Are Some Indirect Interrogatives Free Relatives Used as Concealed Questions?

Richard Faure
Université Paris-Sorbonne

Abstract

This paper addresses the issue of why there are, at first glance, three items that can introduce an embedded question in Classical Greek: *hós* (relative), *tís* (direct) interrogative) and *hóstis* (so-called indefinite relative). As *tís* and *hóstis* pattern together with respect to the predicates that embed them, the distinction is amenable to a binary one. Giannakidou's (1998) notion of non-veridicality accounts for it: *tís* and *hóstis* prove to be licensed by non veridical contexts. *Hós* clauses are nothing else than actual Free Relative clauses, that function as concealed questions, or, more exactly, as concealed propositions.

1 Introduction: too many indirect questions?

Embedded questions are distinct from Free Relatives in that the selection of the embedding verb and of the embedded verb need not be the same. In (1), *eat* and *cook* both take a concrete object as complement, see (2). Therefore, in (1) *what I cooked* is an instance of Free Relative. On the other hand, (3), where *know* and *cook* have a different selection, see (4), is an instance of embedded question. Question embedding predicates like *know* must somehow be predicates of propositional attitude.

(1) You ate what you cooked.
(2) You ate/cooked a cake.
(3) You know what you cooked.
(4) You cooked/*know a cake.

If we now turn to the data of Classical Greek, it appears that specific issues arise. But before proceeding to the analysis of the relevant data, some background on Classical Greek is needed.

Contrary to most modern occidental Indo-european languages, Classical Greek has two distinct paradigms for relative and interrogative items. This is obvious from the examples (5) and (6) providing a restrictive relative with a term of the *hós*

paradigm and a direct interrogative. Note also that Classical Greek has Free Relatives introduced by exactly the same item as restrictive relative clauses[1].

(5) Moi[2] tòn nómon autòn anágnōthi **hòs** keleúei
to-me the law itself read-IMP[3] rel-nom order-PRS.3SG

tà heautoū exeînai diathésthai hópōs án ethélē.[4,5]
the himself-GEN be-allowed set as ptc want-SUBJ.3SG
'Read me the law that orders that a man can dispose of his property as he likes.'

(6) **Tís** agoreúein boúletai[6]
int-NOM speak want-PRS.3SG
'Who wants to speak?'

So far, everything is clear, but the picture gets more complicated when it comes to embedded questions. We would like to draw attention to a phenomenon which has remained unexplained up to now in Classical Greek and is exemplified by (7), (8) and (9).

(7) Taûta élegen eidṓs **há** Timasíōni hupiskhnoûnto.[7]
dem-ACC.N.PL say-PST.3SG knowing rel-ACC.N.PL T-DAT promise-PST.3PL
'They$_i$ said so, knowing what they$_j$ had promised to Timasion.'

(8) Oukh hēgeî gignṓskein autoùs **hóstis** eî[8]
neg think-PRS.2SG know-INF them-ACC hóstis-NOM be-PRS2SG
'Don't you think that they know who you are?'

(9) Ísōs oúpō oîstha **tí** légō. [9]
maybe not yet know-PRS.2SG int-ACC.N say-PRS.1SG
'You may not know yet what I mean.'

[1] This is crosslinguistically uncommon. See Caponigro (2003) for an overview. Note also that they do not have the same semantics as that usually assumed for Free Relatives, but this a another topic.
[2] We transliterate from the Greek into the Latin alphabet. /, \ and ~ are three different accents.
[3] When relevant, we use the Leipzig glossing rules (http://www.eva.mpg.de/lingua/resources/glossing-rules.php).
[4] As Ancient Greek is not spoken anymore, I work on a corpus which is made up of Aristophanes' plays, Xenophon's *Anabasis* and *Cyropaedia*, Plato's *Republic*, *Protagoras* and *Gorgias*, and Desmosthenes' *Orationes*.
[5] Isaeus, 2, 13.
[6] Aristophanes, *Acharnenses* 45.
[7] Xenophon, *Anabasis* 5, 6, 26.
[8] Demosthenes, 18, 283.
[9] Plato, *Gorgias* 500a.

In (7), (8) and (9) three different items are employed. In (7), *há* belongs to the paradigm of the relative *hós*; in (9), *tís* is the item that is also used in direct question; and in (8), *hóstis* is also a relative pronoun, whose meaning is close to 'whoever'.

According to the selectional criterion just mentioned, (7), (8) and (9) are three instances of embedded questions. Moreover, it is noteworthy that they are translated and interpreted as such in English. Hence, we expect them to begin with a word of the *tís*-paradigm. Surprisingly, two of them do not (7) and (8). (7) is introduced by a word of the *hós* (the so-called relative) paradigm. Embedded interrogatives can even begin with a third type of item *hóstis* (8) which we leave aside in this paper. Suffice it to say that it behaves the same way as *tís* in this environment.

This article will instead focus on *tís* vs *hós* embedded questions[10] and their apparent neutralization. We shall argue that their uses can be distinguished both on syntactic and semantic criteria.

2 *Hós* clauses show up after responsive predicates

According to Lahiri (2002) among others, question embedding predicates distribute over two classes: the responsive class and the rogative class. The *responsive* predicates such as *know*, *remember*, *learn* etc (*oîdα*, *mémnēmai*, *manthánō*...) embed interrogatives that denote the answer (or the response) to the question, while *rogative* predicates embed question denoting interrogatives.

If you look at the distribution of *hós* clauses, it turns out that not every question embedding predicates embed them, as you can see in example (7), where a verb 'know' is used. *Hós* clauses are in fact limited to the class of responsive predicates. Note that perception and surprise verbs are used in this way as well.

This is not only a matter of lexical semantics or of quantification variability effect sensitivity (a problem that is controversial). In Classical Greek, these verbs have the same syntactic selectional properties. They are the only ones that select for a *hóti*/*hōs* clause *or* a participle clause at the accusative. We can predict that if a verb has these selectional properties, it will embed interrogative or relative clauses with a so-called interrogative interpretation, which is borne out.

Semantically, it corresponds to the class of cognitive factive verbs, extended to a short subset of strong assertive predicates in Hooper's (1975) sense.

When it is after such verbs, the interrogative clause is taken to denote the answer, the extension of the question, in Groenendijk and Stokhof's (1982) terms. This is not surprising if you look at the short dialog provided under (10).

[10] Drawing on their prototypical uses, we shall call them interrogatives (*tís*) and relatives (*hós*) for the sake of simplicity.

(10) A: Hoûtós esti **tís**
dem-NOM.M.SG is int-NOM

B: **hòs** toîs nekroîsi zōgrafeî tàs lēkúthous.[11]
rel-NOM the dead-DAT.PL paints the vases
'A: This man, who is he?
B: (the man) who paints the vases for the dead.'

A poses his question with *tís*, and B answers it with a *hós* relative clause. What is crucial here is that it is a Free Relative. This is a very large phenomenon. It is then not surprising that *hós* be used after responsive predicates.

We end up with a one-to-one correspondence between relatives and responsive predicates. The inference would be that rogative predicates should embed only interrogatives, which is borne out.

Nonetheless, the opposite is not true. Not every (*tís*) interrogative is embedded under a rogative predicate. What to do with cases such as (9), which contains both a responsive predicate and a *tís* interrogative? Is there free variation between *hós* and *tís* after these predicates? Our claim is that this is not the case.

3 Responsive predicates in (non)veridical environments

It has already been noticed that nonveridicality may have something to do with wh-selection. It was in den Dikken & Giannakidou (2002) about *wh- the hell* clauses. Look at (11) and (12) (their (5) and (6)). *Wh- the hell* clauses are licensed under a negative operator (12), but not in a positive context (11). In this paper, they show that negative context can be extended to all nonveridical contexts as defined in Giannakidou (1998), and repeated here under (13).

(11) I know who (*the hell) would buy that book.
(12) I don't know who (the hell) would buy that book.

(13) (Non)veridicality for propositional operators
A propositional operator *F* is veridical iff *Fp* entails *p*: *Fp* → *p*;
Otherwise *F* is nonveridical.

Now, if we go back to the example (9), it turns out that *ísōs* 'maybe' and *oúpō* 'not yet' are nonveridical as shown by the English examples (14) and (15). I assume that, at least for these operators, the entailment holds universally and carries over to Classical Greek. Therefore, their combination is not veridical either.

(14) Maybe he left -/→ He left.

[11] Aristophanes, *Ecclesiazusae* 995.

(15) He didn't leave yet -/→ He left.

Nonveridicality might be the condition for *tís* clauses to show up. Before exploring the other nonveridical environments in Classical Greek, a caveat is in order.

3.1 Factivity vs nonveridicality

Recall that we mentioned that the predicates in question were cognitive *factive* predicates. Therefore they must, even under negation and weaker nonveridical operators, presuppose the truth of their complement and the entailment blocked in (14) and (15) should be felicitous with a factive predicate, which proves to be correct (see the entailments (16) and (17)).

(16) Maybe Peter knows that Anna left → Anna left
(17) Peter does not know yet that Anna left → Anna left

Nonetheless, it is not necessarily the case, as shown in Karttunen (1971) and fleshed out in Beaver (2010) and Faure (2006). (At least) two interpretations of (18) and (19) are available, depending upon the focus structure. In (20) and (21), the proposition expressed by the *that*-clause is clearly presupposed, but in (22) and (23) judgments are much more fuzzy and tend to deny the *that*-clause the status 'true'. It becomes evident with dynamic predicates such as *discover* that the presupposition is lost under such conditions.

(18) Maybe you know that his wife is having an affair with his boss.
(19) You don't know yet that his wife is having an affair with his boss.

(20) Maybe you [know] foc that his wife is having an affair with his boss.
(21) You [don't know] foc yet that his wife is having an affair with his boss.

(22) Maybe you know [that his wife is having an affair with his boss]$_{FOC}$.
(23) You don't know yet [that his wife is having an affair with his boss]$_{FOC}$.

The weakness of the presupposition after cognitive factive predicates accounts for the distribution of *hós* vs *tís* clauses.

3.2 Distribution

We need to check whether all nonveridical contexts provided in Giannakidou's works are the environments where *tís* shows up.[12] The hypothesis is borne out for all the contexts that are present in my corpus. We will not give an example of each, but

[12] For a list see Giannakidou (1998 passim, but especially table 3 on p. 89) or (2002: 34–40).

(24) is a list of such contexts and the examples (25) and (26) display two nonveridical environments: *before*-clauses and deontic modality.[13]

(24) Negations; before-clauses; Questions; Conditionals (antecedent of conditionals); Futures; Modalities (necessity, possibility, ability, willingness); Imperatives (and other injonctive contexts such as deliberation); *ísōs* 'maybe'; Intrinsecally negative verb (*aporō̃* 'not-know'); Generics.[14]

(I won't answer your question)

(25) **prìn** àn prôton **apokrínōmai** **hóti** estín.[15]
before ptc first answer-SBJV.PRS.1SG hóstis-ACC.N is
'before I have answered (the question) what (the rhetoric) is.'

(26) **Hó ti** dúnatai taûta poieîn
hóstis-ACC.N can-PRS.3SG this do-INF

eníous matheîn humṓn **deî**.[16]
some learn-INF of-you must
'Some of you ought to be told the possible result of all this.'

The exceptions can easily be accounted for by showing that when a *hós* clause occurs along with a nonveridical operator, it is not in its scope (27). This is related to D-linking, as we will see in a moment. On the other hand, when no nonveridical operator is present, the *tís* clause can only occur if it is focused (28)[17].

(27) **Ei** **hà** sumférei [khōrìs kolakeías]$_{FOC}$
if rel-ACC.N.PL be.useful-PRS without flattery

ethelḗset' akoúein hétoimos légein.[18]
want-FUT.2PL hear-INF ready-NOM.M.SG speak-INF
'If, apart from flattery, you are willing to hear something to your advantage, I am ready to speak.'

[13] Recall that *hóstis* (and its paradigm) is merely a variant of *tís*, as shown by (28). Look also at sentences (8) and (9).
[14] Expected contexts that do not show up in my corpus are *without*-clauses; restriction of ∀; *too*-clauses; S-comparatives; superlatives; habituals; disjunctions; downward-entailing DP.
[15] Plato, *Gorgias* 463c.
[16] Demosthenes, 8, 24.
[17] A last category of exceptions is represented by embedded echo-questions. We will not investigate this issue here.
[18] Demosthenes, 9, 4.

(28) Sumbouleuómethá soi **[tí** khrȅ poieîn peri hôn
take.advice-PRS.1PL from-you int-ACC.N must do-INF about rel-GÉN.N.PL

légeis]$_{FOC}$ sù oûn pròs theṓn sumboúleuson
say-PRS.2SG you then in.the.name gods advice-IMP

hēmîn [**hó ti** soi dokeî áriston eînai].[19]
to-us hóstis-ACC.N to-you seem-PRS.3SG best be-INF
We ask you to advise us as to **what** we ought to do about the matter you mention. So in the name of Gods, give us an advice about **what** you think is the best.'

These two phenomena ((non)scope of a nonveridical operator and focus) are coherent. As (25) through (28) show, a *tís* clause shows up only if the operator bears on it. Otherwise, *hós* clauses are used. On the other hand, *tís* clauses also show up when in the scope of the focus. What do focus and nonveridical operators have in common ? To put it informally, both involve a process of selection over a set of propositions (cf. Rooth 1992 for focus).

What remains to explore is to what extent the scope effect of a nonveridical operator is amenable to a focus effect. As this issue goes far beyond the scope of this paper, we shall leave it aside here.

4 Interpretation

4.1 Composition between cognitive factive predicates and *hós* clauses

Now we know what the licensing conditions for *tís* clauses are, the licensing conditions for *hós* clauses are deducible: they must outscope nonveridical operators, if any is present and be outside the focus, that is they must be somehow topic. If we combine these results with what we notice in section 2 (only responsive (factive) predicates embed *hós* clauses), we are left with the cases where the clause is not focused under responsive predicates; that is where presuppositions are not cancelled (see 3.1). *hós* clauses are therefore presuppositional.

But this does not give us the interpretative difference between *tís* and *hós* clauses. The rest of this paper is devoted to sketch an explanation for why *hós* clauses can occur in these environments, and what their interpretation is.

As propositional attitude verbs, cognitive factive predicates select for a proposition rather than a question. They are of type <<s, t>, <e, t>>. It seems therefore more natural to attempt to account for the *hós* clauses through this selectional property than to handle it with the semantics of questions.

As aforementioned, *hós* clauses are presuppositional, have large scope and are most often the topic. The conclusion is then that, with a *hós* clause, the information

[19] Xenophon, *Anabasis* 2, 1, 17.

is *retrievable* from the context, whereas with a *tís* clause, it needs external input (that is why this is the only type of clause used with a rogative verb).

Both requirements (that the complement of responsive predicates be a proposition and that *hós* clauses involve identification) are met in Groenendijk & Stokhof's (1982) semantics for interrogative clauses after "extensional" predicates, illustrated by (30), the formal translation of (29). It simply means that after *know*, the set of worlds w' (the proposition) involving an underspecified variable x is assessed against the world as it is w. This implies that the content of the variable x is not expressed, but retrieved from the context.

(29) John knows who walks.
(30) know* (w) (j, λw' [λx walk (w) (x) = λx walk (w') (x)])
w and w' possible worlds, j a constant, and x a variable.

The modification in order is to say that we need not, at least for Classical Greek, postulate that 'who walks' is an interrogative. Rather, it is easily handled if taken as what it looks like, namely a relative. The consequence is that we do not have to construe a bridge between relative and interrogative clauses. Each is understood independently.

But now we have a problem with *tís* clauses. Indeed, *tís* clauses are questions as shown by their usages in direct questions and with rogative predicates. In Groenendijk and Stokhof's semantics for questions, a question is a propositional concept of type <s <s, t>>. If *know* selects for a proposition, combining it with a *tís* clause results in a type-mismatch.

The partitioning effect of both the focus and the non veridical operators outlined in section 3.2 might be involved in an explanation. In this case, a semantics for questions à la Karttunen (questions as set of propositions) would be more suitable. Since our aim is to give a whole account of the uses of *hós* clauses and not of *tís* clauses, we leave this problem unexplained.

4.2 Type-shifting rules

There is another type-mismatch that we must address here. A Free Relative like *hà hupiskhnoũnto* in (7) is not a proposition. For it to be of the right type, it must shift its type.[20]

According to Jacobson (1995: 466–467), Free Relatives are of type <e, t>. They can undergo a type-shifting down that maps them into an individual (type *e*). But it does not suffice to say that, because from e to <s, t>, the route is long. That is why I propose to use Pustejovsky's (1993) notion of type-coercion that would change the

[20] Note that what follows is probably peculiar to Classical Greek, where *hós* Free Relative clauses differ in no respect with regard to classical restrictive relative clauses (see footnote 1).

category of an individual to the category of a proposition. I am aware that it may be too large a difference. The following approach may then be better.

If we follow Nathan's (2005) concealed question approach after *know*, as in (31), the process he proposed is to start with a predicate. This predicate shifts to a set of propositions (32), and in this set, a proposition is singled out by the D (33).

(31) I know the time.

(32) $\lambda P_{<s\,<e,\,t>>}.\lambda p_{<s,\,t>}.[\exists x_e.p = \lambda w_s.P\ (w)\ (x)]$ $\quad <s\,<e,\,t>> \rightarrow <<s,\,t>,\,t>$

(33) $[[\text{the}]] = \lambda Q_{<<s,\,t>,\,t>}.\iota p_{<s,\,t>}.[Q(p) = 1]$ $\quad$ (cf. $[[\text{the}]] = \lambda P_{<e,\,t>}.\iota x_e.[P(x) = 1]$)

To adopt this approach, we must check whether concealed questions exist in Classical Greek. They do, as in (34) shows.

(34)

Pántas	humâs	**eidénai**	nomízō	**tòn**	**trópon**
all	you	know-INF	thing-PRS.1SG	the	manner

kaì	**tẽn**	**asélgeian**	**kaì**	**tẽn**	**huperēfanían**	**toû**	**bíou**.[21]
and	the	arrogance	and	the	superciliousness	the	life-GÉN

'I suppose you all know his way of life, his arrogance and his superciliousness.'

We run into another, here more important problem if we accept Nathan's proposal, namely that it rests on the Karttunen semantics for questions. Fortunately it can be translated into Groenendijk and Stokhof's semantics for questions, as in (35), the G&S's version of (32). (33) translates as (36).

(35) $\lambda P_{<s\,<e,\,t>>}.\lambda w_s.\lambda w_s'.[\exists x_e.P\ (w)\ (x) = P\ (w')\ (x)]$ $\quad <s\,<e,\,t>> \rightarrow <s\,<s,\,t>>$

(36) $[[\text{the}]] = \lambda Q_{<s\,<s,\,t>>}.\iota p_{<s,\,t>}.[p = \exists w_s'''.(Q)\ (w''')]$

Why is this proposal a little more attractive than mine ? Because it matches the recent proposal regarding Free Relatives, that they may be DPs (Caponigro (2003), Hinterwimmer (2008)).

If we take Free Relatives as CPs that have an empty argument (that is a property, once more), they must first rise to an individual and then to a proposition, since we do not have a D that is going to do the job of singling out an individual. One argument in favor of this last approach is that it is syntactically more economical.

[21] Demosthenes, 21, 137.

But for the time being, let us remain agnostic with respect to the matter and state that it is at least for sure that we must go through two steps. It is of lesser importance which one is the first. One step aims to reach the individual reading, the other the proposition reading.

5 Concluding remarks

The Classical Greek data show that embedded questions might behave as polarity items. The choice between two paradigms grounds in the veridicality of the environment (including the factor of the embedding verbs). When it is veridical, relatives must be used instead of interrogatives.

We have argued that this is possible because Classical Greek relatives can function as concealed questions. This study leads us to exactly the same outcome as Nathan's (2005), where he shows that the concealed question phenomenon is a matter of the *know* class of question-embedding verbs. That is "a predicate can embed a concealed question if and only if it can embed a proposition" (p. 290). This is tantamount to saying that concealed questions are in fact concealed propositions: "we can interpret CQs as identity *propositions* instead of identity *questions*, and since *know* can compose semantically with a proposition and *wonder* cannot, we thereby encode both the limited meaning of CQs and the correlation between CQs and propositions as complements." This result is perfectly in lines with ours. It is not nevessary to interpret *hós* clauses as well as so-called concealed questions by means of questions.

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