Article

Scalar and Counterfactual Approximatives: Investigating Heritage Greek in the USA and Germany

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Abstract: Approximative constructions present special interest for acquisition due to the counterfactual and scalar inferences they give rise to. In this paper we investigate the acquisition of Greek approximatives by heritage speakers in Germany and the USA. We show that while in English and German there is a single lexical item encoding counterfactuality and scalarity, in Greek there are two lexical items which, as we show, have different interpretations. In view of this difference, we test whether the crosslinguistic differences and the interface nature of approximative constructions affect their representation in heritage language. We present a production study and a comprehension study of approximative constructions. Our findings suggest that the two heritage groups do not diverge from the monolingual group in the domain of approximative constructions.

Keywords: approximative adverbials; counterfactuality; scalarity; mood; heritage grammar; Greek

1. Introduction

This paper investigates the acquisition of approximative adverbials by heritage speakers of Greek (henceforth HSs) in the USA and Germany. Approximative adverbials, like *almost* in English, have been shown to exhibit interesting properties crosslinguistically. Their acquisition in heritage language presents particular interest because of the interface nature of the phenomenon as well as the macro- and micro-crosslinguistic variation exhibited in this domain. We focus on the Greek approximatives *paraligo* ' lit. by-little' and *shedon* 'almost' which, to our knowledge, have not been discussed before. The Greek approximatives differ in interesting ways from the English approximative *almost* (Amaral and Del Prete 2010; Amaral 2007; Horn 2000; McCawley 1971; Nouwen 2006; Penka 2005; Sadock 1981; Xu 2016) and the German approximative *fast* 'almost' (Rapp and von Stechow 1999). As we explain in detail in Section 2, while in English and German there is a single approximative to convey a counterfactual and a scalar interpretation, in Greek there are two distinct lexical elements *paraligo* and *shedon*, respectively. This is illustrated in (1), where the English sentence *I almost climbed Mount Everest* corresponds to the two variants in (1a) and (1b) with the counterfactual and the scalar interpretation, respectively.

(1)   a.   Paraligo na   skarfaloso to Everest.
           by-little SUBJ climb.1SG the Everest

           'I almost climbed Mount Everest.'

           ⤳ *The trip was cancelled, I never got near Mount Everest.*

      b.   Shedon skarfalosa   to Everest.
           almost climb.PAST.1SG the Everest.

           'I almost climbed Mount Everest.'

           ⤳ *I was close to its peak when a blizzard started and we had to call for help.*

The central research question revolves around this lexical mismatch between Greek and English/German in the domain of approximatives. As we explain in detail in Section 3,

this difference between Greek and English/German raises a question of whether we can detect any language transfer effects in Heritage Greek from the two dominant languages, namely American English and German. This question becomes even more relevant since the domain of approximatives lies in the interface between semantics, syntax and pragmatics. As we explain in detail in the following section, the choice of the right approximative and the mood pattern depends on the context. Thus, in view of the Interface Hypothesis (Sorace 2011), which states that properties at the interface between grammar and external domains are likely to be more vulnerable, our data contribute to further testing this hypothesis.

Given that we test two heritage groups with two dominant languages with differences in the domain of approximatives, in cases of divergence we will be able to partially assess whether divergence is related with language transfer or if the divergence is due to independent reasons (e.g., attrition or divergent attainment). As acknowledged in Polinsky (2018), heritage speakers' lexical knowledge, as well as the study of semantic aspects of heritage languages, has received little attention in the literature. Our paper contributes to filling this gap.

Our starting point is a production study which was not designated for the elicitation of approximative adverbials but involved many contexts in which an approximative adverbial would be felicitous. Although this study suggests that HSs are aware of the distinction between the two approximatives, we could not make any conclusions regarding the acquisition of the two interpretations. Thus, we conducted a sentence evaluation task in which participants had to rate the two approximatives in three different types of contexts (scalar, counterfactual and neutral context). As we show, the main finding is that HSs in both USA and Germany have acquired the difference between the two approximatives. No significant difference is observed between the three groups suggesting that HSs and monolinguals pattern together in their acquisition of verbal and clausal approximatives in Greek.

The paper proceeds as follows: Section 2 presents the theoretical analysis of approximatives in Greek, providing the necessary background and presenting the main proposals for the analysis of the English *almost* and German *fast*. Section 3 presents the main research question regarding the acquisition of Greek approximatives by HSs. Section 4 presents the production study and Section 5 the sentence evaluation task. Section 6 concludes based on the two studies and posits some further questions.

2. Approximatives in Greek, English and German: Theoretical Considerations

Approximative adverbials across different languages share certain properties but there are also important differences (Amaral 2007; Xu 2016). In this paper we focus on approximatives which function as verbal or clausal modifiers. In particular we look at approximative constructions in Greek with *paraligo* 'lit. by little' and *shedon* 'almost'. The example in (1), repeated in (2), shows that *almost* in English is translatable with two different adverbials in Greek. In Greek the approximative *paraligo* is unambiguously counterfactual, i.e., (2a) can only be uttered in a context in which the subject has not started climbing Mount Everest.[1] By contrast, (2b) has a scalar (incomplete, nearly complete) interpretation under which the subject climbed most but not all of Mount Everest. The two approximatives differ in their syntactic distribution; *paraligo* requires subjunctive mood (SUBJ)[2]. Notice that subjunctive mood in Greek is realized with a subjunctive particle *na* and not with special verbal morphology as in western Romance languages (Roussou 2010). *shedon* is not compatible with subjunctive and it necessarily combines with indicative mood (IND). The tense varies depending on the reference time. In (2b) we have past tense because the sentence refers to an event before the utterance time. In the case of *paraligo* which combines with subjunctive, there is present tense.[3]

(2)   a.   Paraligo na skarfaloso to   Everest.
              by-little   SUBJ   climb.1SG the   Everest
              'I almost climbed Mount Everest.'

    b. Shedon skarfalosa   to Everest.
       almost climb.PAST.1SG the Everest.
       'I almost climbed Mount Everest.'

Thus, Greek has two distinct elements for what is encoded by the same approximative *almost* in English. This is a common phenomenon crosslinguistically. As Xu (2016) notes, Serbo-Croatian and Korean also have distinct elements for the two readings. Amaral (2007) discusses *por pouco* 'lit. by little', which bears many similarities with the Greek *paraligo* and can only convey a counterfactual interpretation.[4] However, in Portuguese the approximative *quase* 'almost' can have both a scalar and a counterfactual interpretation. The Greek approximative *shedon* seems to be different in that it always favors a scalar interpretation.

German presents a different case. Although the same approximative element, *fast*, is used, the scalar and the counterfactual reading are distinguished syntactically. In the counterfactual interpretation *fast* is sentence initial, and the verb is marked with Konjunktiv II which in some respects, i.e., its counterfactual use, has been analyzed as subjunctive mood (cf. Csipak 2015). The scalar interpretation requires that *fast* is internal to the VP and the verb typically combines with indicative.[5] This is exemplified in (3).

(3) a. Fast   wäre   ich den Mount Everest hochgeklettert.   *Counterfactual*
        almost be.KONJII I   the Mount Everest climb.PRTC

       'I almost climbed Mount Everest.'
       ⤳ *The trip was cancelled, I never got near Mount Everest.*

    b. Ich bin   den Mount Everest fast   hochgeklettert.   *Scalar*
        I   be.PERFECT the Mount Everest almost climb.PRTC

       'I almost climbed Mount Everest.'
       ⤳ *I was close to its peak when a blizzard started and we had to call for help.*

A natural question is whether in the case of the English approximative *almost* and in the case of the German approximative *fast* we are dealing with a lexical ambiguity or with a different type of ambiguity, like a scopal ambiguity or a type-shifted interpretation. Although an analysis in terms of scope ambiguity has been prominent in earlier works (McCawley 1971; Rapp and von Stechow 1999), the possibility of lexical ambiguity or meaning shift is also highlighted in recent works (Xu 2016). In order to address this question in more detail it is necessary to look closely at the semantics of approximative adverbials. The semantics of *almost* has been a prolific but still controversial issue. Below we present two lines of explanation which have been proposed for the approximative element *almost*. This will also help us further understand the semantics of the Greek approximatives *paraligo* and *shedon* and the crosslinguistic differences between Greek, English and German.

For clarity of presentation, let us consider an unambiguous example with *almost* in English. In (4) *almost* appears with an achievement predicate *miss*, making a scalar interpretation less possible and the counterfactual one the most prominent. Descriptively, the meaning of (4) is decomposed into two components, the *proximal*, i.e., that Anna came close to miss the train, and the *polar*, i.e., that Anna didn't miss the train (after Horn 2000 and several works afterwards). As extensively discussed in the literature, the two readings are not of the same status. The *proximal* reading is analyzed as an assertion while there is a debate as to whether the *polar* reading is an implicature, an entailment, a presupposition or an "inert assertion" in Horn (2000)'s terms (see Horn 2017; Xu 2016 for an overview).

(4) Anna almost missed the train.
    a. *Proximal*: Anna came close to miss the train.
    b. *Polar*: Anna didn't miss the train.

There is also disagreement as to how to derive the proximal reading. Nouwen (2006) makes a distinction between *the intensional* and *the scalar* approach. In both cases the goal is to capture the *close-to-happen* reading. The *intensional approach* is the original proposal by

Sadock (1981), who proposed the denotation in (5) for *almost*. The first component in (5a) captures counterfactuality (polar component) by stating that the prejacent of *almost* is not true in the actual world. The second component in (5b) captures the proximal interpretation by introducing a world w' "similar" to the actual world in which the prejacent is true.

(5) $[\![\text{ALMOST}]\!](w)(p) = 1$ iff

     a. $p(w) = 0$

     b.   There is a world w' which is not very different from w and $p(w') = 1$

This line of approach has been expressed in different ways but its core characteristic is always the introduction of a possible world which is minimally different from the actual world and in which the proposition without *almost* (i.e., the prejacent) is true.

The scalar approach, formally introduced by Penka (2005) who builds on Hitzeman (1992), relies on the idea that *almost* operates on scalar alternatives like other operators (e.g., *at least*). According to Penka (2005, 2006), *the relevant alternatives for 'almost' are the ones which are close on the ordered scale*. The formal meaning is provided in (6), where '≈' expresses the 'close by'-relation. As in Sadock's analysis, the counterfactual component (polar meaning) is captured by negating the prejacent of *almost p* in the actual world. The proximal component is captured by introducing an alternative proposition *q* which is close on a relevant ordered scale to *p* and is true in the actual world.

(6) $[\![\text{ALMOST}_{\approx}]\!] = \lambda w.\, \lambda p_{<s,t>}.\, \exists q\, [q \approx p\, \&\, q(w)]\, \&\, \neg p(w)$

As we see, both approaches try to capture the *close-by* relation, but in different ways. The intensional approach resorts to minimally different worlds, whereas the scalar refers to a close scale-mate in a relevant scale (for a critical review of the two approaches see the discussion in Amaral 2007; Nouwen 2006; Xu 2016).

Focusing on Greek, the question arising from the perspective of this paper is whether any of these analyses can be extended to the Greek approximatives. We argue that each of the two approaches is correct for the two different approximatives in Greek. *Shedon*, shown above to favour a scalar interpretation, is analyzed as a scalar adverbial which operates on alternatives ranked on a relevant scale. In particular, we follow the analysis by Amaral and Del Prete (2010), who treat the Italian approximative *quasi* as a cross-categorical focus adverbial operating on scales. According to Amaral and Del Prete (2010), *quasi* 'almost' takes as its argument a focused constituent *α*, asserts the negation of the prejacent, and states that a lower-ranked alternative is true. Amaral and Del Prete (2010) assume the following semantics for focused expressions: the semantic contribution of a complex expression $[\alpha]_F$ consisting of an expression *α* (*α* being of some syntactic category) and a focus $[]_F$ on *α* is analyzed as an ordered pair $<\alpha', S'>$ in which the first coordinate is the semantic value *α'* of *α* and the second coordinate is a set of alternatives to *α'*, all of the same semantic type as *α'*, which are ordered according to some linear relation. The formal semantics is given in (7), where *γ* stands for any possible type since *quasi* is a cross-categorical operator.

(7) $[\![\text{QUASI}]\!] = \lambda \langle P_{<\gamma,t>}, S\rangle.\, \lambda x_{\gamma}.\, \neg P(x) \wedge \exists Q_{<\gamma,t>} \in S[Q <_S P \wedge close_S(Q, P)] \wedge Q(x)]$

<div align="right">Amaral and Del Prete (2010):(51)</div>

Notice that under the meaning in (7) the polar component is part of the assertion (see also Horn 2017). Amaral and Del Prete (2010) emphasize that negation is focus-sensitive.[6]

Below we present evidence that *shedon* in Greek can be analysed similar to what Amaral and Del Prete (2010) propose for the Italian *quasi*. First, *shedon* shares with other focus operators in Greek the requirement to immediately precede the focused expression (Chatzikyriakidis et al. 2015). That is, *shedon* obligatorily precedes its focus associate as shown in (8). In (8a) *shedon* obligatorily precedes the numeral *pende* 'five' with which it associates. The reading is that he caught less than five mice. By contrast, in (8b) the reading can be that he came close to catching five mice but he didn't catch any.

(8)   a.   O   Nikos epiase   shedon pende pondikia.
           The Nick   catch.PAST.3SG almost   five   mice.
           ⤳ *Nick caught almost five mice.*

       b.   O   Nikos shedon epiase   pende pondikia.
           The Nick   almost   catch.PAST.3SG five   mice
           ⤳ *Nick almost caught five mice.*

This property of *shedon* would be hard to explain if we were treating *shedon* as an intensional operator as suggested by Sadock (1981) for the English *almost* or Rapp and von Stechow (1999) for the German *fast*.

Second, the distribution of *shedon* in Greek seems to obligatorily give rise to a scale. This becomes obvious with the difference between *paraligo* and *shedon* when they modify non-gradable adjectives. Whereas *paraligo* indicates that the property doesn't hold, *shedon* has the effect of coercing the adjective into a gradable one, creating some notion of scale. The sentence in (9a) refers to a situation in which a pregnant woman was planning to go on holiday to the USA, but before getting to the airplane she gave birth. The interpretation is that the child would have been registered in the USA if his mother had not given birth much earlier. The example in (9b) means that somebody has acquired many but not all of "American" properties, for example a person who has lived in the USA for years, knows American English, etc.

(9)   a.   Paraligo na   ine   Amerikanos.
           by-little   SUBJ be.3SG American.

           'He would have been almost American.'

       b.   Ine   shedon Amerikanos.
           be.3SG almost   American.

           'He is almost American.'

Thus, we conclude that *shedon* is a different element from *paraligo*. It functions as a scalar focus adverbial. The meaning is based on the presence of an ordered set of alternatives which are ranked in a relevant scale. Crucially, the ordering of the alternatives is constrained by the semantics of the focused constituent but also by the context. The case that interests us more here, namely the scalar interpretation that arises with accomplishment predicates, is probably the hardest in terms of specifying the relevant alternatives. Amaral and Del Prete (2010) discuss these cases in Section 5 of their paper and suggest that accomplishments involve a complex structure with a starting point and an endpoint (*limit point*). In particular, they provide the representation in Figure 1 for an accomplishment VP such as *prove the theorem*.

(10)   Leo quasi   dimostro il   teorema.
         Leo almost   proved   the theorem.

         Leo almost proved the theorem.
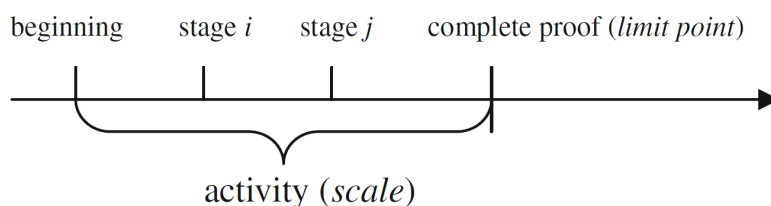
<div align="right">Amaral and Del Prete (2010):(26a)</div>

Figure 1. Event structure of prove the theorem. (Amaral and Del Prete 2010; Figure 3).

Under this view, the alternatives are not lexical. Assuming that the VP *prove the theorem* is interpreted as a culminating accomplishment, the alternatives involve stages of this

action before the *limit point*. This is why Amaral and Del Prete (2010) emphasize that the alternatives and the scale need not be lexical but can be retrieved from the discourse or from extra-linguistic context. We follow their insight here and leave as an open issue how the alternatives are defined in each case.[7]

Amaral and Del Prete (2010) do not provide the formal analysis for accomplishments, but based on the semantics they provide for *quasi*, presented in (7) for *quasi* in Italian and repeated in (11) for *shedon*, the meaning we derive is that *there is an event e, and e is not a prove-theorem event but it is a close-to-prove-theorem event*.

(11) $[\![\text{shedon}]\!] = \lambda \langle P_{<\gamma,t>}, S \rangle. \lambda x_\gamma. \neg P(x) \wedge \exists Q_{<\gamma,t>} \in S[Q <_S P \wedge close_S(Q, P)] \wedge Q(x)]$

Thus, given the scale in Figure 1, the Q-alternative is an incomplete proving event at stage *j*, which derives the desired interpretation. Although the definition of the scale might seem vague in each case, this may be a welcome result since we see that *shedon* can combine with a variety of predicates with the interpretation depending on context.

By contrast, the approximative *paraligo* does not have the same effect. We argue that *paraligo* is a propositional intensional operator with modal interpretation as originally suggested by Sadock (1981) for *almost*:

(12) $[\![\text{PARALIGO}]\!](w)(p) = 1$ iff

    a. p(w)=0

    b. There is a world w' which is minimally different from w and p(w') = 1

While *paraligo* introduces a different world comparable with the evaluation world (usually the actual world), with *shedon* only the evaluation world is relevant and instead there is a scalar alternative which is comparable with the prejacent of *shedon*. The difference between the two operators becomes apparent in the following example, in which an aspectual verb, *stamatao* 'stop', is used. The salient interpretation for the sentence in (13a) is that the engines started to reduce their speed, although in the end they didn't stop. So, in a sense the process of stopping started but never culminated. In (13b), a different interpretation is possible under which the explosion could have caused the engines to stop but in the end nothing happened, because they had independent electricity supply. This interpretation under which there was no effect on the engines due to the explosion is absent with *shedon* and most salient with *paraligo*, suggesting that in (13a) *stop* is interpreted as a culminating achievement which has originated but has not yet culminated (scalar interpretation) (see Gyarmathy 2015 for the notion of culminating achievements) whereas in (13b) there is no beginning of the process.[8]

(13)   a. Me tin ekriksi,   shedon stamatisan   i   mihanes.
            with the explosion almost stop.PAST.3PL the engines

            'With the explosion, the engines almost stopped.'

    b. Me tin ekriksi,   paraligo na   stamatisun   i   mihanes.
            With the explosion by-little SUBJ stop.PAST.3PL the engines

            'With the explosion, the engines could have stopped.'

The contrast between (13a) and (13b) is captured by the two different interpretations for *shedon* (11) and *paraligo* (12), respectively, since the interpretation in (11) enforces the presence of a close scale-mate which is not the case in (12). Furthermore, as we have already hinted, a difference in the interpretation is expected depending on the aspectual class of the predicate. As one reviewer notices the contrast between *shedon* and *paraligo* becomes more apparent with activities and accomplishments. For these two classes the relevant scale is salient thus making the distinction between the two approximatives clearer. By contrast, with achievements (especially the non-culminating ones, e.g., *miss* in (4)), *shedon* is licensed only when it is possible to establish a relevant scale and in these cases it is not always easy to differentiate between the counterfactual and the scalar interpretation.

Now that we have provided our basic assumptions for the two Greek approximative operators, we return to the case of English *almost* and German *fast*. The question is whether there is lexical ambiguity (i.e., corresponding to the two lexical items in Greek), structural ambiguity (in the sense that the same lexical item gives rise to different interpretations depending on the level of attachment), or contextual "ambiguity" in the sense that different types of scales might be involved in each case. The lexical ambiguity hypothesis is encountered in Xu (2016) for English *almost* along with a contextual ambiguity analysis. The structural ambiguity hypothesis for the English *almost* goes back to McCawley (1971) and is also advocated by Rapp and von Stechow (1999) for the German *fast*. In English, accomplishment predicates can trigger ambiguity under which three different readings are possible depending on the level of attachment. That is, for a predicate like *close the door*, the counterfactual reading is derived by attaching *almost* above the *cause*-head as in (14a), while the scalar interpretation is derived when *almost* is attached lower inside the VP (14b–14c).

(14) Lisa almost closed the door.
      a. Lisa *almost* ACTED to CAUSE the door to BE CLOSED.
      b. Lisa ACTED to *almost* CAUSE the door to BE CLOSED.
      c. Lisa ACTED to CAUSE the door to *almost* BE CLOSED.

For Rapp and von Stechow (1999) the incomplete-result reading in (14c) is not easy to detect in German. For a critique of the scopal analysis of *almost* in English see also Penka (2005, 2006).

The contextual ambiguity hypothesis, at least for the Italian *quasi*, is put forth by Amaral and Del Prete (2010). While in the case of Greek we showed that *paraligo* does not qualify as a focus scalar item, this remains a possibility for the English *almost* and German *fast*. It goes beyond the purposes of the present paper to decide among the different analyses suggested in the literature for English *almost*. What is important from the perspective of the present study is that there is a lexical mismatch between Greek on the one hand and English/German on the other hand. Greek has two distinct elements, one conveying scalar approximation while the other conveying counterfactuality. These two uses are conveyed by a single element in English and German, possibly via type-shifting or scope interaction.

3. Research Questions and Objectives of the Present Study

The present study aims to investigate whether there is any divergence observed between the grammar of monolinguals and the grammar of HSs in the domain of approximatives. Following (Rothman 2009, p. 156) "a language qualifies as a Heritage Language if it is a language that is spoken at home or otherwise readily available to young children, but, crucially, this language is not a dominant language of the larger (national) society."

Given the crosslinguistic differences highlighted above in the distribution of approximatives and the lexical mismatch observed between Greek and English/German, a possible hypothesis is that there may be some divergence related to language transfer from the dominant language (see Polinsky 2018). The language transfer hypothesis can be partially tested in this study since we investigate heritage speakers of Greek with either American English or German as their dominant language. Although, as a reviewer points out, both languages use a single lexical item for the counterfactual and the scalar reading, there are important differences between the approximatives in English and German, with German patterning in terms of mood selection with Greek. The phenomenon we investigate involves more than one levels of transfer. A first consideration is whether there is semantic transfer. Since *almost* in English and *fast* in German can convey both a scalar and a counterfactual interpretation, a question arises as to whether HSs will allow for a scalar interpretation of *paraligo* as the result of semantic transfer from *almost/fast* or whether they will allow for a counterfactual interpretation of *shedon* as a result of semantic transfer from *almost/fast*. To our knowledge, the effect of semantic transfer, especially with semi-functional words as is the case of approximatives, has not been widely discussed. Semantic transfer is mostly discussed for lexical elements (see Polinsky 2018, pp. 293–294). A different type of transfer

that might be involved concerns the syntax of approximative constructions. Given that in Greek, the lexical distinction goes hand in hand with mood distinction, whereas English lacks such a distinction raises a question as to whether HSs will be sensitive to the mood distinction even if they have acquired the lexical difference between the two approximative elements. For German, on the other hand, which, as we showed, presents a similar distinction in counterfactual vs. scalar contexts, there is no question of transfer in the case of mood since the two languages are similar in this respect. While there is a considerable amount of discussion on the acquisition of mood by HSs, this mostly concerns Romance languages like Spanish and Portugeuse in which mood is part of the inflectional system (Flores et al. 2017; Montrul 2009; van Osch 2019). In Greek subjunctive mood is associated with a specific mood particle *na*, as shown above. Thus, it may be the case that acquisition of Greek mood distinction by HSs is different than what has been noticed for Romance languages.

A second question central to our study is whether the type of phenomenon we investigate constitutes a vulnerable domain in heritage acquisition. According to the Interface Hypothesis, if a grammatical phenomenon lies in the interface of two or more modules of our grammar, it is more challenging to acquire and process not only for bilinguals but also for monolinguals (Sorace and Filiaci 2006; Sorace and Serratrice 2009; Tsimpli and Sorace 2006). This is especially true if the study needs to combine information from a module of grammar (i.e., phonology, syntax, semantics) with extra-grammatical information from the context (Sorace 2011; Tsimpli and Sorace 2006). The phenomenon under investigation combines information from two modules, syntax and semantics, in order to map each approximative with the right syntax, but it also requires to combine contextual information in order to select the proper approximative. Thus, based on the interface hypothesis, we might expect that the acquisition of approximatives might constitute a vulnerable domain requiring extra processing. To our knowledge, there is no previous study in heritage linguistics regarding the acquisition of approximatives. However, there are studies about the acquisition of mood by Spanish heritage speakers (van Osch 2019), suggesting that heritage speakers have acquired the basic subjunctive—indicative distinction, but when the choice depends on the context, heritage speakers diverge from monolinguals. It is important to notice that, the present study cannot illuminate us about the acquisition of mood in general, but only specifically in the domain of approximative adverbials.

More concretely, the present study explores Greek HSs' performance and comprehension of the approximatives *paraligo* and *shedon*, aiming to address the following questions:

1. Have HSs acquired the semantic difference between *paraligo* and *shedon* in Greek and are they sensitive to their syntactic distribution?
   (a) Does the interface between syntax, semantics, and discourse provide extra challenges for HSs in comparison to monolinguals (Interface Hypothesis)?
   (b) Are HSs more permissive than monolinguals?
2. Are there differences between the two groups of HSs?
   (a) Are there differences depending on the properties of approximatives in the dominant language, American English vs. German (Language Transfer Hypothesis)?
   (b) Are there differences depending on the frequency of language use (Attrition effect)?
3. Are there monolingual speakers that behave more like heritage speakers?

Our starting point in answering these questions is a production study followed by a targeted comprehension study across the three groups.

4. Production Study in Heritage and Monolingual Speakers of Greek

The elicitation study was designed to elicit naturalistic data based on a fictional event. The study did not specifically target the elicitation of approximative constructions or any other specific construction. The general goal was to compare oral and written data in different levels of formality (2 × 2 data sets). The speakers' repertoires through these

narration tasks provide data for various phenomena, unlike targeted experiments. This methodology taps into the explicit (written task) and implicit (oral task) knowledge of both monolingual and heritage speakers' knowledge (Montrul 2011).

4.1. Method & Procedure

A narration task of a fictional event was used to elicit our data. A 42-second silent video presenting a non-severe car accident at a parking lot was shown to every participant. In this video, there is a pavement, parking slots where people park their cars or stand within the limits of the slots to load their trunks and the road where cars are passing by. The accident was initiated when a dog, that was standing right in the rear side of a car, ran from the slot to the middle of the road.[9] The task was to imagine having witnessed the accident in person and to narrate what happened, both orally and in writing. Following the 'language situations' setting (Wiese 2020) we simulated two distinct communication situations (formal and informal) for every participant.

For the elicitation of the formal setting, an elicitor dressed in a suit and sitting in an office asked each participant to retell the incident in detail, both orally and in written form, as if the participant were a witness addressing the police. The concept of the oral narration was to leave a voice mail on the answering machine of the police department, while the written narration task involved typing out a witness testimony on a laptop. The elicitor of the formal register used standardized language with honorifics, and participants were sitting at some distance opposite from the elicitor.

For the elicitation of data in the informal setting, another elicitor in casual attire and in a different room asked each participant to retell the incident orally and written to a close friend. The oral narration involved recording a voice message on Whatsapp®, while the written task was a text message in the same medium. In order to elicit the aforementioned narration task, a 20 min' chitchat took place between the elicitor and the participant. The two interlocutors were sitting close to each other and the elicitor created a friendly and pleasant atmosphere by being talkative and using no honorifics in their speech. After a relaxed conversation on different topics (e.g., music, hobbies, food, etc.), the elicitor offered treats and/or non-alcoholic beverages in order to make participants feel comfortable.

During the recruitment process the informal elicitor always reminded the participants of their appointment in a friendly way via text message one day in advance, while the formal elicitor always contacted participants via e-mail and connected them with the elicitors of their majority language in case they belonged to the HS groups. The elicitors in every language group were native speakers, i.e., Greek native speakers for the elicitation of Greek narrations, and the same holds for the elicitation of the majority languages (ML), AE and German.

In order to balance the elicitation process and not bias participants, 16 elicitation orders were created, half of them starting with the HL and half with the ML. The whole process was recorded and the elicitors asked participants to read their texts out loud during the writing tasks if those texts were written with Latin characters.

4.2. Participants

The production study tested three groups of participants divided into two age groups each. Two of these groups consisted of Greek heritage speakers, one in Germany and one in the US respectively, and one group consisted of monolingual controls. Within those groups two different age groups were tested, namely adults and adolescents.

The metalinguistic data presented in Table 1 have been collected in form of a questionnaire at the end of the elicitation task. The mean of self-ratings has been calculated out of four questions on listening, reading, writing and comprehension of the HL on a scale from very easy to very difficult (1 to 5) for each question. Some of the questions, e.g., the age of onset to bilingualism, have been filled out only by HSs as they don't apply to monolingual raised participants. The mean years of formal bilingual education were measured only for the two groups of heritage speakers as monolinguals have attended Greek schools. In addition, we collected data on the generation of HSs' parents. An average score based on

the frequency of visits to the country of heritage was also calculated for both HS groups, with the scale ranging from none to several visits per year.

Table 1. Metalinguistic data across language and age groups.

MD	GR Monolinguals		HSs-Germany		HSs-US	
AG	Adults	Ad/scents	Adults	Ad/scents	Adults	Ad/scents
N	32 (16F)	32 (16F)	27 (17F)	21 (7F)	31 (18F)	32 (16F)
Mean Age	27;6 (24–35) SD 3.003	15;3 (13–18) SD 1.755	28;5 (21–36) SD 4.108	16;3 (14–19) SD 3.224	29;9 (24–35) SD 3.224	16;2 (14–18) SD 1.408
Mean Onset Age	-	-	2;3 (0–8) SD 2.402	1;3 (0–4) SD 1.720	1;7 (0–6) SD 2.175	1;0 (0–5) SD 1.692
Self-rating in Gr	4.8 (3.25–5) SD 0.353	4.8 (3.75–5) SD 0.269	3.9 (2.5–5) SD 0.853	4.2 (2.25–5) SD 0.865	3.8 (1.75–5) SD 0.973	3.3 (2–5) SD 0.844
Self-rating in ML	-	-	4.9 (4–5) SD 0.218	4.6 (3.5–5) SD 0.491	4.9 (4.7–5) SD 0.045	4.8 (4–5) SD 0.282
Years of Education in Greek	-	-	6 (0–12) SD 4.350	8;5 (3–12) SD 2.673	7;7 (0–12) SD 4.266	10;4 (8–12) SD 1.319
Hours of Education in Greek	-	-	5078 (0-12480) SD 4865.710	6884 (312–12,480) SD 4262.286	1616 (0–3120) SD 981.326	2671 (0–3120) SD 355.319
Parent's generation						
Both 1st	-	-	18prt	7prt	21prt	12prt
1st & 2nd	-	-	2prt	1prt	8prt	10prt
Both 2nd	-	-	-	-	2prt	6prt
1st & GE/US	-	-	7prt	9prt	-	2prt
2nd & GE/US	-	-	-	2prt	-	1prt
Visits to Greece	-	-	1.54 (1–2) SD 0.508	1.56 (1–2) SD 0.511	1.03 (1–2) SD 0.186	1.03 (0–2) SD 0.511

4.3. Results

This section presents the results of the distribution of *paraligo* and *shedon* in the production task across groups, age groups, communication settings and modalities. The results here only show descriptive statistics and present a qualitative exploration as any inferential analysis would not be possible due to the small number of datapoints. Table 2 presents the numbers of the adverbial approximate constructions in raw instances per group and age group. We present in two separate rows the instances of *shedon* modifying a VP and the instances of *shedon* modifying a quantity or temporal expression. However, under the analysis in Section 2, both instances of *shedon* have essentially the same function.

Table 2. Distribution of *paraligo* and *shedon* constructions across groups and age groups.

LG	GR Monolinguals		HSs-Germany		HSs-US	
AG	Adults	Ad/scents	Adults	Ad/scents	Adults	Ad/scents
paraligo	8 (6)	2 (1)	0	1 (1)	17 (7)	6 (2)
shedon	0	0	0	1 (1)	0	0
shedon + QP/AdvP	3 (2)	0	0	1 (1)	0	0

As shown in Table 2, the counrerfactual adverbial *paraligo* appears to be produced more often in the narrations across groups, compared to the adverbial *shedon* which has a scalar interpretation. The numbers in parentheses indicate how many speakers produced the approximate constructions. Within the US heritage group, we notice that *paraligo* constructions are quantitatively more than the *paraligo* productions in monolinguals' narrations, while in the heritage group in Germany we found only one instance. As mentioned in the beginning of this section, the narration task did not target the elicitation of approximative constructions. Thus, the findings of this task are restricted and vary across language and age groups. Participants' production favored *paraligo* constructions as the events presented in the video did not indicate any scalability. *Paraligo* was combined with telic events and mainly with the verb class of achievements, as shown in (15)–(17). As we will see in the comprehension study, *paraligo* is indeed preferred with this class of predicates. Furthermore, as predicted by the analysis in Section 2, in these contexts we derive a counterfactual interpretation.

(15) O skilos […] paraligo na vgi   sto dromo.　　　　　*Monolingual*
the dog   almost SUBJ go-out.3SG in-the street
'The dog almost went out to the street.'

(16) Paraligo na   gini   ena megalitero atihima.　　　　　*HS-Germany*
almost SUBJ happen3SG a   bigger   accident
'A bigger accident almost happened.'

(17) Paraligo na   xtipisun mia gineka me ena moro.　　　　　*HS-US*
almost SUBJ hit.3PL a   woman with a   baby
'They almost hit a woman with a baby.'

The few instances of *shedon* in the narrations of monolingual and heritage speakers combine with temporal modifiers (18) or quantity expressions (19). In addition, we found only one instance produced by a US-HS that combines with an achievement predicate as shown in (20).

(18) Shedon amesos   klithike i astinomia.　　　　　*Monolingual*
almost immediately call.3SG the police
'Almost immediately the police was called.'

(19) Tha argiso   misi ora sxedon.　　　　　*HS-Germany*
FUT be-late.1SG half hour almost
'I'll be late almost half an hour.'

(20) Shedon sinadithikan   mes ti mesi   enos dromu.　　　　　*US-HS*
almost meet.PAST.3PL in   the middle a.GEN street
'They almost met in the middle of a street.'

Although the instances of *paraligo* and *shedon* in the narrations are few, two observations are worth our attention. First, all instances of *paraligo* occur in an environment conveying counterfactuality and non-scalarity. Second, in all cases *paraligo* is followed by subjunctive, which is the default pattern as noted in Section 2. Similarly, the only instance of *shedon* modifying a VP appears with indicative as predicted.

An additional consideration is whether there is a difference in the use of approximatives depending on the formality of the context. Looking at the different settings and modalities, we notice that monolinguals use *paraligo* primarily in the informal setting while US-HSs do not differentiate their narrations depending on the setting. Table 3 shows the instances of *paraligo* per setting (formal vs informal) and modality (spoken vs. written).

Table 3. Distribution of *paraligo* per settings and modalities across language and age groups.

LG	GR Monolinguals		HSs-Germany		HSs-US	
***Paraligo* in**	**Adults**	**Ad/scents**	**Adults**	**Ad/scents**	**Adults**	**Ad/scents**
Formal Spoken	0	1	0	0	3	1
Formal Written	0	0	0	1	4	1
Informal Spoken	3	1	0	0	7	2
Informal Written	5	0	0	0	3	2

Having shown the instances of Greek approximatives in the participants' narrations, we now present the approximatives produced by the same heritage participants in their respective majority languages. Exploring *almost* and *fast* aprroximatives in HSs' MLs, we found 26 instances of *almost* produced by 9 adults and 5 adolescents and 8 instances of *fast* produced by 1 adult and 2 adolescents.[10] The findings are presented in Tables 4 and 5. We observe that most instances are found in the informal setting similar to the production of monolingual Greek speakers. Moreover, the oral modality seems to favor their production across HSs groups and age groups, which also aligns with the findings in US-HSs' Greek narrations.

Table 4. Distribution of *almost* per settings and modalities in US-HS.

	HSs-US	
***Almost* in**	**Adults**	**Ad/scents**
Formal Spoken	1	2
Formal Written	2	1
Informal Spoken	6	5
Informal Written	4	5
Total Instances	13(9)	13(5)

Table 5. Distribution of *fast* per settings and modalities in Germany-HSs.

	HS-Germany	
***Fast* in**	**Adults**	**Ad/scents**
Formal Spoken	1	1
Formal Written	0	0
Informal Spoken	1	3
Informal Written	0	2
Total Instances	2(1)	6(2)

We also mapped *almost*-constructions with the Greek *paraligo*-constructions juxtaposing the narrations of HSs who used AE and Greek approximative constructions in both languages. We found 11 examples which can be matched as illustrated in (21).

(21)   a.   This lady's dog almost got run over.
       b.   Paraligo na   skotosun ena skilaki ston   dromo.
            By-little SUBJ kill.3PL a   dog   in-the street.
            'They almost killed a dog in the street.'

Although it was not possible to map *fast* constructions in German with *paraligo* because there was only one instance of *paraligo* in Greek narrations by Germany-HSs, the produced constructions occurred in similar environments in which the rest of approximative constructions were produced, as illustrated in (22).

(22)   ...oder hat   das eine Auto fast   das ähm den Hund überfahren.
       or   have.3SG this one car   almost this ...   the dog   hit
       '...or this car almost hit this dog.'

In addition, 4 out of 8 instances of *fast* combined with subjunctive (Konjunktiv II) in contexts which indicated counterfactuality.

(23) ...und es würde   fast   ein Unfall   passieren.
    and   it was.3SG almost one accident happen
    '...and an accident almost happened.'

4.4. Interim Discussion

The conclusions from the production study are limited due to the fact that successful production of *paraligo* does not necessarily entail comprehension of the counterfactual approximative in Greek. Similarly, the almost zero production of *shedon* which is common in the monolingual and heritage groups is due to the lack of scalar contexts and is not informative with regards to the acquisition of *shedon*. However, the production study is important in showing that US-HSs naturally produce approximatives. In addition, the productions in the dominant language exemplify the theoretical claim that the English *almost* and the German *fast* correspond to two distinct lexical elements in Greek, namely *paraligo* and *shedon*. The production data would only be suggestive if we had infelicitous productions of *paraligo* and *shedon* or issues in their syntactic distribution. At the same time, the limited data also do not allow us to make any strong claim for the lack of divergence in heritage grammars. In order to further address this question, we present in the next section a targeted comprehension study on Greek approximatives.

5. Sentence Evaluation Task in Heritage and Monolingual Greek

This study examines the impact of context on the choice of the appropriate approximative in Greek and the acquisition of its respective syntax across three different groups: monolinguals, HSs in the USA, and HSs in Germany.

5.1. Design & Materials

We designed a sentence evaluation task in which participants read and/or listened to a context and then had to evaluate four different sentences based on how natural they were perceived as and how well they fit into the context. Each context favored one of the 3 different interpretations:

1. A counterfactual interpretation, where the event came close to occurring but never took place.
2. A scalar interpretation, where the event started but it was not completed.
3. A neutral context, in which no information is given about the event.

The four sentences consisted the following combinations of factors:

i.   *paraligo* + SUBJ: (*the typical counterfactual AC*)
ii. *paraligo* + PAST IND: (*a non-attested AC*)
iii. *shedon* + PAST IND: (*the typical scalar AC*)
iv. *shedon* + SUBJ: (*a non-attested AC*)

In every context the four sentences were evaluated on a continuous slider from 0 (*Entirely Unnatural*) to 100 (*Entirely Natural*).

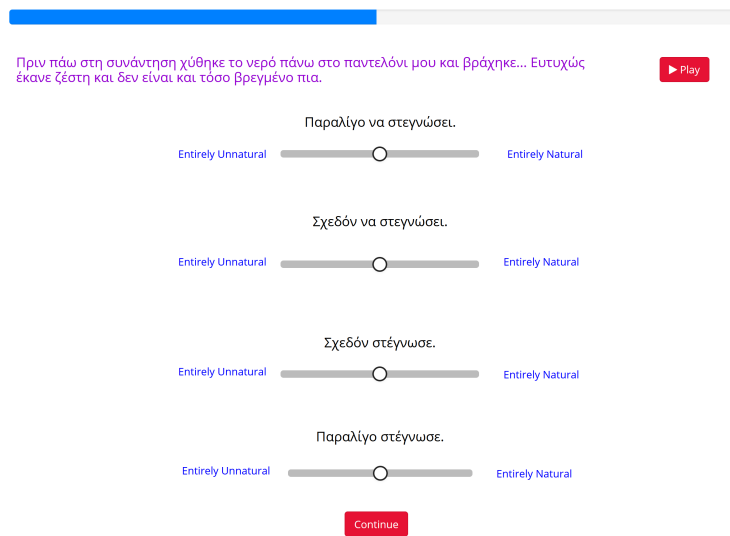An example of the experimental setup is given in Figure 2.

Figure 2. This is an example of what the HSs in USA would see in each experimental trial. The guidelines where presented for each group in the majority language. The context was recorded to facilitate the process.

We therefore had three different types of contexts and four different types of sentences. An example of each context type is presented below. There were five trials per context with the order of sentences balanced for each type of context (i.e., 5 different combinations per context).

(24) **Counterfactual context**: Nick is allergic to chocolate. At a party, somebody gave him a sweet. Luckily he smelled it first, and realized that it had chocolate before biting into it.

    a. Paraligo na   fai   to gliko.
       by-little SUBJ eat.3SG the sweet

       'He almost ate the sweet.'

    b. Paraligo efage   to gliko.
       by-little eat.IND.PAST.3SG the sweet

    c. Shedon efage   to gliko.
       almost eat.PAST.3SG the sweet.

    d. Shedon na   fai   to gliko.
       almost SUBJ eat.3SG the sweet.

(25) **Scalar context**: We are preparing a cake and put the chocolate into the bain-marie over low heat. Now there are only a few whole pieces of chocolate left.

    a. Paraligo na   liosi   i   sokolata.
       by-little SUBJ melt.3SG the chocolate.NOM

    b. Paraligo eliose   i   sokolata.
       by-little melt.IND.PAST.3SG the chocolate.NOM

    c. Shedon eliose   i   sokolata.
       almost eat.PAST.3SG the chocolate.NOM.

       'The chocolate has almost melted.'

    d. Shedon na   liosi   i   sokolata.
       almost SUBJ melt.3SG the chocolate.NOM.

(26) **Neutral context**: A car didn't stop at the lights but it stopped immediately when they saw us.

    a. Paraligo na   trakarume.
       by-little SUBJ crash.1PL

'We almost crashed.'

b. Paraligo trakarame.
    by-little crash.IND.PAST.1PL

c. Shedon trakarame.
    almost   crash.IND.PAST.1PL

d. Shedon na   trakarume.
    almost SUBJ crash.1PL

The full list of items can be viewed in Appendix A. In addition, we had 15 trials with fillers which evaluated different complementation strategies after three different types of verbs. The trials were pseudorandomized. The study was implemented in Gorilla Experiment Builder (www.gorilla.sc, Anwyl-Irvine et al. 2018). The choice of the particular design relied on the idea that by being presented with all of the four different conditions, participants would show greater sensitivity to the differences between each condition (Marty et al. 2020). This is also something noticed by Cuza and Frank (2011) for a phenomenon at the syntax—semantics—pragmatics interface they investigated. In addition, given the difficulties that have been pointed out regarding sentence judgement tasks in heritage populations (see Polinsky 2018, pp. 95–101 for an overview), we intended to make the task as explicit as possible.

5.2. Participants

Three different groups were tested, comprised of:

- 43 monolingual participants recruited via Prolific and public advertising (mailing lists, Facebook)
- 20 Greek HSs in Germany (via mailing lists)
- 19 Greek HSs in USA (via mailing lists)

Monolingual speakers were asked to confirm that they had grown up monolingual with monolingual education, currently lived in Greece, and had not spent more than a year in a row abroad.

The majority of the heritage participants had also participated in the production study. Below we present the participant metadata collected at the end of the online study. It is important to notice that the task presupposed a good literacy level since only the context could be listened to as an audio recording while the four different sentences had to be read and evaluated. This immediately excludes heritage participants who did not have any bilingual education in Greek. Table 6 presents the metadata for the sentence evaluation task. The only difference from the metadata for the production study presented in Table 1 is that the mean self-ratings in Greek and in ML concern the *frequency of use* of each language and thus they are represented on a scale from 0 to 100 for each language.

Table 6. Metalinguistic data across groups in the Sentence Evaluation Task.

MD	GR Monolinguals	HSs–Germany	HSs-US
N	43	20	19
Mean Age	27;6 (24–35)	29;2 (18-46)	28;5 (21–36)
Mean Onset Age	-	0;2 (0–2) SD 0.5495	0;7(0–2) SD 0.3441
Self-rating in Gr	-	54.05 (7–100) SD 32.566	65.84 (5–100) SD 31.597
Self-rating in ML	-	84.55 (33–100) SD 20.950	86.95 (4–100) SD 26.108
Years of Education in Greek	-	7;1 (0-12) SD 4.793	8;4(3–12) SD 2.632
Hours of Education in Greek	-	7436 (0–12,480) SD 4985.096	1770 (624–2496) SD 549.617
Parent's generation			
Both 1st	-	7prt	13prt
1st & 2nd	-	4prt	1prt
Both 2nd	-	4prt	2prt
1st & GE/US	-	3prt	-
2nd & GE/US	-	1prt	1prt
other	-	1prt	2prt
Visits to Greece	-	2.0 (1–3) SD 0.562	3.16 (2–5) SD 1.015

5.3. Predictions

Based on the observations and the analysis in Section 2, we predict a notable difference in ratings depending on context within the monolingual group. In particular, we predict that a counterfactual context will lead to high ratings of the AC with *paraligo* + SUBJ, while the other three sentences will be rated lower. In a scalar context, we predict high ratings of the AC with *shedon* + IND and lower ratings of the other three sentences. In general, we predict that the *paraligo* + IND and *shedon* + SUBJ ACs will always receive a low rating since they are not typical/grammatical. In the neutral context, the following sentences always involve predicates of achievement (*crash, hit, fell in love, resign, divorce*). In this sense a scalar interpretation is not possible with these predicates unless there is some type of coercion as explained in Section 2. A sentence like (26c) in the given context in (26) is acceptable for native speakers. The intuition is that when they use *shedon* the interpretation is that the two cars barely touch each other. Although *shedon* is licensed in such contexts, *paraligo* is more natural according to our judgements. The main reason for adding the neutral context with the achievement predicates was because, as mentioned above, the majority of instances with approximatives in the production study involved achievement predicates, and therefore we wanted to confirm whether there was a preference for the counterfactual *paraligo* over the scalar approximative *shedon* in these contexts.

For HSs in the USA, we have seen from the production study in Section 4, that they had produced *paraligo* and its variants felicitously. However, the few constructions with *shedon* cannot offer conclusive evidence as to whether HSs make a distinction between

the two approximatives. As we have discussed in Section 3, the fact that English has only one approximative adverbial which can be used both in counterfactual and scalar contexts might affect the HSs' sensitivity between the two markers, as the result of semantic transfer. Additionally, the lack of mood distinction in the dominant language might have an impact on the acceptability of the unattested combinations of *shedon* + SUBJ and *paraligo* + IND if they diverge from monolinguals in their sensitivity to mood distinction.

For HSs in Germany, we did not find any instances of approximatives in their productions. Although in German, like in English, there is a single approximative for counterfactual and scalar contexts, namely *fast*, there is a critical difference between the two cases. As Rapp and von Stechow (1999) discuss in detail, and as we have outlined in Section 2, in counterfactual contexts *fast* typically combines with the subjunctive Konjunktiv II, whereas in scalar contexts the sentence appears with indicative. This property of German might affect the speakers in two possible ways. They might highlight the subjunctive–indicative distinction as the key for the differentiation between counterfactual and scalar contexts. This would lead to a higher rating of *shedon* + SUBJ sentences in a counterfactual context which are otherwise judged unnatural by native speakers. However, if they have acquired the lexical difference between *paraligo* and *shedon*, they should not face any issues with mood choice in the two cases since mood distinction in counterfactual and scalar environments ends up the same in the two languages.

A separate but related question is whether approximative constructions present a vulnerable domain, given their interface properties. As we have observed in Section 3, we would expect a divergence between monolinguals and HSs based on the Interface Hypothesis. A special consideration related with the nature of the current study. It has been noticed already that HSs tend to overaccept or give higher ratings to ungrammatical sentences (Polinsky 2018; Rinke and Flores 2014) in grammaticality judgement tests, and thus a question is raised as to whether they will exhibit less sensitivity to the ungrammatical sentences than the monolingual group.

Going back to our original research questions, the interface hypothesis predicts that the task will be challenging for HSs to a greater extend than monolinguals as it lies in the interface between syntax, semantics and discourse. However, as a reviewer points out, even if we find a divergence in our study between the two groups, this will not provide any strong evidence for the interface hypothesis, since the same group is not tested in a non-interface phenomenon. Similarly, as we said, the transfer hypothesis would predict that HSs might be influenced by their dominant language in not drawing a distinction between the marker or the mood pattern. As we mentioned in Section 3, although both languages, AE and German, differ from Greek in that they employ a single lexical item in contexts in which Greek employs two distinct items, German resembles Greek in the mood selection pattern. Thus, if we find that HSs in Germany diverge less than US-HSs from monolinguals in terms of the interaction between context and mood pattern, this would lend support to the Transfer Hypothesis. The evidence, however, cannot be conclusive since divergence might be due to different reasons such as attrition. For the latter, as a reviewer points out, we cannot really test it since all the groups are adults and no children were tested. On the other hand, lack of divergence between the HSs and the monolingual group would suggest that the particular domain is not vulnerable, providing evidence against transfer or attrition effects.[11]

5.4. Statistical Analysis

The ratings from 43 Greek monolinguals, 20 German and 19 English HSs were used as the dependent variable in statistical analysis using mixed-effects linear regression modeling (R package `lme4`, Bates et al. 2015). We treated Ratings as a continuous variable as participants were able to move the rating-point along a continuous scale with equidistant ends to the center. Mood, Marker, Context, and Group (reflecting the $2 \times 2 \times 3 \times 3$ within-subject design of the study), as well as a three-way interaction between Marker, Mood and Context were used as independent predictors, with random intercepts by participant and item.

Every factor in the design had its levels contrast-coded in accordance with the design of the study. Each sentence was embedded in one of three Context levels, i.e., counterfactual, scalar and neutral. As we expected neutral to be the baseline level for ratings, and the other two levels to diverge in relation to the marker variable, we coded a sum-contrast for Context. The Group variable was helmert-coded since the heritage language levels, i.e., English and German, were to be compared first to each other and then monolithically to monolingual Greek. Marker and Mood both received a sum-contrast as there was no hypothesis to predict that one of their two levels would be preferred per se.

Regression modeling was conducted in a stepwise fashion by adding one predictor at a time as well as reasonable interactions which were expected according to the predictions of the study. Model performance and quality of fit between models was evaluated using ANOVA. The p-values for each predictor in the models were calculated using the `Anova()` function from the package `car` (Fox and Weisberg 2019). The full model containing all of the aforementioned predictors was observed to have the best fit to the data. A post-hoc pairwise analysis of the interactions between each of the tree significant predictors was then carried out using the R package `emmeans` (Lenth 2020). Plots used to describe the data were generated using the package `ggplot2` (Wickham 2016). The full script of our analysis and visualizations as well as raw and cleaned data are accessible and publicly stored in an OSF repository which can be accessed via this link https://osf.io/cktz5/ (accessed on 20 December 2021).).

5.5. Results

This subsection will briefly illustrate the descriptive results of our study as represented by Figures 3 and 4, followed by the inferential analysis. In Figure 3, we can observe high variability within the participants' responses. While for each combination of Condition and Context there is always one preferred set with narrow boxplots and fewer outliers, the dispreferred sets show a larger distribution and a greater number of outliers. A direct visual comparison of all subplots yields similar patterns across participant groups with especially HS-US tending towards higher rating indicating a broader acceptability of non-canonical combinations of contexts and conditions.
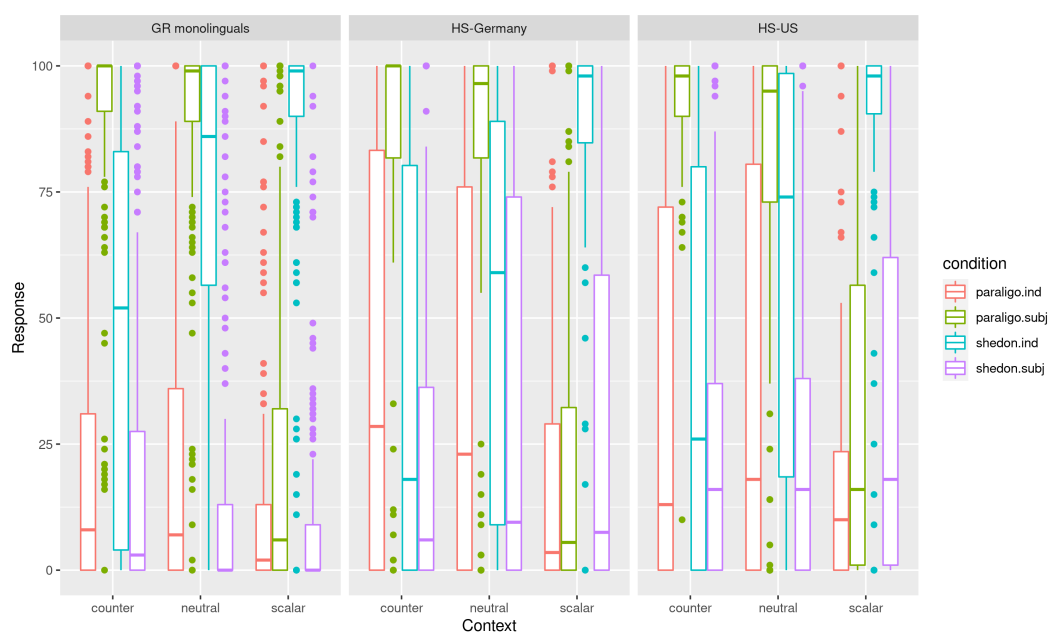

Figure 3. The figure shows Responses to sentences in the study grouped into boxplots by Context and Condition variables. These two variables structured the design of the study and determined how items were presented. Each subplot shows the results for one participant group as indicated by the title at the top of each subplot.

Additionally, Figure 4 confirms that the general patterns across groups are the same for most combinations. The fact that the low-scoring combinations of Marker and Mood are generally higher in the heritage groups also points to a higher acceptance of non-canonical utterances by heritage speakers. However, these are just visually observed patterns which are yet to be attested in the inferential general linear regression model below. The mean ratings are also presented in Table 7.
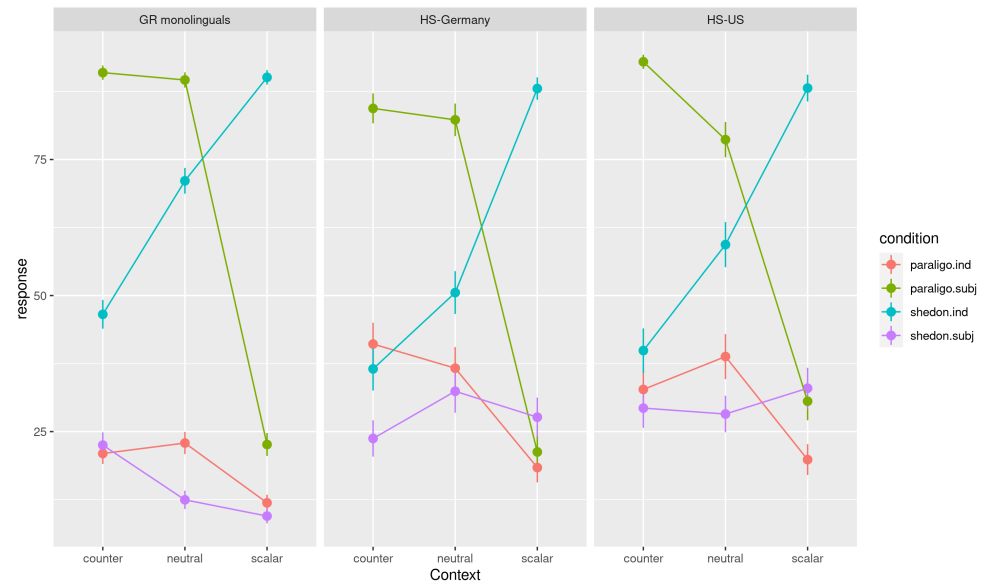

Figure 4. The figure shows Responses to sentences in the study grouped into boxplots by Context and Marker+Mood (subsumed under Condition) variables. Each subplot shows the results for one participant group as indicated by the title at the top of each subplot. The responses in form of ratings are illustrated by points and errorbars.

Table 7. Mean rating per context and condition in the three groups.

Context	Marker-Mood	Monolinguals	HS-Germany	HS-USA
Counterfactual	*paraligo.ind*	20.97	41.09	32.75
	paraligo.subj	90.96	84.39	92.96
	shedon.ind	46.54	36.52	39.89
	shedon.subj	22.52	23.74	29.32
Neutral	*paraligo.ind*	22.9	36.65	38.79
	paraligo.subj	89.62	82.29	78.65
	shedon.ind	71.08	50.54	59.35
	shedon.subj	12.46	32.41	28.23
Scalar	*paraligo.ind*	11.91	18.39	19.85
	paraligo.subj	22.63	21.26	30.58
	shedon.ind	90.09	88.04	88.13
	shedon.subj	9.48	27.65	32.97

We present the results of our full model in regression Table 8. Note that Group, which encodes one of the three varieties of Greek in our study, is not a statistically significant predictor. The statistically significant factors are Context and the interactions between Mood*Context, Mood*Marker, and Marker*Context, suggesting that each factor does modulate the other two. However, the threeway interaction between these grammatical factors has come out with no statistical significance. This could be an artifact of experimental design. Generally, a certain level of variance remains in the ratings as is well illustrated in Figure 3. The model also informs that this variance is not dominated by either participant or item random intercepts as they level out at SD = 9.764 and SD = 8.609, respectively.

Table 8. Regression table to predict responses for sentence acceptability.

Effect	Estimate	Standard Error	t-Ratio	*p*
(Intercept)	45.156	1.662	27.175	<0.001
marker	1.112	1.185	0.939	0.3479
mood	0.413	1.185	0.349	0.7273
context:counterfactual	1.937	1.675	1.156	<0.001
context:scalar	−7.419	1.675	−4.429	<0.001
group: Ger/US	−1.188	1.673	−0.710	0.2
group: HS/Mono	−1.279	0.770	−1.661	0.2
marker x mood	−21.308	1.185	−17.990	<0.001
marker x counterfactual	11.757	1.675	7.019	<0.001
marker x scalar	−18.368	1.675	-10.965	<0.001
mood x counterfactual	−11.175	1.675	−6.671	<0.001
mood x scalar	14.832	1.675	8.855	<0.001
marker x mood x counterfactual	1.463	1.675	0.873	0.1753
marker x mood x scalar	1.661	1.675	0.992	0.1753

As our independent variables are all categorical and are coded for various contrasts, it might be difficult to draw conclusions based on the model findings alone. To account for this and to better highlight the difference within each factor in the interaction, we conducted the following posthoc-analysis on the significant effects. This reveals meaningful patterns within the interactions which are not reflected solely by the general linear regression model above. Since we ran a threeway-interaction, one posthoc-test was run for each combination.

First, there is the Mood*Marker interaction with two levels for each variable. Each item was comprised of a sentence that featured this interaction, yielding four different conditions as shown in Section 4. In the indicative Mood, the Marker *paraligo* rated 40.4 points lower than the Marker *shedon* (SE = 3.35, df = 48, t-ratio = −12.057, *p* < 0.0001). In the subjunctive Mood, conversely, the Marker *paraligo* rated 44.8 points better than the Marker *shedon* (SE = 3.35, df = 48, t-ratio = 13.385, *p* < 0.0001).

Second, we tested the patterns for the Marker*Context interaction. The Context framed the items with modulated Markers in our study. In the counterfactual context, *paraligo* rated higher than *shedon* by 25.7 points on average (SE = 4.1, df = 48, t-ratio = 6.273, *p* < 0.0001). In the scalar context, *paraligo* rated lower by 34.5 points on average (SE = 4.1, df = 48, t-ratio = −8.411, *p* < 0.0001). In the neutral context, *paraligo* was again rated higher on average, by 15.4 points (SE = 4.1, df = 48, t-ratio = 3.764, *p* = 0.0005)

Third, we investigated the Context*Mood interaction. In the study, Context framed items with one of the two Mood levels. In the counterfactual context, indicative rated lower than subjunctive by 21.52 points on average (SE = 4.1, df = 48, t-ratio = −5.246, *p* < 0.0001). In the scalar context, indicative rated higher by 30.49 points on average (SE = 4.1, df = 48, t-ratio = 7.431, *p* < 0.0001). In the neutral context, the difference between the means was 6.49 points, with indicative rating lower on average, but the difference was not statistically significant (SE = 4.1, df = 48, t-ratio = −1.582, *p* = 0.1203).

5.6. Interim Discussion

The results confirm the basic prediction that monolingual speakers rely on context for the choice of the right approximative. In particular, we notice that in the counterfactual context, the rating of *paraligo* + SUBJ is much higher (mean rating of *paraligo* + SUBJ: 90.96) than *shedon* (mean rating: 46.54). In the scalar context the picture is reversed, i.e., *shedon* + IND is rated higher (mean rating: 90.09) than the *paraligo* + SUBJ (mean rating: 22.63). It is interesting that *shedon* + IND in the counterfactual context, although quite low as predicted, is not as low as *paraligo* + SUBJ in the scalar context. This suggests that perhaps it might be possible to extend the meaning of *shedon* to convey a clearly counterfactual interpretation as suggested by the theoretical analysis of *shedon* building on Amaral and

Del Prete (2010). By contrast, *paraligo* is exclusively counterfactual and cannot be used in clearly scalar contexts. In the neutral context, which involved achievement predicates, we notice that there is a preference for *paraligo* + SUBJ over *shedon* + IND, as was also suggested by the production study that we presented. As we said, this has to do with the fact that a scalar interpretation cannot be attained with achievement predicates unless there is some coercion of the predicate which allows a scalar interpretation. We conjecture that the mean rating of *shedon* + IND in this context represents exactly this possibility. Finally, we notice that the patterns traditionally characterized as ungrammatical receive lower ratings across all contexts (>23%).

Moving on to the two heritage groups, our results show that HSs behave like monolinguals in the choice of the right approximative marker and mood given the context. Neither the difference between the German and US, nor the difference between HSs and monolinguals turned out to be a significant factor in the model. Although we notice that the mean ratings of the ungrammatical *paraligo* + IND and *shedon* + SUBJ are a bit higher than in the monolinguals, they are still rated very low and there is no significant difference between the three groups. It is possible that the monolingual-like performance is related to the high level of exposure of the two groups to their heritage language. However, it is also possible that the current design which presented all different conditions together increased metalinguistic awareness both in the heritage and in the monolingual group (see the discussion in Section 4.1).

All in all, the comprehension study suggests that the set of HSs tested in Germany and the USA have acquired the semantic difference between *paraligo* and *shedon* and their different syntax despite the lack of this difference in the dominant languages. In the final section, we discuss the implications of our results regarding the Language Transfer Hypothesis and the Interface Hypothesis.

6. Discussion & Further Questions

The original question presented in the paper was whether the crosslinguistic differences between Greek, English, and German plays any role in the acquisition of approximative markers by Greek heritage speakers. The primary difference is that in Greek there is a distinct counterfactual approximative marker *paraligo* which is inconsistent with a scalar interpretation. The scalar approximative in Greek is *shedon*, which, following Amaral and Del Prete (2010)'s analysis of the Italian *quasi*, we analysed as a cross-categorical focus-sensitive scalar marker. By contrast, in English and German the counterfactual and the scalar interpretation can be expressed via the same marker, *almost* and *fast* respectively. A crucial difference between English and German is that in German, the surface syntax of counterfactual approximative constructions differs from the syntax of scalar approximative constructions. In the former, *fast* occupies an initial position and is typically combined with Konjunktiv II. Given these differences between the three languages, we hypothesized that if there is a language interference effect in the performance of HSs it should be detectable based on our targeted sentence evaluation task in two heritage groups with different majority languages (Montrul 2009; Polinsky 2018; Scontras et al. 2015). The results show that there is no language transfer effect since no significant difference was detected between the three groups.

Furthermore, HSs seem to have acquired the mood distinction with approximatives. This conclusion must be treated with caution since it does not show that the heritage groups have acquired the mood distinction in general. As noticed in previous studies, mood is affected by language transfer Montrul (2002, 2009; van Osch 2019), but the level of divergence varies depending on the particular phenomenon investigated. Thus, we only make a claim regarding mood distinction with approximative adverbials here.

The lack of divergence between the heritage groups and the monolingual group becomes even more interesting in view of the fact that, as explained in detail in Section 3, the phenomenon under investigation lies in the interface between semantics, syntax, and discourse. Given the Interface Hypothesis, we would expect that this would constitute a vulnerable domain for heritage speakers. The data of both studies converge on the

hypothesis that the two groups have acquired the semantic distinction between the two approximative markers. This is not entirely surprising, given that in various studies it has been shown that the predictions of the Interface Hypothesis vary a lot depending on the type of phenomenon investigated and the task that is used. Furthermore, there are few studies investigating semantic transfer, and thus it is difficult to make a more general claim for the particular phenomenon.

The lack of divergence and language transfer can be attributed to different reasons. First of all, as mentioned above, the vast majority of HSs have received some bilingual Greek education and their parents are both either 1st or 2nd generation Greek. In addition, as we have noticed in Section 2, approximatives are used commonly in the informal register, and thus the input of HSs is rich in these constructions allowing them to acquire their differences in the same way as monolinguals.

Since we do not observe any transfer from the dominant language to the heritage language, a question which arises and which we have not addressed so far is whether there is the reverse pattern, i.e., transfer from the heritage language to the dominant language. As Scontras et al. (2015) notice, in many cases the phenomenon of transfer from the heritage to the dominant language is ignored, however it is possible that this happens. In the particular case that we investigate here, it is possible that HSs reserve the use of *almost* or *fast* for scalar interpretations avoiding to use them in counterfactual contexts. The limited data from the Production study, however, speak against this conclusion. As we reported in Section 4.3, the two heritage groups produce counterfactual *almost* and *fast* in their dominant languages, suggesting that neither in this direction there is language transfer.

The domain of approximatives presents on its own a fascinating domain of language acquisition not only because of the crosslinguistic differences between approximative markers but also because of the modal character of the counterfactual inferences. Beck and Guthrie (2011) investigate the acquisition of counterfactual *almost* by English monolingual children in UK and they found that the acquisition of counterfactual *almost* is particularly challenging for children as opposed to a scalar interpretation which seems more accessible. In view of these facts, it would be very interesting to test whether bilingual children with Greek as their heritage language show more sensitivity to the counterfactual interpretation of *almost* given the split between two lexical items for the two interpretations in Greek.

A related question concerns the role of mood in the path of the acquisition. Given that subjunctive mood has been associated with *irrealis* in various ways (see a.o. Farkas 1992; Giannakidou 2015), it might help speakers to associate *paraligo* with a counterfactual interpretation. The domain of *mood* on its own presents a fertile ground for testing the Language Transfer and the Interface Hypothesis for heritage acquisition. The fact that Greek subjunctive mood has different properties from subjunctive in Romance languages makes this domain particularly useful in testing these hypotheses.

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Abbreviations

The following abbreviations are used in this manuscript:

AC	Approximative Constructions
ACC	Accusative
AG	Age Group
F	Female
F	Focus
FEM	Feminine
FUT	Future
HL	Heritage Language
HS	Heritage Speaker
IND	Indicative
LG	Language Group
ML	Majority Language
N	Number
PL	Plural
SD	Standard Deviation
SG	Singular
SUBJ	Subjunctive

Appendix A

In this Appendix we present the full list of items for the Sentence Evaluation Task, categorized into the three different types of contexts; (i) Counterfactual, (ii) Neutral, and (iii) Scalar. The context has been translated from Greek to English. The sentences are given here in the same order but in the actual experiment they appeared in different orders every time.

Appendix A.1. Counterfactual Context

(27) *Nick is allergic to chocolate. At a party, somebody gave him a sweet. Luckily he smelled it first, and realised that it had chocolate before biting into it.*

    a. Paraligo na fai to gliko.
       by-little SUBJ eat.3SG the sweet

       'He almost ate the sweet.'

    b. Paraligo efage to gliko.
       by-little eat.IND.PAST.3SG the sweet

       'He almost ate the sweet.'

    c. Shedon efage to gliko.
       almost eat.PAST.3SG the sweet.

       'I almost ate the sweet.'

    d. Shedon na fai to gliko.
        almost SUBJ eat.3SG the sweet.
        'I almost ate the sweet.'

(28) *The explosion was so strong that the glasses were shaken. When it stopped we checked them all and they were all ok.*

    a. Paraligo na spasun ta tzamia.
        by-little SUBJ break.3PL the glasses

    b. Paraligo espasan ta tzamia.
        by-little break.IND.PAST.3PL the glasses

    c. Shedon espasan ta tzamia.
        almost break.IND.PAST.3PL the glasses

    d. Shedon na spasun ta tzamia.
        almost SUBJ break.3PL the glasses
        'The glasses almost broke.'

(29) *There was a big earthquake and the building moved a lot! Luckily it endured.*

    a. Paraligo na gremisti.
        by-little SUBJ demolish.3SG

    b. Paraligo gremistike.
        by-little demolish.IND.PAST.3SG

    c. Shedon gremistike.
        almost demolish.IND.PAST.3SG

    d. Shedon na gremisti.
        almost SUBJ demolish.3SG
        'It was almost demolished.'

(30) *Maria had just painted a chair but she didn't tell me. I was ready to sit down but luckily I noticed it.*

    a. Paraligo na lerothi to panteloni mu.
        by-little SUBJ get-dirty.3SG the trousers my

    b. Paraligo lerothike to panteloni mu.
        by-little get-dirty.IND.PAST.3SG the trousers my

    c. Shedon lerothike to panteloni mu.
        almost get-dirty.IND.PAST.3SG the trousers my

    d. Shedon na lerothi to panteloni mu.
        almost SUBJ get-dirty.3SG the trousers my
        'My trousers almost got dirty.'

(31) *There was a strong storm yesterday! Our boat was shaking a lot but luckily we had a good captain.*

    a. Paraligo na vuliaksi i varka.
        by-little SUBJ sink.3SG the boat

    b. Paraligo vuliakse i varka.
        by-little sink.IND.PAST.3SG the boat

    c. Shedon vuliakse i varka.
        almost sink.IND.PAST.3SG the boat

    d. Shedon na vuliaksi i varka.
        almost SUBJ sink.3SG the boat
        'The boat almost sank.'

Appendix A.2. Scalar Context

(32)   *We are preparing a cake and put the chocolate into the bain-marie over low heat. Now there are only a few whole pieces of chocolate left.*

    a. Paraligo na   liosi   i   sokolata.
       by-little SUBJ melt.3SG the chocolate.NOM
       'The chocolate almost melted.'

    b. Paraligo eliose   i   sokolata.
       by-little melt.IND.PAST.3SG the chocolate.NOM

    c. Shedon eliose   i   sokolata.
       almost eat.PAST.3SG the chocolate.NOM.
       'The chocolate almost melted.'

    d. Shedon na liosi   i   sokolata.
       almost SUBJ melt.3SG the chocolate.NOM.

(33)   *A wine stain had appeared on the shirt. We quickly washed it out and now it's only slightly visible.*

    a. Paraligo na figi   o   lekes.
       by-little SUBJ leave.3SG the stain

    b. Paraligo efige   o   lekes.
       by-little leave.IND.PAST.3SG the stain

    c. Shedon efige   o   lekes.
       almost sink.IND.PAST.3SG the boat

    d. Shedon na figi   o   lekes.
       almost SUBJ leave.3SG the stain
       'The stain is almost gone.'

(34)   *I bought a very nice novel. I started it yesterday and got really involved.*

    a. Paraligo na   to   diavaso.
       by-little SUBJ it.CL read.1SG

    b. Paraligo to   diavasa.
       by-little it.CL read.IND.PAST.1SG

    c. Shedon to   diavasa.
       almost it.CL read.IND.PAST.1SG

    d. Shedon na   to   diavaso.
       almost SUBJ it.CL read.1SG
       Intended: 'I almost read the whole book.'

(35)   *The painter has painted the room first time and now waits to dry to paint it a second time too.*

    a. Paraligo na   to   vapsi.
       by-little SUBJ it.CL paint.3SG

    b. Paraligo to   evapse.
       by-little it.CL paint.IND.PAST.3SG

    c. Shedon to   evapse.
       almost it.CL paint.IND.PAST.3SG

    d. Shedon na   to   vapsi.
       almost SUBJ it.CL paint.3SG
       Intended: 'He has almost painted it.'

(36)   *Before the meeting some water got spilled on my trousers and they got wet. Luckily it was warm outside and they are not so wet anymore.*

    a. Paraligo na   stegnosi.
       by-little SUBJ dry.3SG

   b. Paraligo stegnose.
       by-little dry.IND.PAST.3SG

   c. Shedon stegnose.
       almost dry.IND.PAST.3SG

   d. Shedon na   stegnosi.
       almost SUBJ dry.3SG

       Intended: 'They have almost dried.'

Appendix A.3. Neutral Context

(37) *We had a big fight with Nick.*

   a. Paraligo na   horisume.
       by-little SUBJ split-up.1PL

   b. Paraligo horisame.
       by-little split-up.IND.PAST.1PL

   c. Shedon horisame.
       almost split-up.IND.PAST.1PL

   d. Shedon na   horisume.
       almost SUBJ split-up.1PL

       Intended: 'We almost split up.'

(38) *A car didn't stop at the lights but stopped immediately when they saw us.*

   a. Paraligo na   trakarume.
       by-little SUBJ crash.1PL

   b. Paraligo trakarame.
       by-little crash.IND.PAST.1PL

   c. Shedon trakarame.
       almost crash.IND.PAST.1PL

   d. Shedon na   trakarume.
       almost SUBJ crash.1PL

       Intended: 'We almost crashed.'

(39) *I met a man two years ago. I was thinking of staying with him.*

   a. Paraligo na   ton   erotefto.
       by-little SUBJ him.CL fall-in-love.1SG

   b. Paraligo ton   eroteftika.
       by-little him.CL fall-in-love.IND.PAST.1SG

   c. Shedon ton   eroteftika.
       almost him.CL fall-in-love.IND.PAST.1SG

   d. Shedon na   ton   erotefto.
       almost SUBJ him.CL fall-in-love.1SG

       Intended: 'I almost fell in love with him.'

(40) *A dog ran to the street.*

   a. Paraligo na   to   patiso.
       by-little SUBJ it.CL hit.1SG

   b. Paraligo to   patisa.
       by-little it.CL hit.IND.PAST.1SG

   c. Shedon to   patisa.
       almost it.CL hit.IND.PAST.1SG

   d. Shedon na   to   patiso.
       almost SUBJ it.CL hit.1SG

       Intended: 'I almost hit it.'

(41) *Anna is not happy with her job. One day she couldn't bear it anymore and she went and talked to the manager.*

    a. Paraligo na   paretithi.
       by-little SUBJ resign.3SG

    b. Paraligo paretithike.
       by-little resign.IND.PAST.3SG

    c. Shedon paretithike.
       almost resign.IND.PAST.3SG

    d. Shedon na   paretithi.
       almost SUBJ resign.3SG

      Intended: 'She almost resigned.'

Notes

[1] Synonymous to *paraligo* and similar in their distributions are the more idiomatic expression *paratriha* 'lit. by a hair' and the dialectal *apo ligo*, which are considered to be less formal. Interestingly, all variants appear in heritage language. We take all of these adverbials to have the same denotation only differing in that the idiomatic *paratriha* and *apo ligo* are considered to be less formal.

[2] Although *paraligo* + SUBJ is the most typical pattern, there is also the possibility of combining *paraligo* with a counterfactual construction involving the future particle *tha* + *past imperfective* as shown in (42a). This case is easy to explain on a par with the subjunctive since in both cases morphological marking indicates that the prejacent was not fulfilled in the actual world (see Iatridou 2000 for counterfactual *tha*). The trickiest option, which is also quite marked, is to have indicative with negation, with the interpretation that *by little the prejacent didn't happen*. A similar polar switch is reported by Amaral (2007) for *por pouco* 'by-little' in Portuguese. We will not be concerned with these two cases in this paper, but the full understanding of these alternations remains an interesting topic for future research.

(42) a. Paraligo tha skarfalona   to Everest.
      by-little FUT climb.IMPF.PAST.1SG the Everest
      'I would have almost climbed Mount Everest.'

    b. Paraligo den skarfalosa   to Everest.
      by-little not climb.PAST.1SG the Everest.
      'By-little I didn't climb Mount Everest.'

[3] It is also possible to have past imperfective tense following the subjunctive. Tense embedding under the mood particle *na* is a complicated issue on its own. Here our focus is on the use of Indicative vs. Subjunctive mood. For a discussion, on the relation between Tense and the subjunctive particle *na* see Giannakidou (2009).

[4] The element is also lexically similar since in both languages it is decomposable to 'by/for little'.

[5] The scalar reading improves for most speakers by adding a maximizer like *komplett* 'completely', i.e., "Ich bin den Mount Everest fast komplett hochgeklettert."

[6] As we mentioned earlier, there is a debate on the status of the polar component. One of the arguments against the assertoric character of *almost* comes from the fact that it cannot be targeted directly, i.e., it seems to be non-at-issue. Notice that in Greek we get a contrast depending on where the stress falls. When the stress falls on *shedon* the polar interpretation seems to be highlighted.

(43) a. Distihos,   irthan   shedon OLI i fili   mu.
      Unfortunately, came.3PL almost all the friends my
      ⤳ *It is unfortunate that most of my friends came. I didn't want to see many people.*

    b. Distihos,   irthan   SHEDON oli i fili   mu.
      Unfortunately, came.3PL almost all the friends my
      ⤳ *It is unfortunate that not all of my friends came. I wanted to see all of them.*

In view of the contrast in (43), we will follow Amaral and Del Prete (2010) in that the polar component is focus-sensitive and part of the assertion.

[7] It is interesting that whereas in Greek a scalar interpretation with *shedon* is possible with all accomplishment VPs involving a natural endpoint as predicted by Amaral and Del Prete's analysis, this is not true for English *almost* and German *fast*. As Xu (2016) notes and as was also pointed out to us by—in English *John almost ate the apple* can only have a counterfactual interpretation as opposed to a scalar interpretation under which he ate most of the apple. The scalar interpretation in English (and German) is only possible if a maximizer is included like *John almost ate the whole apple*, which is not obligatory in Greek. This further confirms our

conclusion that the approximative elements across the three languages have different semantics. For more examples, of the scalar interpretation in Greek see the list of items in the sentence evaluation task in Appendix A.

8   We are grateful to a reviewer, whose comments have helped us elaborate more on the different readings that are possible with different aspectual classes.

9   We present these details from the video to facilitate the reader in interpreting the approximative constructions produced by the participant.

10   Concerning the *almost* structures, 21 of these instances were compatible with a counterfactual reading accompanied with achievement predicates. In 5 cases the scalar reading was favored. For German, only one out of the 8 instances seems to favor a scalar interpretation. We are grateful to a reviewer for pointing out the relevance of this information here. For the classification of the German and AE instances of approximatives, we relied on our own judgements and consultation with native speakers. However, as also indicated by the theoretical discussion, the borderline between a counterfactual and a scalar interpretation is not always clear, especially with achievement predicates, and that's why we are reluctant to make stronger claims here.

11   We are extremely grateful to a reviewer who guided us to spell out our predictions more clearly based on the research questions.

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