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Variability in L2 learning: insights from verb phrase ellipsis in Greek learners of English

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This study investigates variability in second language learning. It contributes new data to the ongoing discussion of whether L2 learners can acquire grammatical phenomena that are absent from their L1. We focus on knowledge of English Verb Phrase Ellipsis (VPE) in Greek advanced learners of English and explore reasons for variability in their performance. Greek does not have VPE of the English type and the subtleties surrounding its regulation make it unlikely that most learners can obtain these rules from the linguistic data available to them. If this is so, then the proficiency they illustrate must tap into underlying knowledge they already possess. We examine this knowledge by testing their judgements of (a) VPE sentence sets where there is strict parallelism between the antecedent and elided clause, (b) VPE sentence sets where this parallelism is disrupted, and (c) VPE sentence sets whose acceptability is mediated by the interpretability of the aspectual feature in the elided clause. 27 Greek learners of English and 30 L1 speakers of English undertook a sentence-completion judgement task similar to that of Hawkins (2012). Greek participants accepted VPE sentences in principle and rejected those ruled out by *recoverability* (Rouveret 2012). However, their judgements of examples mediated by interpretability did not demonstrate conclusively whether they could distinguish between *interpretable* (perfective) and *uninterpretable* (progressive) features in English. Our data provide fresh cross-linguistic support for L2 learners being able to acquire constructions absent from their L1 and to adhere to the restrictions that regulate them. However, they remain inconclusive as to whether it is a sensitivity to feature interpretability that answers for the variability evident in their responses to (c), a finding that merits further testing.

1 Variability in L2 Learning

This study investigates variability in second language (L2) learning, namely the discrepancy between a person's first (L1) and second language abilities, and whether the knowledge gap between these languages can ever be closed. Knowing whether an L2 learner can ultimately attain a native-like representation of the L2 they are learning has practical implications for L2 teaching methodology and targets: decisions between the amount of time spent attempting to instil knowledge of principles versus time focused on compensatory strategies are easier to make if a teacher understands what a student has recourse to, and the setting of achievable goals also becomes possible and expectations more manageable. This question – the nature of the linguistic inventory an L2 learner can tap into once their L1 grammar is acquired – has been addressed in several theoretical accounts. According to some accounts, an L2 learner can exploit the very same linguistic inventory they used for their L1 (see Schwartz & Sprouse 1996; White 2003). Differences in learners' L1 and L2 attainment are explained by appealing to concepts such as deficient input and interference from L1. A more restricted approach is put forward in the Feature Assembly Hypothesis (Choi & Lardiere 2006; Lardiere 2009), which states that the available inventory is characterised by features that are set according to L1 specifications. The learnability problem is stated as a challenge to reconfigure these features when L1 and L2 specifications are at odds with one another. A still more restricted view of ultimate attainment is that the computational system is in effect 'closed off' after a certain period (e.g. Hawkins & Chan 1997), and, more specifically, that features of an L2 that are not present in that learner's L1 will never be acquired, as in Tsimpli and Dimitrakopoulou's (2007) Interpretability Hypothesis. The prognosis for a learner restricted in this way is that if they are learning a language that has constructions that are absent from their L1, their ultimate L2 attainment will be deficient. A number of studies has tested the empirical reach of these theories (see Domínguez et al. 2011 on Spanish perfective/imperfective aspect; Belletti et al. 2007 on subjects in Italian; Méndez & Slabakova 2014 on resumptive pronouns; Schmid et al. 2014 on voice onset time, vowel discrimination and VPE) and our study contributes to this literature.

Our focus in this paper is on the latter approach, namely the Interpretability Hypothesis, which proposes that features which contribute to the interpretation of a sentence string (interpretable features), are universally available to L2 learners but those that are merely markers of agreement and so do not contribute to interpretation (uninterpretable features) are not (Tsimpli & Dimitrakopoulou 2007). We assessed this claim by focusing on Greek speakers' knowledge of English verb phrase ellipsis (VPE) as exemplified in (1) below.

(1)   Nerea read the book about ellipsis. Begonia did ___ too.

As a construction that is subject to lexical, syntactic and discourse constraints, VPE allows us to distinguish between aspects of grammar that L2 language learners can acquire from those they cannot (see Al-Thubaiti 2019). Greek does not allow VPE in the same way that English does,

despite allowing arguments to be dropped in specific circumstances (Merchant 2018; Paparounas & Sitaridou 2019) so by concentrating on Greek speakers' knowledge of this construction in English, it is possible to assess whether they can acquire a grammatical phenomenon that is absent from their L1, that is not taught explicitly, and, as we shall illustrate, whose subtle variations are not entirely deducible from the linguistic data surrounding them. A further reason to investigate VPE is that the elided material in English VPE can contain interpretable or uninterpretable features, so by manipulating these clauses according to this variable, we can test if Greek L2 learners of English distinguish between them when making acceptability judgements. Their judgement patterns can help us gauge whether syntactic features not instantiated in Greek can nevertheless be recognised and integrated into their developing grammar. As such, our study feeds into the aforementioned debate about what restrictions there are on the grammatical properties an L2 learner can acquire and what the source of these restrictions is (White 2003).

The next section illustrates the properties of VPE that are relevant to the variability under consideration and sets out the trigger for our study and its precursor, namely Hawkins (2012), which first examined this phenomenon. We then set out our research questions and explain our methodology.

2 Verb Phrase Ellipsis

English VPE is a well-studied phenomenon. It refers to constructions in which the main predicate of a clause is elided, together with any internal arguments it has, as in (2). Despite the absence of the material in the ellipsis site (illustrated by '[e]'), this elided material can only be understood as a consideration of whether *Javier* will attend the party, which implies that the elided site 'recovers' its meaning from the antecedent clause. For this reason, the elided material is better described as unpronounced, rather than missing.

(2)   Reshmi will attend the party. I don't know if Javier will [e].

English VPE can be licensed by INFL, such as the modal verb in (2) above, an auxiliary verb, as demonstrated in (3), or the infinitival marker *to,* as seen in (4). However, as (5) demonstrates, it is not permissible with a lexical verb.

(3)   Mara travelled to Kenya last summer and Fernando did [e] too.
(4)   Gloria wants to offer Alessandro a job but Manolo doesn't want to [e].
(5)   *Pedro bought a whole pizza and Jorge bought [e] too.

In Greek, neither auxiliary verbs (6) nor lexical verbs with definite objects (7) license VP ellipsis.

(6)   *H   Souzana   ehei   diavasei   to 'Polemos kai Eirini', ala
        the F.NOM.SG susan.NOM.SG   have.PRES.3SG read-PFV   the War and Peace   but
        h   Maria   den   ehei.
        the F.NOM.SG Maria.NOM.SG   not   have.PRES.3SG

(7)   *O   Giorgos   ekane   ta   mathimata
         the M.NOM.SG   George.NOM.SG do.PST.3SG the ACC.N.PL lessons.ACC.N.PL
         tou   otan   mpika   sto saloni,   and   h
         his.POSS.3SG   when   enter-PST.1SG   in the living room, and   the F.NOM.SG
         Matina   ekane   episis.
         Matina.NOM.SG do.PST.3SG   too.

(8)   Efere   o   Nikos   ta   vivlia?
         bring.PST.PFV.3SG the.M.NOM.SG   Nick.NOM.SG   the.ACC.N.PL   book.ACC.PL
         'Did Nikos bring the books?'
         Ne, *(ta)   efere.
         yes   them   bring.PST.PFV.3SG
         'Yes, he brought them.'

                                                    (Paparounas & Sitaridou 2019: 2)

However, Greek does occasionally allow instances of ellipsis with copula verbs and some lexical verbs with indefinite objects.

(9)   Ο   Πέτρος   είναι   ικανός, αλλά   ο   αλέξανδρος   δεν
         Petros be.PST.3SG capable, but   the.M.NOM.SG Aleksandros the.M.NOM.SG NEG
         είναι __.
         be.PST.3SG
         'Petros is capable, but Alexander isn't.'

                                                      (Merchant 2018: 229)

(10)   O   Nikos   mazepse   fraules   ke
         the.M.NOM.SG Nick.NOM.SG picked.PST.PFV.3SG strawberry.ACC.PL and
         o   Kostas   pulise __ .
         the.M.N.SG   Kostas.NOM.SG   sell.PST.PFV.3SG
         'Nick picked strawberries and Kostas sold [strawberries].'

                                             (Paparounas & Sitaridou 2019: 3)

Different analyses have been offered for these examples. Whereas in Merchant (2018) they are described as verb-stranding ellipsis, Paparounas & Sitaridou (2019), claim that they are best viewed as argument ellipsis. For present purposes, what is important is that the constructions given to our participants did not have these implicit arguments.

For example, (10) below, would be ungrammatical in Greek, as (11 a and b) illustrate.

(10)   (a) George chose a lovely present for the wedding gift. *Frank thought that Maria did too.*
        (b) Maria chose a lovely dress for the charity dinner. Peter said that Sally has too.

(11) (a) O   Yórgos thialekse ena   ómorfo δóro
           the.M.NOM.SG George   chose.PST.PFV.3SG a.ACC.SG lovely present.ACC.SG
           gia δώρο γάμου.   *O   Nikos   ipethese
           for the wedding gift. the.M.NOM.SG   Nick.NOM.SG   assumed.PST.PFV.3SG
           óti   ke   i   Maria thialekse.
           that   and   the F.NOM.SG   Maria chose.PST.PFV.3SG.

      (b) I Maria   thialekse   ena   ómorfo foréma
           the F.NOM.SG Maria   chose.PST.PFV.3SG a.ACC.SG lovely dress
           gia to filantropiko deipno. *O   Petros ipe
           for the charity dinner.   the.M.NOM.SG   Petros said.PST.PFV.3SG
           óti   ke   i Eleni   échi.
           that   and   the.F.NOM.SG   have.PRES.3SG.

Only when the entire TP is elided, as in (12), leaving just the remnant – which is usually the subject or object – and apolarity marker stranded, do these sentences improve (Kolokonte 2008).

(12) H   Maria diavase   to   kainourio biblio pou
      the F.NOM.SG Maria read.PST.3SG   the.ACC.N.SG new   book   that
      egrapses   ala   o   Markos   ohi.
      write.PST.2SG but   the.M.NOM.SG Markos.NOM.SG not.
      'Maria read the new book you wrote but Markos didn't.'

Since Modern Greek does not license the type of VPE available in English (Kolokonte 2008, Paparounas & Sitaridou 2019), ascertaining whether Greek learners of English can learn this construction contributes well to the question of whether L2 learners can acquire a linguistic phenomenon that is absent from their L1. However, to understand the acquisition hurdles facing a learner of this construction, we should first illustrate the constraints that regulate VPE. With that in mind, we turn first to what are conventionally termed as the 'parallelism constraints' that regulate VPE.

In the PF-deletion approach to VPE adopted here, the elided material is represented syntactically but not pronounced (see Chomsky & Lasnik 1993; Lasnik 1999; Kennedy & Merchant 2000; Merchant 2001; Kennedy 2003; Merchant 2004). An additional morphosyntactic and semantic parallelism is often argued to hold between the elided material and the antecedent clause. The examples in (13) illustrate this point. (13a) is acceptable because both the elided material and the antecedent sentence are in the passive voice. A mismatch in voice between the two sentences in (13b), however, renders the result less felicitous.[1]

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[1] Similar mismatches occur with intransitive verbs (see Hawkins 2012: 411, examples (15), (16)).

(13) (a) Many innovative ideas were praised in this year's International Architecture Competition. I don't know if Jimena's idea was [e] (praised).
      (b) The committee in this year's International Architecture Competition praised many innovative ideas. I'm not sure if Jimena's idea was [e] (praised).

However, not every morphosyntactic mismatch between the antecedent sentence and elided clause leads to ill-formedness, as (14) and (15) illustrate, which runs counter to the aforementioned parallelism constraint. Here, the antecedent sentences contain a simple past and present perfect respectively, neither of which match the uninflected elided verb. Despite this mismatch, the sentences are felicitous:

(14) Jimena **passed** the physics exam. Maribel will [e] too.
                                            [**pass** the exam]

(15) Begonia **has offered** Maria the job. Marco will [e] too.
                                     [**offer** Mary the job]

Lasnik (1995) dealt with this anomaly by appealing to regulations that operate at different levels of a sentence's derivation. He proposed that the parallelism constraint regulating the dependency between the two sites held prior to the application that combined bare stems with their affixes. To illustrate, prior to this application, the representations of (14) and (15) would be as in (16) and (17), respectively. These examples show that at this point in the derivation parallelism between the verbs holds; this allows meaning to be recovered, and in turn predicts their acceptability.

(16) Jimena passed the physics exam. Maribel will too.
            -ed [pass the physics exam]   [~~pass the physics exam~~]

(17) Begonia has offered Maria the job. Marco will too.
            -en [offer Maria the job]   [offer Maria the job~~]~~

In contrast, examples like (18) are expected to be bad because the progressive affix in the VP marked for deletion is at odds with the affix in the antecedent sentence.

(18) Dina devoured the pizza. # Anna was [e] too.
            -ed [devour the pizza].   -ing [devour the pizza]

Lasnik's account extends to another infelicitous example of VPE involving copula *be*:

(19) Dina's application for promotion was successful. # I'm sure yours will [e] too.

L1 speakers generally dislike these examples (see Hawkins 2012; Al-Thubaiti 2019), a judgement that falls out from a proposed lexical difference between inflected main verbs and inflected copula forms. The former are inflected in the syntax (through affix hopping) whereas the latter are stored inflected in the lexicon so when entering the derivation, they merge directly with a non-affixal INFL category. Since the copula verb is inserted as is, there is no level at which

syntactic identity holds between the antecedent and the elided clause, thereby breaching the parallelism constraint.

A sticking point in this account is that one would expect VPE with a perfective form in the elided clause, (20), to be judged on a par with VPE with a progressive form in the elided clause (21), contrary to fact.

(20)   The customer filed a complaint for the poor service. Other customers have too.
                +past [file a complaint]   [+perf file a complaint]

(21)   The customer filed a complaint for the poor service. As we speak, #other customers are too.
                +past [file a complaint]   [+progr file a complaint]

L1 English speakers consistently dislike (21) and find (20) substantially better. This is strange as in neither example is parallelism upheld, which should predict both to be rejected. In this case then, the account underpredicts. However, a principle that anticipates these different judgements is formulated in Rouveret (2012), which introduces the notion of interpretability as a pivotal factor governing recoverability of elided material and so whether or not the elided material is licit:

(22)   Principle of Recoverability
        An elided constituent cannot contain any non-recoverable interpretable feature.

                                                                                        (Rouveret 2012: 900)

Rouveret (2012) suggests that the criterion that feature interpretability is based upon is the meaning contribution of these two affixes. In English, the *-en* affix does not convey the perfective meaning, as it occurs both in perfective verb forms (e.g. *have eaten*) and passive forms (e.g. *be eaten*). The perfective meaning can be found on the auxiliary verb and not the affix *-en*. In contrast, the *-ing* morpheme only occurs in progressive verb forms (e.g. be eating) so it is assumed that *-ing* rather than *be* carries the progressive interpretation, and as a result, it bears an interpretable feature.

Thus, according to his line of thought, in (20) the perfective feature on the unpronounced participle is purely an agreement feature (valued by the interpretable feature on the main verb *has*). Since *-en* does not contribute to meaning, it is uninterpretable so irrelevant to (22), which is only concerned with interpretable features. However, example (21) does not escape the principle because the progressive feature makes a semantic contribution, signalling the progressive reading. As an interpretable feature, it is needed to compute the material but since its meaning cannot be recovered from the antecedent clause, it violates (22) and is correctly barred. This distinction between uninterpretable and interpretable features neatly captures native speakers' graded judgements, who rate examples like (21) as worse than (20). If it is the case that L2 speakers also follow this constraint, they should be able to discern the subtle distinction between

(20) and (21). This will depend not only on their ability to acquire VPE per se but also on whether or not the progressive and perfect features in their L1 are interpretable. If the interpretability values of these features in their L1 differ from those in English, this distinction will serve as a good testing ground for ascertaining which features can be acquired and which not.

3 VPE and L2 Learning

So far, we have illustrated some key restrictions on VPE, focusing particularly on the constructions that the present study will assess. They are summarised in **Table 1**. We have seen that English VPE is permissible when strict morphosyntactic parallelism holds between the antecedent and elided clause, as in (A) and (E), but it is illicit when there is a finite lexical verb (B) and infelicitous with an inflected form of the copula verb, as in (F). We have also attributed the subtle contrast between (C) and (D) to the interpretability of the progressive marker versus that of the perfective.

	Sentence Type and Example
A.	VPE Strict Identity George chose a lovely present for the wedding gift. *Frank thought that Maria did too.*
B.	*VPE Stranded Verb Anne chose a great card for the history teacher. *Sally hoped that David chose too.*
C.	VPE Simple Past/Present Perfect Maria chose a lovely dress for the charity dinner. *Peter said that Sally has too.*
D.	#VPE Simple Past/Past Progressive Peter chose a nice wine for the picnic basket. *David said that Anne was too.*
E.	VPE Simple Past/Future or Modal Frank chose a younger child for the poetry prize. *Sally thinks that Peter should too.*
F.	#VPE Copula/Future or Modal David is absolutely exhausted. *Frank says that Maria must too.*

Table 1: Summary of Restrictions in VPE.

Clearly, English VPE is a complex phenomenon with specific parallelism and recoverability conditions involving the syntax-lexicon interface and the syntax-discourse interface, which makes it an exciting topic for investigation in SLA. Our interest is twofold: to examine if Greek speakers acquire this phenomenon at all, and if they do, to find out whether this acquisition is complete or restricted by feature interpretability. Note that the linguistic evidence available to them is scarce. Firstly, the complicated syntactic constraints outlined above are not taught in classrooms and second, these are not generalisations a typical learner could draw from linguistic data they encounter. An example will corroborate this second point. A VPE sentence like (B) in **Table 1** is ungrammatical. However, some transitive verbs in English seem to permit being stranded without their arguments.

(23)   Jack wrote Jill a letter. Mary wrote too.   (Hawkins 2012: 406)

Such examples, in fact, involve so-called 'null arbitrary objects', indicated by their permissible readings: the elided clause cannot mean 'Mary wrote Jill a letter too' only that 'Mary wrote something else', as Hawkins illustrates (Hawkins 2012: 406). There is nothing to help learners distinguish between licit sentences with null objects as in (23) and ungrammatical VPE sentences in (B) of **Table 1**. If the learners recognise the ungrammaticality of (B), this demonstrates that they have acquired the basic licensing conditions of ellipsis. In addition, if their judgements on (D) and (F) are also target-like, it would indicate that they follow the recoverability principle, judging them as ill-formed because in both instances, the elided phrase's content cannot be recovered from the antecedent clause.

A further issue concerns the distinction between (C) and (D) in **Table 1**. Understanding the precise conditions of VPE licensing and recoverability is not enough to distinguish these two examples, which we have seen depends upon the interpretability of the aspect in question. If both languages share the same interpretable features, one might expect knowledge to transfer across but if not, the question arises as to whether these feature mismatches can be reconciled in the learner's L2 grammar.

Regarding the progressive feature, Greek does not have a specific affix that marks the progressive. The progressive interpretation is conveyed by the context, as in (24), and/or adverbials as in (25).

(24)   -Πού   είναι   η   Μαρία?
         Where   be.PRES.3SG   the.F.NOM.SG   Maria?
         'Where is Maria?'

         Είναι   ςτο δωμάτιο της   και διαβάζει.
         (She) be.PRES.3SG   in   room   her.POSS.3SG   and study.PRES.3SG
         'She is in her room and she is studying.'

(25)   O   καθηγητής   μιλάει   εδώ και μια ώρα.
         The.M.NOM.SG   professor.NOM.SG   talk.PRES.3SG   for an hour.
         'The professor is talking for an hour.'

With respect to the perfective, the present perfect is formed by the verb *εχω* 'have' in the present tense, followed by the third person singular of the past subjunctive form of the verb. This is a dependent form that carries the features of [+perfective] [–past] (see, for example, Holton et al. 2012). The past subjunctive is formed by the aorist stem plus the suffix *-ει*, as in (26). In contrast to English, this form **does** carry an interpretable feature: it distinguishes between the active (26) and passive voice (27) (Varlokosta et al. 2006).

(26) ἔχει   γράψει
      have.PRES.3SG PAST.3SG.SUBJ
      's/he has written'

(27) ἔχει   γραφτεί
      have.PRES.3SG PAST.3SG.SUBJ. PASS
      'it has been written'

If Greek speakers distinguish between examples such as (C) and (D) in **Table 1**, it would indicate that they recognise the uninterpretability of the perfective aspectual feature in English and consequently, that they can acquire uninterpretable features not instantiated in their L1. In contrast, if these uninterpretable features are no longer accessible to them, as the IH predicts, then we expect these sentences to cause learnability problems, even at advanced stages of L2 acquisition, what Al-Thubaiti (2019) refers to as 'selective vulnerability'.

Hawkins (2012) examined the acquisition of English VPE by collecting L1 Mandarin and L1 Saudi Arabic speakers' grammaticality judgements of VPE sentences. Aligning with analyses that classify Mandarin and Arabic as lacking verb-stranding ellipsis (Aoun and Li 2008),[2] Hawkins asked whether the learners could acquire this grammatical phenomenon at all, and if so, whether they showed evidence of having acquired the more subtle contrasts, as discussed above. Results were mixed. First, both groups demonstrated knowledge of VPE constructions generally; this was evident from their acceptance of examples similar to (A) in **Table 1** above and rejection of those represented by (B). However, on probing them with different VPE constructions, for example, where the material in the elided clause did not parallel that in the preceding sentence, their judgements departed from L1 English speakers in important ways. Specifically, whereas L1 speakers drew the predictable contrast between examples similar to (C) and (D) in **Table 1**, the Mandarin speaking and Saudi Arabic speaking groups did not, judging them as equally bad.

If neither Saudi Arabic nor Mandarin have an uninterpretable perfective feature, a ready explanation for why the L2 groups did not distinguish between these examples was that the uninterpretable feature in question had not been instantiated in their grammar. In other words, the Saudi Arabic and Mandarin speakers were treating *-en* and *-ing* similarly, namely as having interpretable features. Appealing to the Interpretability Hypothesis, Hawkins (2012) suggested that their performance was consistent with the uninterpretable feature of the perfective *-en* remaining inaccessible to them. A caveat posited was that a similar pattern being exhibited by highly advanced learners of English would be necessary to support this claim. Al-Thubaiti

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[2] For arguments against the presence of verb-stranding ellipsis in Jordanian Arabic, see Al Bukhari (2016), and in Libyan Arabic, see Algryani (2012). The lack of verb-stranding ellipsis in Chinese has been argued for in Cheng (2013) and Wu (2016), and for Japanese, in Tanabe & Kobayashi (2024). For further arguments against the existence of verb-stranding ellipsis, see Landau (2020; 2023).

(2019) did just this with 34 highly proficient Saudi Arabic learners of English. Using a bimodal timed acceptability judgement task, she found her participants also judged sentences with *-en* and *-ing* as equally bad. This latter study, therefore, provides stronger support for the selective vulnerability of L2 speakers with respect to the grammar-internal property of interpretability.

The ability of L2 speakers to acquire an elliptical construction not present in their language has been investigated in other languages as well. Duffield et al. (2009) examined advanced learners of English, with various L1s that are argued not to instantiate English type VPE either, such as Dutch, Spanish and Japanese. Their participants undertook a sentence completion task consisting of VPE sentences (and other structures not directly relevant to the current discussion) where parallelism had or had not been disrupted. Amongst other questions, they asked whether the learners' judgements implied that they had grasped the VPE construction, and whether they exhibited parallelism effects, namely preferring undisrupted examples of VPE to disrupted ones. Results were mixed: Dutch speakers showed a high acceptance of VPE as well as strong parallelism effects, whereas the Spanish and Japanese speakers gave much lower acceptance ratings for VPE yet still demonstrated parallelism effects. Of particular relevance to our study was that the Dutch speakers' high performance on English VPE shows that it is possible for a construction that is entirely absent in a learner's L1 to be acquired. Koyama (2016), who also studied Japanese learners' knowledge of English VPE (using a sentence acceptability judgement task), found that her participants accepted grammatical VPE constructions, too. However, what was unusual in her study was that the participants did not reject VPE with a finite lexical verb, which is ungrammatical in English. Koyama pointed to the availability of object drop in Japanese, which might have been influencing their judgments. However, as the study did not refer to the level of these learners' English, it is difficult to ascertain whether this was a passing phenomenon or indicative of a more permanent impasse. In the next section, we turn to our research questions, which built on this literature.

4 The Current Study

This study extends the research on the topic of selective vulnerability by examining Greek advanced learners of English. Modern Greek not only lacks VPE but also marks aspect differently from English, thus contributing to the cross-linguistic data available thus far. Testing speakers who have reached a higher level of proficiency is also important. Unlike Hawkins (2012), incorporating speakers of higher proficiency will enable us to see if the relevant features are problematic even at advanced stages of language acquisition. We also test a larger range of VPE sentence types and increase the number of tokens, thereby assessing the empirical reach of previous findings. Our research questions are as below.

(I)   Do Greek speakers demonstrate knowledge of English VPE despite not having this construction in Greek and despite lacking positive evidence?

Given the aforementioned data on Mandarin and Saudi Arabic speakers, we expect they will. The relevant evidence would come from their judgements of VPE in which there is a strict parallelism between the antecedent and the elided clause and of non-VPE control sentences. If VPE has been acquired, Greek speakers should judge these constructions similarly. In addition, they should reject ungrammatical cases of VPE with a finite lexical main verb in the elided clause.

(II)   Do Greek speakers conform to the principle of recoverability?

The supporting evidence would come from Greek speakers' judgements of graded VPE sentence sets that lack strict parallelism between the antecedent sentence and the elided clause. If they adhere to the recoverability constraint, when the elided clause houses an interpretable feature whose content cannot be recovered from a feature in the antecedent sentence, they should pattern with L1 English speakers and give these sentences low ratings.

(III) Do Greek speakers treat the perfective feature in English as uninterpretable despite it being interpretable in Greek?

The telling evidence would come from their judgements on sentences with perfective aspect in the elided clause. Specifically, if they have demonstrated their adherence to recoverability, as per (II), their judgements of the perfective forms should be different from their judgements of the progressive forms. That is, they should prefer the perfective over the progressive. If, however, they rate the perfect and progressive equally badly, this would be evidence for their treating the perfective affix as interpretable.

5 Method

5.1 Participants

We used opportunity sampling, where 35 Greek adults (students and staff) were recruited from the University of Kent, UK and the American College of Greece, Athens (mean age, 34, SD, 11, range 21 to 55) of which 19 were female. We administered the Oxford Online Placement Examination to ascertain the Greek speakers' level of English. It comprised two components: a) Use of English and b) Listening. Each component of the test gives an individual numerical score and this score corresponds to one of the levels of the CEFR framework. There is also a composite score for both components. Speakers who scored C1 or above (which equates to an advanced proficiency level according to the CEFR) in each component were included in the study. Those scoring lower (B2 and below) in any of the two tests were excluded. This left us with 27 Greek speaking participants. 30 adult L1 English participants (students and staff) were recruited predominantly via the University of Kent of which 21 were female (mean age, 37, SD 14, range 21 to 55).

5.2 Materials

5.2.1 Sentence Completion Judgement Task

In line with previous studies of VPE (see Duffield et al. 2009), we used a sentence completion judgement task. Taking Hawkins (2012) as a starting point, we constructed novel sentence sets, tested a larger number of tokens on a larger number of participants, who were classified as

advanced. For this task, participants read one contextualising sentence, which was followed by the target sentence that they then had to rate according to how natural and accurate it felt. Our trial items comprised a range of VPE sentences as experimental items, as well as control and distractor items. To draw clearer comparisons between our and Hawkins' study, we also adopted categorical coding for judgements, where participants chose between the following options: perfect, possible or impossible. We described these options in the following way:

Perfect: The sentence feels like a perfectly natural sentence of English.

Possible: The sentence does not feel perfectly natural and you probably would not say it yourself but you could imagine a native speaker of English saying it.

Impossible: The sentence is not one you would say, and you would not expect to hear native speakers of English saying it either.

We constructed the task using PsychoPy (Peirce et al. 2019). Like Hawkins (2012), the clause in which the VPE occurred was in a different sentence from the antecedent, and as the VPE was placed in an embedded clause, it was separated from the antecedent further. We designed the present task so that a whole trial remained visible on the screen until the participant had made their choice and pressed the key to take them to the next trial. In this way, they had ongoing access to the discourse preceding the elided material while making their judgement. We followed Hawkins by incorporating a word recall task, which was included to encourage careful reading of the sentences and to mask the purpose of the experiment: after every five experimental trials, participants were presented with a list of six words, where two had not appeared in the previous five trials. They then had to select which two of the six words these were. Whether they gave right or wrong answers was not indicated. Once they had made their choice, they pressed a key which took them to the next trial. We created four versions of the whole task with different sentence orders to control for ordering effects. The complete list showing the different verbs used across trials is in the appendix. There were ten experimental sentence types and three control sentence types, with four tokens of each. With thirteen distractor items added, this amounted to 65 trials. Distractor items were discarded prior to analyses.

An example of each sentence type is shown in **Table 2**. The first type used examples where strict identity held between the antecedent and the elided clause (see 1).[3] The second type did not disrupt the identity but replaced the auxiliary in the elided clause with a stranded finite lexical verb (2), which is expected to be rated as ungrammatical. A question raised in Hawkins (2012) was whether participants' VPE distinctions between (1) and (2) would extend beyond *did* or if

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[3] In some studies (e.g. Al-Thubaiti, 2019), the term strict identity is used to refer to when the antecedent and the elided clause have an identical form, for example, (i) Bruce can design a webpage and George can too (Al-Thubaiti 2019:234). However, in Hawkins (2012), strict identity refers to 'parallelism between past tense clauses and full recoverability of elided material before morphological merger and insertion of phonological exponents' (2012: 424). Here, we follow Hawkins' definition as some of our test sentences were modelled quite closely on his.

	Sentence Type and Example	Number of Tokens
1	VPE Strict Identity George chose a lovely present for the wedding gift. *Frank thought that Maria did too.*	4
2	*VPE Stranded Verb Anne chose a great card for the history teacher. *Sally hoped that David chose too.*	4
3	VPE Simple Past/Present Perfect Maria chose a lovely dress for the charity dinner. *Peter said that Sally has too.*	4
4	VPE Present Perfect/Simple Past Donna has chosen a guest speaker for the linguistics conference. *Sally heard that David did too.*	4
5	#VPE Simple Past/Past Progressive Peter chose a nice wine for the picnic basket. *David said that Anne was too.*	4
6	VPE Past Progressive/Simple Past Sally was choosing a new dress for the school prom. *Frank hoped that Anne did too.*	4
7	#VPE Present Perfect/Present Progressive George has chosen a new suit for the graduation ceremony. *Donna thought that Peter is too.*	4
8	VPE Present Progressive/Past Perfect Frank is choosing a suitable candidate for the town elections. *David heard that Maria already has.*	4
9	VPE Simple Past/Future or Modal Frank chose a younger child for the poetry prize. *Sally thinks that Peter should too.*	4
10	#VPE Copula/Future or Modal David is absolutely exhausted. *Frank says that Maria must too.*	4
11	Control for VPE Strict Identity Frank chose a new tie for the job interview. *Maria hoped that George chose a new tie for the job interview too.*	4
12	Control for VPE Past Progressive Maria chose a popular candidate for the council elections. *George hoped that Anne was choosing a popular candidate for the council elections too.*	4
13	Control for VPE Copula David is absolutely exhausted. *Frank says that Maria must be absolutely exhausted too.*	4
14	Distractor Items Sally trusts Peter. *Anne thinks that Maria trusts himself too.*	13

Table 2: Test Items.

they were restricted to this one stock phrase. He tested this question by adding examples with the future tense *will* in the elided VP. We extended this further by using four different modals (*will, should, must* and *can*) in the elided clause (see 9). As in Hawkins, these were compared with examples of ungrammatical VPE with a finite lexical verb (2). Sentence types (3) and (4) represent cases where parallelism has been disrupted through a mismatch in tense and perfective aspect in the clauses. In (5), a similar disruption occurs but this time with the interpretable progressive feature in the elided clause. Type (6) is similar to (5) but the progressive feature occurs in the antecedent clause rather than in the elided one. Again, going beyond Hawkins' sentence types, we included VPE examples which did not use the simple past to explore the consequences of mismatches between the perfective and progressive more fully. With that in mind, we added (7) and (8), which alternated between progressive and perfective features in the antecedent and elided clauses. Finally, to test the effect of parallelism on copula verbs, we included sentences with the copula verb in the antecedent clause (10). The sentences in (11) to (13) comprise control items and those in (14) are distractors.

Table 3 illustrates the word recall task. This instruction occurred after every five trials, amounting to 13 word recall trials in total.

Instruction	Example Choices
Select any word that did not appear in the five stories you have just read.	table council tie orange history moose

Table 3: Word Recall Task.

5.2.3 Procedure

L1 speakers of English only completed the SCJT. The task was preceded by an explanatory paragraph and participants were told that although they were not being timed, they should try to offer spontaneous judgements and not deliberate too long over their decision. They were given three example sentences that had been allocated to one of the three judgement categories (perfect, possible, impossible) to familiarise them with the measurement scale. At the end of the task, they filled in a brief language history questionnaire, which collected information on age, gender, educational level, and knowledge of additional languages. The Greek participants also answered questions about the circumstances surrounding their learning of English. They completed the SCJT at least a week before the OEP test.

5.2.4 Scoring and Analysis

To draw clearer comparisons between our data and the data in Hawkins (2012), we adopted a similar scoring method. Participants' ratings – 'perfect', 'possible', 'impossible' – were assigned the numbers 1, 2, and 3, respectively. In the current study, each sentence type included 4 tokens,

which meant that for each of these sentence types a participant's score could range from 4 (if they had rated all 4 tokens as impossible) to 12 (if they had rated all 4 tokens as perfect). Our data were ordinal so we used medians to describe the central tendencies, ranges to measure the variance and non-parametric inferential statistics to compare responses. The Wilcoxon matched-pairs signed-ranks test was used because for each analysis, we compared rankings of the same participants' total scores on two sentence types. That is, our aim was to ascertain if L2 speakers patterned qualitatively with L1 speakers in distinguishing between grammatical and ungrammatical instances of VPE and felicitous and infelicitous instances of VPE rather than to assess quantitative differences between the two groups (see Hawkins 2012 and White 2003).

6 Results

6.1 VPE licensing

Our first question was whether Greek participants would demonstrate knowledge of English VPE despite not having this construction in their L1. We first compared judgements on VPE that had strict parallelism with judgements on VPE control sentences. We expected both language groups to award both constructions high scores. **Table 4** displays the medians, ranges and outcomes of the Wilcoxon test for each group. It shows that L1 speakers gave very high scores to both constructions (maximum is 12) but they preferred VPE sentences over the rather long-winded control items. The Greek judgements patterned similarly: both constructions were rated very highly but the VPE sentences were preferred. Important for present purposes is that their high ratings of the VPE sentences indicated that Greek speakers permit VPE in English, despite its absence in their L1.

(a) George chose a lovely present for the wedding gift. *Frank thought that Maria did too.*			
(b) Frank chose a new tie for the job interview. *Maria hoped that George chose a new tie for the job interview too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 12	8–12	Z = –2.220
	(b) 11	8–12	p = 0.026
L2 Speakers	(a) 12	9–12	Z = –3.444
	(b) 10	8–12	p < 0.001

Table 4: Comparison of (a) VPE strict identity and (b) matched VPE control sentences.

The above comparison confirmed that Greek speakers accepted grammatical VPE. To further probe their knowledge of English VPE, we compared judgements of VPE with strict identity against examples of ungrammatical VPE with a stranded lexical verb. L1 speakers were expected to accept the former and reject the latter, which they did. If the L2 speakers' grammars were

similarly restricted, they should also have exhibited this pattern. **Table 5** shows that they rejected examples of VPE with a stranded lexical verb, further supporting their having acquired VPE.

(a) George chose a lovely present for the wedding gift. *Frank thought that Maria did too.* (b) Anne chose a great card for the history teacher. *Sally hoped that David chose too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 12	8–12	$Z = -4.815$
	(b) 5	4–7	$p < 0.001$
L2 Speakers	(a) 12	9–12	$Z = -4.577$
	(b) 5	4–8	$p < 0.001$

Table 5: Comparison of (a) 'VPE strict identity' and (b) 'VPE stranded verb'.

Recall that Hawkins (2012) added examples with *will* to test whether participants used *did* as a stock phrase. His results were more subtle for this comparison, so it was worth revisiting. Therefore, to see if VPE judgements extended to modals more generally, we used four examples (will, should, must and can) in the elided clause. As in Hawkins' study, these were compared with examples of ungrammatical VPE with a finite lexical verb. If judgements on VPE with *did* were a reliable reflection of participants' more general VPE representations, then judgements of VPE with a variety of modals should also be significantly higher than examples of VPE with a stranded lexical verb. As evidenced in **Table 6**, this prediction was borne out. Both L1 and L2 speakers drew a strong contrast between these sentence sets. Note, however, that for neither group were the VPE judgements with modals as high as they were for VPE with *did*.

(a) Anne chose a great card for the history teacher. *Sally hoped that David chose too.* (b) Frank chose a younger child for the poetry prize. *Sally thinks that Peter should too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 5	4–7	$Z = -4.802$
	(b) 10	7–12	$p < 0.001$
L2 Speakers	(a) 5	4–8	$Z = -4.170$
	(b) 8	5–12	$p < 0.001$

Table 6: Comparison of (a) VPE stranded verb and (b) VPE with future/modal heading the elided clause.

In summary, these results show that Greek speakers accept the VPE sentences tested despite not having these in their L1, and that they obey the syntactic constraint which demands that VPE in English be licensed by an appropriate inflectional head, such as an auxiliary or a modal.

6.2 Recoverability

Our second research question centred on whether L2 learners would demonstrate knowledge of the principle of recoverability. To examine this, we used examples in which the elided clause had a feature that could not be recovered from the antecedent sentence. We first contrasted non-finite *be* with finite *is*. Recall from the introduction that these two forms are hypothesised to be stored as independent lexical entries. If this is correct, then the prediction according to recoverability for L1 speakers is that VPE sentences which have a finite copula in the antecedent clause but a non-finite copula in the elided clause should result in a low rating. This is because the non-finite copula verb's interpretable feature cannot be recovered from its finite counterpart in the antecedent sentence. If Greek speakers also conformed to recoverability, they should also rate these sentences poorly. Their responses on these constructions were compared to those they gave for VPE with a stranded lexical verb. **Table 7** shows that both groups strongly disliked the constructions (recall the lowest possible score is 4) but that the ratings for VPE sentences with a stranded verb were significantly higher than those for examples with the non-finite copula. However, the takeaway point here is that the sentences in (a) in **Table 7** were rated very low, which is in line with the proposed differences between these verbs in terms of their lexical storage and the hypothesis that both groups conform to recoverability with respect to these differences.

(a) Donna is very successful. *Peter hears that Sally will too.*			
(b) Anne chose a nice card for the history teacher. *Sally hoped that David chose too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 4	4–7	Z = –3.464
	(b) 5	4–7	p = 0.001
L2 Speakers	(a) 4	4–6	Z = –2.507
	(b) 5	4–8	p = 0.012

Table 7: Comparison of (a) VPE with finite copula in the antecedent and future/modal copula in the elided clause with (b) VPE stranded verb.

To probe conformity to recoverability further, we compared VPE with a past progressive in the antecedent sentence and simple past in the elided clause (VPE past progressive_simple past) with VPE with simple past in the antecedent and past progressive in the elided clause (VPE simple past_past progressive). Note that neither of these examples uphold parallelism between the two clauses so we should expect graded judgements. However, in the first scenario, the unpronounced material is fully recoverable but in the second, it is not because the unpronounced material includes an interpretable progressive feature that the antecedent lacks. On this basis, if L1 speakers respect recoverability, they should give the first construction a higher rating than the second. **Table 8** shows that they did draw a sharp contrast between the two constructions

in the expected direction. Our expectation with respect to the L2 speakers was the same as for L1 speakers. This is because the progressive feature is also interpretable in Greek. Again, the hypothesis was supported: they gave markedly lower ratings to the examples that violated the principle of recoverability, namely those hosting the progressive marker in the elided clause.

(a) Sally was choosing a new dress for the school prom. *Frank hoped that Anne did too.* (b) Peter chose a nice wine for the picnic basket. *David said that Anne was too.*				
Groups	**Median**		**Range**	**Statistic**
L1 Speakers	(a)	9	5–12	Z = –4.724
	(b)	5	4–9	p < 0.001
L2 Speakers	(a)	9	4–12	Z = –4.478
	(b)	4	4–6	p < 0.001

Table 8: Comparison of (a) 'VPE past progressive_simple past' and (b) 'VPE simple past_past progressive'.

It could be argued that it is not the progressive in an elided clause that is the problem but use of a progressive per se. Recall that the ideal condition would be to have identical tense and aspect in both sentences so speakers could simply be reacting to this natural parallelism having been broken. The next test checks whether this is so by comparing non-VPE control sentences that have a progressive feature in the second clause with VPE sentences from **Table 5** that have the progressive in the elided clause. In **Table 9** we can see that both groups vastly prefer the control sentence sets, suggesting that use of the progressive per se was not the issue.

(a) Peter invited a food critic to the restaurant opening. *Donna heard that George was inviting a food critic to the restaurant opening too.* (b) Maria posted a generous donation to the cancer charity. *Sally hoped that Frank was too.*				
Groups	**Median**		**Range**	**Statistic**
L1 Speakers	(a)	11	8–12	Z = –4.808
	(b)	5	4–9	p < 0.001
L2 Speakers	(a)	9	5–12	Z = –4.568
	(b)	4	4–6	p < 0.001

Table 9: Comparison of (a) VPE control_simple past_past progressive (b) VPE simple past _past progressive.

To broaden the empirical range on which recoverability had been tested, we extended our comparisons to the present progressive. If the contrast in judgements remained, it would bolster the argument that it is interpretability that is the sticking point for participants rather than one

particular construction that happens to have an unrecoverable interpretable feature in the elided clause. The relevant comparisons contrasted VPE with present progressive in the antecedent and present perfect in the elided clause (VPE present progressive_present perfect) and VPE with present perfect in the antecedent and present progressive in the elided clause (VPE present perfect_present progressive). Once again, L1 speakers were predicted to find the first example significantly better than the second due to the interpretable progressive feature not being recoverable in the latter example. **Table 10** demonstrates that this was so. The difference was also significant for the L2 participants, suggesting that the Greek speakers also drew this distinction – again in line with the progressive feature being interpretable in Greek and their conforming to recoverability.

(a) Frank is choosing a suitable candidate for the town elections. *David heard that Maria already has.*			
(b) George has chosen a new suit for the graduation ceremony. *Donna thought that Peter is too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 9	7–12	Z = –4.602
	(b) 5	5–9	p < 0.001
L2 Speakers	(a) 7	4–11	Z = –4.446
	(b) 4	4–6	p < 0.001

Table 10: Comparison of (a) 'VPE present progressive_present perfect' and (b) 'VPE present perfect_present progressive'.

6.3 Interpretability

Our final two comparisons relate to Research Question III, focusing on how Greek speakers analyse the uninterpretable English perfective feature. The prospect of their not treating it as uninterpretable arose from this feature being interpretable in Greek. The relevant contrasts would be between their judgement of sentences with simple past in the antecedent and perfective aspect in the elided clause and vice versa, and between their judgements of sentence pairs which both have simple past in the antecedent and either perfective aspect or progressive aspect in the elided clause. If they treat the perfective feature as interpretable, they should not draw a contrast between these cases. This is the opposite of what is predicted for L1 speakers, who should rate the perfective aspect in the elided clause more highly than the progressive aspect in the elided clause.

We first compared VPE with present perfect in the antecedent sentence and simple past in the elided clause (VPE present perfect_simple past) against VPE with simple past in the antecedent and present perfect in the elided clause (VPE simple past_present perfect). Because the uninterpretable perfective feature escapes Rouveret's recoverability requirement, L1 speakers should not have rejected the second examples, although again, due to the lack of parallelism, graded judgements

were expected. The median scores in **Table 11** show that L1 speakers rated both sets reasonably highly but that they did significantly prefer examples with present perfect in the antecedent sentence over those with the present perfect in the elided clause. Turning to the Greek speakers' judgements, if they were treating the uninterpretable feature as interpretable, they should have given substantially lower ratings to the second example, namely with the present perfect in the elided clause. **Table 11** shows that they did indeed rate the sentences with the perfective in the elided clause significantly lower than those with the perfective in the antecedent sentence.

(a) Donna has chosen a great speaker for the linguistics conference. *Sally heard that David did too.* (b) Maria chose a lovely dress for the charity dinner. *Frank said that Sally has too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 11	5–12	Z = –4.032 p < 0.001
	(b) 8	5–11	
L2 Speakers	(a) 9	6–12	Z = –2.995 p = 0.003
	(b) 7	4–12	

Table 11: Comparison of (a) 'VPE present perfect_simple past' with (b) 'VPE simple past_present perfect'.

However, the Greek speakers' results on these sentences cannot help us decide whether interpretability is the key factor. This is because the L1 speakers, for whom the interpretability of the affix is not in question, also did not treat these sentences on a par with each other either, suggesting some other factor(s) might be at play. One final comparison, however, might move us forward a little in respect to this issue, and that is a direct contrast between use of progressive and perfective aspect in the elided clause. Here we can see that both groups strongly preferred the present perfect in the elided clause to the past progressive. Note also that the sentence types in (a) in **Table 12** have an advantage over those in (b) because the tenses in each clause match, yet

(a) Maria chose a lovely dress for the charity dinner. *Frank said that Sally has too.* (b) Peter chose a nice wine for the picnic basket. *David said that Anne was too.*			
Groups	**Median**	**Range**	**Statistic**
L1 Speakers	(a) 8	5–11	Z = –4.531 p < 0.001
	(b) 5	4–9	
L2 Speakers	(a) 7	4–12	Z = –4.219 p < 0.001
	(b) 4	4–6	

Table 12: Comparison of (a) 'VPE simple past_present perfect' with (b) 'VPE simple past_past progressive'.

still, there is a clear preference for (a). Greek speakers' judgements on this comparison, therefore, point in fact to their treating the perfective as per its L2 specification, namely as uninterpretable. However, the wide range of both participant groups' judgements in (a) indicate a lot of variability.

7 Discussion

Our study was interested in the extent to which advanced learners of an L2 can acquire grammatical phenomena that are absent from their L1. The test we chose was the learning of English VPE by Greek learners of English. This was because Greek is argued to lack VPE and its feature constellation – in terms of the interpretable/uninterpretable feature distinction – is different to that of English. These differences allowed us to test whether (a) Greek speakers accepted VPE at all, (b) whether they followed the principles that regulate it, and (c) whether they drew a distinction between interpretable and uninterpretable features in the elided clause. Our results for the former two questions were unequivocally affirmative but our results for the latter remain inconclusive. We discuss these in turn, relating them to the literature that provided the impetus for our investigation.

Our first research question focused on whether Greek speakers demonstrated knowledge of English VPE despite this construction being absent in Greek. Recall that Hawkins (2012) had asked this question of Mandarin and Saudi Arabic speakers, which were languages reported to lack this kind of VPE,[4] and had found that both groups accepted it. Our study took Hawkins' study as a starting point but constructed a novel and broader set of sentence sets, examined a different L2 language, and focused on highly advanced learners of English. Our Greek and English participants gave very high ratings to the VPE constructions and to the VPE control sentences but both groups significantly preferred the VPE constructions over the control ones. This is different from Hawkins (2012), whose participants gave similar sentence sets equally high ratings. With respect to our data, we did not find it surprising that our participants preferred the VPE sentences, which were shorter and more typical than the rather long-winded control sentences. Hawkins' test items differed from ours in a way which might explain the contrast between our findings: his target sentences were preceded by two contextualising sentences (as opposed to ours, which only used one), and this might have provided a better balance between the antecedent and the elided clause. However, what is relevant to us is that the Greek speakers found English VPE to be perfectly acceptable. These results not only corroborate Hawkins (2012) but also the study reported in Al-Thubaiti (2019), which tested Saudi Arabic highly advanced learners of English on VPE. Al-Thubaiti did not directly compare VPE constructions with non-VPE sentences. Instead, her study contrasted strict VPE identity cases with modals and finite lexical verbs in the elided clause. However, her results were comparable to ours, as her Saudi Arabic speakers also rejected

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[4] We refer the reader back to footnote 2 for further references on this topic.

examples with finite lexical verbs. Our results add another group of L2 learners who have proven able to acquire a construction not instantiated in their L1, thus aligning with the aforementioned studies as well as Duffield et al (2009). On the other hand, they contrast with those of Koyama (2016) on Japanese speakers, who accepted ungrammatical sentences with finite lexical verbs. We suspect that the speakers' lower proficiency might answer for this discrepancy.

Our second research question turned from strictly parallel cases of English VPE to those where parallelism had been disrupted. This set of VPE examples included different types of mismatches. Some of them are accepted by L1 speakers, even if graded, while others are rejected by them outright. Rouveret's principle of recoverability (repeated below) had proved successful in capturing the contrast in L1 speaker judgements of such sentences. The question we asked was whether Greek speakers' ratings would pattern in accordance with this principle, too.

(22) Principle of Recoverability
      An elided constituent cannot contain any non-recoverable interpretable feature.

(Rouveret 2012: 900)

The first set of non-parallel examples compared VPE with a stranded lexical verb in the elided clause with those that had modal verbs in the elided clause (**Table 6**). Recall that these cases, which are accepted by L1 speakers, align with the principle of recoverability, because despite the mismatch, the elided clause does not contain a non-recoverable interpretable feature. If judgments on VPE with 'did' were a reliable reflection of participants' more general VPE representations, then these judgments should extend to VPE with a variety of modals. We found that both L1 and L2 speakers drew a distinction between these sentence sets. This showed that Greek speakers not only accepted VPE but also understood one of the restrictions on it, namely that only certain heads – inflection and modals – permit VPE. Of note, however, is that for neither group were the VPE judgments with modals as high as they were for VPE with 'did'. This can be explained, however, by the parallelism having been disturbed. Al-Thubaiti (2019) drew similar comparisons and her results were in sync with ours. Across all her groups (L1 and L2), VPE with non-parallel antecedents received lower ratings than VPE with parallel ones.

The next test of non-parallelism also involved use of a modal verb in the elided clause but a finite copula in the antecedent sentence. We saw in section 2 that affix hopping does not apply to the copula, meaning that the copula is already inflected upon insertion. Thus, this example violates Recoverability so was predicted to have been severely disliked. This sentence type was tested against VPE examples which had a stranded lexical verb in the elided clause. The expectation was that all participants should rate both very low, and this was indeed the case. However, both language groups gave slightly higher ratings to the VPE sentences with the stranded verb. A potential reason for this discrepancy was put forth by Hawkins, namely that some transitive verbs (e.g. read, write) optionally allow arbitrary null objects. For example, the elided clause of *Jack wrote Jill a letter. Mary wrote __ too*, could be understood as containing a

null object (i.e. Mary wrote *something else*). The possibility of a different reading might have interfered momentarily with participants' judgements, a suggestion that could be probed by subsequent testing.

To further examine participants' adherence to recoverability, we compared VPE examples which had the past progressive in the elided clause but not in the antecedent sentence against those with the opposite pattern (see **Table 8**). Since an interpretable feature in the elided clause violates Recoverability in this instance, participants were predicted to reject the progressive in the elided clause, which is exactly what they did. Our results were again in accordance with Hawkins (2012). However, to ensure that this result did not simply reflect a dislike for the progressive per se, our study also compared VPE control sentences with the progressive against VPE sentences with a progressive in the elided clause. Our finding that participants accepted VPE control sentences with the progressive lends further support to their rejection of the relevant VPE sentences being due to Recoverability rather than a general dislike for the progressive in this environment. To further increase the empirical range of this finding, we also tested the present progressive and found the same pattern. All participants gave much lower scores to sentences with the interpretable aspect in the elided clause than when it occurred in the antecedent clause (**Table 10**). Such a result is compatible with the conclusion that our Greek speakers operate in accordance with the principle of Recoverability.

Research question III focused on un/interpretability and whether Greek speakers would treat the English perfective feature as uninterpretable or interpretable. The first test sentences inserted the uninterpretable perfect aspect feature in the elided clause or in the antecedent clause. If the Greek speakers treated this English feature as uninterpretable, they should not have exhibited much difference in their preference for which clause the perfective was in. If, however, they were treating the feature as interpretable (as it is in Greek), they should have given lower ratings to the sentences with the perfective aspect in the elided clause. The results showed that Greek participants gave the sentences with perfective aspect in the elided clause significantly lower ratings, with a median of 9 and 7, respectively. At first sight, this appears to support their treating the perfective feature as interpretable, but the validity of this test is scuppered by the English speakers' results, which also exhibited the same asymmetry. Although English speakers gave high ratings to both – medians of 11 and 8, respectively – the lower rating of the perfective feature in the elided clause was unexpected and affects the validity of the test. In our last crucial comparison, however, between sentences with the present perfect in the elided clause against those with past progressive in the elided clause, both groups showed a significant preference for the present perfect, and this was despite the extra tense mismatch in the former. At first glance, this pattern indicates that Greek speakers are treating the perfective feature as uninterpretable, thus going against the Interpretability Hypothesis, which argues that later learners can no longer acquire these features. On closer inspection, however, we notice that while both L1 and L2

speakers were quite homogenous in their judgments for the progressive, they exhibited a greater individual variation in their judgment of the perfective, perhaps due to the further mismatch in tense (see **Table 12**). A future study should incorporate more examples that can disentangle the effect of tense and other factors. At this point, the question of whether interpretability lies at the source of these judgements can only be answered tentatively; the contrast drawn between the progressive and the perfective is suggestive of this particular uninterpretable feature having been identified as such by some of our Greek speakers.

8 Summary

This study asked what happens when an L2 learner encounters a construction that does not exist in their mother tongue, and whose regulation is complex and cannot be deduced solely from their linguistic environment, be that a taught environment or not. We examined whether a learner could acquire such a construction at all, whether they conformed to the principles that regulate its use, and whether they showed evidence of discerning between features whose L1/L2 settings differ. Building on key papers that have addressed these questions, particularly Hawkins (2012) and Al-Thubaiti (2019), we focused on an additional language and learner group, testing highly-advanced Greek learners of English on their knowledge of English VPE. Using a different task, and novel and expanded materials, we found that Greek speakers did accept English VPE and their judgements also indicated that they conformed to its regulatory principles (Rouveret 2012). However, our final question on feature settings needs further work before any conclusions can be drawn reliably. With respect to feature interpretability (Tsimpli & Dimitrakopoulou 2007), previous research on VPE (Al-Thubaiti, 2009; 2019) suggested that even advanced learners struggle with features that have a different specification from that in their L1. The variability displayed by the participants in the current study on similar examples which tampered with the interpretability of the features in the elided clause prevent any strong conclusions about this final research question. The Greek speakers' strong dislike for the progressive in the elided clause came through clearly but the heterogeneity evident in their judgements of the perfective in the elided clause might suggest that whereas some advanced speakers' judgements are compatible with their having recognised it as uninterpretable, others are not. In addition, even though English speakers rated both sentence types highly, their judgements on the perfective also exhibited a variation that was not expected and differed from that reported in Hawkins (2012). Our paper has thus also brought into focus the need to consider carefully the subtle distinctions that arise when creating example pairs and their possible repercussions for people's judgements. Looking at ellipsis in this broader context will help move this question forward.

Abbreviations

VPE	=	Verb Phrase Ellipsis
SLA	=	Second Language Acquisition
NOM	=	Nominative
ACC	=	Accusative
POSS	=	Possessive
1/2/3	=	First, Second or Third Person
SG/PL	=	Singular or Plural
F	=	Feminine
M	=	Masculine
PRES	=	Present tense
PST	=	Past tense
PROG	=	Progressive
PFV	=	Perfective
PASS	=	Passive
SUBJ	=	Subjunctive
INFL	=	Inflection

Data accessibility statement

All materials, data and analysis scripts are available in the Open Science Framework repository, which can be accessed using the following link: https://osf.io/sb9vx/.

Ethics and consent

This study was approved by, and carried out in accordance with the recommendations of, the University of Kent's Research Ethics Advisory Group for Human Participants. All participants gave written informed consent in accordance with the Declaration of Helsinki.

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Competing interests

The authors have no competing interests to declare.

References

Al Bukhari, Juman. 2016. *The syntax of elliptical constructions in Jordanian Arabic*. Milwaukee, Wisconsin: University of Wisconsin-Milwaukee dissertation.

Al-Thubaiti, Kholoud. 2009. The acquisition of uninterpretable features: The case of vP ellipsis. In Bowles, Melissa & Ionin, Tania & Montrul, Silvina & Tremblay, Annie (eds.), *Proceedings of the 10th Generative Approaches to Second Language Acquisition conference,* 192–200. Somerville, MA: Cascadilla Press.

Al-Thubaiti, Kholoud. 2019. Selective vulnerability in very advanced L2 grammars: Evidence from VPE constraints. *Second Language Research* 35. 225–252. https://doi.org/10.1177/0267658317751577

Algryani, Ali. 2012. *The syntax of ellipsis in Libyan Arabic: A generative analysis of sluicing, VP ellipsis, stripping and negative contrast*. Newcastle: University of Newcastledissertation.

Aoun, Joseph & Li, Yen-Hui Audrey. 2008. Ellipsis and missing objects. In Freidin, Robert & Otero, Carlos & Zubizarreta, Maria Luisa (eds.), *Foundational issues in linguistic theory*, 251–274. Cambridge, MA: MIT Press.

Belletti, Adriana & Bennati, Elissa & Sorace, Antonella. 2007. Theoretical and developmental issues in the syntax of subjects: Evidence from near-native Italian. *Natural Language and Linguistic Theory* 25. 657–689.

Cheng, Hsu-Te. 2013. *Argument ellipsis, classifier phrases, and the DP parameter*. Storrs, CT: University of Connecticut dissertation.

Chomsky, Noam & Lasnik, Howard. 1993. The theory of principles and parameters. In Jacobs, Joachim & Von Stechow, Arnim (eds.), *Syntax: An international handbook of contemporary research,* (vol I), 506–569. Berlin: de Gruyter.

Choi, Myong Hee & Lardiere, Donna. 2006. Acquiring the interpretation of wh-expressions in Korean as a second language. Paper presented at *Generative Approaches to Second Language Acquisition 8* (GASLA-8). Canada: Banff/Calgary.

Domínguez, Laura & Arche, Maria & Myles, Florence. 2011. Testing the predictions of the feature-assembly hypothesis: Evidence from the L2 acquisition of Spanish aspect morphology. In N. Danis, Nick & Mesh, Kate & Sung, Hyunsuk (eds.), *Proceedings of the 35th annual Boston University conference on language development,* 35. 183–196. Somerville, MA: Cascadilla Press.

Duffield, Nigel & Matsuo, Ayumi & Roberts, Leah. 2009. Factoring out the parallelism effect in VP-ellipsis: English versus Dutch contrasts. *Second Language Research* 25. 42–467. https://doi.org/10.1177/0267658309349425

Hawkins, Roger. 2012. Knowledge of verb phrase ellipsis by speakers of Arabic and Chinese. *Linguistic Approaches to Bilingualism* 2(4). 404–438. https://doi.org/10.1075/lab.2.4.03haw

Hawkins, Roger & Chan, Cecelia. 1997. The partial availability of Universal Grammar in second language acquisition: the 'failed functional features hypothesis'. *Second Language Research* 13. 187–226.

Holton, Davide & Mackridge, Peter & Philippaki-Warburton, Irene & Spyropoulos, Vassilios. 2012. *Greek: A comprehensive grammar of the modern language.* London: Routledge.

Kennedy, Christopher. 2003. Ellipsis and syntactic representation. In Schwabe, Kirsten & Winkler, Susanne (eds.) *The Interfaces: Deriving and interpreting omitted structures,* 29–53. Amsterdam: John Benjamins. https://doi.org/10.1075/la.61.03ken

Kennedy, Christopher & Merchant, Jason. 2000. Attributive comparative deletion. *Natural Language and Linguistic Theory* 18. 89–146. https://doi.org/10.1023/A:1006362716348

Kolokonte, Marina. 2008. *Bare argument ellipsis and information structure.* Newcastle: Newcastle University dissertation.

Koyama, Sayaka. 2016. Feature parallelism of English VP-Ellipsis in L2 Grammar. In Stringer, David & Garrett, Jordan & Halloran, Becky & Mossman, Sabrina (eds.), *Proceedings of the 13th Generative Approaches to Second Language Acquisition conference*, 95–100. Somerville, MA: Cascadilla Press.

Landau, Idan, 2020. On the nonexistence of verb-stranding VP-ellipsis. *Linguistic Inquiry* 51 (2). 281–318.

Landau, Idan. 2023. More doubts on verb-stranding VP ellipsis: Reply to Simpson, Andrew. 2023. *Syntax* 26(4). 449–470. https://doi.org/10.1111/synt.12263

Lardiere, Donna. 2009. Some thoughts on a contrastive analysis of features in second language acquisition. *Second Language Research* 25(2). 173–227.

Lasnik, Howard. 1995. Verbal morphology: Syntactic structures meets the minimalist program. In Campos, Héctor & Kempchinsky, Paula (eds.), *Evolution and revolution in linguistic theory: Essays in honour of Carlos Otero*, 251–275. Georgetown: Georgetown University Press.

Lasnik, Howard. 1999. *Minimalist Analysis*. London: Blackwell.

Méndez, Tania Leal & Slabakova, Roumyana. 2014. The Interpretability Hypothesis again: A partial replication of Tsimpli & Dimitrakopoulou. 2007. *International Journal of Bilingualism.* 18(6). 537–557.

Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.

Merchant, Jason. 2004. Fragments and Ellipsis. *Linguistics and Philosophy* 27. 661–738. https://doi.org/10.1007/s10988-005-7378-3

Merchant, Jason. 2018. Verb-stranding predicate ellipsis in Greek, implicit arguments, and ellipsis-internal focus. A reasonable way to proceed. In *Essays in honor of Jim McCloskey*, 229–269.

Paparounas, Lefteris & Sitaridou, Ioanna. 2019. *Indefinite Object Drop in Modern Greek: Argument ellipsis versus verb-stranding ellipsis* [Presentation, January 6]. LSA Annual Meeting, New York City.

Peirce, Jonathan & Gray, Jeremy & Simpson, Sol & MacAskill, Michael & Höchenberger, Richard & Sogo, Hiroyuki & Kastman, Erik & Lindeløv, Jonas. 2019. PsychoPy2: experiments in behavior made easy. *Behavior Research Methods.* https://doi.org/10.3758/s13428-018-01193-y

Rouveret, Alain, 2012. VP Ellipsis, phases and the syntax of morphology. *Natural Language and Linguistic Theory* 30. 897–963. https://doi.org/10.1007/s11049-011-9151-3

Schmid, Monika & Gilbers, Steven & Nota, Amber. 2014. Ultimate attainment in late second Language acquisition: Phonetic and grammatical challenges in advanced Dutch–English bilingualism. *Second Language Research* 30(2). 129–157.

Schwartz, Bonnie & Sprouse, Rex. 1996. L2 cognitive states and the full transfer/full access model. *Second language research* 12(1). 40–72.

Tanabe, Tomoya & Kobayashi, Ryoichiro 2024. Arguments against head-stranding ellipsis in Japanese: A reply to Funakoshi 2016. *Syntax*, 1–23. https://doi.org/10.1111/synt.12273

Tsimpli, Ianthi & Dimitrakopoulou, Maria. 2007. The interpretability hypothesis: Evidence from vc/i-interrogatives in second language acquisition. *Second Language Research* 23. 215–342. https://doi.org/10.1177/0267658307076546

Varlokosta, Spyridoula & Valeonti, Natalia & Kakavoulia, Maria & Lazaridou, Mirto & Economou, Alexandra & Protopapas, Athanassios. 2006. The breakdown of functional categories in Greek aphasia: Evidence from agreement, tense, and aspect. *Aphasiology* 20(8). 723–743.

White, Laura. 2003. On the nature of interlanguage representation: Universal Grammar in the second language. In Doughty, Catherine & Long, Michael (eds.), *The handbook of second language acquisition*, 19–42. London: Blackwell Publishing.

Wu, Hsiao-Hung Iris. 2016. On the (non)-existence of verb-stranding ellipsis in Chinese. *International Journal of Chinese Linguistics* 3(1). 79–100.