

Sequence of Tense in Greek and the role of aspect

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Περίληψη

Στην παρούσα εργασία, μελετάω την κατανομή της Ακολουθίας των Χρόνων (ΑΧ) στις δευτερεύουσες «ότι» προτάσεις στα Ελληνικά, δίνοντας έμφαση στο πώς η άποψη επηρεάζει την εφαρμογή της. Στη βιβλιογραφία δεν υπάρχει αντίστοιχη μελέτη στα Ελληνικά. Χρησιμοποιώντας δεδομένα από τον Εθνικό Θησαυρό Ελληνικής Γλώσσας διαπίστωσα ότι η ΑΧ επιτρέπεται πάντα όταν το ρήμα της δευτερεύουσας πρότασης είναι μη συνοπτικό. Ωστόσο, χρήζει περαιτέρω έρευνας η περίπτωση κατά την οποία το ρήμα της πρότασης είναι συνοπτικό, καθώς μερικά καταστασιακά ρήματα επιτρέπουν την εφαρμογή της ΑΧ. Αυτό μας οδηγεί στο συμπέρασμα ότι η ΑΧ δεν μπορεί να καθοριστεί μόνο από την λεξική άποψη.

Λέξεις-κλειδιά: ακολουθία των χρόνων, χρόνος, γραμματική όψη, λεξική όψη, ότι-προτάσεις, μελέτη με σώματα κειμένων

1 Introduction

In this paper, I study how the SOT mechanism is applied in Greek *oti* subordinate clauses using a corpus-based approach. Traditionally, SOT refers to configurations in which a past (embedded) tense occurs immediately under another past tense, but the lower past tense is interpreted as simultaneous to the higher past. Numerous attempts at an analysis can be found in the literature (Reichenbach 1947, Hornstein 1977, Comrie 1985, Ogihara 1994 among others). Although SOT has been treated in several ways, all analyses agree that the tense in the subordinate clause is not interpreted as past but as present and disagree in how they derive this surface past from the underlying present tense.

In English, SOT is illustrated by the ‘simultaneous’ reading of (1a), under which the event described in the subordinate clause is simultaneous with the matrix event. The embedded clause in (1) is ambiguous between a simultaneous reading in (1b) which Maria’s pregnancy overlaps with the event of Alexandra’s saying, and a prior to the matrix reading that Maria’s pregnancy precedes the time of Alexandra’s saying (1c). In the simultaneous reading the embedded past tense seems to be semantically vacuous.

- (1a) Alexandra said that Maria was pregnant
‘Η Αλεξάνδρα είπε ότι η Μαρία είναι έγκυος’
- (1b) Maria is pregnant.
‘Η Μαρία είναι έγκυος’
- (1c) Maria was pregnant.
‘Η Μαρία ήταν έγκυος’

In Greek, English *that* clauses correspond to *oti* subordinate clauses. The Greek equivalent of (1) is (2a), which allows both the simultaneous reading in (2b) and the prior to the matrix reading in (2c). Thus, descriptively speaking, SOT is found both in

English and Greek, but there are identifiable differences in its application to either language.

- (2a) H Αλεξάνδρα είπε ότι η
the-def Alexandra- nom said-3sg that-comp the-def
Μαρία ήταν έγκυος.
Maria- nom was-3sg pregnant- nom
‘Alexandra said that Maria was pregnant’
- (2b) H Μαρία είναι έγκυος.
the-def Maria- nom is-3sg pregnant- nom
‘Maria is pregnant’
- (2b) H Μαρία ήταν έγκυος.
the-def Maria- nom was-3sg pregnant- nom
‘Maria was pregnant’

While testing Greek data, it is observed that the simultaneous reading occurs if the embedded verb is marked with imperfective (3). When the aspect is perfective, a simultaneous interpretation is not possible (4). The effectiveness of the grammatical aspect of the embedded verb in the available readings has been exemplified in (1-2).

- (3) O Αλέξανδρος είπε ότι ο
the-def Alexandros- nom said-3sg that-comp the-def
Νίκος έγραφε ένα τραγούδι.
Nikos- nom was_ writing-3sg.ipfv a-INDF song-ACC
‘Alex said that Nick was writing a song’
- (4) O Αλέξανδρος είπε ότι ο
the-def Alexandros- nom said-3sg that-comp the-def
Νίκος έγραφε ένα τραγούδι.
Nikos- nom wrote-3sg.pfv a-INDF song-ACC
‘Alex said that Nick wrote a song’

Interestingly though, it can be observed that embedded eventive and stative predicates behave differently. Even though both predicates are in the perfective, the embedded eventive predicated in (5) exhibits the expected behavior and does not permit a simultaneous reading. The embedded clause in (6) is ambiguous between a simultaneous reading, in which Maria’s love of the town overlaps with the event of Bill’s saying, and a past-shifted reading, according to which Maria’s love of the town precedes the time of Bill’s saying. As illustrated in the aforementioned examples, SOT appears sensitive to the aspectual class of the subordinate predicate.

- (5) O Βασίλης είπε ότι η
the-def Vassilis- nom said-3sg that-comp the-def
Μαρία έφυγε από την πόλη.
Maria- nom left-3SG.pfv from-prep the- def town-ACC
‘Bill said that Maria left the town.’

(6)	Ο	Βασίλης	είπε	ότι	η
	the-def	Vassilis- nom	said-3sg	that-comp	the-def
	Μαρία	αγάπησε	την	πόλη.	
	Maria-nom	loved-3sg.pfv	the- def	town-ACC	
	‘Bill said that Alexandra loved the town.’				

I will take into account contrasts such as the ones in (3)-(6), aiming at contributing to a better understanding of the behavior of SOT by examining corpus data. This article is organized as follows: In section 2, the corpus data is presented and statistically analyzed. In section 3, I give a brief overview of the literature about the aspectual system and discuss the results obtained from the corpus and in section 4, I draw some conclusions therefrom.

2 The Corpus study

In the existing literature, there is no publicly available dataset in order to test my hypothesis. I employed a corpus-based approach, in order to reach conclusions that have generalizability and validity, and could be computationally implemented. Thus, I built a 60.000 words corpus which contains syntactically and semantically annotated sequences of the form “main and *oti* subordinate clauses”. The main verbs selected were saying verbs due to their frequency of use in the examined phenomenon: *leo* (say), *ischyrizomai* (claim), *omologo* (confess), *eidopoio* (notify), *anakoinono* (proclaim). Selected corpus data for each saying verb is presented in Table 1.

Corpus Data –Verbs of saying
<p>Οι γονείς είπαν ότι το παιδί έβηχε για ώρες και γι’ αυτό το φέραν στο νοσοκομείο. ‘The parents said that the child was coughing for hours and that’s why they brought him to the hospital.’</p>
<p>Ομολόγησε ότι ζωγράφιζε κάθε φορά που ήταν στεναχωρημένος. ‘He confessed that he drew every time he was upset.’</p>
<p>Ο αστυνομικός ειδοποίησε ότι μια κοπέλα κατέθεσε 6,5 εκατομμύρια. ‘The policeman notified that a girl deposited 6.5 million.’</p>
<p>Ισχυρίστηκε ότι σκάβανε για ώρες χωρίς να βρούνε τίποτα. ‘He claimed that they were digging for hours without finding anything.’</p>
<p>Ερευνητές ανακοίνωσαν ότι διαφορές σε ένα γονίδιο βοήθησαν να προβλεφθεί ποια παιδιά θα ήταν αργότερα επιρρεπή σε κατάθλιψη. ‘Researchers announced that differences in one gene helped predict which children would later be prone to depression.’</p>

Table 1 | Corpus data for each saying verb

The data herein has been extracted from the Hellenic National Corpus (HNC), which is a balanced corpus of Modern Greek texts generated by the Institute for Language and Speech Processing (ILSP). It contains approximately 50.000.000 words and is updated constantly. It also comprises texts from several forms of media which corroborates the current use of Modern Greek. Additionally, the HNC service allows lemma searches. For every lemma it returns up to 2000 sentences.

Firstly, the corpus was edited and annotated using the Natural Language Processing Tools (<http://nlp.ilsp.gr/soaplab2-axis/>) to syntactically analyze Greek texts. It is a platform of robust processing tools that include an array of processing units based on machine learning algorithms (Papageorgiou et.al 2002). The `ilsp_nlp_depparse_ud` is used in order to syntactically analyze the data and to generate representations compatible to the Universal Dependencies; default output CoNLL-2007.

Since this study also aims to enrich the Greek XLE Grammar and the database with annotated corpora, the annotation schema was based on the ILSP PAROLE Tagset (http://nlp.ilsp.gr/nlp/tagset_examples/tagset_en/). This is currently the most authoritative and complete annotation schema for lexical and syntactic features for Greek. In Table 2 the utterances are automatically annotated with features of this Tagset.

```
# sent_id = o_outputout1
# text = 0 Άλεξ είπε ότι ο Βασίλης έγραφε ένα ποίημα.
1  ο ο NOUN NoCm Case=Nom|Gender=Masc|Number=Sing 3 nsubj _ _
2  Άλεξ Άλεξ PRON NoPr Case=Acc|Gender=Masc|Number=Sing 1 flat _ _
3  είπε λέγω VERB VbMn Aspect=Perf|Mood=Ind|Number=Sing|Person=3|Tense=Past|Voice=Act 0 root _ _
4  ότι ότι SCONJ CjSb _ 7 mark _ _
5  ο ο DET AtDf Case=Nom|Definite=Def|Gender=Masc|Number=Sing|PronType=Art 6 det _ _
6  Βασίλης Βασίλης PRON NoPr Case=Nom|Gender=Masc|Number=Sing 7 nsubj _ _
7  έγραφε γράφω VERB VbMn Aspect=Imp|Mood=Ind|Number=Sing|Person=3|Tense=Past|Voice=Act 3 ccomp _ _
8  ένα ένας DET AtId Case=Acc|Definite=Ind|Gender=Neut|Number=Sing|PronType=Art 9 det _ _
9  ποίημα ποίημα NOUN NoCm Case=Acc|Gender=Neut|Number=Sing 7 obj _ SpaceAfter=No
10 . . PUNCT PTERM_P PunctType=PTERM_P 3 punct _ _

# sent_id = o_outputout2
# text = 0 Άλεξ είπε ότι ο Βασίλης έγραψε ένα ποίημα
1  ο ο NOUN NoCm Case=Nom|Gender=Masc|Number=Sing 3 nsubj _ _
2  Άλεξ Άλεξ PRON NoPr Case=Acc|Gender=Masc|Number=Sing 1 flat _ _
3  είπε λέγω VERB VbMn Aspect=Perf|Mood=Ind|Number=Sing|Person=3|Tense=Past|Voice=Act 0 root _ _
4  ότι ότι SCONJ CjSb _ 7 mark _ _
5  ο ο DET AtDf Case=Nom|Definite=Def|Gender=Masc|Number=Sing|PronType=Art 6 det _ _
6  Βασίλης Βασίλης PRON NoPr Case=Nom|Gender=Masc|Number=Sing 7 nsubj _ _
7  έγραψε γράφω VERB VbMn Aspect=Perf|Mood=Ind|Number=Sing|Person=3|Tense=Past|Voice=Act 3 ccomp _ _
8  ένα ένας DET AtId Case=Acc|Definite=Ind|Gender=Neut|Number=Sing|PronType=Art 9 det _ _
9  ποίημα ποίημα NOUN NoCm Case=Acc|Gender=Neut|Number=Sing 7 obj _ _
```

Table 2 | CoNLL output

Next, the automatic annotated data is processed with the use of BRAT; an intuitive and user-friendly web-based annotation tool designed for settings of annotations for natural language processing (<http://brat.nlplab.org>). In Table 3, Brat's output is given for the sentences, one in which SOT is allowed and another one in which it is not. I concentrate on the representation of the verbs of the subordinate clause of the data. As can be seen, each verb is annotated with YES/NO in the corresponding feature SOT.

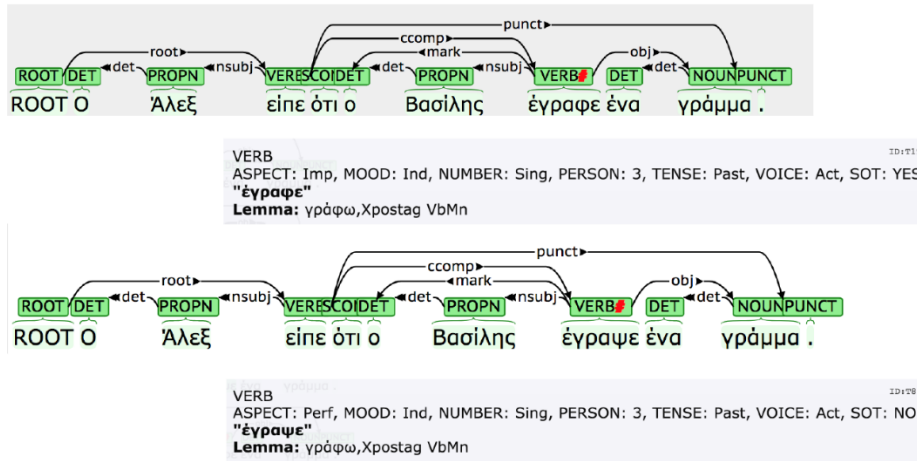


Table 3 | Brat’s output for the corresponding outputs in table 2

This process of annotation gave us a clear picture of the structures supported by each verb, which led us to the conclusion that saying verbs detect SOT in the same way. In Figure 1, all the saying verbs are presented along with their scores for each combination of the tenses. It shows that “present under present” sequences had the highest percentage of occurrences of SOT (38.2%) followed by the “present under past” sequences (27,8%). Lastly, the percentage of the sentences in “past under past” (19%) is greater than that the sequence past under present on average (15%).

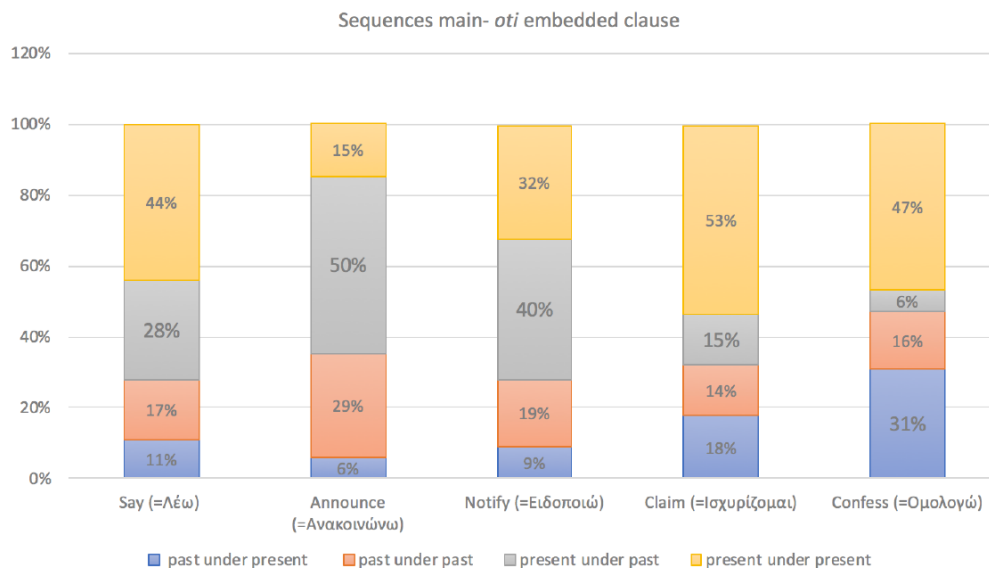


Figure 1 | The performance of saying verbs based on the tense combinations

As it can be assumed by Figure 1, saying verbs form sequences on all the possible tense combinations and significant differences are not observed. Moreover, in the data I have studied, the saying verbs treat SOT in the same way. Taking into consideration these

findings and the fact that *say* (leo) was the most frequent saying verb in the examined corpus (Figure 2), I will present data only from the sequences with main verb *say*. Besides, it is the most commonly used saying verb in SOT literature.

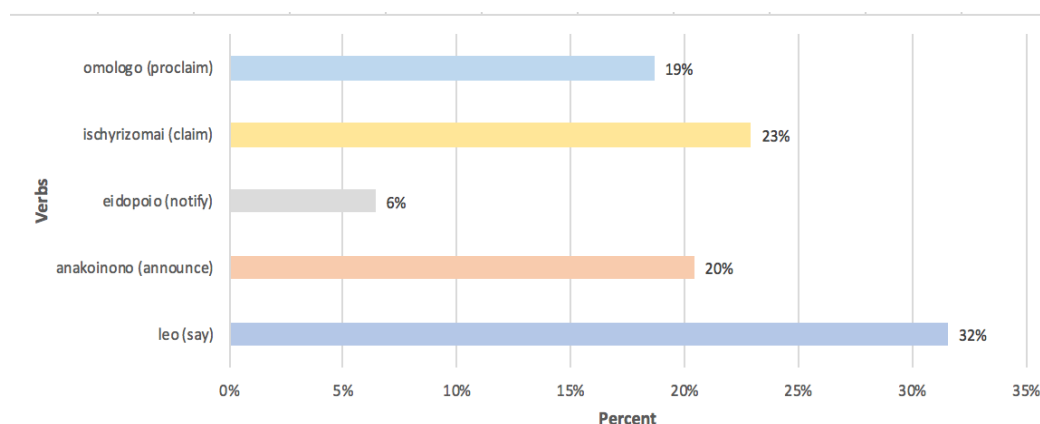


Figure 2 | Frequency of saying verbs in corpus

From the tense combinations (Figure 1), the sequences “present under present” and “past under present” are not going to be discussed, as SOT is not detected in these tense combinations. In (7) the embedded event and the event of saying overlap, whereas in (8) the embedded event occurred in the past, before the saying event. Therefore, SOT should be tested only on the tense combinations “past under past/present”.

- (7) Λένε ότι με χαρά τρέχουν
 say-3pl.pres that-comp with-prep happiness-acc run-3pl.pres
 στον μαραθώνιο για δεύτερη φορά.
 run-3pl.pres marathon-nom for-prep second-ACC time-ACC
 ‘They say that they are happy to run the marathon for the second time.’
- (8) Το παιδί λέει ότι έφαγε
 the-def child-nom say-3sg.pres that-comp eat-3sg.past
 όλο το ψωμί.
 whole-ACC the-def bread-ACC
 ‘The child said that he ate the whole bread.’

Since grammatical aspect seems to restrict SOT, I tested the “past under past sequences” along with their grammatical aspect. The next plot shows that the “past imperfective under past perfective” concentrates the highest percentage (35%), the “past perfect under past perfect” follows (27%). The “past imperfective under past imperfective” follows (21%) and the less frequent combination is the “past perfective under past imperfective” (18%).

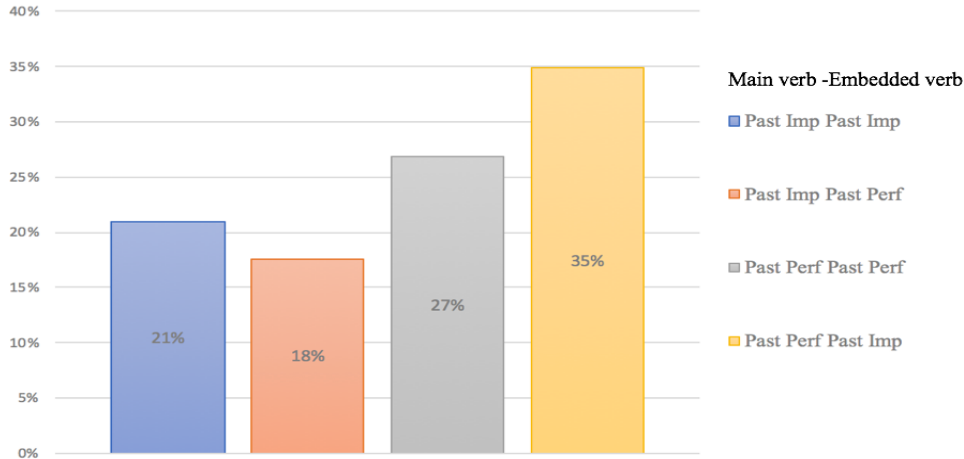


Figure 3 | The performance of *leo* in the structure “past under past” based on grammatical aspect.

Even though in SOT literature the sequence tested is past/imperfective under past/perfective sequences, I tested all the possible structures (Figure 1). Firstly, the sequence past/perfective under past/imperfective is going to be discussed.

In (9), the saying event could not overlap the event of working, as the speaker is repeatedly saying how he worked in the past. Besides, in (10) the speaker refers to a repeated event in the past, the main and the embedded events could not overlap, and SOT could not be applied. Thus, SOT could not be applied in “past/perfective under past/imperfective”.

- (9) Έλεγε στις συνεντεύξεις του ότι
 say-3sg.ipfv in.the-prep interviews-ACC his-gen that-comp
 δούλεψε εποικοδομητικά.
 work-3sg.pfv constructively-adv
 ‘He said in his interviews that he worked constructively.’
- (10) Έλεγε ότι τελείωνε πάντα τις
 say-3sg.ipfv that-comp finish-3sg.ipfv always-adv the-def
 ασκήσεις νωρίς.
 exercises-acc early-adv
 ‘He said he finished the exercises early.’

In the sequence past perfective under past perfective in (11), it can be assumed that it is necessary for the vase to already be broken in order for the child to say it. Whereas, as already discussed, in sentences like (6) Alexandra’s love of the town overlaps with the event of Bill’s saying and the embedded clause is ambiguous. The verbs *break* and *love* belong to different aspectual classes and this conclusion makes SOT sensitive to the aspectual class of the predicate of the subordinate clause.

- (11) Το παιδί είπε ότι αυτό
 the-def child-nom said-3sg that-comp it-nom
 έσπασε το βάζο.
 break-3sg.pfv the-def vase-acc
 ‘The child said that he broke the vase.’

The corpus-based analysis of SOT, summarized in this section, reveals the complex nature of the phenomenon. The fact that the percentage of the sentences in present under past is greater than that of the “past under past” leads us to the conclusion that SOT rule is optional. Also, this analysis revealed that the application of SOT should be studied in the sequences: a. past perfective under past imperfective and b. past imperfective under past imperfective.

3 The distribution of SOT in *oti* clauses

Based on what we have already mentioned, the application of SOT rule is restricted by tense and aspect. I will take into account the observations presented in section 2, aiming at contributing to a better understanding of the behavior of SOT. At first, a brief overview of the literature about the aspectual system is necessary.

3.1 Grammatical and lexical aspect

Research carried out on aspect has produced a considerable amount of literature on the matter (Vendler 1967, Comrie 1976, Dowty 1979, Krifka 1989 among others). Aspect can be defined as a grammatical category which concerns itself with the way in which events relate to time. There are two types: a) the grammatical aspect (also referred to as the outer or viewpoint aspect) and b) the lexical aspect (also known as the Aktionsart or inner aspect).

The first type of aspect to discuss is grammatical aspect, which is represented differently among various languages. Comrie’s (1976) universally accepted definition presents aspects as “different ways of viewing the internal temporal constituency of a situation”. Grammatical aspect has mainly been studied based on the distinction between perfective and imperfective.

In the Greek literature, *apopsi* and *opsi* are equivalent terms to the English term grammatical aspect (Mozer 1994). As it has been already mentioned, grammatical aspect is expressed as a distinction between perfective and imperfective. In Greek “the perfective is used when the action described is viewed as a unit without internal structure and the imperfective is used when the action is continuous, progressive or habitual” (Mozer 2009, Holton et al. 1997). In (14), there is no indication as to whether Alex finally ate the apple, as imperfective focuses on the preliminary stages of the event, while in (13) the speaker uses the perfective to describe an event as a condensed event.

- (13) Ο Άλεξ έφαγε ένα μήλο.
 the-def Alex-nom eat-3sg.pfv an-INDF apple-acc
 ‘Alex ate an apple’
- (14) Ο Άλεξ έτρωγε ένα μήλο.
 the-def Alex-nom eat-3sg.ipfv an-INDF apple-acc
 ‘Alex was eating an apple’

Furthermore, one must distinguish grammatical aspect from lexical aspect, as the latter refers to the inherent structural elements found in a specific verb phrase. Conversely, grammatical aspect allows for the use of grammatical means to alter the structural elements of a verb phrase, notwithstanding its lexical aspect. According to Filip (2012) lexical aspect is “a stock concept of natural language semantics that intersects with grammatical aspect, tense, adverbial modification, the syntax and semantics of quantification and various expressions of quantity, argument structure, and linking at the lexical semantics-syntax interface”.

Linguists have attempted to encapsulate all these by categorising verbs into verb classifications which vary in the temporal properties of dynamism, durativity, punctuality, stativity and telicity (Smith 1997, Vendler 1967, Comrie 1976). Notwithstanding criticism by several linguists (Levin 2006, Sioupi 2009 among others) Vendler's proposal (1967) on lexical aspect remains the most influential. Therein, he analyses the divergent aspectual classes of verbs in accordance to the type of event they denote and suggests a fourfold distinction (1979). Vendler categorizes verbs into states, activities, achievements, and accomplishments. For the purposes of the present study, it will be assumed that Vendler's categorization applies to Greek data following Tzeveleku (1995) and Mozer (1994).¹

3.2.1 *The role of grammatical and lexical aspect in SOT*

According to the corpus results, the application of SOT is conditioned by grammatical and lexical aspect. Firstly, it should be noticed that the sequences with the embedded verb in imperfective are far more frequent than those in perfective. Specifically, all the verbs seem to allow SOT when they are found in imperfective regardless of the semantic class they belong to. This corpus-based result is also aligned with SOT literature; this could also explain why the selected sequence tested in studies is “main *oti* subordinate clause in imperfective aspect” (Ogihara 1994 and literature cited therein). This hypothesis “correlating SOT with the imperfective aspect” is due to its inherent atelicity and its lack of a definite endpoint.

Despite the above hypothesis, I tested verbs from all aspectual classes in both grammatical aspects. In the existing literature (Mozer 1994, Tzeveleku 1995, Sioupi 2009), there is a list of verbs classified in each aspectual class. Table 4 includes indicative data from each semantic class along with the verb type both in perfective and imperfective. The sentences in perfective are drawn from the corpus. I produced the corresponding main *oti* subordinate clause in the imperfective in order to test how they behave towards SOT.

¹ In Greek, there are linguists that adopt Kearn's (Kitis and Tsangalidis 2005) or Smith's classification (Tsangalidis 2013) for categorizing Greek verbs.

	DATA	ASPECT	SOT
ACHIEVEMENTS	1. To paidi eipe oti nikise sta paixnidia. 'The child said that he won the games.'	PERF	×
	2. To paidi eipe oti nikouse sta paixnidia. 'The child said that he won the games.'	IMPERF	√
ACCOMPLISHMENTS	3. Oi goneis eipan oti extisan to spiti gia ta paidia tous. 'The parents said that they built the house for their children.'	PERF	×
	4. Oi goneis eipan oti extizan to spiti gia ta paidia tous. 'Their parents said that they built the house for their children.'	IMPERF	√
ACTIVITIES	5. Eipe oti etrekse ston agona me stoxo na vgei nikitria. 'She said that she ran the race with the goal of winning.'	PERF	×
	6. Eipe oti etrexe ston agona me stoxo na vgei nikitria. 'She said that she ran the race with the goal of winning.'	IMPERF	√
STATES	7. Xthes o Nikos eipe oti I Maria gnorise thn texnh ths zografikis kai th gnorizei akoma. 'Yesterday Nick said that Maria knew how to paint, and she still knows this art.'	PERF	?
	8. Xthes o Nikos eipe oti I Maria gnorize thn texnh ths zografikis kai th gnorizei akoma. 'Yesterday Nick said that Maria knew how to paint, and she still knows this art.'	IMPERF	√

Table 4 | Data from each semantic class

As it can be assumed by the Table 4, when the aspect of the embedded verb is perfective, the available reading is the prior to the matrix for achievements, accomplishments and activities. However, sentence (7) in our dataset is marked with a question mark (?), as it seems to contradict the hypothesis, in that the SOT mechanism is applicable in perfective aspect. Even though the predicates in (1), (3), (5) and (7) are in the perfective, the embedded eventive predicated in (1), (3) and (5), exhibits the expected behavior. In (7) a simultaneous reading is allowed; the state of Maria's knowledge of painting began at some moment before yesterday and it continues to hold during and after the event time (8). The difference between them is that in (7) the speaker is emphasizing the entry into the state of knowing while in (8) the speaker is denoting the state of knowing.

States seem to differ from every other aspectual class towards SOT; this research finding, in particular, demonstrates the necessity for further research. In Greek, the choice of imperfective in states is consistent with the individual aspectual verb class and does not permit perfective verb types to be formed (such as *ksero* (know), *ime* (be)). That being said, there are a multitude of verbs that form perfective verb types (such as *pisteuo* (believe), *agapo* (love)) (Moser 1994, Sioupi 2009). The literature on the issue seems to lack consensus about the characterization of the notions used to describe these verbs when combined with perfective; some claim that states in perfective coerce into

the achievement and others that they give an inchoative meaning (Mozer 1994 Sioupi 2009, Tsangalidis 2013).

Taking into consideration this controversy for states in Greek and the general claims that stative verbs such as *know* and *hate* differ sharply from state verbs like *sit* and *sleep* (Maienborn 2008), I should check if all the states nominate SOT in perfective. In order to examine these claims, I gathered data like those seen in (15) and (16). In (15), the embedded stative is ambiguous between a simultaneous reading, in which the event of hate and the event of saying overlap, and a past-shifted. The simultaneous reading connotes an inchoative reading, as Thanasis' hate towards Maria began when he realized her behavior. Since there is no explicit mention of an endpoint (if there is one), the hating event is an open-bound event. Conversely, in (16) the verb *kathome* (sit) is not emphasized at the starting point of the event and it has an arbitrary endpoint, as it is impossible for someone to be sitting in a chair forever.

- (15) Ο Θανάσης είπε ότι μίσησε
the-def Thanasis- nom said-3sg that-comp hate-3sg.pfv
την Μαρία εξαιτίας της συμπεριφοράς
the-def Maria-acc due.to-prep the-def behavior-acc
της.
her-gen
‘Thanasis said that he hated Maria due to her behavior.’
- (16) Είπε ότι κάθισε στην καρέκλα
say-3sg that-comp sit-3sg.pfv to_the- prep chair- acc
λόγω κόρασης
due.to-prep fatigue-acc
‘(He) said that he sat in the chair due to his fatigue.’

The overall results showed that not all states allow a simultaneous reading. In the cases of (15) and (16), inchoativity seems to be the key. This finding demonstrates that lexical aspect doesn't suffice to restrict the application of SOT mechanism.

4 Conclusion

The main objective of this article is to describe the distribution of SOT mechanism in *oti* subordinate clauses using a corpus-based approach. I examined the association between grammatical aspect, lexical aspect and SOT and I concluded that SOT is allowed when the embedded verb is in imperfective. The case of perfective aspect remains an open issue. Some embedded states in perfective seem to nominate the simultaneous reading, but others don't. What can safely be concluded is that the distribution of SOT is not just a matter of lexical aspect.

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