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(H)óti-clauses from DP to NPhood The life of a Greek nouny clause¹

Richard Faure

Abstract

This article analyzes the nominalizations of *(h)óti* ‘that’-clauses through the history of Greek. It ties together and accounts for 1) the emergence of overt nominalization with *to* ‘the’, and 2) the change in distribution (extension to non-factive, non-declarative verbs like *nomízo* ‘think’). Crosslinguistically, two factors trigger nominalization: 1) Case marking (subject and after prepositions), and 2) definite interpretation. Focusing on the latter, definiteness comes in two types: weak (factivity) and strong (anaphoricity). The article shows that, in Classical Greek, *hóti*-clauses were DPs. They decomposed into *h+óti*, in which *h-* played the role of a weak definite marker. The non-definite (non-nominal) and strong definite roles were covered by other clause-types (infinitival and participial clauses). When *h-* was lost, *óti*-clauses became similar to NPs and were thus available for nominalization. In Modern Greek, nominalization takes on two forms: a silent D to fulfill the weak definite role (replacing *h-*) and the article *to* to fulfill the strong definite role (replacing participial clauses). *Óti*-clauses remained bare with *nomízo* ‘think’ (replacing infinitival clauses). Thus, the history of Greek displays three possibilities for nominalization: by the definite article, a silent D, or a morpheme within the complementizer. Their distribution is accounted for in terms of weak and strong definiteness.

Keywords

Complement clauses, Ancient Greek, Modern Greek, nominalization, diachrony, definiteness

1 Introduction

This article focuses on the history of Greek complement clauses from Classical to Modern Greek from the viewpoint of the nominalization possibilities.² Both

¹ I would like to warmly thank the organizers and the audience of the conference “On the nouniness of propositional arguments” as well as the editors of the present special issue and the anonymous reviewers for their insightful comments and suggestions. I am very grateful to Nikos Angelopoulos for his help with the data and a long discussion of the analyses. All remaining errors are of course mine.

² I take Classical Greek to be Attic Greek spoken in the fifth and fourth centuries BCE. The Classical Greek data have been taken from a corpus made of various works by Aeschylus, Sophocles, Thucydides, Lysias, and Xenophon, while the Modern Greek data mostly come from the literature

Classical and Modern Greek display multifarious complementation systems and a wide range of works has been devoted to these as well as to the major change constituted by the loss of non-finite forms like infinitives and participles and the rearrangement that accompanied it. In the present work, I will attempt neither to explain what the relationships were between finite and non-finite clauses in Classical Greek nor to account for the distribution of Modern Greek *pu-* and *na-* clauses and their emergence. A great number of important studies are already available on both the synchronic and diachronic sides, as well as the division of labor between the various types of clauses, which may rest on the meaning of the clauses, but also on c- and s-selection properties of the matrix predicates, or on the pragmatic value attached to the clause in terms of evidentiality, information structure, or referentiality, or a mixture of all these factors.³

Instead, I will focus on (*h*)*óti*-clauses,⁴ making reference to other types only for the sake of comparison and if highlighting. (*H*)*óti*-clauses are attested from Homer to the present day. Along with the loss of the aspiration *h-*, an interesting change occurred, which is illustrated in (1). In the Modern Greek example, the finite complement CP in *óti* is nominalized with the neuter definite article *to* (1b),⁵ while this operation was not possible for its Ancient Greek ancestor *hóti*, at least in the classical period (1a). This diachronic evolution has never been investigated in depth to my knowledge, and I claim that understanding it will shed new light on the nominal character of complement clauses and on what it tells us about clausal complementation in general.

- (1) a. Ancient Greek, X. *HG* 2.3.42
 Ἔϊδειν [*hóti* *hoútō* *ge* *tō* *antípalon* *ischyrōn* *ésoito*].
 I.knew that thus PTC the adversary strong will.be-opt
 ‘I knew that this would make the adversary strong.’
- b. Modern Greek, Roussou & Roberts (2001: ex. 7)
 [*To* *óti* *éfighe* *tóso* *grígora*] *me* *ksáfnia*se.
 the that left-3SG so quickly me surprised-3SG
 ‘The fact that she left so quickly surprised me.’

(Christidis 1981, 1986; Philippaki-Warburton & Papafili 1988; Roussou 1991, 2010, 2012, 2020; Roussou & Roberts 2001; Varlokosta 1994a, 1994b; Angelopoulos 2019), along with a couple of sentences that I made up and checked with native speakers.

³ Although I cannot give a comprehensive bibliography here, good starting points are, for Classical Greek: Fournier (1946), de Boel (1980), Cristofaro (1996), Van Rooy (2016) and Faure (2021a); for Modern Greek: Christidis (1981, 1986), Roussou (1994), Varlokosta (1994a), Roussou (2000, 2010), Angelopoulos (2019) and Roussou (2020). On the diachronic side and intermediate stages, Joseph (1983), Nicholas (1998), Roberts & Roussou (2003), Kavčič (2005), Horrocks (2010), Lavidas & Drachman (2012) and Bentein (2017).

⁴ Also leaving aside its allegedly synonymous variants, *hōs* in Classical Greek and *pos* in Modern Greek (but see Fournier 1946; Cristofaro 2008, among others, on the former, and Nicholas 1996; Sampanis & Karantzola 2019, among others, on the latter).

⁵ *To* also appears with *pos* and *pu* in the history of Greek, but in periods, dialects, and distributions that are quite different from what is described here (Nicholas 1996, 2004).

In this article, ‘nominalized CPs’ will stand for structures that are equivalent to DPs and not to NPs, i.e., structures in which the D is the nominalizer. Three cases of such determiners are reported:⁶

- (a) The nominalizer is the definite D that is used elsewhere in the language [henceforth DefD];
- (b) The nominalizer is a covert D [henceforth CovD];
- (c) The complementizer C is itself the nominalizing D [henceforth C-as-D].

In the first type, a definite D that is available elsewhere in the language appears above the CP. As already stated, Modern Greek is one of these languages as exemplified by (1b) (see also the *el que* structure in Spanish, Picallo 2002).

Yet other finite complement clauses which do not straightforwardly display a D have nevertheless been classified as nominalized CPs (CovD case). They fall into two categories. The first category can be illustrated with English.⁷ According to Davies & Dubinsky (1998, 2009), Takahashi (2010), and Bruening & Al Khalaf (2020) (among others), a covert D must be posited in at least three situations:⁸

- (a) When the clause is the subject (as seen in 2a by the coreference with *itself*, which is impossible for object clauses, as in 2b);
 - (b) In coordination structures by alignment with a coordinated DP (3a), without which it is not possible (3b);
 - (c) In topic clauses (4a) in configurations that normally do not accept complement clauses (4b).
- (2) a. [D that there were twenty-five miles to go] was itself enough to discourage Edwin.
b. Edwin hoped [that there were less than twenty-five miles to go] (*itself).
(Davies & Dubinsky 2009: 124)
 - (3) a. You can depend on [[_{DP} my assistant] and [_{DP} D [_{CP} that he will be on time]]].
b. *You can depend on [that he will be on time].
(Bruening & Al Khalaf 2020: 27)
 - (4) a. [D that Sonia was very competent], I couldn't convince Frank *(of).
b. I couldn't convince Frank *(of) that Sonia was very competent.
(Postal 1994: 70, quoted in Takahashi 2010: 347)

⁶ Here I focus on cases in which the clause is appended to a verb. Nominal clauses appended to a noun are studied in depth in, e.g., Müller (this volume).

⁷ Competing accounts dispense with the D (de Cuba & Ürögdi 2009; Haegeman & Ürögdi 2010; Moulton 2013). I leave them aside, since I am only interested in the motivations that have led some scholars to posit a D.

⁸ In the examples, the original presentation has been adapted to match the one adopted here. (2) and (4) were described as DPs, but the DP structure is not displayed in the original. (3) was described as an NP in the original article, which does not follow the DP theory.

The second category of DPhood without evident D is when the complementizer itself plays the role of a D (C-as-D case). This is argued in Christidis (1986) or Angelopoulos (2019) for Modern Greek and Faure (2021a) for Classical Greek.⁹ Christidis and Faure argue that the complementizer is merely a kind of D that turns an IP into a DP as in (5). In Angelopoulos' analysis, there is no proper nominalization. The D probes for the clause that it attracts to its Specifier before a final movement derives the correct word order (6b, simplified).

- (5) X. *HG* 3.2.11
 Pythómenos [_{DP} hóti [_{IP} polýs sítos enên autoís]], ...
 having.learnt that a.lot food was.in them-DAT
 'When he learned that they had a lot of food, ...'
- (6) a. Kséro [óti to Parísí ine sti Gallía].
 I.know that the Paris is in France
 b. [_{DP} Kséro [ó-ti [_{DP} [to Parísí ine sti Gallía] ti-_{[VP} Kséro [to Parísí ine sti Gallía]]]]].

The reasons why CPs are nominalized are complex and have been debated: both syntactic (see the abovementioned references) and semantic properties (e.g., factivity, Kastner 2015) have been invoked. In this article, I will claim that, in a subset of cases, only referential properties motivate the nominalization. Moreover, I will show that DefD and CovD have referential functions that are distinct, while C-as-D nominalizations are amenable to CovD. In a nutshell, the view defended here is that nominalization for referential purposes is a "definitization" and is required where definite DPs are required: in two situations, corresponding to two types of definiteness (Hawkins 1978; Schwarz 2009), i.e., when **weak definite** (unique) or **strong definite** (deictic/anaphoric) complement clauses are required.

This demonstration will be based on Greek. This language exhibits the three patterns in the history of its (*h*)*óti*-clauses. The change from one pattern to another goes along with a functional modification. (5) was an example of C-as-D (Classical Greek). (1b) (Modern Greek) illustrates the DefD pattern. I shall argue that (6a) (Modern Greek) is not a C-as-D, but a CovD (i.e., *óti* is not a D, but is preceded by a silent D).

The language gained the DefD and CovD possibilities of nominalizing its (*h*)*óti*-clauses while their usage was extending to more verb classes and their semantics changed. The loss of the morpheme *h-* played a crucial role in this rearrangement. I will show that the two phenomena are linked and also that the material replacement preserved the system.

Section 2 sets the scene by analyzing the morphology of (*h*)*óti* and proposes that it divides into *h-* and *óti*, in which *h-* is a definite marker. Section 3 focuses on Classical Greek and shows that *hóti*-clauses are weak definite DPs competing with participial clauses, which have a strong definite interpretation. Section 4 is devoted to Modern Greek. The weak/strong-definiteness distinction survives but

⁹ This is an old idea, as recalled by Pafel (this volume) for German *dass*.

was redistributed over new types of clauses: *óti*-clauses come in three types, one of which is weakly definite, while strong definiteness is taken on by *to-óti* and *pu*-clauses. Section 5 offers a thorough comparison of the two stages of the Greek language and what underlies its evolution. Section 6 concludes.

2 Morphology of *(h)óti*

This section provides a morphological analysis of *(h)óti* in Classical and Modern Greek, and underlines the contribution of each of the morphemes it is made of. Part of the section is devoted to buttressing the existence of the morpheme *h-* and its semantics, which will be relevant in the rest of the article.

In both Classical and Modern Greek, the complementizer *(h)óti* is homophonous with the relative *(h)óti*, sometimes spelled as *(h)ó,ti* to distinguish between the two. *(H)ó,ti* is the neuter nominative-accusative form of the “indefinite” relative pronoun *hóstis*, roughly meaning ‘whatever’ (*hóstis* itself has been lost in Modern Greek). As with the relative pronouns/complementizers English *that* (Kayne 2014), French *que* (Le Goffic 2007), and German *das(s)*, there is a debate about whether there is synchronically one or several items. This debate in turn depends on the segmentation, which can be maximally *h-ó-ti* (three morphemes) or minimally *hóti* (one morpheme). I will eventually adopt the intermediate, bimorphemic *h-óti*.

Starting with Modern Greek, which has attracted more attention, *ó,ti* is sometimes synchronically analyzed as the definite article *o* followed by the indefinite/interrogative pronoun *ti* (Roussou 2010: 591; Angelopoulos 2019: 25), although Roussou is skeptical that this composition is really recognized by native speakers. In fact, under her analysis, *ó,ti* means ‘the thing’ and she uses it to ground her proposal that the complementizer *óti* is a nominal element.

I disagree with this analysis. First, it is doubtful that *o* can be analyzed as the definite article. If *o* is the article in *ó,ti*, there is a mismatch. *O* is the nominative masculine form of the article, but here we expect the neuter form in the nominative or accusative (depending on whether the clause is the subject or object), namely *to*,¹⁰ both in Ancient and Modern Greek, where this form was preserved. Instead, *o* is here the agreement in the neuter form of the Ancient Greek relative (masculine *hós*, feminine *hḗ*), which formed the first part of the original *hó-ti*.

Moreover, in Angelopoulos’ analysis, *to+óti* structures would display a stacking of a determiner onto another determiner. It is unclear what their semantic contribution is and why we would need two elements of the same category (or even three if *ti* is also analyzed as a D).

Another (major) issue for the equation between *(h)ó,ti* and *(h)óti* is that they completely differ in distribution. In Ancient Greek, Faure (2021b) shows that relative *hó,ti* is either a free choice or a negative polarity item, while complementizer

¹⁰ Which we find in *to óti*, by the way; see (1b).

(*h*)*óti* is a positive polarity item. More evidence for this is that *hóti* is presuppositional in Classical Greek (see the discussion in 3.2). Likewise, in Modern Greek, an *ó,ti*-clause is a maximalizing free relative (thus patterning with DPs, *à la* Jakobson 1995; see Roussou’s 2010: 591 gloss as ‘the thing’), whereas an *óti*-clause is of a different category (probably NP; see the discussion in Section 5).

This debate cannot be separated from the discussion around the role of *-ti* in (*h*)*ó,ti*. Etymologically, *-ti* is a nominative/accusative neuter form of the indefinite or interrogative *wh*-item which cliticized onto the relative *hó-*. However, as just stated, indefiniteness is contradictory to the distribution of (*h*)*óti*-clauses and we have clues that the indefiniteness of *-ti* was already deactivated in Ancient Greek at an early stage. This is observable in that it is in free distribution with *ho* (without the *-ti* element) in Archaic Greek (Homer, Chantraine 1953) and overlaps with *hós* in Classical Greek, which does not display an indefinite morpheme. For these reasons, the presence of this morpheme is synchronically puzzling.¹¹ I would not attribute the fact that *óti* is no longer presuppositional in Modern Greek (see below) to the presence of *ti* (Angelopoulos 2019: 54), which would moreover imply that it was reactivated after its deactivation in Classical Greek, a move that is not impossible but unlikely.

Consequently, I argue that there is no good reason to decompose *-óti* synchronically. Be that as it may, the important point for the present article’s investigation is that *óti* does not contain a D and that the option is open to nominalize *óti*-clauses or not. In brief, although *hóti* and *hó,ti* share the same morphemes, they took different routes, already in preliterary times. The indefinite morpheme *ti* is no longer active in the complementizer.

In contrast, I would like to pause over the other part of (*h*)*óti*, namely *hó-*. As stated earlier, in Classical Greek, *hós*, *hḗ*, *hó* was a pronoun used as a relative, among other things (see below). *-ós*, *-ḗ*, *-ó* are the nominative masculine, feminine, and neuter agreement markers that are found elsewhere as in *ekein-os*, *ekein-ḗ*, *ekein-o* ‘that-M./F./N.’, which leaves us with the morpheme *h-*. That *h-* is a morpheme is independently shown by the alternation with the interrogative paradigm, which is readily visible from some spatial adverbs, among other things:

- (7) Relative *h-oú* ‘where’ *h-óthen* ‘whence’ *h-êi* ‘whither’
 Interrogative *p-oú* ‘where?’ *p-óthen* ‘whence?’ *p-êi* ‘whither?’

As far as the meaning of *h-* is concerned, it can be grasped from the evidence of the various usages of *h-ós*:

- Only a free relative in *h-ós* can be used to refer to a definite individual (8);
- *H-ós* can be used as a personal pronoun (9);
- *H-ós* can be used instead of the interrogative pronoun when the answer is known to the speaker (10).

¹¹ Still other hypotheses can be put forth of course, e.g., that *o* spells out a light noun and *ti* is a relative pronoun. Baunaz & Lander (2017, 2018) take *ti* to be the light noun of the crew.

- (8) Lys. 6.22
 ... paradoûnai [**hòs** dià toûton apéthanen].
 to.hand.over who because.of this.man died
 ‘... to hand over [the man] who had been put to death in order to shield this man.’ (Lamb, adapted)
- (9) Pl. *Phd.* 68d6
 Oïstha, ê d’ **hòs**, hótì tòn thánaton hēgoûntai
 you.know says PTC he that the death they.consider
 pántes hoi álloi tòn megálōn kakôn?
 all the others among.the big evils
 ‘You know, he said, that all other men count death among the great evils?’ (Fowler, adapted)
- (10) D.19.158
 Eí tis humôn eis Pheràs afiktai,
 if someone among-you to Pherae has-come
 oïde [**hò** légō].
 he-knows hós-ACC.N.SG I-mean
 ‘Any of you who have been to Pherae knows what I mean.’ (Vince, adapted)
- (11) Identification [Faure 2021b: 215]
 When using *hòs*, the speaker acknowledges that the proposition that underlies the *hòs* clause belongs to his/her knowledge state (or the common ground, when s/he takes the hearer’s viewpoint).

Based on this evidence and more, I have argued elsewhere that *h-* is a definite morpheme (that I defined in terms of identification; see the definition in 11). Note that there is another (cognate) morpheme, namely *ho-*, which shows up in the indirect interrogative words *hó-pōs* ‘how’ and *hó-pou* ‘where’ and synchronically serves to transpose the direct interrogative words *pōs* and *pou* into indirect speech.¹² Synchronically, *h-* is distinct from *ho-*. It would not make sense to segment *hótì* into *hó-ti*. The segmentation would reveal the indefinite *-ti*, although there is nothing indefinite in *hótì*, as shown above. Note that *h-* is featured in Classical Greek *h-óti*-clauses but no longer appears in Modern Greek *óti*-clauses. I will claim below that this morpheme is key to understanding the nominal behavior and the distribution of these clauses. Let us first focus on the syntax of *hótì*-clauses in Classical Greek.

¹² They received further functions in the history of Greek; the reader is referred to Monteil (1963) for details.

3 Classical Greek

Classical Greek finite complement clauses feature several DP characteristics, on both the syntactic and semantic sides. In this section, I will first provide arguments that finite complement clauses, in particular *hóti*-clauses, are cases of C-as-D. I will then focus on their interpretation and make the case that they are weak definite DPs and alternate with other clauses that act like indefinite and strong definite DPs.

3.1 *Hóti* as a D

3.1.1 Distribution: Alternation and coordination with DPs

First, unlike English *that*-clauses, *hóti*-clauses always alternate with full DPs (proforms are possible as well). For example, *pythánomai* ‘learn’, which we met in (5), also selects for DPs (12). This is also the case for subject *hóti*-clauses with *lanthánō* ‘escape attention’ (13).

- (12) Object DP, X. *HG*. 2.1.2
 Pythómenos [tò sýnthēma], ...
 having.learned the plot
 ‘When (Eteonicus) learned of the plot, ...’
- (13) a. Subject DP, S. *El*. 222
 Ou láthei m’ [orgá].
 NEG escapesme passion
 lit. ‘Passion does not escape me.’ (= ‘I know my own passion’ [Storr])
- b. Subject *hóti*-clauses, *Lys*. 4.17
 Ou lései oudén’ [hóti
 NEG will.escape nobody that
 taútēs égōg’ ánison êchon basanistheísēs].
 this-GEN.F.SG I unequal had having.been.tortured-GEN.F.SG
 lit. ‘That I was at risk... will not escape anybody.’
 (= ‘Nobody will be ignorant of that fact that I was at risk after she was tortured.’)

Second, *hóti*-clauses can be coordinated with DPs, as in (14).

- (14) *Hóti*, Pl. *R*. 496c7
 Hikanōs idóntes [tēn manían] kai [hóti oudeis
 enough having.seen the fury and that nobody
 oudèn hygiés perì tà tôn póleōn práttei]
 nothing sane about the the cities-GEN does
 ‘Because he saw enough of the fury (of the multitude) and that nobody
 does anything sane about the city’s affairs.’

3.1.2 Determination and modification

In this section, I will show that *hóti*-clauses behave like vanilla DPs with respect to modification and external determination. As a baseline, consider examples (15) to (17). Classical Greek is a language in which demonstrative determiners are stacked onto the definite DP, whence my term “external” determination, as illustrated by (15), in which the medial demonstrative *toúto* ‘this’ appears with the definite article *tó*. They do need to be adjacent, as shown by (16). Moreover, a DP can be modified by an emphatic term, *autós* lit. ‘himself’, which is also quite free in placement. In (17), *autós* appears before the DP.

- (15) Th. 4.3.3
Toúto tò chōríon.
 this the village
 ‘This village’
- (16) X. *HG* 7.5.11
Toúto labòn **tò chōríon**.
 this having.taken the village
 ‘After taking this village’
- (17) X. *An.* 5.5.20
 Hēi hēmās edéchetō **autò tò chorion**, taútēi eiselthóntes.
 where.us received itself the village there going.in
 ‘Going in at a point where the place itself received us.’

These features are also exhibited by *hóti*-clauses. For example, in (18), the demonstrative *toúto* appears immediately above the *hóti*-clause, to be compared with (15).

- (18) Antipho 5.32
 Oîmai hymâs epístasthai **toúto**;
 I.think you-ACC know-INF this- ACC.N.SG-MEDIAL
 [hóti eph’ hoîs àn tò pleîston méros tês basánou, pròs toútōn eisìn hoi basanizómēnoi légein hó ti àn ekeínois méll ōsi charieîsthai].
 ‘I think that you know it [that witnesses under torture are biased in favor of those who do most of the torturing; they will say anything likely to gratify them].’ (Maidment, adapted)

One might argue that the structure is not comparable to (15), but to a cataphoric/correlative configuration similar to English *it-that* structures, where *it* is coreferential and cataphoric to the extraposed *that*-clause. However, two arguments indicate that we are not dealing with a cataphoric structure, contrary to what the translation may hint at.¹³

¹³ Note that Blümel and Goto (this volume, building on previous proposals) analyze what surfaces as a cataphoric structure as a type of DP anyway. If they are correct, the difference between *it-that* structures and the at-issue configuration is that in the former, the *that*-clause moves rightwards,

First, demonstratives are not cataphoric to the clause, since they retain their deictic force. In example (18), the whole structure [medial demonstrative+clause] refers back to something. Likewise, the structure [clause+proximal] refers to the following speech in (19). Thus the function of the demonstrative is not to point at the clause, but just to position it in the discourse, as does a determiner.

- (19) X. *HG.* 2.3.33
 [Hōs eikóta poioúmen], kai [**tád'**]
 that proper we.do even this-ACC.N.PL-PROXIMAL
 ennoésate [~~tád' hōs eikóta poioúmen~~]
 consider
 “kallistē mèn gár dēpou dokeí politeía einai hē Lakedaimoníōn...”
 ‘And in proof that what we are thus doing is proper, consider this fact
 also. “The constitution of the Lacedaemonians is, we know, deemed
 the best of all constitutions...”’ (Brownson)

Third, the demonstrative agrees with the following clause. This can be seen in (18), in which the demonstrative is in the singular, while it is in the plural in (19). Whatever the reason why the clause counts as a singular or as a plural (see Faure 2021a: Ch. 6 for a survey of the various hypotheses), agreement of a dummy element like *it* is not expected.

Now comparing *hóti*-clauses with (17), we can see that they too can be modified with *autó* ‘itself’,¹⁴ as in (20).

- (20) S. *Phil.* 1020-1024
 Egō algýnomai
 I am.suffering
toút' aúth' [hóti zô sýn kakoís polloís tálas].
 this itself that I.live with bad a.lot unfortunate
 ‘As far as I’m concerned, what I am suffering from is that I live with a
 lot of bad persons, unfortunately.’

3.1.3 Complementizer *hóti* is a D

A final argument for why *hóti*-clauses are DPs in Classical Greek is that the complementizer *hóti* is in complementary distribution with Ds. As noted in Kühner & Gerth (1898: 594–597, §461.6 and 461.7), the Classical Greek article is powerful, as it can associate with any category to nominalize it/turn it into a DP. For example, consider the text in (21).

whereas in the latter, it is the demonstrative *toúto* that is displaced to the left. By contrast, according to Kiemtore (this volume), the correlative construction is distinct from a DP construction in Jula.

¹⁴ Compare with Davies & Dubinsky’s (1998, 2009) argument, illustrated in (2). In contrast to English, the argument is also valid for object clauses.

- (21) Pl. *Prm.* 152b3-6
 Ἐστί δὲ presbýteron ἂρ' ouch hótan katà **tòn nŷn chrónon** êi
 gignómenon tòn metaxý **toû ên te kai éstai?** ou gár pou poreuómenón
 ge ek **toû potè** eis **tò épeita** hyperbésetai **tò nŷn**.
 'And it is older (is it not) when in becoming older it is in the present
 time, between the past and the future; for in going from the past to the
 future it cannot avoid the present.' (Fowler)

We find *bona fide* DPs, like *tòn nŷn chrónon* 'the present time', but the article is also found before finite verbs *toû ên te kai éstai* (lit. 'the was and will be', i.e., 'the past and the future') and adverbs *toû potè, tò épeita, tò nŷn* (lit. 'the once, the then, the now', i.e., 'the past, the future, and the present').

Crucially, the only category that the article *cannot* nominalize is finite declarative complement clauses. This is, I claim, because they are DPs. Complementizers are in complementary distribution with the definite article, and nominalizing the clauses would amount to stacking articles on top of each other.¹⁵

- (22) Finite complement clauses and DPs

	DP	Finite CP
Selected by same predicates	✓	✓
Coordination	✓	✓
Islandhood with Dem	✓	✓
Islandhood without Dem	✗	✗
φ-features	✓	✓
Deictic/anaphoric	✓	✓

In this section, we saw that *hóti*-clauses have most of the syntactic features of DPs in terms of distribution and modification, which are summarized under (22) (I address Case properties in Section 3.3). I have argued that *hóti* is the D of these DPs, but this stance will be revised in 5.2, where it will be shown that only *h*-takes on this function. In the next section, we shall examine their interpretive properties.

3.2 Factivity and assertion

Hóti-clauses appear with four classes of predicates: emotive/evaluative factive (20), cognitive factive and veridical predicates (5, 18), and strong assertive predicates (23).

¹⁵ That complementizers and articles have something in common was already observed by the grammarian Apollonius Dyscolus in the second century AD (Dalimier 2001, at 214.23–24).

- (23) Strong assertive, D. 34.13, *Hóti*
 Légōn [hóti oudèn poieî tôn dikaiōn Phormiōn].
 saying that nothing makes of.right P.-NOM
 ‘...saying that Phormio was not doing what was right.’

Factive predicates are predicates that presuppose the truth of their complement (Kiparsky & Kiparsky 1970). With veridical predicates, this truth only ensues in veridical environments (Asher 1987; Giannakidou 1998; Égré 2008). Strong assertive predicates are environments in which ‘the speaker or subject of the sentence has an affirmative opinion regarding the truth value of the complement proposition’ (Hooper 1975: 95) and some operations, such as neg-raising, are not available.

Crucially, *hóti*-clauses are almost the only type of finite clauses that appear with emotive/evaluative factives. With cognitive factive and veridical predicates, the presupposition is or can be suspended in non-veridical environments (Faure 2006; Égré 2008; Beaver 2010), in which case *hóti* is rare (*hōs* is preferably used instead; Faure 2021a: Ch. 3). With strong assertive predicates, the presupposition does not project, but *hóti* is quotative, i.e., the content of the report is deemed to be faithful to the original (Fournier 1946). In fact, it is the only complementizer that can also be used to report direct speech, as in (24):

- (24) Pure quotation, D. 19.242
 Élegen tote pros tous dikastās
 he.said then to the judges
 [hóti “apologēsetai Dēmōsthēnēs hyper autoū”].
 that will.defend D.-NOM about him
 ‘On that occasion he observed to the jury: “Demosthenes will conduct this man’s defence.” ’ (Vince)

This distribution indicates that *hóti*-clauses presuppose the existence of a proposition or of an assertion in the common ground. The former property was already identified as involving definite nominal clauses by Kastner (2015) in a crosslinguistic study. Classical Greek must now be added to the range of such languages, with the peculiarity that the complementizer itself is the definite determiner in this language. However, *hóti*-clauses are not the only clauses with such a distribution, so something must be said about their competitors.

3.3 Referentiality

Participial clauses and nominalized infinitival clauses show up with (almost) the same range of predicates as *hóti*-clauses. Why does Classical Greek present us with such a redundancy? Here are two examples of nominalized infinitival clauses:

- (25) Infinitival clause with a preposition, X. *HG* 1.3.19-20
 Dià taút' toùs polemíous éphē eisésthai
 because.of that the enemy-ACC he.said will.be-INF
 ou dià [tò miseîn Lakedaimoníous].
 not because.of the hate-INF L.-ACC
 Lit. 'Because of the fact that he hates the Lacedaemonians'
 'He had for this reason admitted the enemy, not for the sake of money
 nor out of hatred to the Lacedaemonians.' (Brownson)
- (26) Infinitival clause in subject position, Thuc. 1.142.6
 [Tò tês thalássēs epistémonas genésthai]
 the the sea specialists become-INF
 ou rhaidíōs autoís prosgenésetai.
 NEG easily to.them will.be.added
 'They won't acquire easily knowledge about the sea.'

We observe that nominalized infinitival clauses appear here after a preposition (25) and in subject position (26), i.e., in Case-assignment positions (by P and T, respectively). In contrast, *hóti*-clauses are banned from such positions, which is typical of finite clauses, which tend to topicalize or extrapose crosslinguistically to avoid Case positions (see Koster 1978 and Stowell 1981 on English *that*-clauses). Thus, the distribution is complementary and motivated by the syntactic factor of Case marking.¹⁶

However, complementary distribution is not always the case. *Hóti*-clauses compete with participial clauses, in any position. Consider the minimal pair in (27), from Huitink (2009: 36, ex. 21).

- (27) Discourse new *hóti*- and anaphoric participial clause,
 Pl. *Grg.* 470d8-e7
 – Tí dé? Syngenómenos àn gnoiēs, állōs dè autóthen ou gignóskeis
[hóti eudaimoneî]?
 – Mà Dí' ou dêta.
 – Dêlon dé, ô Sókrates, hóti oudè [tòn mégan basiléa] gignóskein
 phéseis **[eudáimona ónta /ptcp/]**.
 'Polus – What? Could you find out by meeting him, and cannot other-
 wise tell, straight off, [that he is happy]?'
 Socrates – No, indeed, upon my word.
 Polus – Then doubtless you will say, Socrates, that you do not know
 [that even the Great King is happy].'

There is a difference, though. While the first occurrence of the proposition that the king is happy takes the form of a *hóti*-clause, the second one is a participial. The proposition was not mentioned before the passage. The *hóti*-clause is then the

¹⁶In Faure (2021a: Ch. 5), I defend the view that lack of Case actually prevents the clause from moving, a view that is also defended by Kiemtore (this volume) for Julia in the same terms (Case is checked by an expletive that might be overt or covert).

first occurrence of the proposition. The proposition is discourse new, although it is born presupposed,¹⁷ since it is embedded under a factive predicate. In contrast, the participial clause is referential to the *hóti*-clause. This usage of *hóti*- and participial clauses is constant: while *hóti*-clauses denote first-mention presupposed propositions, participial clauses are anaphoric to already mentioned presupposed propositions. In discourse management, *hóti*-clauses are focal or topic-establishing, while participial clauses serve as topic-continuity devices. In (28), the *hóti*-clause is topicalized. Topic establishment is materialized by the *dé* particle (Goldstein 2016).

- (28) Th. 3.104.5
 [Hóti dè kai mousikês agòn ên (...)]
 that PTC also of.music competition was
 aũ dēloĩ há estin ek toũ autoũ prooimíou.
 in turn shows what is from the same opening
 ‘That there was also a music contest is shown in turn by what is found
 in the same opening.’

This is reminiscent of the opposition between weak and strong definiteness. As a baseline, consider the Fering (a German dialect of North Frisia) examples in (29), from Ebert (1971: 161), quoted in Schwarz (2019: 6):

- (29) Fering
 a. Ik skal deel tu a /*di kuupmaan.
 I must down to the_{weak} /the_{strong} grocer
 ‘I have to go down to the grocer.’
 b. Oki hee an hingst keeft. *A /Di hingst haaltet.
 Oki has a horse bought the_{weak} /the_{strong} horse limps
 ‘Oki has bought a horse. The horse limps.’

In (b), the indefinite *an hingst* has introduced a discourse referent. The definite DP in the next sentence picks out this referent. It is marked with *di*. In contrast, in (a), the noun *kuupmaan* is marked with the other definite article *a*. The use of the former requires that an antecedent is present in the linguistic context. The former, but not the latter, is anaphoric. Schwarz’s description is that *a* is a weak definite article, marking uniqueness, and *di* is a strong definite article, marking familiarity (or anaphoricity).

Hankamer & Mikkelsen (2021: 476) show that this distinction carries over to DPs with a content noun and a clause in Danish, which also has two definite articles (glosses and presentation adapted):

¹⁷ This apparent contradiction has been pointed out before, e.g., in Simons (2007) (See Faure 2021a: Ch. 6 for discussion).

- (30) Danish DP+CP
Den ide [at ingefær gavner fordøjels-en].
 DEF idea that ginger aids digestion-DEF
 ‘The idea that ginger aids digestion.’
- (31) Danish DP+P+CP
Ide-en om [at ingefær gavner fordøjels-en].
 idea-DEF about that ginger aids digestion-DEF
 ‘The idea that ginger aids digestion.’

In (30), the free-standing definite article *den* is used, while in (31) the suffixal definite article *-en* appears. In the latter, the clause is preceded by a preposition but not in the former, where it is in direct relation with the noun. In these configurations, swapping the two articles for one another results in ungrammaticality.¹⁸ Hankamer & Mikkelsen (2021) show that the two structures crucially differ in their discourse usages: only the free article + direct relation is possible with performative verbs (32), with creation verbs, and in presentational clauses (‘there is x’).

- (32) Jeg vover den påstand [at EU er på vej mod opløsning].
 I dare the claim that EU is on way toward dissolution
 ‘I (hereby) make the claim that the EU is on the path toward dissolution.’

Conversely, only the suffixal article + prepositional relation is possible to anaphorically refer to a linguistic antecedent, as in (33); antecedent and anaphor are underlined.

- (33) Politicians have two standard reactions to criticism. The first is to claim that *one doesn't understand the situation*. The other is to claim that the criticism is not valid.
- a. Påstand-en om
 claim-DEF about
 [at man ikke forstår situation-en] kommer i dette
 that one not understands situation-DEF comes in this
 tilfælde fra Simon Emil Ammitzbøll.
 case from Simon Emil Ammitzbøll
 ‘In this case the claim that one doesn't understand the situation comes from Simon Emil Ammitzbøll.’
- b. #**Den** påstand [at man ikke forstår situation-en] kommer
 the claim that one not understands situation-DEF comes
 i dette tilfælde fra Simon Emil Ammitzbøll.
 in this case from Simon Emil Ammitzbøll

¹⁸ There are subtleties: in the second configuration, if an adjective is introduced, the free-standing article becomes possible, while there is no way to improve the first configuration with the suffixal article instead of the free-standing one.

Hankamer & Mikkelsen’s (2021: 478–481) analysis of these data is that the free article + direct relation is referent-establishing/first mention, while the suffixal article + prepositional relation is familiar/anaphoric.

The similarity of the Danish pattern with the observations on Classical Greek made about (27) is striking in that Classical Greek clauses distribute among anaphora (e.g., participial clauses) and first mention/discourse novelty (e.g., *hóti*-clauses). I conclude that *hóti*-clauses are weak definite DPs and participial clauses have a strong definite interpretation. I take the first-mention value of weak definites to arise from an implicature: if the DP is not anaphoric, it is first mention. This means that there is an asymmetry between weak and strong definites. Weak definites can be made stronger contextually, while strong ones cannot be made weaker.

3.4 Interim summary

In this section, we saw that Classical Greek *hóti*-clauses are caseless DPs. In positions in which Case is required, they are supplemented by nominalized infinitival clauses, whose definite determiner features Case marking. Interpretively, *hóti*-clauses are weak definite DPs.¹⁹ They alternate with participial clauses, which have a strong definite interpretation.²⁰ Note that this picture gives a more precise view of what it means for a clause to be referential. While some researchers plead in favor of referentiality merely being factivity (Kallulli 2006), others opt for responsiveness (in the sense of Cattell’s response-stance predicates; Bogal-Allbritten & Moulton 2018). We found that we actually need two types of referentiality (*pace* also de Cuba & Ürögdi 2009; Haegeman & Ürögdi 2010; Simeonova this volume), which amounts to weak and strong definiteness. As we shall see in the next section, *hóti*-clauses underwent a radical change after the classical period.

4 Modern Greek

In the history of Greek, *hóti* became *óti*.²¹ The major difference between *hóti*- and *óti*-clauses is that the latter can be nominalized with the definite article *to*, as we saw in (1b), repeated here.

- (1b) [*(To) *óti éfighe tóso grígora*] me ksáfniaše.
 the that left-3SG so quickly me surprised-3SG
 ‘The fact that she left so quickly surprised me.’

¹⁹ Pafel (this volume) argues that argument clauses are semantically but not syntactically definite descriptions. It remains to be explored to what extent his account and the one provided here are compatible with one another.

²⁰ For space reasons, I cannot address the question as to whether or not participial clauses are *syntactically* strong definite DPs.

²¹ The loss of the *h-* is crucial as will be shown in Section 5.

(Roussou & Roberts 2001: ex. 7)

As shown in Roussou (1991), this nominalization is necessary for *óti*-clauses to show up in a Case position, like Spec, IP (1b) (i.e., the subject position), the complement of a preposition (34), and the object of verbs that do not select for CPs (35) (all possibilities that are excluded for Classical Greek *hóti*-clauses).

- (34) Obligatory with prepositions
 Apo[* (to) óti étreme]
 from the-ACC that was shaking
 ‘From the fact that he was shaking.’
 (Roussou 1991: ex. 5a)
- (35) Object of verbs that do not select for CPs
 Dhen amfisvitó [* (to) óti éfighe].
 not dispute-1SG the-ACC that left.3SG
 ‘I do not dispute the fact that he left.’
 (Roussou 1991, Fn. 13)

However, there are further cases in which nominalization is dispensable. Not all subject *óti*-clauses are endowed with a D, as shown by example (36). The crucial difference here seems to be interpretative. While *ksáfniasē* ‘surprised’ (1b) is factive, *diadídetai* is not.²² The news that war will break out can turn out to be false, eventually. In fact, while *hóti* was essentially presuppositional in Classical Greek (see the previous section), *óti* is not anymore. It is the normal construction with *nomízo* ‘think’, for example, as can be seen in (37), while the construction of this same verb in Classical Greek was a non-nominalized infinitival clause (38).

- (36) [Óti tha gínei pólemos] diadídetai
 that FUT happens war be.spread
 apo óla ta méssa mazikis enimérosis.
 by all the media mass information
 ‘That war will break out is spread by all mass information media.’
 (Philippaki-Warburton & Papafili 1988)
- (37) Modern Greek, *nomízo* ‘think’, *óti*,
 Nomízo [óti dhen tha to agorási].
 think-1SG that not FUT it buy-3SG
 ‘I think that she will not buy it.’
 (Roussou 2000: ex. 1)
- (38) Classical Greek, *nomízō* ‘think’, Infinitive, Pl. *Ap. 26d*
 [Oudè héliōn oudè selēnēn] ára nomízō [theōus einai]?
 neither sun nor moon PTC I.think gods be-INF
 ‘Do I not think that the sun and the moon are gods?’

²² Another difference is that *diadídetai* is passive, so the clause has undergone promotion to subject. Promotion, however, is not a factor preventing nominalization, as can be seen in (42).

Similarly to non-factive subjects, nominalization seems to be optional when the clause is topicalized (39).

- (39) Optional nominalization in topicalization
 [(To) óti pέρασε] to kséro.
 the-ACC that passed-3SG it-ACC know-1SG
 ‘I know that he passed.’
 (Roussou 1991: ex. 36)

For English, Takahashi (2010) argues that nominalization of certain topicalized clauses is made necessary by reconstruction to a Case position (see ex. 4). However, the case of Modern Greek is different, since nominalization is optional here. Thus the motivation for nominalization must lie elsewhere. Importantly, nominalized *óti*-clauses are not available across the board, as was already observed, e.g., in Moulton (2018), from which (40) is borrowed.

In Context 1, in which the proposition that the hearer has finished his/her homework has already been uttered, the nominalized clause *to óti* is perfect, while in Context 2, in which that same proposition occurs for the first time, the use of the nominalized clause is infelicitous.

- (40) Anaphoricity, Moulton (2018: ex. 15, 16) (cf. Bogal-Allbritten & Moulton 2018)
 Context 1: (φ asserted),
 CHILD: Don’t you believe I finished my homework?
 MOTHER: Πιστέvo
 Believe-1P
[to óti éxis teliósi ta mathímatá su].
 the that have-2P finished the homework yours
 Άπλα íne óra gia vradhinó
 Simply is time for dinner
 ‘I believe that you have finished your homework. It’s just that it’s time for dinner.’
 Context 2: (φ not asserted),
 CHILD: Why can’t I go outside to play?
 MOTHER: #Πιστέvo
 Believe-1P
[to óti dhen éxis teliósi ta mathímatá su].
 the that not have-2P finished the homework yours
 ‘I believe that you have not finished your homework.’

My informants however report that, even in Context 1, *to óti* is very degraded for them. This may be due to dialectal variation, although it is expected under the view that *pistévo* ‘believe’ does not select for DP-like clauses (see Section 5).

However, my informants also point out that (41) is correct.²³ (41) differs from (40) in featuring a response-stance verb, in the sense of Cattell (1978). These predicates describe a reaction to a proposition that is at issue (my phrasing). (41) would not be felicitous if the proposition that the hearer has finished his/her homework was not under discussion.

- (41) Epiveveóni [to óti éxis teliósi ta mathímata su].
confirm-3P the that have-2P finished the homework yours
'He confirms that you have finished your homework.'

Returning to (40), the difference between the structure with and without an article is that the structure with an article adverts to a previously mentioned proposition (we retrieve the topic continuity mentioned in the previous section), while the other one displays a brand-new proposition, which constitutes a new theme (topic establishment).

Similarly, example (36) can be modified to accommodate a definite article as in (42). N. Angelopoulos (p.c.) reports that the utterance is felicitous if the clause has been previously mentioned (he adds that the nominalized clause probably has a contrastive interpretation). We are in the same situation as (41): a non-factive environment hosts a nominalized clause that is explicitly anaphoric.

- (42) [To óti tha gínei pólemos] diadídetai
the that FUT happens war be.spread
apo óla ta méssa mazikís enimérosis.
by all the media mass information
'That war will break out is spread by all mass information media.'

5 Comparing Classical and Modern Greek

5.1 The distribution of DP-like clauses

Summarizing the properties of Classical and Modern Greek nominalizations, we obtain the following tables. I did not include Case marking positions, which, as we saw, almost always²⁴ necessitate a clause that is overtly nominalized with *to* (infinitival in Classical Greek, *óti* in Modern Greek) but are outside the scope of our research.

²³ Research on the internet confirms their judgments. Using the Google search tool, I did not find any good example of *pistévo to óti*, while *epiveveóni to óti* is widespread (for example, on the EU official website https://www.europarl.europa.eu/doceo/document/CRE-6-2007-06-18-INT-1-025_EL.html?redirect – accessed on Nov. 17, 2021, we find Η σημερινή απόφαση του Ευρωπαϊκού Συμβουλίου να προσκαλέσει μία κουβανική αντιπροσωπεία επιβεβαιώνει το ότι θα ήταν ιδιαίτερα σκόπιμο να περιμένουμε καταρχάς τον διάλογο αυτό πριν να διεξαγάγουμε συζήτηση εδώ το φθινόπωρο 'The European Council's decision today to invite a Cuban delegation is a confirmation that [lit. 'confirms the that'] it makes perfect sense to await this dialogue before we hold a debate here in autumn' – official English version).

²⁴ The only exception was illustrated with (36) and I leave it aside here.

(43) Distribution of nominal clauses in Classical Greek in object position

	Object position	Topic establishment	Topic continuity
Non-factive	inf	inf	<i>tó+inf</i>
Factive	<i>hóti</i>	<i>hóti</i>	participial

(44) Distribution of nominal clauses in Modern Greek in object position

	Object position	Topic establishment	Topic continuity
Non-factive	<i>óti</i>	<i>óti</i>	<i>to+óti</i>
Cognitive factive	<i>óti</i>	<i>óti</i>	<i>to+óti</i>

Following the conclusions reached in the previous sections and the labels introduced in Introduction, three cases occur (Table 45): (a) the clause does not need to be nominalized (= unmarked non-factive clauses); (b) the clause must be nominalized and is weakly definite (= focused and topic-establishing factive clauses; C-as-D or CovD strategies); (c) the clause must be nominalized and is strongly definite (anaphoric/topic-continuity clauses; DefD strategy).

(45) Distribution of nominal and non-nominal clauses in Classical and Modern Greek

	Non-nominal	Nominalized, weakly definite	Nominalized, strongly definite
Classical Greek	Infinitive	<i>hóti</i> [C-as-D]	<i>tó+infinitive</i> , participial [DefD]
Modern Greek	<i>óti</i>	D <i>óti</i> [CovD]	<i>to+óti</i> [DefD]

While there is a three-degree scale in Classical Greek, ranging from infinitival clauses to finite clauses and participials (and marginally nominalized infinitives), in Modern Greek, *óti*-clauses seem to be ambiguous between non-nominal (with non-factive verbs) and weakly definite clauses (with factive verbs). This is, however, not the case. Given the possibility of nominalizing *óti*-clauses with the article *to*, *óti*-clauses are not nominal *per se* and *óti* is not a definite determiner. This means that, when weakly definite, *óti*-clauses must be endowed with an additional and silent nominalizer, much like the English *that*-clauses surveyed in (2), (3), and (4). However, this nominalization is semantically driven (to make factive clauses) and not syntactically (to make the clause fit in positions that normally do not house clauses). The presence of a D is argued for in Roussou (2020) on the basis of the paradigm in (46) (her 25a and c).

- (46) a. Pó̄s nomízis [óti antéghrapse tin áskisi p̄os]?
 how think-2SG that copied-3SG the exercise how
 ‘How do you think that he copied the exercise?’
 b. *? Pó̄s anakálipse D [óti antéghrapse tin áskisi p̄os]?
 how discovered-2SG that copied-3SG the exercise how

‘*How did you discover that he copied the exercise?’

She claims that, in (b), extraction is blocked by an additional layer, which I represented as a D and which she, rightfully in my opinion, equates with the factive determiner that Kastner (2015) posits, since the distribution of these extraction facts is the same as that of Kastner’s D for cognitive factives.

A confirmation that this analysis is on the right track is that factive *óti*-clauses are in complementary distribution with *to*+*óti*-clauses. (47) is very degraded with *to*. Conversely, non-factive *óti*-clauses can be acceptably nominalized (see 40, Context 1 and 41). This is natural since they are bare *óti*-clauses.

- (47) Kséro [(**to*) *óti* antéghrapse tin áskisi].
 I.know that he.copied the exercise
 ‘I know that he copied the exercise.’

Note that, in contrast to *to*, this factive D is silent. I attribute this property to its weakness. While strong definiteness (explicit anaphor) is a marked option and distinctly contrasts with non-anaphoric situations, weak definiteness, linked here to factivity and first mention, is unmarked. It then comes as no surprise that the lesser marked item is silent while the more marked one is overt.

5.2 Diachronic development and the NP value of *óti*-clauses

Two facts accompany this diachronic demotion of (*h*)*óti*-clauses from DP-like CPs to non-DP CPs (actually NP-like CPs, as I will claim), which can be nominalized with an *external* D. First, they underwent semantic bleaching from factive to all-purpose proposition-denoting clauses, so that the context is responsible for their interpretation more than the complementizer itself. In fact, this extension modestly emerged in Classical Greek. In my corpus, consisting of 5482 complement clauses, *nomízō* ‘think’ is attested 241 times with a complement clause and only once with *hóti* (48) (the usual complementation is infinitival clauses, as shown in 38).

- (48) *Hóti*-clause, *nomízō* ‘think’, Lys. 7.39
 Hymâs hēgoûmai nomízein [*hóti* Nikómachos (...)
 you-ACC I.believe think-INF that N.-NOM
 toûton tôn agôna agônízetai].
 this the action he.conducts
 ‘I believe that you think that Nichomachus is conducting the action.’

This extension was intensified in the following centuries, as hinted at in Cristofaro (1996: 151–152). This can be seen if we compare my Classical corpus (fifth and fourth c. BCE) with Bentein’s (2017) Post-classical corpus (first to eighth c. AD). As is visible from the chart in (49) and the very significant χ^2 test, the distribution of clause types is not independent from the period. In fact, *hóti*-clauses gradually gained ground. Bentein (2017: 33) moreover shows that ‘[*hóti*] is used in informal

contexts, by equals and family members, and is avoided when writing to officials', i.e., *hóti*-clauses are prevalent in the colloquial language, which usually foreshadows the next linguistic state.

(49) The evolution of *hóti*-clauses from Classical to Post-classical Greek

χ^2 p < .0000001	Classical Greek	Post- classical Greek	Total	Classical Greek	Post-classical Greek
<i>Hóti</i>	468	404	872	10.15%	22.25%
Infinitival clauses	3676	1326	5002	79.71%	73.02%
Participial clauses	468	86	554	10.15%	4.74%
Total	4612	1816	6428	100.00%	100.00%

The second important fact is that, at the same time (during the classical period), the aspiration *h-* started losing ground. The history of the aspiration in Ancient Greek is complicated. Although it was lost early in some dialects (e.g., Ionian), it was maintained longer in Attic, and was sporadically reintroduced in some dialects when the Attic-based *Koine* spread (from the third c. BCE onward). At the same time, it already started regressing in functional words in Attic, a process that only became tangible when the spiritus asper was introduced in writing (first c. BCE) but is probably older. The process likely lasted over centuries.²⁵

Now recall that in *hóti*, the aspiration *h-* corresponded to the morpheme *h-* presented in Section 2. Tying together the loss of *h-* and the extension of (*h*)*óti*-clauses to non-factive verbs, I argue that they conspired to initiate the reanalysis of *hóti* as a non-determiner complementizer, paving the way for the possibility of nominalizing (*h*)*óti*-clauses otherwise, i.e., with a definite article or a silent D. Put otherwise, only the morpheme *h-* in *h-óti* was the definite determiner, which is in line with the meaning properties that it was shown to possess in Section 2, namely definiteness.

This result raises the question as to what the contribution of the second part of *h-óti*, namely *óti*, is, which has been analyzed in many ways in the literature. An adaptation of Roussou (2010) provides an answer. Comparing *óti*- and *pu*-clauses, Roussou (2010: 585–593) argues that, being factive, the latter are definite nominals, while the former are indefinite. She furthermore claims that these definite/indefinite characteristics come from the heading term. Thus, *óti* is considered an indefinite nominal, while *pu* is a definite one.

Moreover, regarding the categorization of the clause, Roussou (2010) treats complement clauses like free relative clauses, which inherit their category and type from the heading term (see also Manzini & Roussou submitted and their

²⁵ See Jatteau (2016), in particular p. 34, 88–91, 185–186, and the references.

references). *Óti* denotes a set of propositions,²⁶ which I propose rephrasing as a set of (propositional) individuals. Let's write this type e_p , so *óti* and *óti*-clauses are of type $\langle e_p, t \rangle$. With *nomízo* 'think', I tentatively assume that the clause associates with the matrix predicate via predicate modification before existential closure takes place as in Moulton (2015).²⁷ Let me attempt to formalize this proposal as in (51),²⁸ based on (50) (intensions ignored for simplification).

(50) I María pistévi óti o Jánis írthe.
the Maria believes that the Jáni came
'Maria believes that Jani came.'

(51) $\llbracket \text{I María pistévi óti o Jánis írthe} \rrbracket = \exists x_{ep}[\text{believe}(m, x) \wedge \text{that Jáni came}(x)]$

Consequently, Modern Greek *óti*-clauses are predicates (type $\langle e_p, t \rangle$), which makes them semantically similar to NPs. This property leaves open the possibility that they are endowed with an external D and nominalized (i.e., turned in DPs), much as sets of individuals and NPs. In the previous section, we saw that this is the case with *to* or with a silent D. Adopting a Strawsonian definite D as in (53), the meaning of the whole clause is as in (54) for a factive clause like (52). To be more precise, this D must resemble Chierchia's (1984) operator \cap . D picks out the entity that is the only member of a (singleton) set of propositional entities.²⁹

(52) Kséro D óti antéghrapse tin áskisi.
I.know that he.copied the exercise
'I know that he copied the exercise.'

(53) $\llbracket D \rrbracket = \lambda Q_{\langle e, t \rangle}. \iota x_e. Q(x)$

(54) $\llbracket D [\text{óti antéghrapse tin áskisi}] \rrbracket = \iota x_{ep}. [\text{he copied the exercise}](x)$

²⁶ Because of its indefinite meaning. The reader is referred to the original article for the argumentation.

²⁷ While the nominalized clauses that were described above associate via functional application. This means that two types of composition with the clause are necessary in attitude reports, as also defended by Simeonova (this volume).

²⁸ If my semantic translation is correct, the semantics of such clauses is close to what Kratzer (2006), Moulton (2009, 2015), and Moltmann (2021) argue, namely that the clause modifies an underlying object, which is the actual complement to the verb. However, Roussou's proposal differs in that she claims that the object is not underlying but actually is spelled out by a kind of light noun (or pronoun), which is the complementizer, while in the Kratzer-Moulton approach, the complementizer may be a content function that equates the proposition denoted by the embedded clause with the content of the object, unless this role is fulfilled by an empty operator, in which case (some) complementizers are merely vacuous elements (Elliott 2020). However, the variety of the complementizers and their morphological complexities intra- and crosslinguistically indicate that this is probably too much of a simplification and that complementizers do contribute something (see, recently, Baunaz & Lander 2017, 2018; Manzini & Roussou submitted, among many others).

²⁹ Compare with Kayne (1982), Chierchia (1984), Potts (2002), Sæbø (2019), Faure (2021a), and also answerhood operators, which fulfill the same function (Heim 1994; Dayal 2016; Faure 2019).

6 Conclusion

In this article, I used the history of (*h*)*óti*-clauses in Greek to get a better idea of what it means for a clause to be nouny. Setting apart the situations in which nominalization serves grammatical purposes (e.g., to embed a clause under a preposition), the remaining cases are clearly motivated by the referential properties of the clause.³⁰ The two chronological layers that were explored in depth present us with the same distinctions in Classical and Modern Greek, whose robustness is interesting *per se*: the language needs to distinguish between factive/first-mention clauses, on the one hand, and anaphoric/topic-continuity clauses, on the other hand. The former correspond to a nominalization by a weak definite determiner (realized as [a morpheme on] the complementizer, C-as-D, or remaining silent, CovD), while the latter are strongly definite (realized as a DefD). The latter use overt heavy material (definite article *to*), while the former use light and unstable material (*h*- morpheme, covert D). Interestingly, this observation relates to iconicity: the stronger the definiteness, the heavier the material.

Regarding the history of (*h*)*óti*-clauses, this development implies that they changed category from DP to NP. This modification was triggered by the loss of the determiner morpheme *h*-. *H*- made *hóti*-clauses factive (weakly definite). In its absence, they were able to extend to non-factive matrix predicates, where they compete with non-finite complements like infinitival clauses. That is why this change arguably goes hand in hand with and may be one of the factors for the weakening of non-finite complementation in the following centuries up to early Modern Greek, when it disappeared altogether (Joseph 1983; Kavčič 2005; Horrocks 2010; Bentein 2017).

In Modern Greek, the factive slot is still partially occupied by *óti*-clauses,³¹ but is endowed with a silent D. The anaphoric slot (loss of the participle) was filled with *pu*- and *to óti*-clauses. Note that, taken together, Roussou's (1991) analysis of the grammatical constraints and the present article on the interpretive constraints bearing on the *to óti* structure fully capture its distribution.

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³⁰ This division of labor between syntactic and semantic uses of strong forms (in the sense of Cardinaletti & Starke 1994) is widespread. For example, *which* is semantically D-linked in questions (Pesetsky 1987), but its use in *the book in which...* is motivated by the presence of the preposition, not by interpretive factors.

³¹ *Pu*-clauses filling the rest.

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