Uninterpretable Features in L2A Again: Interrogatives in the L2 English of Kuwaiti Arabic Speakers

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1. Introduction

Although the generative study of Second Language (L2) Acquisition has remained constant in its goal of characterizing the underlying representations of learners since its inception, the field has experienced growth and change in many areas. Some changes have involved the use of different methodologies, while others have involved developments and shifts in theoretical focus. Among the latter, we can note an increased focus on the acquisition of syntactic features rather than on parameters (see Slabakova, Leal, & Liskin-Gasparro, 2014, for further discussion of this matter). Although the shift of focus from parameters to features is not new, spurred as it was by early research suggesting that the parametric approach could not account for the empirical data (White, 1985, 1990), it has certainly been a gradual one. More recently, the formulation of hypotheses such as the Interpretability Hypothesis (Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007) and the Feature Reassembly Hypothesis (Lardiere, 2009) has been instrumental in promoting this shift as well as in advancing our understanding of the role that syntactic features may play in L2 acquisition.

The Interpretability Hypothesis (Tsimpli & Dimitrakopoulou, 2007) is based on a theoretical distinction between two types of formal features (interpretable and uninterpretable), positing different learnability conditions for those features that are of consequence to the semantic component (i.e. interpretable features) and those that are not (i.e. uninterpretable features). Namely, the Interpretability Hypothesis proposes that those uninterpretable features that are not instantiated in the First Language (L1) are inaccessible in adult L2 acquisition, effectively positing a selective locus for fossilization or the loss of the capacity for acquisition beyond the critical period (Hawkins & Hattori, 2006). This finding, if verified, would represent a possible cause for the well-known differences between the underlying grammatical representations of native speakers and L2 learners at the end state. Furthermore, it could also provide a plausible and theoretically sound explanation for specific developmental trajectories in the interlanguage of L2 learners, as we will detail momentarily.

In light of these potential positive developments, we set out to test the Interpretability Hypothesis with a group of L2 learners of English of different proficiency levels who are native speakers of Kuwaiti Arabic. Our study follows Tsimpli and Dimitrakopoulou's (2007) original investigation and focuses on the knowledge of gaps vs. resumptive pronouns in L2 English. A crucial difference between our study and Tsimpli and Dimitrakopoulou's study is the choice of language pairings. In the

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original study, which involved Greek native speakers, the choice between gaps vs. resumptives in the L1 (Greek) is optional and possibly subject to individual variation (Alexopoulou & Keller, 2002). In contrast, it has been documented that resumptive pronouns in Arabic, the native language of the learners in our study, are not optional but required. To foreshadow our results, our study did not find support for the notion that differences in the availability of uninterpretable features are subject to a critical period. In light of these results, we suggest that the differences in the findings could be explained by the differences in the methodologies employed. If these notions are on the right track, we submit that although uninterpretable features are not wholly unavailable in L2 acquisition, these might pose a special difficulty when the cognitive resources of the L2 learners are taxed, either due to complexity or to lack of cognitive resources.

2. Uninterpretable features and L2 Acquisition

2.1. Uninterpretable features in the Minimalist Program

As mentioned earlier, the Interpretability Hypothesis is based on a theoretical distinction between two types of formal (i.e. syntactic) features. However, before we discuss the details of the Interpretability Hypothesis itself, we must first briefly specify the role of features in the theory. Within the Minimalist Program (Chomsky, 1995), lexical items are bundles of features, which can include formal and phonological features. Take, for example, the Spanish sentence in (1), where the lexical item *gatos* 'cats' is comprised of several formal features among which are [plural] [masculine] and [case].

(1)	Los	gatos	negros	traen	buena	suerte.
	the.masc.pl	cats.masc.pl	black.masc.pl	bring.3.pl	good	luck
	'Black cats bring (about) good luck.'					

Although it is clear that the formal feature [plural] can be associated with the phoneme /-s/ in Spanish, these two pieces of information are considered to be separate, and to perform different functions in the Y model of language architecture. The formal feature [plural], in this case, plays a role in the computation (meaning-calculation), while the morpheme's phonological features are legible at Phonological Form (PF) and affect pronunciation.

Back to (1), we can note that, within the formal features of the lexical item *gato-s*, features such as [plural] or [masculine] must be assigned a semantic interpretation. In other words, we know intuitively that both of these make a semantic contribution (roughly, "meaning"), so these are clearly legible at Logical Form (LF). Other formal features do not make such semantic contributions. The feature [case], for example, does not affect meaning even if it plays a role in the syntactic derivation. To wit, the contrast between nominative vs. accusative case is not relevant to the semantic component because the lexical item does not mean something different.

If uninterpretable features do not contribute to meaning, it stands to reason that these cannot survive syntactic computations. In fact, within the Minimalist Program, all uninterpretable features must be checked and deleted after completing their roles in the derivation if said derivation is not to crash at LF. This raises the question of how uninterpretable features can be checked. In plain terms, any uninterpretable feature F must enter into an appropriate syntactic relationship with an element bearing an (un)interpretable version of F for the feature to be checked and deleted. Uninterpretable features have been proposed to have no value, thus for these features be deleted they must first be valued via the syntactic relation with the element with the corresponding interpretable feature (Pesetsky & Torrego, 2001). In (1), for example, the uninterpretable Case feature on the DP *los gatos negros* ('Black cats') is valued according to the head with which the DP enters into an Agree relation. In this case, the value assigned is nominative, and the head with which the DP enters into an Agree relation is T. Thus, while some lexical items involve bundles of interpretable and uninterpretable features (such as the interpretable feature [plural] paired with the uninterpretable feature [*u*number:]), others involve bundles of uninterpretable features only (such as case-checking in the example above).

2.2. Resumptive pronouns as bundles of uninterpretable features

Tsimpli (2003) and Tsimpli and Dimitrakopoulou (2007) propose that resumptive pronouns are an example of such a case (i.e. a lexical item which only involves uninterpretable features). Resumptive pronouns are overt elements that appear in the place of a movement gap in certain constructions such as relative clauses and argument *wh*-questions. In Greek, for example, Tsimpli and Dimitrakopoulou (2007: 220) note that resumptives are *optionally* available in embedded questions such as (2) and (3). Of these examples, example (3) is argued to be the more acceptable of the two.

(2) Pjon ipes opi (ton) prosevalan xoris logo?
whom said-2sg that (him) insulted-3pl without reason
'Who did you say that they insulted (*him) without reason?'

(3) Pjon fititi ipes oti (ton) aperipsan sti sinedefksi?
which student said-2sg that (him) rejected-3pl at-the interview
'Which student did you say that they rejected (*him) at the interview?'

Interestingly, resumptives are universally rejected in Greek when the questions involve object *what* ([–human]) questions, as exemplified in (4). The example is taken again from Tsimpli and Dimitrakopoulou (2007: 220).[1]

(4) Ti nomizis oti tha (*to) dhiavasun?
what think-2sg that will (*it) read
'What do you think that they will read?'

Tsimpli (2003), based on Alexiadou and Anagnostopoulou's (1998) insights, extends the premise that subject agreement and object clitics are phonological realizations of (uninterpretable) case and phi features to resumptive pronouns. Resumptives, like subject agreement and object clitics, double the features of the extracted elements without adding any semantic content. Unlike subject agreement or object clitics, however, resumptive pronouns are optional rather than obligatory. Given that the availability of Greek-style resumptives is traced back to the null-subject parameter, Tsimpli and Dimitrakopoulou (2007) make a distinction between those resumptives found in null-subject languages such as Greek and those in languages such as English. The authors argue that, while Greek-style resumptives involve syntactic operations, English-style resumptives are possible in order to rescue syntactic violations or to alleviate excessive processing loads.

In English, for example, Ross (1967: 433) notes that the following example is fully grammatical in some English dialects and/or registers:

(5) King Kong is a movie which you'll laugh yourself sick if you see *it*.

Resumptives in English are far more restricted than in Greek. The equivalents of (2) and (3), as can be seen from the translation, for example, are ungrammatical in English. In fact, English does not allow resumption when subjacency is not violated. This is evident upon comparing examples such as those offered in (6) and (7) below.

(6) *I just saw the boy that Mary loves him.

(7) I just saw the boy that Mary loves ___.

[1] Tsimpli and Dimitrakopoulou argue that this asymmetry is caused by separate reasons. Namely, due to the lack of phi-features marked on the *wh*-word *ti* 'what'.

Based on the work of Ross (1967), Rouveret (2011) argues that English resumptives are "saving devices" (p. 2), which can be used to rescue derivations that violate grammatical principles such as subjacency violations—a premise that is compatible with Tsimpli (2003). On this account, English-style resumptives stand in stark contrast to the resumptives in (null-subject) languages such as Greek, Spanish, and Arabic. In Arabic, resumptive pronouns are in fact required in certain contexts.

(8) a. Subject, non d-linked, complementizer, animate (Kuwaiti Arabic)[2]
Minu illi ti'tiqid inn-*(ah) kitab il-risaala
who C believe-2sg that-he wrote-3sg the-letter
'Who do you believe wrote the letter?'

b. Subject, d-linked, complementizer, animate
Ey mumathel illi gilt (inn-ah) faz bil-ja'iza
which actor C said-2sg that-he won-3sg in-the-prize
'Which actor did you say won the prize?'

c. Object resumptive, d-linked, complementizer, animate
Ey mumathela illi gilt (inn-ik) shift-*(ha) bil-mata'am
which actress C said-2sg that-you saw-her in-the-restaurant
'Which actress did you say you saw (her) at the restaurant?'

d. Object resumptive, d-linked, no complementizer, inanimate
Ey tabaq gilt Shada tlebat- (*ah) bil-mata'am
which dish said-2sg Shada ordered-him in -the-restaurant
'Which dish did you say Shada ordered at the restaurant?'

As can be seen in the examples above, Kuwaiti Arabic exhibits both subject and object resumption. While the resumptive object pronoun is an obligatory enclitic on the verb, the resumptive subject pronoun is attached to the complementizer *inn-*, which itself is a bound morpheme and cannot appear without the clitic. Thus, subject resumption occurs only in the presence of the complementizer, and is unaffected by animacy or d-linking. Object resumption is obligatory when the noun phrase is animate irrespective of d-linking or the presence of a complementizer. Inanimate objects are resumed only in the presence of the complementizer *illi* irrespective of d-linking status.

2.3. Feature interpretability and L2 development

As mentioned earlier, given that resumptive pronouns are assumed to be bundles of uninterpretable features, the Interpretability Hypothesis predicts that the unlearning of resumptives will be problematic in L2 acquisition. Although previous research has explored this question in languages where resumptive pronouns are optional (Leal-Méndez & Slabakova, 2014 for Spanish and Tsimpli & Dimitrakopoulou, 2007 for Greek), there has not been evidence to date with regard to languages where resumptive pronouns are largely obligatory. Our study attempts to shed new light on this issue.

It is necessary to clarify here that the Interpretability Hypothesis does not predict global positive development in the representations of L2 learners. On the contrary, the hypothesis predicts *selective* development, buttressed by interpretable features, which are available even after the critical period. Thus, the Interpretability Hypothesis predicts that learners will benefit from the uninterpretable features shared by the L1 and the L2, as well as any interpretable features in the L2. If the Interpretability Hypothesis is on the right track, then, interpretable features such as animacy or d-

[2] We limit our discussion to Kuwaiti Arabic, spoken in the Gulf region. Although there has been scant description of the dialect, it has been noted that Kuwaiti Arabic shares typological similarities with other dialects of Bedouin lineage with a particular degree of similarity to the dialect spoken in Bahrain (Holes, 2007).

linking[3] could have positive effects on learning. In our study, we set out to examine this possibility by including animacy and d-linking as conditions in order to examine their impact.

The question that arises then is: Why the distinction between these features? Why should uninterpretable features be unavailable after the critical period? Hawkins and Hattori (2006) make the compelling—if speculative—case that, although interpretable features are functionally useful throughout development (being semantically meaningful), having all the uninterpretable features of the UG inventory available might constitute a functional disadvantage. In other words, the culling of unnecessary features might represent an example of cognitive functional economy.

2.4. Previous studies

The Interpretability Hypothesis has received support from a number of studies (e.g. Hawkins & Casillas, 2008; Hawkins & Franceschina, 2003; Hawkins & Liszka, 2003; Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007),[4] many of which have focused on the acquisition and interpretation of *wh*-questions. For instance, Hawkins and Hattori (2006), in a carefully designed interpretation experiment, tested the interpretation of complex bi-clausal multiple questions such as *Who did Sophie's brother warn <who> Sophie would phone when?* Hawkins and Hattori's design examined interpretation using pragmatically plausible answers, some of which violated superiority. Results showed evidence of the learners having trouble representing the uninterpretable *wh*-feature in their L2. The advanced learners of English, with Japanese as their native language, were not sensitive to the difference between grammatical interpretations and interpretations violating either Superiority or Subjacency, thus providing evidence for the Interpretability Hypothesis.

Focusing on knowledge between gaps and resumptives in English, Tsimpli & Dimitrakopoulou (2007) tested a group of intermediate and advanced Greek speakers of English using a paced bi-modal (text + audio) acceptability judgment task with animacy, d-linking, syntactic function (subject vs. object) and presence/absence of the complementizer as conditions. Results showed that the learners performed significantly differently from the natives, with the advanced group accepting (ungrammatical) resumptive pronouns at rates between 34% (subject) and 21% (object) and the intermediate group accepting resumptives at 40% (both subject and object). Moreover, the authors found that the learners judged objects more accurately than subject resumptives, a finding that was attributed to the learners misanalysing resumption as (uninterpretable) subject agreement. Additionally, the authors found evidence that learners judged animate resumptives more accurately (i.e. higher rates of rejection) than inanimate resumptives. This finding was attributed to the interpretability of animacy. Overall, these findings support the Interpretability Hypothesis.

In a partial replication of the study described above, Leal Méndez and Slabakova (2014) used Tsimpli and Dimitrakopoulou's materials with several important modifications. First, the questions to be judged appeared after a bi-modally (text + audio) presented context. Second, the language pairing was Spanish L1–English L2. Spanish, a null-subject language like Greek, optionally allows resumptives subject to individual variation. Third, the materials included a test of resumptives in the L1 (Spanish) in order to verify whether speakers accepted resumptives in their native language or not. Results showed that both the learners who accepted resumptive pronouns in their L1 and those who didn't were successful in their rejection of ungrammatical resumptives in English. The performance of the advanced group was indistinguishable from the native speakers, while the intermediate group performed more unevenly. Nevertheless, both groups made a significant contrast between the grammatical and ungrammatical stimuli. Importantly, this test was not paced, which means that learners were not under time pressure to submit their judgments.

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[3] Discourse-linking, or d-linking, is a property of a class of *wh*-phrases. To wit, *which*-phrases are d-linked while *who*- and *what wh*-questions are not d-linked. Pesetsky (1987) notes that d-linked phrases delimit the number of a given question's felicitous answers to a set that is shared knowledge by the speaker and the hearer. Consequently, a d-linked question that is uttered in an out-of-the-blue context would be expected to be infelicitous.

[4] While it is true that some of these studies predate the Interpretability Hypothesis, the idea that uninterpretable features can constitute a roadblock to acquisition predates the hypothesis and can be traced back to proposals such as the one advanced by Tsimpli (2003).

In the present study, we also use a grammaticality judgment task (not paced) with videos providing contextual information. Our choice of language pairing (Kuwaiti Arabic—L2 English) is especially apt for testing the Interpretability Hypothesis because, unlike Greek or Spanish, Arabic resumptive pronouns are not optional but required (see Section 2.2).

3. Research questions and predictions

As mentioned earlier, the Interpretability Hypothesis predicts that any uninterpretable features that are not shared in the L1 and the L2 will be especially problematic in L2 acquisition. Although the analysis of resumptive pronouns that Tsimpli and Dimitrakopoulou (2007) assume for Greek has not been previously extended to Arabic, there are no substantial differences between the languages that would logically prevent us from assuming such an analysis. Arabic, like Greek, is a null-subject language with subject agreement and object clitics. Furthermore, resumptives are used productively and can be considered to be, as in Greek, bundles of uninterpretable features.

Therefore, grounded in these notions, we can spell out predictions for Kuwaiti-Arabic learners of English, based on the Interpretability Hypothesis:

- In view of the analysis that resumptive pronouns[5] constitute bundles of uninterpretable features, we predict that Kuwaiti-Arabic learners of English will accept (ungrammatical) questions when a resumptive pronoun is present. Given that Kuwaiti Arabic resumptives are not only allowed but required in many cases, we would expect problems with the ungrammatical acceptance of resumptives to be particularly acute for the intermediate learners.
- Interpretable features such as animacy and d-linking are predicted to aid acquisition, so we would expect better rejection rates (as reflected by lower ratings in a Likert scale) for ungrammatical stimuli that involve animate and d-linked referents. These effects should be stronger at the lower levels of the proficiency spectrum. Additionally, based on Tsimpli and Dimitrakopoulou's predictions, learners might perform better with questions including the complementizer *that*.
- In view of the fact that English displays (uninterpretable) subject-verb agreement marked on the verb, we could find evidence of greater tolerance for subject (rather than object) resumptive pronouns, since learners could potentially misanalyse resumptives as the spell-out of agreement due to transfer.

4. Method

4.1. Materials

In order to test the predictions of the Interpretability Hypothesis, we designed a task to investigate the L2 accessibility of uninterpretable features, as indicated by the correct rejection of resumptives in English *wh*-questions. The task consisted of a contextualized grammaticality judgment task comprising thirty critical items and eleven fillers. Within the critical items, eighteen questions were ungrammatical (i.e. questions included resumptive pronouns) and twelve were grammatical (i.e. questions did not include resumptive pronouns). The fillers, which tested an unrelated structure, included both grammatical and ungrammatical questions, balancing out the total number of grammatical and ungrammatical questions (50-50) in the task. The task was administered on a computer.

In light of the fact that some of these questions would be strange in out-of-the-blue contexts, both critical items and fillers were preceded by short segments (approximately 10 seconds in length) of a silent film, which were shown on the computer screen.[6] As we have argued in the past, we believe that

[5] We limit our discussion here to 3rd person clitics and agreement. We refer the reader to Tsimpli and Mastropavlou (2007) for a discussion of the differences in interpretability between 1st and 2nd person vs. 3rd person.

[6] The clips were cut from Charlie Chaplin's silent film *The Gold Rush*.

providing this contextual material aids both comprehension and parsing, making the presentation of the stimuli more natural. After the short clips ended, participants read and listened to a question. Participants were then instructed to rate the question using a scale labeled: 1 (very strange); 2 (strange); 3 (natural); 4 (very natural). Participants also had the option to choose the answer "I don't know" when needed. For the L2 learners, the test was administered in a lab setting. The test itself was available through an online commercial surveying platform. The native speakers completed the task via the Internet using the same platform. There was no time limit for test items and decisions, although all participants were asked to complete the task as quickly as possible. Items were balanced and randomized for each participant. In order to examine the possible effects of interpretable features, and following the design of Tsimpli and Dimitrakopoulou's (2007) study, the conditions included in our study tested the effects of:

a) **animacy** (animate vs. inanimate);
b) **d-linked status** (d-linked vs. non d-linked *wh*-words)
c) **syntactic function** (subject vs. object)
d) **presence of complementizer** (presence *that* vs. null complementizers)

An example of an ungrammatical token (inanimate, non d-linked, object, complementizer present) can be found in example (9) below:

(9) CONTEXT (Video): Charlie Chaplin is seen on a snowy peak in mountain gear, reading a map, looking rather confused, trying to find directions.
Question: ***What do you remember that Charlie was reading it?***

Additionally, the L2 participants completed a shortened version of the Cambridge English Test, a standardized English proficiency task commonly used in L2 studies in order to determine the participants' proficiency level. The task consisted of 50 multiple-choice questions testing grammar and vocabulary. This task was administered after the GJT with videos. On average, L2 participants completed both tasks within an hour.

4.2. Participants

Thirty-two native speakers of English (NSE) and ninety Kuwaiti-Arabic speakers of English (ASE) (51 women) participated in the experiment. The data from one participant in the NSE group was discarded because (s)he judged each one of the stimuli as ungrammatical, including the fillers. The ASE participants were undergraduate students enrolled in a private liberal arts university in Kuwait who participated in the experiment for class credit. The independent proficiency test determined that there were thirty-nine participants who scored above the 70th percentile (35 points or above). These learners were classified as advanced ASE participants. The rest of the participants were classified as intermediate ASE. The range of the intermediate ASE proficiency scores was 12-34. No data points were discarded from either of the ASE groups. Table 1 includes the demographic details of the participants.

Table 1. Demographic information of the participants

	NSE n=31	Advanced ASE n=39	Intermediate ASE n=51
Mean Age (SD)	27.3 (12.9)	20.4 (2.3)	22.1 (3.9)
Mean Prof. Score (SD)	n.a.	40.92 (4.95)	27.5 (5.4)

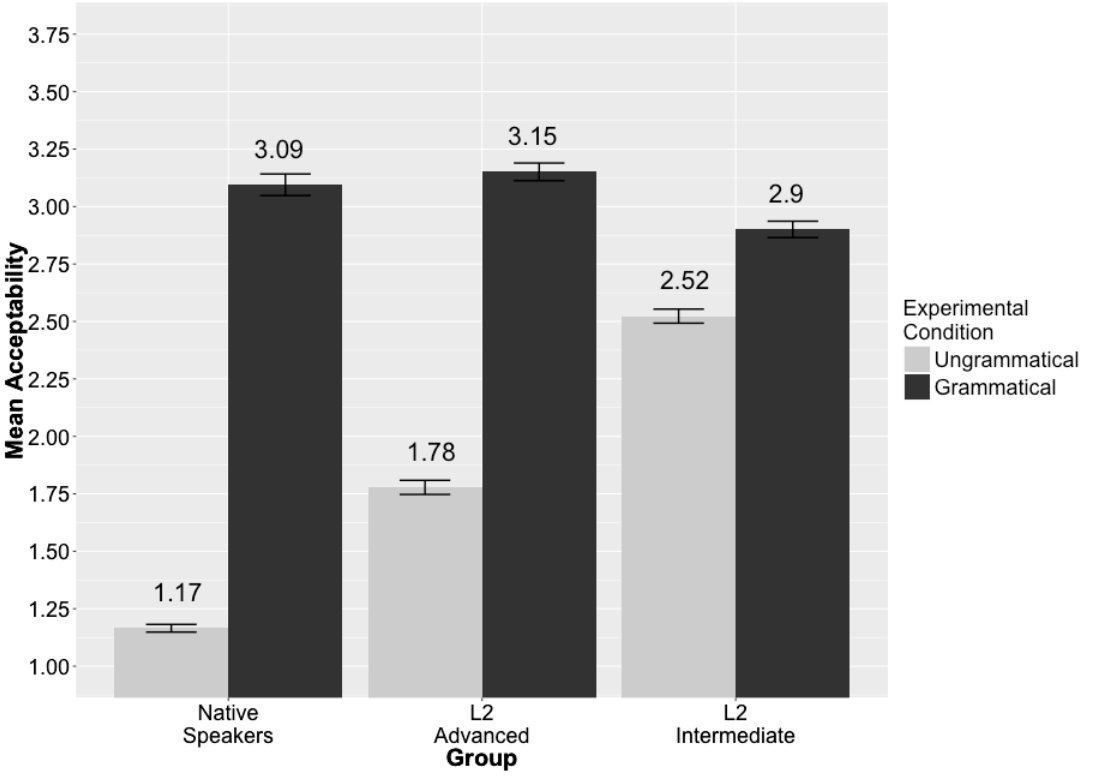
Nine participants (eight advanced ASE, one intermediate ASE) reported studying abroad for a month or more in an English-speaking country (one in Canada, one in Australia, and the rest in the

U.S.). No ASE participant reported living abroad in an English-speaking country for more than two years.

5. Results

Figure 1 presents the mean overall grammaticality judgments and standard errors of each group for both grammatical and ungrammatical tokens, without respect to condition. Light bars represent ratings of the grammatical stimuli, whereas dark bars represent ungrammatical-stimuli ratings. Following the reasoning submitted by Bley-Vroman (1983) and White (2003) regarding the Comparative Fallacy[7] in L2 acquisition, we focus here on the contrasts *within* the learners' grammar (i.e. the quantitative differences between the ratings of grammatical and ungrammatical stimuli), rather than focusing on determining quantitative differences between groups.

Figure 1. Overall mean grammaticality ratings of grammatical and ungrammatical stimuli



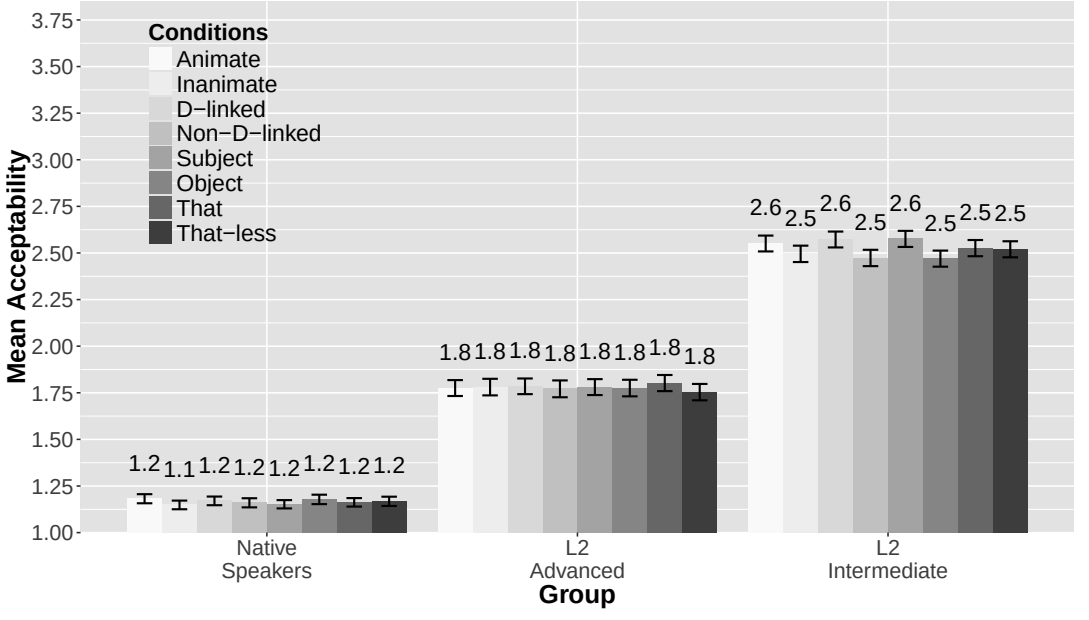
We conducted a repeated-measures ANOVA with **group** (NSE, advanced ASE, intermediate ASE), **condition** (animate/inanimate, d-linked/non d-linked, subject/object, complementizer present/complementizer absent) and **grammaticality** status (grammatical, ungrammatical) as factors. Tests revealed main effects of grammaticality status ($F_{1,118} = 467.48$, $p < 0.0001$) and condition ($F_{7,826} = 10.92$, $p < 0.0001$). Other interactions, including grammaticality*group, ($F_{2,118} = 69.57$, $p < 0.0001$); condition*group ($F_{14,826} = 7.92$, $p < 0.0001$), and condition*grammaticality ($F_{7,826} = 12.86$, $p < 0.0001$), were also statistically significant. More importantly, tests revealed a significant three-way

[7] In essence, the logic behind their reasoning promotes the practice of evaluating learners' grammars in their own right when it comes to the acquisition of grammatical properties, rather than comparing them to native grammars in order to determine whether interlanguage grammars are constrained by UG.

interaction between grammaticality, condition, and group ($F_{14,826} = 11.695$, $p < 0.0001$). Finally, Bonferroni pair-wise comparisons revealed that all the participants, regardless of group, made a significant distinction between the grammatical and ungrammatical stimuli in every condition (all alpha values $p < 0.0001$ except for the intermediate group in the subject and null complementizer condition, for which $p = 0.020$ and $p = 0.004$, respectively).

Although these data, prima facie, do not appear to support the predictions of the Interpretability Hypothesis, let us consider the effect interpretable features have on L2 acquisition and development. In other words, we should gauge how animacy, d-linking, syntactic function, and the presence/absence of the complementizer can affect the grammaticality ratings of the learners. In this regard, only the ungrammatical tokens are informative because the grammatical tokens could have different acceptability rates for other reasons. If L2 learners (especially the intermediate L2 learners) judge these ungrammatical questions differently in each condition, this could, in principle, be compatible with the predictions of the Interpretability Hypothesis, if these differences were in the direction laid out in the predictions (Section 3). Figure 2 illustrates the ratings for the ungrammatical stimuli for each group in every condition.

Figure 2. Overall mean ratings for *un*grammatical stimuli only, all conditions



Pair-wise Bonferroni comparisons revealed that there were no significant differences among the ungrammaticality ratings in all the different conditions (all alpha values $p > 0.05$ for all groups). That means that the positive development evident in Figure 2 (i.e. more native-like rejection of ungrammatical resumptive pronouns as proficiency increases) was not buttressed by interpretable features in either of the ASE groups.

6. Discussion

Our study examined whether, as proposed by the Interpretability Hypothesis, the subset of uninterpretable features that are not activated by the L1 are subject to maturational (i.e. critical-period) constraints and thus these are argued to be unavailable in L2 acquisition. In our investigation, we followed Tsimpli and Dimitrakopoulou (2007) and focused on the correct rejection of resumptive pronouns in English interrogatives by native speakers of (Kuwaiti) Arabic, a language where resumptive pronouns are grammatical and, in many cases, obligatory (Aoun et al., 2011 and our own research). We believe this choice of language pairings (Arabic—English) is perhaps more informative than investigating learners whose L1 only optionally accepts resumptive pronouns (i.e. Greek—English), especially if such an investigation does not focus on individual, L1-based differences (i.e. different rates of acceptability of resumption in the L1). In fact, this matter alone could, in principle, explain some of the differences in acquisitional outcomes in studies focusing on these language pairings (i.e. languages where the resumptive is obligatory vs. optional). As reviewed in the previous section, the results from our current study indicated that both the advanced ASE group and the intermediate ASE group made statistically significant contrasts between the grammatical (including no resumption) and ungrammatical (including resumption) stimuli. The control NSE group, as expected, also made a statistically significant distinction between these.

At the first instance and more globally speaking, these findings appear to contradict the predictions of the Interpretability Hypothesis. Additionally, the hypothesis makes predictions for specific avenues of positive development (i.e. more native-like behavior, as reflected in the correct rejection of the resumptive strategy). Namely, positive L2 development should be bolstered by interpretable features such as animacy and d-linking, which our task was developed to test. In this second tier of predictions, our results did not find evidence of an "interpretable" advantage, either, as all ungrammatical stimuli were rejected in equal measure, regardless of condition, in both the control and learner groups. In other words, learners did not perform significantly better when interpretable features were involved. In this regard, these findings are compatible with previous research on the knowledge of gaps vs. resumptive pronouns (Leal Méndez & Slabakova, 2014).

Previously, we submitted the notion that this language pairing (Kuwaiti Arabic—English) constituted an ideal ground to test the Interpretability Hypothesis because Arabic resumptive pronouns are required in many cases, rather than being optional (and perhaps even marked in the case of Greek, see Alexopoulou & Keller, 2002), as they appear to be in other null-subject languages such as Greek and Spanish. Following the predictions outlined in the Interpretability Hypothesis, then, we would expect for Arabic speakers of English to accept resumptives at a more elevated rate than Greek speakers of English. The results as described above, however, paint a very different picture. The learners in our study were able to discriminate between the ungrammatical and grammatical stimuli in every condition although at an admittedly higher rate than the NSE group.

One possible reason for a discrepancy between Tsimpli and Dimitrakopoulou's (2007) results and those reported on here could be that there were differences in the methodologies employed in each study. To wit, beyond the language pairings, our current study differed from Tsimpli and Dimitrakopoulou's (2007) investigation in at least two non-trivial ways. First, our study provided contextual material for the critical questions in the form of short silent-film clips. The clips offered the advantage of providing a context in terms of a plausible story, which we believe eases comprehension, without providing additional language. Thus, the observed lower accuracy performance of the Greek learners may be due to the fact that the critical questions sound strange when presented devoid of context, out-of-the-blue.

Another, perhaps more important way in which our test differed is that the ASE participants in our task were not under time pressure to produce responses. As currently formulated, the Interpretability Hypothesis does not make a claim that the asymmetries posed for interpretable and uninterpretable features would only emerge under time pressure. For this reason, we think our results can speak to the predictions of the hypothesis as presently stated. Tsimpli and Dimitrakopoulou's (2007) study, on the other hand, included a speeded grammaticality task, which surely imposes additional difficulties for learners. Therefore, it might be the case that different performance patterns would, in fact, emerge with

more time-sensitive tasks, such as a self-paced reading task. We are currently investigating such a possibility. If this turned out to be the case, then it could warrant further refinement for the formulation of the Interpretability Hypothesis. Nevertheless, it should be noted that most of the research on the Interpretability Hypothesis to date has been carried out with off-line measures, so this argument is, at the present time, merely speculative.

In their discussion of their (2006) study that tests the Interpretability Hypothesis, Hawkins and Hattori warn researchers against formulating premature interpretations based on the outcomes of behavioral measures. Based on the results from their own investigation, Hawkins and Hattori advise against presenting results that may only *appear* to be native-like on the part of the learners as confirmation of native-like representations. To wit, the authors argue that performance that appears to be native-like cannot be, wholesale, presented as evidence of native-like underlying representations. This point is valid and should be considered carefully. Indeed, as we have argued before (see Leal Méndez, Farmer, & Slabakova, 2014), it is difficult to argue that the behavioral outcome of any methodology could actually determine that the same systems and representations are at play both in L1 and L2 acquisition. Even if the patterns of responses (be it offline or online) were identical for the two groups, we cannot prove definitely that the grammatical representations and processes involved are indeed the same for both groups. That being said, it is hard to imagine that the outcomes of our task could be supportive of the Interpretability Hypothesis in its current formulation. Resumptive pronouns, although rare, do occur in English in cases described in the introduction, which could provide learners of languages such as Greek or Arabic with "evidence" for resumptives. Secondly, to the best of our knowledge, the presence of the resumptive pronoun (unlike in languages such as Hebrew, see Sharvit, 1999) does not bring about any semantic difference—either in English or in Arabic. In light of the fact that the presence of the resumptive could be considered then to be purely a syntactic reflex, it seems unlikely that this performance does not represent successful (un)learning of uninterpretable features in this case.

7. Conclusions

The generative study of L2 acquisition has been characterized by theoretically principled proposals and hypotheses which attempt to characterize and explain the interlanguage systems developed by L2 learners and, in this regard, the Interpretability Hypothesis has been crucial in terms of advancing our knowledge of the role that features play in L2 acquisition and development. Nevertheless, our results do not support the predictions of the hypothesis in its current formulation. Specifically, our experimental L2 groups showed evidence of successfully differentiating ungrammatical questions with a resumptive pronoun and grammatical questions without one. More importantly, however, we did not find any evidence that interpretable features such as animacy or d-linking aided development. Given that our study did not involve time-sensitive measures, it is an open question whether these conclusions would hold under time pressure, a prospect we intend to investigate in future research.

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