, adjunct islands) or partially, banning adjunct movement (weak islands, e.g. *wh*-islands, factive islands, etc. (for an overview of islands, see Szabolcsi & den Dikken 2003).

While theoretical approaches to islands in general differ, ranging from the Subjacency Condition (Chomsky 1973) or the Barriers model (Chomsky 1986) to the Condition on Extractions Domain (Huang 1982), there is consensus in the literature with respect to these structures being a part of speakers' innate knowledge of language, of Universal Grammar. Against this background, islands have also quickly become the focus of a series of studies on L2 learning, as part of a strong debate in the literature, regarding L2 learners' access to Universal Grammar. According to Full Transfer/Full Access hypothesis (Schwartz & Sprouse 1996), adult learners have access to Universal Grammar in their L2 as well. Studies have shown, on the one hand, that L2 learners are sensitive to syntactic island constraints (Schwartz & Sprouse 1996). On the other hand, there seems to be a difference between strong and weak islands, the former being more readily observed by L2 learners than the latter (Belikova & White 2009).

The aim of the present paper is three-fold: first of all, I investigate how speakers of L2 English with Romanian as their native language evaluate the extraction of adjuncts from the post-verbal clause of factive verbs, a category of verbs which give rise to weak islands. Secondly, in the light of some more recent studies on factive verbs, which argue that the behaviour of these verbs might be more nuanced, I investigate whether these speakers observe any difference between cognitive factive verbs (*know*, *find out*, *discover*) and emotive ones (*resent*, *regret*, *be sad*), with respect to island effects. Last, but not least, I will test whether there is any difference in judgements between advanced and intermediate learners of L2 English.

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The rest of this paper is organized as follows. Section 2 offers a brief overview of factive verbs in English, with a focus on the difference between cognitive and emotive factive verbs. Section 3 presents an overview of factive verbs in Romanian. In section 4 I briefly turn away from factive verbs and I present a series of previous experimental studies on island effects in L2. Some of these argue that, at least at an advanced level of proficiency, the data coming from speakers of a second language should converge with those reported by native speakers. In section 5 I present a new experimental study which tests these findings with data from factive islands. While there are several studies which test weak islands in L2, to my knowledge, factive islands have not yet been tested from the perspective of second language learning. The test was conducted on 68 learners of L2 English with Romanian as their native language – there were two test groups, one of intermediate learners and one of advanced learners, to the aim of investigating whether level of proficiency in L2 plays any role with respect to the acceptability of adjunct extraction. A brief section 6 draws some tentative conclusions and outlines some questions for further research.

2. English factive verbs as island inducers

2.1 English factive verbs – a bird’s eye view

Factive verbs (*know, regret, remember*) are verbs which presuppose the truth value of their complement, even under negation.

- (1) John doesn’t know that he needs to deliver a speech. → John needs to deliver a speech.
- (2) John doesn’t resent that he needs to deliver a speech. → He needs to deliver a speech.

For decades, especially ever since Kiparsky & Kiparsky’s (1971) seminal work, factive verbs have been primarily discussed in contrast with non-factive verbs (*think, believe, etc.*), being different from the latter both semantically and from the point of view of their syntactic behaviour. For instance, unlike non-factive verbs, they do not allow the omission of the complementizer, as seen in (3), do not allow main clause phenomena, as illustrated in (4), and induce weak island effects, banning the extraction of adjuncts from their post-verbal clause, as seen in (5).

- (3) I resent *(that) we have to move.
- (4) *I regret that *this book* I have to read.
- (5) a. What do you regret that you read ___?
b. *Where do you regret that you lost your phone ___?

The behaviour of factive verbs in general has been accounted for in the literature, both from a syntactic perspective (Kiparsky & Kiparsky 1971, de Cuba 2007, de Cuba & Ürögdi 2010, Kastner 2015), but also semantically (Szabolcsi & Zwarts 1993, Abrusan

2011, Djarv 2019 and references therein) or pragmatically (Erteschik-Shir 1973, Oshima 2007, Ambridge & Goldberg 2008) and even with respect to other factors (i.e. frequency, Liu et al. 2022).

While some of these studies primarily focus on the differences between factive and non-factive verbs, others show that factive verbs evince variable behaviour with respect to the aforementioned phenomena, as can be seen in the examples below.

- (6) I know (that) you are tired.
- (7) The scout discovered that beyond the hill, stood a large fortress.
(Hooper & Thompson 1973: 480)
- (8) Big news! Archaeologists reveal new facts about the life and death of Caesar. So tell me – where did they {discover, learn} that Caesar was killed?
(Djarv & Romero 2021: 189)

2.1. English factive verbs and the cognitive/emotive split

Such examples can be readily accounted for in the light of a two-way split proposed in the literature, between cognitive factive verbs (*know, remember, find out*) and emotive factive verbs (*resent, regret, be sad*). Ever since Karttunen (1971), several differences have been noticed between the two sub-classes. To list just a few, cognitive factives allow main clause phenomena more readily than emotive ones (as illustrated in (9)), they allow the omission of the complementizer (as seen in (10)), are compatible with both referential and non-referential pro-forms (as seen in (11)), allow subordinate clauses introduced by *wh*-phrases (as seen in (12)) and even the extraction of adjuncts, as seen in (8) above and repeated for convenience in (13).

- (9) a. The scout discovered that beyond the hill, stood a large fortress.
b. *The scout appreciated that beyond the hill, stood a large fortress.
(Hooper & Thompson 1973)
- (10) a. Mary knows (that) she can do better.
b. Mary regrets *(that) she didn't try harder.
- (11) a. Jane is an exceptional violinist, as/which we all know.
b. Danielle is a terrible manager, *as/which we all resent.
- (12) a. I know where you hid the treasure ____.
b. *I resent where you hid the treasure ____.
- (13) Big news! Archaeologists reveal new facts about the life and death of Caesar. So tell me – where did they {discover, learn} that Caesar was killed?
(Djarv & Romero 2021: 189)

In what follows I will briefly present two of the more recent syntactic analyses of factive verbs put forth in the literature, to the aim of evaluating their explanatory power with respect to island effects.

2.2. Some structural accounts of English factive verbs

For decades, the most influential analysis of factive verbs was the one put forth by Kiparsky & Kiparsky (1971), who argued that factive verbs, in contrast to non-factives, have a noun in their structure, as in (14) below.

(14) I regret that I upset you → I regret the fact that I upset you.

This view has been challenged and several researchers have argued that it might be non-factive verbs that are, in fact, structurally more complex.

One such analysis is the one put forth by de Cuba (2007, 2017), who argues that it is not factivity per se, but rather referentiality, which can distinguish between verbs such as *know* or *regret*, on the one hand, and *believe* and *think* on the other hand. These verbs take different type of clauses, referential or non-referential. As can be seen in (15) and (16), below, contrary to Kiparsky & Kiparsky (1971), he argues that a verb such as *believe* will take a more complex clause, with an additional cP.

(15) Referential clauses: V [CP]

(16) Non-referential clauses: V [cP [CP]]

(de Cuba & Ürögdi 2010: 42)

Moreover, de Cuba (2007) makes a distinction between argument extraction and adjunct extraction – while arguments move *through* Spec, CP (and can therefore be extracted, in the case of both referential and non-referential clauses), adjuncts are *adjoined* to the CP. Given Chomsky's Adjunct Prohibition, which states that adjuncts cannot adjoin to a position which is governed by a lexical head, it follows that referential clauses do not allow the adjuncts to adjoin - adjuncts can only move in the case of non-referential clauses.

Importantly however, de Cuba's analysis could also account for those cases where a verb such as *know* allows both argument and adjunct extraction. Briefly, he argues that there is no one-to-one correspondence between referentiality and factivity, so a factive verb could take either a referential or a non-referential clause as its complement. This choice depends on whether the verb is used assertively or not, an option which is more readily available in the case of cognitive factives, but rarely in that of emotive factives (de Cuba 2017) as can be seen in (17) below.

(17) Guess what? I discovered/noticed that there is a secret labyrinth under our building!

(de Cuba 2017: 27)

In such an analysis then, factive verbs, when they select a referential clause, give rise to a reduced left periphery.

A similar intuition is shared by Kastner (2015), who also argues that the property that dictates the behaviour of these verbs is presuppositionality, rather than factivity.

His analysis however builds upon Kiparsky & Kiparsky (1971), arguing that there is, indeed a nominal element in the structure of presuppositional verbs. For Kastner, this nominal element is not however a covert N, but rather the presuppositional determiner Δ , as can be seen in (18b).

- (18) a. Selected embedded non-presuppositionals: [V CP] \rightarrow believe that he is right
 b. Selected embedded presuppositionals: [V [_{DP} Δ CP]] \rightarrow regret that he is right
 c. Overt definite presuppositionals: [V [_{DP} D [_{NP} [_{NP} N] CP]]] \rightarrow regret the fact that he is right

(Kastner 2015:4)

According to Kastner, this determiner bans the projection of Topic and Force, giving rise, once more, to a reduced left periphery, which hinders the availability of extraction.

Taking such analyses into account and corroborating them with the differences noticed between emotive and cognitive factive verbs, it might be the case that, in some instances, a difference in structure might arise as well – when interpreted as being referential/presuppositional, these verbs will evince a truncated structure (or at least a truncated left periphery of the subordinate clause), while when used as non-referential/non-presuppositional, a full left periphery is projected.

Going back to extraction, if this reasoning is on the right track, examples such as the ones in (8), repeated for convenience in (20), could be acceptable as long as the verb is not interpreted as being referential or presuppositional respectively.

- (19) ?Who did he discover stole the cookie?

(Djarv 2019: 38)

- (20) Big news! Archaeologists reveal new facts about the life and death of Caesar. So tell me – where did they {discover, learn} that Caesar was killed?

(Djarv & Romero 2021: 189)

Djarv & Romero (2021) argue that cognitive factives are more readily associated with such an interpretation than emotive factive verbs, which ban adjunct extraction, as can be seen in in (21) below.

- (21) Big news! Archaeologists reveal new facts about the life and death of Caesar. #So tell me – where do they {regret, appreciate} that Caesar was killed?

(Djarv & Romero 2021: 190)

Conversely, when the verb is interpreted as presuppositional, adjunct extraction will be banned, irrespective of verb type. This observation has been confirmed by an experimental study conducted on 60 native speakers of English, investigating adjunct extraction out of the complement of cognitive and emotive factive verbs (Stoica in press).

The experiment showed that, when the information is clearly part of the Common Ground, adjunct extraction is banned overall, irrespective of verb type – 9.8% of test items with cognitive factive verbs were considered grammatical, and 5.8% of test items with emotive factive verbs were accepted. A t-test showed that there is no significant effect of predicate type ($t(119) = 1.98, p = .3$).

3. Romanian factive verbs as island inducers

While in some respects Romanian factive verbs behave on a par with their English counterparts (presupposition cancellation, referentiality, etc), there are also ways in which these verbs differ in the two languages. At least at first sight, Romanian factive verbs seem to be more permissive, allowing structures that are banned in English, such as main clause phenomena (as seen in (22) or subordinates introduced by *wh*-phrases (as illustrated in (23) and (24), in the case of both emotive and cognitive factives. Recall that, in English, at least emotive factive verbs are incompatible with all of these constructions.

- (22) a. Ion știe că **doar azi** trebuie să meargă la doctor (nu și
 Ion knows that only today must SBJV go at doctor (not and
 mâine).
 tomorrow)
 ‘Ion knows that **only today** he must go to the doctor (not tomorrow as well).’
- b. Ion se bucură că **doar azi** trebuie să meargă la doctor (nu și
 Ion REFL happy that only today must SBJV go at doctor (not and
 mâine)
 tomorrow)
 ‘Ion is happy that only today he must go to the doctor (not tomorrow as well).’
- (23) a. Andrei știe ce a mâncat Luca.
 Andrei knows what has eaten Luca
 ‘Andrei knows what Luca ate.’
- b. Andrei știe unde a ascuns Luca jucăria.
 Andrei knows where has hidden Luca toy-the
 ‘Andrei knows where Luca hid the toy.’
- (24) a. Maria regretă ce s- a întâmplat.
 Maria regrets what REFL has happened
 ‘Maria regrets what happened.’
- b. Alinei îi displace cum au decorat străzile din București
 Alina CL.DAT dislikes how have decoarated streets-the from Bucharest
 ‘Alina dislikes how they decorated the streets of Bucharest.’

As far as extraction is concerned, Romanian factive verbs are traditionally said to induce weak island effects (Dobrovie-Sorin 1994), on a par with their English counterparts.

- (25) a. Ce regretă că ai pierdut?
 what regret that have lost
 ‘What do you regret that you have lost?’
 b. *Unde regretă că ți- ai pierdut portofelul?
 where regret that CL.DAT have lost wallet-the
 ‘Where do you regret that you have lost your wallet?’

However, a closer look at some experimental data shows that the picture might be more nuanced. On the one hand, Stoica (2019) reports experimental data which show that over 60% of the Romanian respondents accepted sentences such as the one in (26), i.e. it might be the case that, in Romanian, adjunct extraction out of the clausal complement of a cognitive factive verb is more readily available.

- (26) ?În ce a uitat Vasile că împachetau părinții lui cadourile ___?
 in what has forgotten Vasile that wrapped parents-the his gifts-the
 ‘In what did Vasile forget that his parents used to wrap the presents?’

On the other hand, in an experimental study testing the availability of adjunct extraction out of the clausal complement of factive verbs in Romanian, Stoica (2021) shows that native speakers of Romanian reject adjunct extraction, irrespective of verb type (i.e. cognitive or emotive factives). More specifically, only 20% of test items including cognitive factive verbs were considered grammatical, while extraction out of the clausal complement of emotive factives was accepted in 17.9% of cases. A statistic analysis using a Welch t-test at the $\alpha = .05$ showed that there is no statistically significant effect of predicate type ($t(223) = 1.97, p = .88$)¹.

The data presented in this section indicate that, while Romanian factive verbs are more permissive in general, allowing structures which are restricted in English (i.e. main clause phenomena, subordinates clauses introduced by *wh*-phrases, etc.), they behave similarly to their English counterparts with respect to adjunct extraction². This observation gives rise to at least two important questions: (i) in the light of examples (22) through (26) above, do factive verbs differ structurally in the two languages? and, if so (ii) what are the factors that hinder adjunct extraction in each of the two languages? I leave these two questions for further research.

The focus of this paper lies, however, with the way in which factive islands are observed by L2 learners. In the following section, I will briefly present some studies in

¹ The contrast between these two sets of data might stem from the different designs of the experiments. In Stoica (2019), respondents judged these sentences in isolation, which might have led respondents to treat the sentence as containing new information. In Stoica (2021) larger contexts were built, which made the information clearly part of the Common Ground. If this should be the case, then adjunct extraction seems to indeed be influenced not just by syntactic factors, but also by the way in which the predicate is interpreted.

² The experiments investigating island effects induced by factive verbs in English (Stoica in press) and Romanian (Stoica 2021) used a mirroring design, which will be presented in Section 5. While adjunct extraction seems to be indeed banned in both languages, a paired t-test shows that there is a statistically significant difference between the two languages ($t(479) = 4.246, p < 0.001$) – more specifically, in Romanian extraction was more readily accepted than in English.

the literature, which argue that, at least at advanced levels of proficiency, L2 learners converge with the target grammar in the case of weak islands.

4. Island effects in L2 learning: Previous studies

The way in which learners fare with respect to island constructions in their L2 has been studied in the literature – as there is usually no formal instruction on island effects and no negative evidence, islands provide a solid background for testing access to Universal Grammar and whether learners at various levels of proficiency manage to successfully reset parameters. Several studies, some of which will be briefly presented below, show that L2 learners can reject ungrammatical structures, especially at more advanced levels of proficiency, a finding that supports the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996).

One such study was White (1998), which investigated the way in which native speakers of French with L2 English respond with respect to extraction out of both strong and weak islands. Strong islands are said to be universal, extraction out of complex NPs for instance being banned across languages. Weak islands, however, give rise to cross-linguistic variation – while extraction out of a *wh*-island is not possible in English, it is allowed in French. White tested the response to islands of two groups – one of advanced learners and one of intermediate learners, by means of a wide array of tests (from paced judgement tasks, to multiple choice tasks and cloze tests). The results revealed that both intermediate and advanced L2 learners of English observe the Complex NP Constraint, as predicted. In the case of *wh*-islands, however, there is a difference between intermediate and advanced respondents, the former accepting, and even producing *wh*-island violations in their L2. In their case, judgements were most likely influenced by the patterns in their L1. The advanced learners however observed extraction restrictions and converged with the target grammar. This indicated that, at advanced levels of proficiency, parameter resetting can occur.

Another study which investigated the response to *wh*-islands was put forth by Reglero (2003). The author tested native speakers of English with L2 Spanish and native speakers of Spanish with L2 English, at different levels of proficiency, more specifically intermediate and advanced. Spanish and English differ with respect to *wh*-islands, Spanish allowing extraction, as can be seen in (27) below:

- (27) a. *Who don't you know how much weighs?
 b. Quién no sabes cuánto pesa?
 who no know how-much weighs
 'Who don't you know how much weighs?'

Respondents were asked to judge whether sentences such as the ones above are grammatical or not, in their respective L2. The results, summarized in Table 1, show that native speakers of Spanish with L2 English are able to correctly identify both grammatical and ungrammatical structures – although acceptance rates are not very high, they still indicate that these respondents manage to successfully reset this parameter, in

spite of the differences from their L1. In the case of the ungrammatical sentences, a slight difference can be noted between intermediate and advanced learners, the latter rejecting ungrammatical sentences more readily, as expected.

Table 1. Acceptance (%) of extraction in L2 English (Reglero 2003)

Construction type	Overall results	Intermediate learners	Advanced learners
<i>wh</i> -islands grammatical	68.42	68.06	68.75
<i>wh</i> -islands ungrammatical	15.79	23.61	8.75

Native speakers of English with L2 Spanish seem to converge with the target grammar as well, accepting grammatical sentences and rejecting ungrammatical ones, as can be seen in Table 2 below. Here too we can see that there is a difference between lower and higher level learners, the advanced ones accepting ungrammatical structures less than pre-intermediate and intermediate learners.

Table 2. Acceptance (%) of extraction in L2 Spanish (Reglero 2003)

Construction type	Overall results	Pre-intermediate learners	Intermediate learners	Advanced learners
<i>wh</i> -islands grammatical	45.59	45.65	41.35	51.32
<i>wh</i> -islands ungrammatical	20.96	27.17	21.15	13.16

Given that these respondents had not received any formal instruction with respect to *wh*-islands, Reglero argued that learners are able to successfully reset the value of this parameter and have access to Universal Grammar in their L2 learning as well. What is also important to note is that level of proficiency seems to play a role as well, as advanced learners converged with the target grammar more readily than pre-intermediate and intermediate ones.

Both of these studies show that, at least at advanced levels of proficiency, L2 learners reject island violations, even in the case of weak islands. At lower levels, respondents might accept island violations, possibly influenced by their L1.

These studies offer valuable data with respect to *wh*-islands in particular and raise interesting issues with respect to the acquisition of weak islands in L2 in general, but to my knowledge, factive islands have not yet been tested in L2.

Recall that factive islands have been argued to be influenced not just by syntactic factors, but also verb frame frequency (Liu et al. 2022) or whether or not the information is interpreted as being part of the Common Ground (Djarv & Romero 2021). According to the Interface Hypothesis (Sorace 2011), those phenomena which are constrained not only by structural factors, but also by discourse ones, could be problematic even for advanced learners.

While the extraction of adjuncts out of the clausal complement of a factive verb is banned in both English and Romanian, there is a statistically significant difference between the two languages: in English, the rejection rate of extraction was higher than in Romanian.

In the light of such data, the aim of the next section is to investigate how vulnerable adjunct extraction is for L2 learners and whether language proficiency plays any role in the availability of extraction (or lack thereof).

5. Factive verbs and island effects in L2 – an experimental study

5.1 Aim

The aim of the current study is three-fold. I tested whether native speakers of Romanian with L2 English reject extraction of adjuncts out of the complement clause of factive verbs – as already seen, adjunct extraction is banned in both of these languages, but there is a statistically significant difference between the two, Romanian being more permissive than English in that respect. Also, I investigated whether there is any difference in acceptability of extraction in the case of cognitive and emotive factives respectively. Last, but not least, I verified whether advanced learners of L2 English converge with the target language more than intermediate ones, even when neither of the two groups received formal instruction with respect to island effects.

4.2 Materials

The test, designed as a truth value judgement task, included 8 test items: 4 of these targeted adjunct extraction out of the clausal complement of a cognitive factive verb, as illustrated in (28) and 4 adjunct extraction out of the clausal complement of emotive factive verbs, as illustrated in (29). Briefly, respondents were reading a story and they were told that Paddington the bear was reading the same story. At the end of each story, Paddington was asked a question, which he also answered.

(28) Emma was watching Tom and Jerry in the living room. After a couple of scenes, she said: “I’ve already seen this episode at the kindergarten!”, so she told her Mom: “Mommy, can I watch another one?”

Storyteller: Paddington, where did Emma remember that she had seen the episode? **Paddington:** At the kindergarten.

(29) Philip had a cat called Cookie. One day, Cookie ran in the garden, while Philip was not at home. His parents went to the kindergarten and told him: “Honey, we have some bad news: Cookie ran away...”. Philip started crying and asked his parents: “Do you think we’ll ever find him again?”

Storyteller: Paddington, where did Philip get sad that Cookie had run away?

Paddington: In the garden.

Respondents were asked to state whether Paddington’s answer was true or false.

The four cognitive factive verbs used were *know*, *remember*, *find out*, *realize*, while the four emotive factive verbs were *regret*, *be annoyed*, *be excited*, *be happy*.

The experiment also included 8 control items, using the same verbs, but with short-distance movement and 4 distractors.

4.3 Participants

68 L2 learners of English with L1 Romanian (age ranging between 18 and 22 – mean age 20.8) took part in this experiment, all English language students at the University of Bucharest. None of them had received formal instruction with respect to island effects or factive verbs in general before testing time. Respondents were divided into two groups, based on their English proficiency – 34 of them were assessed as having an intermediate level of proficiency, while 34 were advanced speakers. Their language level was assessed by means of the Oxford Placement Test (Allan 1992).

The data collected in this experiment was compared to that coming from a control group of 64 native speakers of English.

4.4 Results

In total, 272 responses were obtained – 136 for the advanced group and 136 for the intermediate one. The overall results, which can be seen in Figures 1 and 2, show that, irrespective of their level of proficiency, the L2 learners of English rejected adjunct extraction out of the clausal complement of factive verbs.

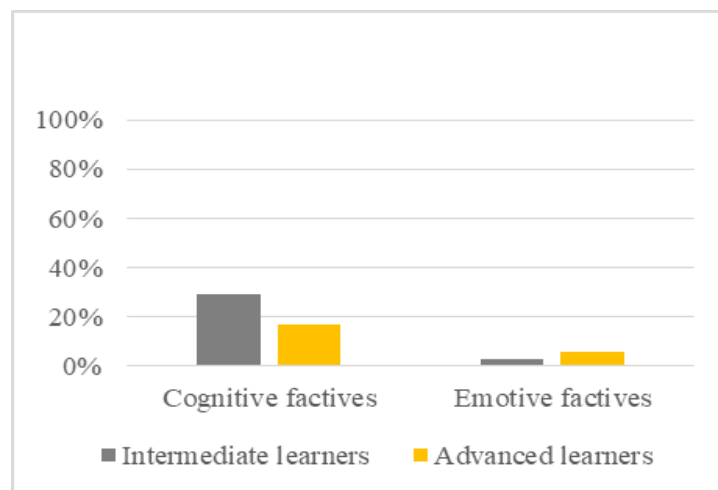


Figure 1. Acceptance (%) of adjunct extraction in L2 English

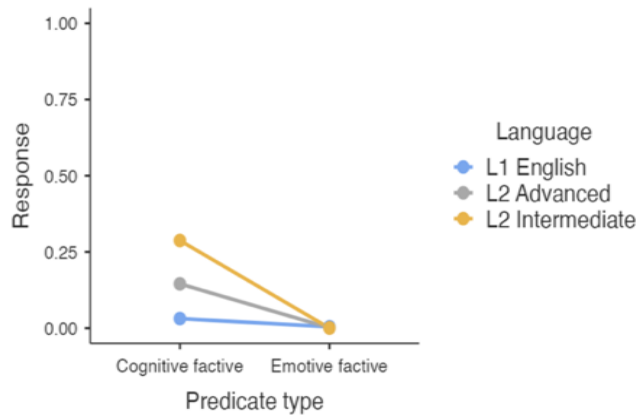


Figure 2. Acceptability of extraction across L1 English, L2 English and L1 Romanian

The overall percentages in the case of intermediate learners show a rate of acceptability of 16.7% to 29.4% of the test items with cognitive factive verbs were accepted, while test items using emotive factive verbs had an acceptability rate of 2.94%. A logic generalized mixed model analysis (conducted in Jamovi, using the gamlj module) showed a statistically significant effect of predicate type ($p < .001$, $\beta = 0.06$, $SE = 0.815$).

Comparing these results to the control group, a logic generalized mixed model analysis (conducted in Jamovi, using the gamlj module), showed that there is a statistically significant difference between intermediate learners of L2 English and native speakers of English with respect to adjunct extraction overall ($p = .001$, $\beta = 0.420$, $SE = 0.338$). There is also a statistically significant difference between these two groups with respect to adjunct extraction out of the clausal complement of a cognitive factive verb ($p = .003$, $\beta = 0.252$, $SE = 0.46$), but no statistically significant difference was found with respect to emotive factive verbs ($p = .506$, $\beta = 1.73$, $SE = 0.831$).

In the case of advanced learners of L2 English, 11.26% of test items were considered grammatical – long distance movement out of the complement clause of a cognitive factive verbs was accepted in 16.7% of cases, while long distance movement out of the complement clause of an emotive factive was allowed in 5.8% of test items. A logic generalized mixed model analysis (conducted in Jamovi, using the gamlj module) showed that there was no statistically significant effect of predicate type ($p = .065$, $\beta = 3.09$, $SE = 1.89$).

Another logic generalized mixed model analysis (conducted in Jamovi, using the gamlj module) also showed that there is no statistically significant difference between advanced learners of L2 English and the control group with respect to adjunct extraction overall ($p = .248$, $\beta = 1.52$, $SE = 0.3$) – similar results were found when analyzing adjunct extraction out of the complement clause of a cognitive factive verb ($p = .2563$, $\beta = 0.54$, $SE = 0.53$) or of an emotive factive verb ($p = .79$, $\beta = 0.84$, $SE = 0.664$).

Comparing the two test groups, a logic generalized mixed model analysis (conducted in Jamovi, using the `gamlj` module) showed that there is no statistically significant difference between the answers provided by intermediate and advanced learners of L2 English, either with respect to adjunct extraction overall ($p = .940$, $\beta = 0.96$, $SE = 0.5$), or regarding cognitive factive verbs ($p = .485$, $\beta = 0.442$, $SE = 0.20$) or emotive ones ($p = 1$, $\beta = 2.09$, $SE = 1.89$) analysed separately.

However, a series of t-tests, comparing the results of L2 learners to the results of both native speakers of English and to those of native speakers of Romanian³, shows that, overall, responses were closer to the Romanian data ($t(496) = 1.981$, $p = .117$), rather than the English one ($t(511) = -2.26$, $p = 0.062$). What's more, when analysing responses from the two test groups separately, it is seen that intermediate learners of L2 English converged with the Romanian data ($t(359) = -1.095$, $p = 0.693$), rather than with the English one ($t(375) = 2.23$, $p = .001$), and that advanced learners of L2 English converged with the target language ($t(375) = -0.97$, $p = 0.248$), rather than their L1 ($t(359) = 4.246$, $p < .01$).

4.5 Discussion

The results revealed, as predicted, that adjunct extraction out of the post-verbal clause of a factive verb is banned in L2 English, irrespective of predicate type (cognitive or emotive factive verb). Only in the case of intermediate learners was there a statistically significant effect of predicate type. Recall however that, while adjunct extraction is banned in both English and Romanian, Romanian is slightly more permissive with respect to this type of movement. In line with other studies conducted on island effects in L2, advanced learners converged with the target language, while intermediate ones showed a greater residual optionality, influenced probably by their L1.

These results are in line with both studies on factive verbs as island inducers in general, and with those that target island constructions in L2.

What was however interesting was that, for intermediate learners, adjunct extraction out of the clausal complement of cognitive factive verbs was accepted at a higher rate than extraction in both L1 English and L1 Romanian⁴.

Another important aspect that needs to be taken into account is that such structures are difficult to process even in L1 (Liu et al. 2022), so an interaction between (un)grammaticality of structure and processing load cannot be discarded.

5. Conclusions

With respect to the research questions presented in the beginning of this paper, there are several conclusions which have been reached: (i) as predicted, given that factive

³ The experimental study on adjunct extraction out of the clausal complement of factive verbs in Romanian (Stoica 2021) used the same design and methodology as the experiment presented in this paper.

⁴ It is important to note that the respondents that took part in the tests on adjunct extraction in L1 Romanian and adjunct extraction in L2 English are different. It would be interesting to see if the results were confirmed if the same respondents judged these sentences in both of these languages.

verbs induce weak island effects in both English and Romanian, L2 learners of English with Romanian as their native language do not accept long distance movement of adjuncts out of the clausal complement of factive verbs; (iii) only for intermediate L2 learners is there a significant effect of predicate type, cognitive factives more readily allowing long distance movement than emotive ones. For advanced learners, on the other hand, there is no difference with respect to predicate type; and (iii) there is no difference between intermediate and advanced L2 learners with respect to judgements on the island effects imposed by factive verbs, although neither of the two groups had received formal instruction before testing time.

This study brings further evidence that learners can acquire constraints on extraction in L2, in accordance with the Full Transfer /Full Access Hypothesis (Schwartz & Sprouse 1996). In addition, it contributes to the literature on island effects in L2 by presenting data coming from factive islands, a type of construction which, to my knowledge, has not been tested in relation to second language learning.

There are, however, several questions that still need to be addressed. Firstly, while traditionally factive verbs are said to ban adjunct extraction, there are also studies which argue that at least cognitive factive verbs are more permissive. While the experiments presented in this paper are in line with the traditional view on factive verbs (i.e. they are weak island inducers), it would be interesting to see whether the results would differ if a non-referential/non-presuppositional reading of these factive verbs were favoured. In such cases, adjunct extraction, should, in principle, be possible.

Secondly, taking into account those studies which acknowledge the impact of other factors on island effects in general (i.e. frequency, processing load, etc.), it would be interesting to see in what way these factors are correlated to structural ones.

Last, but definitely not least, all of the experiments presented in this paper targeted the acceptability of extraction in comprehension – given that, in the case of some island constructions, different results have been reported with respect to comprehension and production tasks respectively, it would be interesting to see whether speakers can produce sentences in which factive verbs are not island effect inducers at all. I leave these questions for further research.

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