4. FACTIVITY

Factivity is a notion often appealed to in the preceding chapter, though a detailed definition has been delayed until this point. The definition given here is brief and sketchy, and does not encompass the most recent thinking on presuppositionality. The purpose of the current study is to trace the diachronic development of *pu,* rather than resolve its synchronic semantics; so this treatment is necessarily cursory. The reason for discussing factivity is that the complexity of CSMG complementiser semantics has been the major driving force in the discussion of *pu* to date; and this complexity must be explained in any account of the development of the particle.

After a brief outline of factivity and assertivity, I give a survey of the types of predicates after which the various Greek complementisers are used, concentrating on *pu*. I then describe the major recent attempts at a description of the semantics of CSMG complementation, which rely to a lesser or greater extent on these notions.

4.1. Factivity

4.1.1. Factivity proper

An utterance A **entails** utterance B (A ⊦ B), if B follows directly from the lexical semantics of A, and is true in all possible worlds: no context can be devised to disprove it. So *I am a bachelor* means *I am not married:* since *bachelor* means *unmarried man,* no context can be devised in which the first utterance is true, and the second false. This is in contrast to **implicature**: the implicature A +> B holds if B follows from the conventions of discourse, and the default assumptions associated with A. For example, *I pushed him; then he fell* leads to the implicature *He fell because I pushed him*. The implicature results not because of the lexical semantics of *then*—which is non-causal—but because of the *post hoc ergo propter hoc* assumption that temporal relations are also causal. In contrast to entailments, implicatures are **defeasible**: they can be cancelled by sufficient addition of context, and are not true in all possible worlds.

Presupposition is a stronger logical connection than entailment.[1] Consider the utterances *She managed to stop in time* and *She tried to stop in time.* The first utterance entails the second: if one manages to stop in time, then one has tried to stopped in time, in all possible worlds. However, the negation of the

[1]The following discussion is drawn largely on Levinson's (1983) textbook on pragmatics.

former utterance also entails the latter: the utterance *She didn't manage to stop in time* still implies that an attempt was made.

This behaviour is inconsistent with a simple propositional calculus. In such a calculus, A⇒B and ¬A⇒B can only obtain when B is universally true. Obviously, the utterance *She tried to stop in time* does not constitute a universal truth. Therefore, a logical machinery other than entailment is needed to capture the relation between such utterances.

This phenomenon is prevalent in language; the issue first arose when logicians like Bertrand Russell tried to tackle the logical meaning of the definite article. Russell's famous example *The King of France is bald* entails the existence of a King of France; but its negation does not deny such an existence: *The King of France is not bald* still entails that there is currently a King of France. Intuitively, both utterances presuppose, as a background assumption, the existence of a King of France; this relation has therefore become known as presupposition (A >> B.)

A **factive** predicate is a predicate which presupposes its complement. So the definition of factivity is contingent on the definition of presupposition. In the definition given above (preservation of entailment under negation), the class of factive predicates is a subset of the class of predicates entailing their arguments, as entailment is a necessary condition for presupposition.[2]

The foregoing definition treats presupposition in semantic terms, as a truth-conditional property of language; since the late '70s, however, a more pragmatic view of presupposition has gained ground (Levinson 1983:186ff), whereby presuppositions were not entailments but defeasible implicatures, and presupposition is rather to be understood as a background assumption.

While presupposition is an intricate and controversial field, on which thinking has changed a lot in the past three decades, the foregoing definition is adequate for our present purposes.

4.1.2. Semi-Factivity

According to its semantic definition, presupposition is a constant about a lexeme; yet once more pragmatic notions of presupposition are introduced, presuppositions become defeasible,[3] and are associated with particular lexical forms. For particular contexts, one class of factive predicates preserves its pre-

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[2]Kiparsky & Kiparsky (1971) give a number of syntactic tests for determining the factivity of a predicate—including paraphrasing a factive complement by replacing the complementiser *that* with *the fact that*. Ultimately, however, factivity was regarded as a semantic quality, tied up with presupposition, and testable by such semantic tests as the preservation of entailment under negation *(I don't regret that I agreed to come over >> I agreed to come over),* questioning *(Do you regret that you agreed to come over? >> You agreed to come over),* and projection (nesting within another predicate) *(John appears to regret evicting his grandmother >>John evicted his grandmother.)*

[3]e.g. *I don't regret coming, because in fact I never came at all.*

supposition, while another systematically does not. This is lexically-conditioned defeasibility.

By 1971, several semantic tests had been devised for presupposition. These involved the preservation of entailments under several changed contexts. We have seen the most prominent test—preservation of entailment under negation:

(1a) *John doesn't regret that he has not told the truth ⊦ John has not told the truth*

(1b) *John doesn't know that he has not told the truth ⊦ John has not told the truth*

Karttunen (1971b) found there are two distinct classes of predicate in entailment-preservation. One class—predicates of emotion, like *regret*—preserve their entailments under all the tests he devised; these were called **true factives**.[4] The other class, involving predicates of knowing and perception, consistently fail several preservation tests. These predicates were called **semi-factives**. For example, semi-factives do not preserve the entailment of their complements when their epistemic modality is downgraded (rather than negated outright):

(2a) *It is possible that I will regret later that I have not told the truth. >> I have not told the truth.* [True factive; presupposition preserved.]

(2b) *It is possible that I will realise later that I have not told the truth. ⇏ I have not told the truth.* [Semi-factive; presupposition not preserved.]

Similarly, in questioning, true factives preserve their entailments, whereas semi-factives are ambiguous between a presupposing and a non-presupposing interpretation:

(3a) *Did you regret that you had not told the truth? >> You had not told the truth.*

(3b) *Did you find out that you had not told the truth? >> You had not told the truth.* [Context: we already know the answer to this question.]

(3c) *Did you find out that you had not told the truth? ⇏ You had not told the truth.* [Context: we want to find out the answer to this question.][5]

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[4]Given added context information, true factives do not always preserve their entailments. In Karttunen (1971b), *forget* is included with the true factives; because of its semantic status as cognitive, I include it with the semi-factives.

[5]The conditioning in (3b, 3c) is entirely pragmatic: the preservation of the complement is contingent on whether the speakers know the complement to be true. So under a pragmatic view of presupposition, there is no such thing as a 'semi-factive' predicate as a lexical class. If presupposition involves lexically conditioned defeasibility, then certain lexemes allow an entailment to be cancelled under a given context, while others do not; and different lexemes can behave differently under different contexts. So Gazdar (1979:154) formulates a proof, exploiting his theory of presupposition interpretation, to establish that the failure of semi-factives to pass the test in (2b) follows directly from its semantic status as a verb of knowing (i.e. from the entailment *X finds out Y ⊦ X knows Y*.)

The important result is that the factivity of emotive and cognitive predicates is different: emotive predicates are 'more' factive, in a sense, because they preserve their entailments under more syntactic contexts. This difference is reflected not only in the tests formulated for English (although putatively language-universal) by Karttunen, but also in complementiser choice in Greek. Furthermore, the difference between emotive and cognitive predicates is underlyingly semantic (a property exploited by pragmatic presupposition theory); so complementiser choice is best viewed as depending primarily on the semantics of the matrix predicate.

4.1.3. Assertivity

An independent semantic factor was introduced by Hooper (1975) to explain the distinction between true factives and semi-factives. The notion of assertivity she introduced has proved a very useful factor in explaining complementiser choice and complement behaviour, particularly in Greek.

Assertive predicates are defined by Hooper as a class of predicates matching certain syntactic criteria, with an underlying semantic justification: assertive predicates

> are all affirmative in nature; they imply in one manner or another that the speaker or subject of the sentence has an affirmative opinion regarding the truth value of the complement proposition (Hooper 1975:95) .

So assertive predicates do not entail or presuppose the truth of their complements; rather, they affirm, or assert it. Assertivity and entailment are logically independent: it is possible to assert a proposition, without its truth having become established fact—as in *I believe the earth is flat*. Conversely, it is possible for a proposition be entailed, without it being asserted: Hooper contends that this holds for true factives.

The major syntactic criterion distinguishing between assertive and non-assertive predicates is that assertive verbs can be parenthetically postposed after their complements:

(4a) *He's coming to the party, I think*
He's coming to the party, I admit.
He's coming to the party, I notice.
**He's coming to the party, it's likely.*
**He's coming to the party, I doubt.*
**He's coming to the party, I regret.*

An affirmative utterance necessarily contains at least one assertion: that of the truth of its matrix predicate. For instance, *I regret that he's coming to the party* contains the assertion of the *regret*-predicate. Assertive predicates also assert their complement, so that an assertive-predicate utterance contains two assertions: the matrix and the complement. Hooper finds that, in English at least, if a complement is separately asserted, it can precede its matrix. The effect of this

movement is to change which of the two propositions in the clause is the main assertion—which appears first.

So in the clauses in (4a), the matrix clause becomes a parenthetical remark: it is still asserted, but it is now less salient than the complement assertion. Non-assertives do not allow such a change, because they only contain one assertion. Their complement proposition is either too weakly claimed to count as an assertion (non-negative non-assertives); denied (negative non-assertives); or presupposed instead of independently asserted (true factives).[6]

Assertives are divided into **strong** and **weak**. Semantically, these differ in the force with which they assert their complements; *I think it is going to rain* is a much weaker assertion than *I insist it is going to rain*. This semantic difference is manifested syntactically; for example, only weak assertive complements can be tag-questioned:

(4b) **I assert that inflation will continue, won't it?*
I think this car needs a tune-up, doesn't it?

The weak assertive matrix is somehow 'transparent' to processes like tag-questioning: its assertion is so weak that it can be passed over. In addition, weak assertives allow neg-raising in their parenthetical reading: when the negator is raised to the matrix, it is again as if the matrix assertion is so weak as to be transparent:[7]

(4c) *I think these living conditions are not suitable = I don't think these living conditions are suitable.*
He said the door wasn't closed properly ≠ He didn't say the door was closed properly.

Table 8 lists some representative predicates and their associated assertivity and factivity:

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[6]The pragmatic view of presupposition holds that presupposed utterances are in some sense background information—they can be taken as mutually assumed knowledge between speaker and hearer. But if a proposition is background knowledge, it will also be backgrounded in discourse—it will not have attention drawn to it, it will not appear in focus but in topic position, and so on. Assertion is a form of foregrounding: if a proposition is asserted, it is brought to the fore as a claim presented for scrutiny, rather than assumed by the interlocutors. So a presupposition should not normally be asserted; and since true factives are more 'presupposing' than semi-factives, true factives should be somehow commensurately less assertive. Assertivity is thus consistent with pragmatic presuppositionality.

[7]As Kakouriotis (1982:114) points out, the weakening of assertivity goes further with the Greek predicate *θaro* 'reckon'; it is not possible to negate *θaro*-clauses at all. Thus, *θaro oti θa vreksi* 'I reckon it'll rain', but **ðen θaro oti θa vreksi* 'I don't reckon it'll rain'. This is characteristic of the tendency of weak assertives to grammaticalise into epistemic markers, and thereby lose much of their syntactic flexibility (cf. Thompson & Mulac (1991 [1988]) on English *I think*).

Non-factive				
Assertive				***Non-Assertive***
Weak Assertive	***Strong Assertive***			
Mental	***Verbal***		***Mental***	
think	admit	insist	agree	*non-negative:*
believe	argue	mention	be afraid	be likely
suppose	claim	predict	be certain	be possible
expect	explain	reply	be obvious	*negative:*
imagine	guarantee	say	decide	be unlikely
seem	hypothesise	suggest	estimate	be impossible
	imply	swear	hope	doubt
	indicate	write	presume	*negated strong assertive:*
			suspect	deny

Factive			
Assertive (semi-factive)		***Non-Assertive (true factive)***	
find out	realise	regret	make sense
know	remember	forget	care
learn	reveal	amuse	be odd
notice	see	suffice	be interesting
		bother	

Table 8. Some representative predicates classed according to assertivity (after Hooper 1975:92)

Assertivity is underlyingly a semantic, rather than a syntactic factor. As a consequence, the boundaries between predicate classes are not clear-cut, and certain predicates behave exceptionally or inconsistently both semantically and syntactically. Furthermore, the boundaries between classes vary cross-linguistically—for instance, between Spanish and English (for which Hooper uses different syntactic criteria.)

4.2. A semantic framework for verb complementation

The distinctions between factives and non-factives, and between assertives and non-assertives, are largely reducible to predicate semantics. It is useful to have a framework within which the semantic features of different complement-taking predicates can be contrasted. To that end, I use the scheme in Ransom (1986); Ransom has a well-defined, vectorial approach to predicate semantics, and while Noonan's (1985) rival approach has more detail for Action predicates, for Truth predicates—which are more important for this study—Ransom's grid is quite appropriate.

Ransom classes predicates semantically according to four dimensions. The first is their **information modality**—that is to say, the modality (stativity and volitionality) of their complements. There are four information modalities. OCCURRENCE predicate complements can only be non-stative:

(5a) **Sherry watched Joe being 21 years old*
**Sherry watched Joe be an Aries*
Sherry watched Joe being taken by surprise
Sherry watched Joe play chess

ACTION predicate complements are further restricted, in that they must be not only non-stative, but also volitionally controllable by an agent:

(5b) **Sherry forced Joe to be 21 years old*
**Sherry forced Joe to be an Aries*
**Sherry forced Joe to be taken by surprise*
Sherry forced Joe to play chess

TRUTH predicates can take either stative or non-stative complements:

(5c) *Sherry knows that Joe is 21 years old*
Sherry knows that Joe is an Aries
Sherry knows that Joe was taken by surprise
Sherry knows that Joe plays chess

FUTURE TRUTH predicates require their complements to have a future time reference with respect to the matrix; so they cannot take permanent states as complements:

(5d) *Sherry predicted that Joe would be 21 years old soon*
**Sherry predicted that Joe would be an Aries soon*
Sherry predicted that Joe would be taken by surprise soon
Sherry predicted that Joe would play chess soon

In graphical form, the selectional restrictions on informational modality are given in Figure 2.[8]

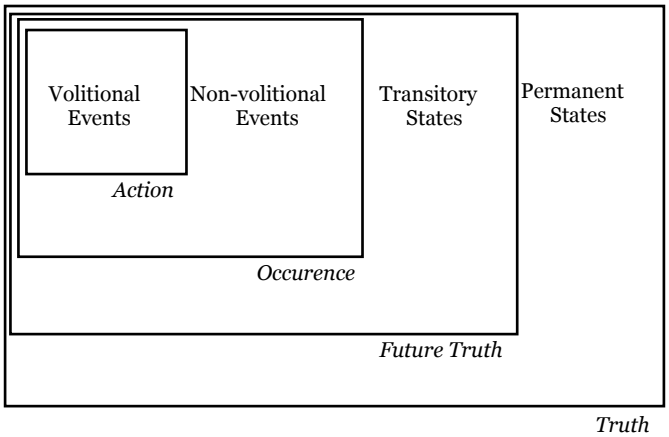

Figure 2. Information Modalities

The second dimension is **evaluation modality**, and involves the degree of truth associated with the complement. The degree of assertivity of a predicate is

[8]Papadopoulou (1994:138), in her discussion of the semantics of Greek complementation, replaces Ransom's Information Modality axis with a two way opposition of STATE and EVENT and the binary feature [±manipulable], which separates between Truth [–manipulable] and Future Truth [+manipulable], and Occurrence [–manipulable] and Action [+manipulable], respectively.

commensurate with evaluation modality, and is incoprorated here into the evaluation modality scale.

In Ransom's scheme, there are four evaluation modalities. Predicates which entail their complement are PREDETERMINED; for example, the entailment of the complement forces the unacceptability of *I regret that Bart wrote the book, *but he may not have*. Since entailment is conventionally a necessary condition for factivity, all factive predicates are Predetermined.

Predicates which do not entail their complement, but present it as likely or expected, are DETERMINED. This class comprises of non-factive assertives, which give an 'affirmative opinion' of the truth of their complement. Thus, *It seems to me that Bart wrote the book, but he may not have* is acceptable. These predicates entail that their complement is expected or probable; so *It seems to me that Bart wrote the book, *but there's no expectation that he did* is unacceptable. Both strong and weak assertives belong to this class, which also contains a small number of non-assertives, both negative (which do not assert their complement, but do present it as likely that it is *not* the case—e.g. *doubt*), and affirmative (e.g. *it is likely, it is probable*).

Predicates which entail not that their complement is probable, but that it is possible, are UNDETERMINED. So, one can say *I hope that Bart wrote the book, but there's no expectation he did*. Since these predicates retain the presumption of possibility, one cannot say *I hope that Bart wrote the book, *but it's not possible he did*.

Finally, predicates which take indirect questions as complements (and make no entailment as to the possibility of their complements) are INDETERMINATE. For example, one can say *I wonder whether Bart wrote the book—or not,* but not *I hope whether Bart wrote the book*.

Evaluation modality gives an axis of complement truthfulness along which matrix predicates can be placed; this is illustrated in Figure 3.

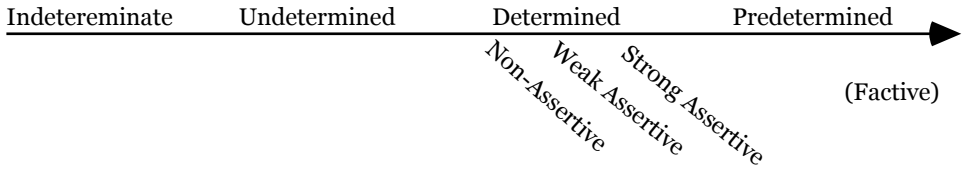

Figure 3. Evaluation Modalities

The third dimension of Ransom's classification (which is syntactic in nature rather than semantic) is whether the complement is the subject (APPRAISALS), or the object of the matrix (REACTIONS). The final dimension is the semantic class of the predicate: whether it is EMOTIVE (including any predicate making some subjective evaluation of its predicate), LINGUISTIC (verbal), or COGNITIVE-PHYSICAL (involving both mental activity and events in the real world). Ransom explicitly associates Emotive Predetermined Truth predicates with true factives.

In Table 9, I include representative instances of predicates classified in Ransom according to these four dimensions—including assertivity in the evaluation modalities. Appraisals are italicised rather than listed separately. Many of the cells are empty: languages do not exploit all the potentialities of semantic space available to their matrix verbs.

LINGUISTIC

	Truth	***Future Truth***	***Occurrence***	***Action***
Predetermined	admit	*predictable*		
	inform			
Determined: Strong Assertive	agree	predict		advise
	claim			agree
	confess			ask
	confirm			choose
	promise			order
	say			promise
	suggest			say
	swear			suggest
	warn			swear
	rumoured			urge
	said			*advisable*
Determined: Weak Assertive				
Determined: Non-Assertive	deny			forbid
				refuse
Undetermined	pray	pray		permit
				permissible
Indeterminate	ask	predict		

COGNITIVE-PHYSICAL

	Truth	***Future Truth***	***Occurrence***	***Action***
Predetermined	aware	anticipate	cause	begin
	discover	foresee	feel	cause
	forget	forewarn	hear	condescend
	know	*sure to*	make	entice
	learn		notice	force
	realise		perceive	get
	remember		see	know
	understand		show	make
	certain		*begin*	manage
	correct		*continue*	oblige
	false		*cease*	*essential*
	happen		*come about*	*impossible*
	obvious		*happen*	*obligatory*
	turn out		*persist*	

Determined Strong Assertive	allege assume convince decide explain feel find out hear maintain mean presume see sense show suspect		wait *about* *tend*	aim cause convince decide force help hesitate remind see fit tempt threaten write *best* *important* *urgent*
Determined Weak Assertive	believe guess imagine think suppose *appear* *seem*	expect		
Determined Non-Assertive	doubt pretend *likely* *probable*	*likely to*		
Undetermined	conjecture consider *possible* *uncertain*	look	capable ready *possible*	able allow have permission ready try *difficult* *easy*
Indeterminate	conjecture question wonder *questionable* *uncertain* *unknown*	anticipate foresee	watch	conjecture question wonder *questionable* *uncertain* *unknown*

EMOTIVE

	Truth	***Future Truth***	***Occurrence***	***Action***
Predetermined	amazed annoyed appreciate hate like lucky proud regret sad tolerate			

Predetermined	*foolish*			
	funny			
	great			
	important			
	interesting			
	right			
	smart			
	surprising			
	sad			
	wonderful			
Determined	afraid			
Strong Assertive	fear			
Determined Weak Assertive				
Determined Non-Assertive				
Undetermined	hope	afraid	enjoy	prefer
	worried	desire	hate	want
	hopeful	eager	like	*preferable*
		hope	*amusing*	
		prefer	*annoying*	
		want	*exciting*	
		preferable	*interesting*	
Indeterminate	worried			
	disturbing			

Table 9. Semantic classifications of complement-taking verbs (Ransom 1986:176–182).

If now we map Table 8 onto Table 9, we get the distributions of assertivity and factivity shown in Figure 4.[9] As is clear from the Truth modality axis, predicates fall into a gradient factivity/assertivity hierarchy: *True Factive* > *Semi-Factive* > *Strong Assertive* > *Weak Assertive.* Predicates lower in this hierarchy are also lower in the Evaluation Modality hierarchy *(Predetermined* > *Determined* > *Undetermined* > *Indeterminate),* and in the semantic class hierarchy *(Emotive* > *Cognitive-Physical* > *Linguistic).* To obtain coherent hierarchies, the gaps in the grids (most prominent in emotive predicates) are given 'don't-care' values.

The information modality hierarchy *(Truth* > *Future Truth* > *Occurrence* > *Action)* is more problematic, as there is a conspicuous reversal of the hierarchy. In Predetermined Occurrence Cognitive-Physical predicates, the Physical predicates (such as *cause*) are non-assertive *(*He went to church, I caused),* whereas the Cognitive predicates (such as *see*) are not only assertive, but also factive; as a result, they are higher in the hierarchy than their Future Truth counterparts, like *anticipate*. If Future Truth is swapped with Occurrence in the hierarchy, and Cognitive predicates are separated from their Physical counterparts, the gaps in the grid allow the assertivity/factivity hierarchy to follow the informa-

[9]I acknowledge the influence of Star Trek's three-dimensional chess in the creation of this diagram scheme.

tion modality hierarchy. This reversal should not be surprising: being future, Future Truth predicates like *anticipate* are less anchored in the here-and-now than predicates like *see,* and so seem less 'realis'. The relative position of Occurrence and Future Truth is thus somewhat fluid in this study.[10]

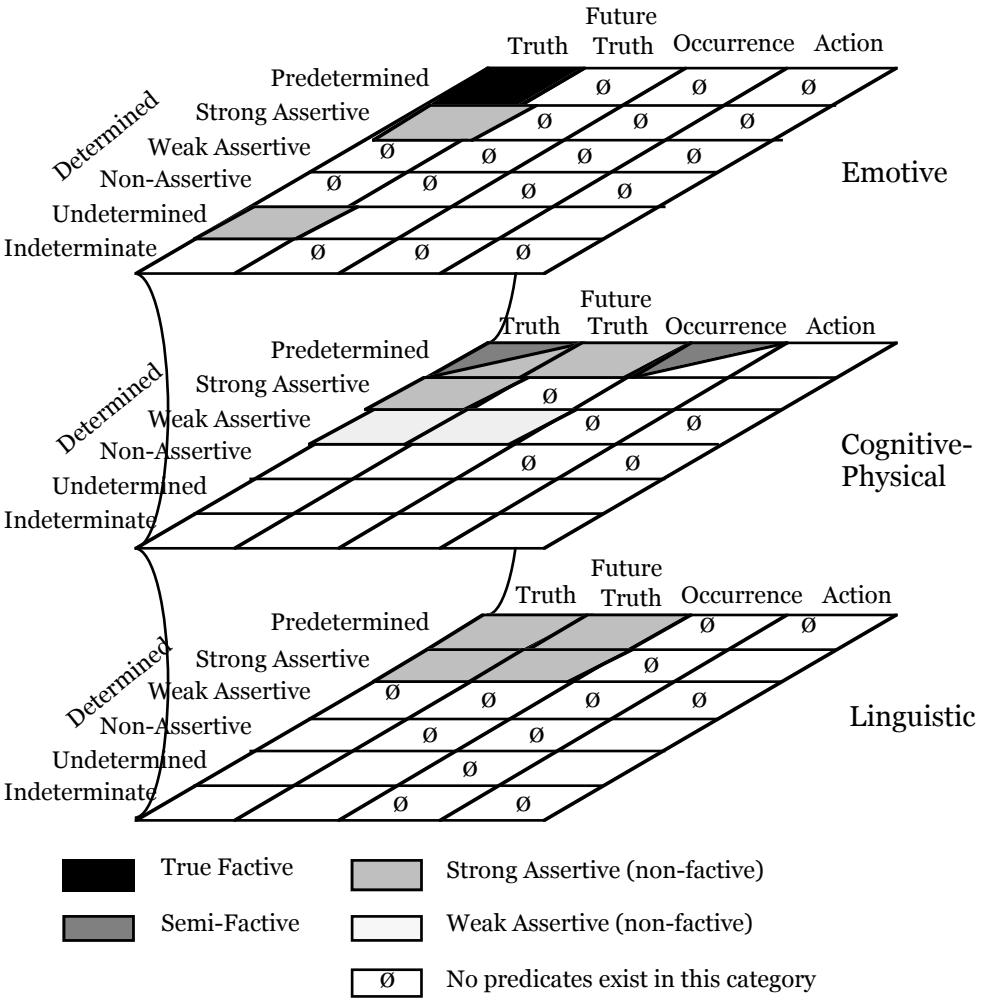

Figure 4. Assertivity and factivity in Ransom's semantic scheme[11]

[10]Hooper (1975) does not list Cognitive Undetermined Truth predicates in her allocation of predicates as to assertivity and factivity; however, they do not seem to be assertives. They appear rather to group with the affirmative non-assertives Hooper identified: *be likely, be conceivable, be probable,* and *be possible:*

(6) *??He will come, I speculate*
??He will come, I conjecture
**He will come, I consider*

[11]The Linguistic Future Truth Predetermined cell is occupied by the single predicate *predictable,* which is not mentioned in Hooper (1975), but is strong assertive given the acceptability of *That Hilda will pass the exam is predictable.*

4.3. Complementiser competition

4.3.1. Overall complementiser competition

Now that we have a framework for describing the semantics of complement-taking verbs, we can describe how the various Modern Greek complementisers—*pu, pos, oti,*[12] *na, an, mipos, ke, ∅*—compete with each other. I use Ransom's framework to delimit the semantic domain in which each complementiser is used.

Frequently a predicate can take two different complementisers, with different modality values. What is attempted here is a mapping of complementiser to modality; so the underlying assumption is that modality is determined by complementiser. This extends to factivity: if a predicate is used non-factively with *oti,* and factively with *pu,* the immediate conclusion is that factivity is determined by the use of *pu,* rather than by the predicate—as Christidis (1981) concluded. This is an assumption I return to later.

The term 'complementiser' is here used as a semantic cover-all, rather than a syntactic term: it is used to denote members of the paradigm of utterances which connect complement clauses to a matrix. This is despite the fact that *ke* is the conjunction 'and',[13] and the syntactic status of *na,* while still controversial, is considered by most linguists not to be a complementiser.[14]

For reasons of space and scope, detailed discussion is given for only those cells of the grid where *pu* can appear—or where detailed argumentation is needed to establish that *pu* alters the modality of a predicate normally associated with a given cell. In other cells, the complementisers used are named in summary form only, and without examples (see Nicholas 1998c for more extensive discussion). A similar analysis of Greek complementation, involving just *pu, oti* and *na,* is essayed by Papadopoulou (1994:142–189).

As an aid to following the discussion, each section is preceded by a picture on the complementiser grid of the cells being discussed.

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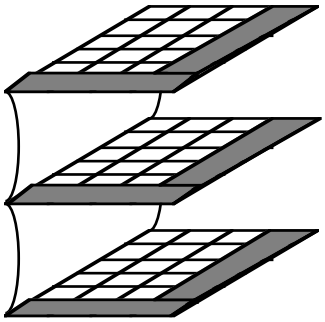
[12]Unless noted otherwise, wherever *oti* is admissible, so is *pos*, the difference between the two being restricted to register:

> There is no difference in meaning between *oti* and *pos*, but the fact that the former is of more learned origin while the latter is genuinely demotic means that *oti* is used more in formal styles, *pos* in less formal. The use of *pos* is generally more restricted than that of *oti*, the former being found most often with simple verbs such as *leo* 'I say, tell', *ksero* 'I know', *nomizo* 'I think', *maθeno* 'I learn, find out', and *kano* 'I pretend'. (Mackridge 1985:269)

[13]Its behaviour as a subordinator is confirmed by the fact, *inter alia,* that the ordering of the matrix and complement is not arbitrary (Delveroudi 1994:282): *arxizi* ***ke*** *katalaveni* 'he's beginning to understand' makes sense, whereas **katalaveni* ***ke*** *arxizi* 'he's understanding and beginning' does not.

[14]Philippaki-Warburton (1992) convincingly rebuts arguments that *na* is a complementiser; according to her, *na* belongs within the INFL node in Government-Binding Theory, rather than the COMP node. But see Tsoulas (1993) for counterarguments defending the complementiser status of *na*.

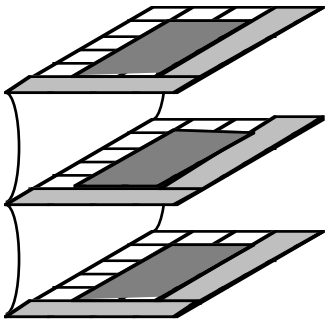
Indeterminate and Action



Indeterminate predicates use only *an* 'if' and *mipos* 'whether' to introduce their verbs.

Non-Indeterminate Action predicates can take either *na* or *ke*. Of these, *na* is unmarked, while *ke* has the effect of forcing the predicate to become Predetermined, since the utterance takes on the form of a conjunction: in an utterance like *ton ðietaksa ke irθe* 'I ordered him and he came', both the 'matrix' *ðietaksa* 'ordered' and the 'complement' *irθe* 'came' must be true—as distinct from *ton ðietaksa na erθi* 'I ordered him to come', where there is no predetermination of the complement.

Non-Predetermined Occurrence and Future Truth



Undetermined and Determined Occurrence predicates take *na*. Used with these predicates, *pu* and *ke* raise their information modality to Predetermined—although *ke* is not admissible with all of these predicates:

(7a) *mu aresi **pu** vlepo θeatro, *ala ðen iparxi prosðokia pos to vlepo tora* 'I like the fact that I am watching the theatre, *but there is no expectation that I am watching it now'
*?mu aresi **ke** vlepo θeatro* 'I like the fact that I am watching the theatre'

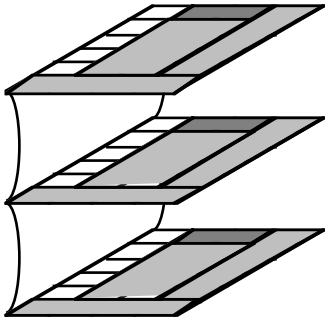
(7b) *sixenome **pu** vlepo θeatro, *ala ðen iparxi prosðokia pos to vlepo tora* 'I abhor the fact that I am watching the theatre, *but there is no expectation that I am watching it now'
sixenome **ke vlepo θeatro* 'I abhor the fact that I am watching the theatre'

Undetermined Future Truth predicates likewise take *na;* Undetermined Future Truth Linguistic predicates can additionally take *oti*. The acceptability of *ke* after Undertermined Future Truth predicates is variable: only some Emotive predi-

cates allow it, and Linguistic predicates do not. As always, *ke* has the effect of making its matrix Predetermined.

Cognitive Determined Future Truth predicates can take either *oti* or *na,* with a clear preference for *oti; na* seems to be marked for doubt. Zero-complementation can occur for Cognitive Determined Reactions. Linguistic Determined Future Truth predicates, on the other hand, can take only *oti* or ∅. According to my Sprachgefühl, at least, Determined Future Truth predicates cannot take *ke*-complements.

Predetermined Occurrence and Future Truth



The combination of Predetermined and Future Truth modality is problematic. If something is predicted as being true in the future, it is not normally true in the present, and thus cannot be Predetermined for any but the most vacuous predictions.[15] So the only way to ensure that a Future Truth modality predicts a truth is to displace the act of prediction into the past, as in *He had predicted correctly that Phar Lap would win the race.*

In such a context, Greek does not admit *na,* which forces a Determined rather than Predetermined reading. It also does not admit *ke* at all. Instead, *oti* or *pu* appear, and the complement needs to be topicalised by a coreferential clitic *(to).* Alternatively, the matrix predicate can be contrastively stressed; if it is not stressed, the predicate retains a Determined reading:

(8) *eɣo ton proiða* ***na*** *fevɣi, ma bori ke na min efiɣe telika* 'I foresaw him leaving, but he may not have really have left in the end'
eɣo proiða ***oti*** *efiɣe, ma bori ke na min efiɣe telika* 'I foresaw that he left, but he may not have really have left in the end'
eɣo **proiða** ***oti*** *efiɣe, ??ma bori ke na min efiɣe telika* 'I FORESAW that he left, but he may not have really have left in the end'
to oti *efiɣe to proiða, *ma bori ke na min efiɣe telika* 'I foresaw the fact that he left, but he may not have really have left in the end'
to proiða ***pu*** *efiɣe, *ma bori ke na min efiɣe telika* 'I foresaw the fact that he left, but he may not have really have left in the end'

[15]Recall that permanent states, like *one plus one equals two,* cannot be the complements of Future Truth predicates.

There are two types of Predetermined Occurrence predicates: Cognitive (predicates of perception), like *vlepo* 'see', and Physical (predicates of compulsion/manipulatives), like *anagazo* 'force'. The latter can only take *na* or *ke:*

(9) *ton anagasa* ***na*** *fiɣi* 'I forced him to leave'
ton anagasa ***ke*** *efiɣe* 'I forced him to leave'
anagasa* ***pos* *efiɣe* 'I forced that he left'

Predicates of perception, however, can take any of *na, ke, pos/oti, ∅, pu*, or *to oti*—namely, *any* Modern Greek complementiser. In addition, predicates of perception need not be Predetermined Occurrence; they can also be Determined Truth *(*I saw him be male; I saw that he was male).* In fact, complementiser choice is associated with the modality of the complement. For simplicity, all instances of predicates of perception are dealt with together in this section.

As can be seen in the following, *na* has the effect of demoting the verb from Predetermined to Determined (it cancels any presupposition of the complement), while *oti* is Predetermined only in case the matrix predicate is stressed, as in (8), or the complement is topicalised. Only *pu, ke* and *to oti* preserve the entailment of the complement under all conditions:

(10a) *eɣo ton iða* ***na*** *fevɣi, ala bori ke na min itan aftos* 'I saw him leaving, but it might not have been him'
eɣo iða ***oti*** *efevɣe, ala bori ke na min itan aftos* 'I saw that he left, but it might not have been him'
eɣo **iða** ***oti*** *efevɣe, *ala bori ke na min itan aftos* 'I SAW that he left, but it might not have been him'
eɣo to iða ***oti*** *efevɣe, *ala bori ke na min itan aftos* 'I saw that he left, but it might not have been him'
to oti *efevɣe to iða, *ala bori ke na min itan aftos* 'I saw the fact that he left, but it might not have been him'
eɣo ton iða ***ke*** *efevɣe, *ala bori ke na min itan aftos* 'I saw him and he was leaving, but it might not have been him'
eɣo ton iða ***pu*** *efevɣe, *ala bori ke na min itan aftos* 'I saw him as he left, but it might not have been him'

That the truth claim associated with *na* is weaker than that for other perception complementisers is clearer in negative sentences:

(10b) *ðen ton iða* ***na*** *koliba* 'I did not see him swim'

(10c) *ðen ton iða* ***oti*** *kolibuse* 'I did not see that he was swimming'

> In [(10b)], the implication is that he may have swum but he may have not, while in [(10c)] the implication is that he did swim but the act was not witnessed by the speaker. (Joseph & Philippaki-Warburton 1987:182)

So an evaluation modality hierarchy emerges: *ke, pu, to oti> pos/oti> na.*

A further distinction underlies the choice between perception complementisers: *pu, ke* and *na* are only used when the complement is perceived directly, whereas *oti* is applied to reported perception, or hearsay. As a result, in CSMG

the *pu*-, *ke*- and *na*-complement can only be imperfective (one perceives an action while it is happening), whereas *oti*-complements can be perfective.

(10e) *ton akusa **na** fevɣi* 'I heard him leave' (IMPFS)
*ton akusa **pu** efevɣe* 'I heard him leave' (IMPFP)
*ton akusa **ke** efevɣe* 'I heard him leave' (IMPFP)
*akusa **oti** efiɣe* 'I heard that he felt' (PERFP)

The fact that raising is usual for *pu, na,* and *ke,* but not for *oti,* is relevant.[16] With raising, the complement subject becomes the object of the perception verb, and direct perception is possible: one directly perceives nominals, and indirectly perceives only clauses (facts). Thus *ton akusa; ton akusa pu efevɣe—I heard him; I heard him leave*. With *oti*-complements, the failure to raise means that all that is perceived is the predicate *(akusa oti efiɣe—I heard that he left)*. Since the utterance bears no grammatical marker that the complement subject was directly perceived, indirect perception is possible. Indeed, when the *pu*-complement subject is not raised, and the complement is topicalised and perfective, the *pu*-complement actually conveys indirect perception (Papadopoulou 1994:178):

(10f)

Το	άκουσα	***που***	ο Γιάννης	βραβεύτηκε
to	akusa	***pu***	o ɣianis (NOM)	vraveftike (PERFP)
it	I heard	that	John	was awarded

I HEARD that John received an award[17]

So ignoring exceptions like evidential perception (below) and (10f), there is also a perception modality distinction at work: *pu, ke, na* direct, *pos/oti, to oti* indirect. This distinction properly inheres in raising, as (10f) shows, but raising is endemic to *pu* as a relativiser.

As for Information Modality, *na*-complements can only be non-stative, as defined by Ransom (10g).[18] *pu*-, *oti*-, *ke*- and ∅–complements are subject to no such constraints, and can also introduce permanent states:

(10g) **ton iða **na** ine ikosi xronon* 'I saw him being 20 years old'
*ton iða **pu** /**ke** itan ikosi xronon* 'I saw that he was 20 years old'
*iða **oti** itan ikosi xronon* 'I saw that he was 20 years old'
*ton iða **pu** /**ke** itan arsenikos* 'I saw that he was male'
*iða **oti** itan arsenikos* 'I saw that he was male'

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[16]On raising in Greek, see Ingria (1981:194–218), Joseph (1976), Joseph (1990), Joseph (1992a), and Kakouriotis (1980).

[17]This is corroborated by Delveroudi, Tsamadou & Vassilaki (1993a:45): "on the other hand, [*iða pu perpatise* 'I saw that she walked (PERFP)'] would be possible only with the meaning 'I saw her footprints'."
The violation of the correlation between direct perception and *pu* is significant. Yet while such utterances are possible, I have not seen any instances in found texts—other than the class of evidential perception detailed immediately below.

[18]Christidis (1982:59) argues that complements such as ***na*** *kaθete akinitos* 'sitting still', for which ***na*** is admissible, are stative, though volitional or transitory. In the framework used here, however, *sitting still* still counts as an Action: *I forced him to sit still*. So *ton iða na kaθete akinitos* 'I saw him sitting still' does not count as a stative complement.

vlepi ta psaria ∅ lipane ap to karfi 'He sees the fish were missing from the nail'
(Tz §218 2; folk tale collected by Megas)

So while in English verbs of perception like *hear* can be either Predetermined Occurrence or Determined Truth, in Greek they can take on three guises. Followed by *na,* they are Determined Occurrence. Followed by *oti,* they are Determined Truth. Followed by *pu, ke,* or *∅,* finally, they are Predetermined Truth. The major semantic difference is between *oti*-complements, describing mediated experience, and the others, which describe immediate experience.[19]

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[19]Setatos (1985; 1994) has proposed finer semantic differentiations between the sundry complementisers appearing after perception verbs, although he does not give a systematic exposition. For the matrix *vlepo ___ erxode ðipla sto kafenio* 'I see ___ they are coming up to the café', he makes the following associations (Setatos 1994:502) (Note that in this matrix and the following, there is no raising):

- *oti:* neutral, ascertainment of event;
- *pu:* [I see] their arrival, which leads me to entertain thoughts, but it is their business, etc.;
- *pos:* [I see that they have arrived] which provokes various emotions in me, but what can I do about it;
- *ke:* I watch and they come; equipotent meanings;
- *na:* my glance catches their arrival, and I don't know what to do, etc.;
- *∅:* [I saw them come] as I expected.

More succinctly, he makes the following remarks on the matrix *vlepo ___ erxete i katastrofi* 'I see ___ the disaster is coming' (Setatos 1985:181):

- *oti:* realis—cf. Christidis;
- *pos:* personal opinion;
- *na:* mere opinion—*na* opens up possibilities;
- *pu:* interest;
- *∅:* indifference.
- *ke:* logical [consequence, presumably];

It seems Setatos makes the following distinctions:

- *oti* is unmarked, and constative;
- *pos* expresses a subjective, rather than objective determination;
- *na* expresses a conjecture or uncertainty of some kind;
- *ke* asserts both matrix and complement with equal force, and presents the complement as a logical consequence;
- *pu* hints at some unspecified emotional reaction to the complement;
- *∅* hints that the complement is unremarkable—either to be expected or not interesting.

Of these distinctions, the conjecture in *na* follows from its weakened Evaluation Modality, characteristic of *na* throughout the complementation grid (see discussion of Determined Truth predicates, below). The equal force of *ke* follows from its syntactic identity as a coordinating conjunction; Delveroudi (1994) makes this the main distinguishing characteristic of complementiser-*ke*. The emphasis on the inevitability of the *ke*-complement seems to derive from its assertivity: if the *ke*-clause is being asserted so strongly, then it cannot possibly be cast in doubt; the inference that it is inevitable arises naturally. The use of *∅* to express indifference seems to result from the assertivity reversal associated with *∅:* the matrix *vlepo* appears to become parenthetical much the same way as if it were postposed *(erxete vlepo i katastrofi—the disaster's coming, I see),* which weakens *vlepo* to an evidential, and the complement to a given.

For the three remaining complementisers, Setatos' distinctions appear artificial. That *pu* would convey some unspecified emotional reaction is reasonable, in light of the fact that its predominant use as a complementiser is after emotive verbs; but I can report no such contamination between emotive and perceptual *pu* in my idiolect, and the very fact that the putative emotion is

One can summarise as follows:

	pu	*ke*	*to oti*	*oti/pos*	*na*
Direct	+	+	−	−	+
Predetermined	+	+	+	−	−
Stative	+	+	+	+	−

There is another type of perception *pu*-complement not remarked on until now. The normal perception *pu*-complement involves direct perception, and Occurrence, with a distinct (raised) nominal direct object. But there is another class of *pu*-complements, in which there is no raised object, and the objects may be stative:

(11a) ***Eides pou*** n logikn sou exei sobara loopholes;
Epeidn bgnke to '86 prepei va to diabasa kai to '86;
Είδες που η λογική σου έχει σοβαρά *loopholes;*
Επειδή βγήκε το ογδονταέξι πρέπει να το διάβασα και το ογδονταέξι;
iðes pu i lογiki su exi sovara *loopholes?*
epiði vγike to ογðodaeksi prepi na to ðiavasa ke to ογðodaeksi?
See how your logic has serious loopholes in it?
Just because it came out in '86, does that mean I must have read it in '86? ('The Marsist', Re: souiti.....; Hellas-L, 1997–02–04)

(11b) Etsi ki emeine auto to "Master of Information"... ***Eides pou*** 2 xronia meta afou efyga ap' th Macromedia AKOMA me kynhgaei? ;-))))
΄Ετσι κι έμεινε αυτό το *«Master of Information»*... ***Είδες που*** δύο χρόνια μετά αφού έφυγα απ' τη *Macromedia* ΑΚΟΜΑ με κυνηγάει; :-)
etsi ki emine afto to *"Master of Information"*... ***iðes pu*** ðio xronia meta afu efiγa ap ti *Macromedia akoma* me kiniγai? [smiley]
[Story of how writer got the spurious title 'Master of Information' while working at Macromedia.] That's where that 'Master of Information' came from... See, ∅ two years after I left Macromedia, and it's STILL pursuing me! (Costa Flocas, FW: You made one happy little lady!; Hellas-L, 1997–09–13)

(11c) Afou kata ba8os mas "paei" kai ***va deis pou*** suvtoma 8a zhthsei dhmosiws sugvwmh-etsi sta8oulh mou;- kai 8a evarmovistei sto klima ths listas.
Αφού κατά βάθος μας «πάει» και ***να δεις που*** σύντομα θα ζητήσει δημοσίως συγνώμη—έτσι Σταθούλη μου;—και θα εναρμονιστεί στο κλίμα της λίστας.
afu kata vaθos mas 'pai' ke na ðis pu sidoma θa zitisi ðimosios siγnomi—etsi staθuli mu?—ke θa enarmonisti sto klima tis listas.
After all, deep down he likes us, and you'll ***see,*** ∅ soon he will apologise publically—right, Stathis darling?—and blend in to the mailing list ethos. (Yannis Koutalos, Re: My last to you!; Hellas-L, 1997–11–03)

(11d) Mprabo...Oute mia apobolh..***koita na deis pou*** oi upoxrewseis eginan kai shmeio gia pswro.u.perhfaneia...
Μπράβο... Ούτε μια αποβολή... ***κοίτα να δεις που*** οι υποχρεώσεις έγιναν και σημείο

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unspecified by any element in the sentence makes its existence suspect. As for the *oti/pos* distinction, this seems to me to be an epiphenomenon of their register associations—high register being associated with pretensions of objectivity and neutrality, while low register is associated with tentative expressions of opinion and tendentiousness. That *oti* can be used after quite tentative expressions of subjective opinion, such as *pistevo* 'believe', makes it unlikely that the objective/subjective distinction inheres in *oti/pos*.

για ψωροϋπερηφάνεια…
bravo… ute mia apovoli… ***kita na ðis pu*** i ipoxreosis eɣinan ke simio ɣia psoroiperifania…
[Sarcastic] Good for you! Not expelled even once from school! ***To think***, ∅ obligations have ended up a point to boast about! (Lida Anestidou, `Re: souiti.....`; Hellas-L, 1997–02–04)

This kind of complementation (which I do not believe has been identified in the literature before) I term **evidential perception**; as the examples show, in such usage a perception predicate—in this case *vlepo* 'see'—is used to express a strictly cognitive notion of understanding rather than perception.[20] In this instance, *pu* is used with the complement to highlight that the complement should be obvious to the listener; *vlepo* has made a shift from cognitive to evidential ('it should be obvious that…') This obviousness, tantamount to givenness, may be enough to justify the use of *pu* here from a synchronic point of view.

Consistent with this evidential use, evidential *vlepo* is mostly used in the second person (evidentiality is projected onto the listener as a rhetorical device; the third person is not interactional, and the first person involves a vacuous claim—if someone says something, it should be obvious to them). It is also perfective (presumably because understanding is assumed to have been accomplished), and either interrogative (indicative) or jussive (subjunctive, imperative) (the statement is used as a request for or encouragement of agreement.)[21]

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[20]English *see* is, of course, also used in this metaphorical extension of perception to understanding. The lack of actual sensory perception is what distinguishes evidential perception from indirect *pu*-perception as in (10f).

[21]The interrogativity and imperativity of the examples is lost in the translations for idiomaticity; the literal glosses are: 'Do you ***see that*** your logic has loopholes?'; 'Do you ***see that*** two years after I left M. it is still pursuing me?'; 'and you ***should see that*** soon he will apologise publically'; '***Look to see that*** obligations have ended up a point to boast about'.

In *Hellas-L* from November 1996 to January 1998, the following text counts for instances of evidential perception obtain:

Jussive	2.SG	PERFS	`deis pou`	42
Jussive	2.PL	PERFS	`deite pou`	5
Jussive	2.SG	IMPP	`des pou`	7
Interrogative	2.SG	PERFP	`eides pou`	19
Interrogative	2.PL	PERFP	`eidate pou`	3
Interrogative	2.SG	IMPFS	`blepeis/vlepeis pou`	4
Interrogative	2.PL	IMPFS	`vlepete pou`	1
Non-Interrogative	2.SG	PERFP	`eides pou`	3
Non-Interrogative	1.SG	PERFP	`eida pou`	3

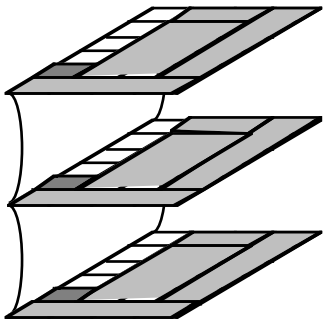
There are 87 instances of evidential perception-*pu* in the corpus; 84 of them have a second person referent, 82 of them are perfective, and 81 of them are either interrogative or jussive.

20 of the 42 2.SG PERFS instances appear in the emphatic collocation *kita na ðis pu* 'look to see that…'—cf. (11d), which is only associated with evidential perception: **kita na ðis ton petro* 'take a look at Peter'.

Evidential perception can also be expressed with a negative matrix, in which case it corresponds to 'never mind that…':

(11e) Δεν τον ξέρεις το γιο μου. ***Μη βλέπεις που*** εγώ έχω καταντήσει απλή μέχρι αηδίας και δε δίνω πια πεντάρα για τους τύπους. Εκείνος εξακολουθεί ν' ανήκει στον κόσμο μέσα στον οποίο μεγάλωσε.

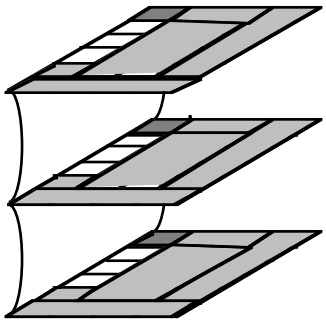
Undetermined Truth



Greek does not seem to have a Linguistic Undetermined Truth predicate, unlike English *pray*. Of the other Undetermined Truth predicates, the Cognitive vary between *oti*/∅ (Reactions) and *na* (Appraisals), and the Physical take only *na; ke* is unacceptable.

Emotive predicates are variable; *elpizo* 'hope' takes both *oti*-/∅ and *na*-complements, with a preference for *na,* while *anisixo* 'be worried' takes only *oti*. (In distinction to other predicates, there does not seem to be a clear semantic differentiation between *elpizo na* and *elpizo oti*.) Again, *ke* is unacceptable.

Predetermined Truth



In Predetermined Truth predicates, *na* cannot appear at all; *na*-complements after such predicates, if acceptable, switch them to Action or Determined predicates.

One semantic difference between *na*- and *pu*-complements of Emotive Appraisals, arising from this fact, is that only *pu* is factive:

(12a) *ðen ine perierɣo* ***pu*** *ine ikosi xronon, *an ke fisika bori na ine ke meɣaliteros* 'It isn't odd that he is 20 years old, though of course he might be even older'

ðen ton kseris to ɣio mu. ***mi vlepis pu*** eɣo exo katadisi apli mexri aiðias ke ðe ðino pia pedara ɣia tus tipus. ekinos eksakoluθi n aniki ston kosmo mesa ston opio meɣalose.
You don't know my son well. ***Never mind that*** ('Don't see that') I have ended up nauseatingly informal and don't give a dime any more about formalities. He continues to belong to the world he was brought up in.
You don't know my son! ***Don't imagine*** *he's like me. I've let myself go so much, it's a disgrace. I don't give a damn about how I look and what I do. But he still keeps to the ways he was brought up in.* (Tah 62)

(Complement preserved under negation)
ðen ine perierɣo ***na*** *ine ikosi xronon, an ke fisika bori na ine ke meɣaliteros* 'It isn't odd for him to be 20 years old, though of course he might be even older'
(Complement not preserved under negation)

Now, as Vande Ostinje (1985:158) points out, *na*-Emotive predications like the following are not necessarily irrealis:

(12b) *lipame* ***na*** *ton vlepo na ipoferi* 'I'm sorry to see him suffering [like that]'
ksafniazese ***na*** *ti vriskis eki, se toso ftoxo periɣiro* 'You are astonished to find her there, in such spartan surroundings'

The most salient distinction in this case between Emotive *na*- and *pu*-complements is rather that the time reference of a *pu*-complement is specific, whereas that of a *na*-complement is left open-ended—as shown in (13a) and (13b):

(13a) Χαίρομαι ***που*** σε βλέπω
xerome ***pu*** se vlepo
I'm happy ***to*** see you (I am seeing you at this particular time, and I am happy for it)

(13b) Χαίρομαι ***να*** σε βλέπω
xerome ***na*** se vlepo
I'm happy ***to*** see you (I am happy whenever I see you—although I am not necessarily seeing you right now)

So in (12b), the *na*-complements stress that the emotive reaction obtains as a matter of principle, independent of specific time: one is sorry to see him suffer at *any* time (including, as it happens, the present); one is astonished to find her in such surroundings at *any* time (including the present). A *pu*-complement, by contrast, anchors the reaction to the specific referent time: one is sorry at that particular time to see him suffer. Admittedly, the distinction is rather fine, and in examples like (12b), as opposed to (13b), the distinction is more a matter of emphasis (*any* time) than temporality.

The general rule in Greek is that *oti* is used after Linguistic and Cognitive predicates (there being no Physical Predetermined Truth predicates), with *ke* and ∅ admissible after Linguistic and Cognitive Reactions, except for *ksexno* 'forget'. (Problems of subject conjunction prevent *ke* after appraisals.)

(14a) *paraðexome* ***oti/ke/∅*** *ime ikosi xronon* 'I admit I am twenty years old'
ksero ***oti/ke/∅*** *ine ikosi xronon* 'I know he's 20 years old'
ksexasa ***oti/*ke/*∅*** *ine ikosi xronon* 'I forgot he's 20 years old'
emaθa ***oti/ke/∅*** *ine ikosi xronon* 'I learned he's 20 years old'
katalava ***oti/ke/∅*** *ine ikosi xronon* 'I understood that he's 20 years old'
θimiθika ***oti/ke/∅*** *ine ikosi xronon* 'I remembered he's 20 years old'
ine fanero ***oti/*ke/*∅*** *ine ikosi xronon* 'It is obvious he's 20 years old'

Here, *oti*-complements are factive in the semantic sense—that is, they can preserve their truth under negation:

(14b) *ðen iksere **oti** ine ikosi xronon* 'She didn't know he's 20 years old'
*ðen ksexase **oti** ine ikosi xronon* 'She didn't forget he's 20 years old'
*ðen katalave **oti** ine ikosi xronon* 'She didn't realise that he's 20 years old'
*ðen θimiθike **oti** ikosi xronon* 'She didn't remember that he's 20 years old'

pu is used after Emotive Reactions, while Emotive Appraisals can use either *pu* or *oti*. To my judgement, *ke* and ∅ are not admissible for any of these.

(14c) *xarika **pu**/*__oti__/*__ke__/*∅ ine ikosi xronon* 'I was happy he's 20 years old'
*metaniosa **pu**/*__oti__/*__ke__/*∅ ine ikosi xronon* 'I regretted that he's 20 years old'
*ine lipiro **pu**/__oti__/*__ke__/*∅ ine ikosi xronon* 'It is sad that he's 20 years old'

To summarise:

	Reaction	Appraisal
Emotive	*pu*	*pu, oti*
Cognitive	*ke, ∅, oti, (pu)*	*oti*
Linguistic	*ke, ∅, oti*	*oti*

This is the picture in broad perspective; there are, however, complications, with the *pu/oti* boundary violated on both sides. Thus, Christidis (1981:171) notes that, for some speakers, *oti* is acceptable after Emotive Reactions, although only in imperfective contexts:

(15a) Λυπάμαι ***ότι*** ο αρχηγός της αξιωματικής αντιπολίτευσης δεν προσέρχεται στις συνεδριάσεις
lipame ***oti*** o arxiɣos tis aksiomatikis adipolitefsis ðen proserxete stis sineðriasis
I am sorry ***that*** the Leader of the Opposition is not attending the meetings (Imperfective)[22]

(15b) Λυπήθηκα ***που***/*__ότι__ δεν ήρθε να με δει
lipiθika ***pu***/*__oti__ ðen irθe na me ði
I am sorry he didn't come to see me (Perfective)

The complementiser *oti* also follows Emotive Reactions in the guise of the factive and topicalising complementiser *to oti.* This complementiser can be used with all Predetermined predicates (15c), although for Emotive Reactions the complement becomes oblique, and not a direct object of the verb (15d):[23]

(15c) ***to oti*** *ime ikosi xronon* ***to*** *paraðexome* 'I admit ***the fact that*** I am twenty years old'
to oti *ine ikosi xronon* ***to*** *ksero* 'I know ***the fact that*** he's 20 years old'
to oti *ine ikosi xronon* ***to*** *ksexasa* 'I forgot ***the fact that*** he's 20 years old'
to oti *ine ikosi xronon* ***to*** *emaθa* 'I learned ***the fact that*** he's 20 years old'
to oti *ine ikosi xronon to katalava* 'I understood ***the fact that*** he's 20 years old'
to oti *ine ikosi xronon* ***to*** *θimiθika* 'I remembered ***the fact that*** he's 20 years old'

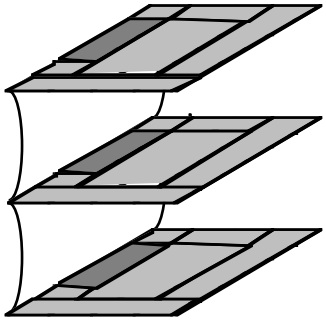
[22]Example (15a) was not acceptable to Christidis; nor is it acceptable to me.
[23]This indicates that *pu* as an emotive complementiser is also not a direct object of the predicate, and reinforces its connection with causal adjuncts.

to oti *ine ikosi xronon ine fanero* ***'The fact that*** he's 20 years old is obvious'[24]
ine lipiro ***to oti*** *ine ikosi xronon* ***'The fact that*** he's 20 years old is sad'

(15d) *xarika* ***ɣia to oti*** *ine ikosi xronon* 'I was happy ***that*** he's 20 years old' (=***'for the fact that*** he's 20 years old')
metaniosa ***ɣia to oti*** *ine ikosi xronon* 'I regretted ***that*** he's 20 years old' (=***'for the fact that*** he's 20 years old')

Finally, *pu* is admissible after Cognitive (and much less frequently, Linguistic) Predetermined Truth predicates as a marked complementiser. What *pu* is marked for in such contexts is a rather involved matter, with different predicates triggering different semantic factors; discussion of the details involved is postponed until §4.3.2.

Determined Truth



The final region of the complementation grid to consider are Determined Truth predicates. The normal complementiser after such predicates is *oti,* although *ke* and ∅ are also admissible with all Non-Negative Reaction predicates. Normally, when *na* appears with such predicates, it converts them to Action modality, where acceptable.

The Emotive Determined Truth predicate *fovame* 'fear' can take a *pu*-complement; in that case, however, the predicate becomes Predetermined, and the predicate exactly parallel to the other Predetermined Emotive Reactions:

(16) *fovame* ***pu*** *θa ɣino ikosi xronon* 'I am scared ***by the fact that*** I will turn 20 years old'

As well as *oti,* Truth complements of the predicate *fovame* can appear with the introductive *min* 'lest', which patterns semantically and morphologically with *na*—although *na* itself cannot be used, since it converts the Evaluation Modality of the Truth complement to Action.

When the Determined Truth predicate has a weaker Evaluation Modality—namely, when it is either affirmative or weakly negative non-assertive, or weak assertive—*na* can appear with the effect of downgrading their evaluation modality. According to Kakouriotis (1982:118), weak assertives with *na* are further weakened, to the point of being no longer assertive.

[24]CSMG has no productive subject clitic to topicalise the subject complement here.

Comparison with English

The complexity of the preceding discussion might leave one longing for the simplicity of something like Ransom's chart of the distribution of complementisers in English, outlined in Table 10.

	Truth	***Future Truth***	***Occurrence***	***Action***
Predetermined	*that*	*that*	*Ø/that*	*INF*
Determined	*that*	*that*	*INF*	*INF*
Undetermined	*that*	*INF*	*INF*	*INF*
Indeterminate	*whether*	*whether*	*whether*	*whether-INF*

Table 10. Distribution of complementisers in English (Ransom 1986:88).

This table gives a clear overall trend: the higher the information or evaluation modality, the likelier the choice of *that* as against the infinitive. As an overall trend, this is likewise discernible in the Greek data, with *oti* the equivalent of *that* and *na* the equivalent of the infinitive. Table 10 is nonetheless an idealisation; complexity similar to that outlined in Greek obtains, when one identifies further semantic factors involved in complementiser choice.

When complementation is studied at the level attempted above, the data becomes reminiscent of lexical diffusion (McMahon 1994:50–56)—the process by which linguistic change does not necessarily spread to all members of a paradigm instantaneously, but can hop from lexeme to lexeme.[25] There are 'hiccups' in the Greek data—for instance, the acceptability of *pistevo na* 'believe' but not *nomizo na* 'think', although both are Weak Assertive Truth Cognitive predicates (Nicholas 1998c); these are at least suggestive of a process of *na* spreading in time through the complementation grid, with the synchronic status a snap-shot rather than a necessary, internally consistent endpoint.

Summary of Greek complementation

The distribution of Greek complementisers is summarised in Figure 5.[26] To say that the distribution is complex is an understatement; but there is not one com-

[25]Lexical diffusion is the reason why, for example, while the reflexes of Middle English [ɛ:] (orthographic *ea*) are normally [i:] (as in *peak*), some words remain—such as *steak*—in which the reflex is the older [ɛɪ].

[26]Just as Ransom's table of complementiser distribution in English (Table 10) is a schematic simplification of the actual situation in English, so too Papadopoulou's (1994a:138) table of complementiser distribution is a drastic simplification of Figure 5:

<table>
<tr><td></td><td>Truth</td><td>Future Truth</td><td>Occurrence</td><td>Agent</td></tr>
<tr><td>Predetermined</td><td>pu</td><td>oti</td><td colspan="2" rowspan="2">na</td></tr>
<tr><td>Determined</td><td colspan="2"></td></tr>
<tr><td>Undetermined</td><td colspan="3"></td></tr>
<tr><td>Indeterminate</td><td colspan="3">an</td></tr>
</table>

Table 11. Papadopoulou's (1994a:138) distribution of Modern Greek complementisers

plementiser competition going on, but ten, involving the five effective complementisers of Greek—*pu, ke, ∅, oti,* and *na*. If we isolate particular complementiser distributions, we can get a clearer picture of what is going on. This is done by viewing separately the distribution of *oti* (Figure 6) and *na* (Figure 7).

In broad terms, the choice between *oti* and *na* is determined by whether the complement is realis or irrealis—or, to use Philippaki-Warburton & Veloudis' (1984) terms, extensional versus intensional. More concretely, as can be seen from these figures, the occurrence of *oti* as against *na* is likelier:

- The higher one moves in the Information Modality hierarchy (the CSMG equivalent of the *come to pass* predicate, *etixe* 'it was fortuitous', takes only *na*)—*oti* does not occur at all for Occurrence or Action;
- The higher one moves in the Evaluation Modality hierarchy—*na* does not occur at all for Predetermined predicates;
- The higher one moves in the Semantic Class LINGUISTIC > COGNITIVE > EMOTIVE;
- As one moves from Appraisals to Reactions—although this is a determining factor only for Cognitive Undetermined Truth predicates.

On the other hand, Papadopoulou finds Ransom's grid inadequate to represent the full semantic diversity of complement-taking predicates, and prefers Noonan's (1985) 11 semantic categories. However, the factors used in the grid presented here—Assertivity, Evaluation Modality, Information Modality, Semantic Class—are adequate to express those of Noonan's distinctions which involve *oti* or *pu,* as follows:

- *Utterance:* Linguistic
- *Propositional Attitude:* Weak Assertive and Non-Assertive Cognitive Determined Truth
- *Physical Perception:* Cognitive Predetermined Occurrence
- *Knowledge/Acquisition of Knowledge:* Cognitive Predetermined and Strong Assertive Determined Truth (This category includes predicates of indirect perception—which is consistent with the Cognitive Strong Assertive Determined Truth class)
- *Evaluative:* Emotive Predetermined Truth
- *Fearing:* Emotive Determined Truth
- *Pretending:* Non-Assertive Linguistic Determined Truth (in fact, pretense presupposes the falsity of the complement; we have not had recourse to a separate anti-factive position in the Information Modality axis)
- *Volitive:* Emotive Undetermined
- *Manipulative:* Physical Predetermined Occurrence and Determined Action
- *Modal:* Physical Determined Occurrence and Non-Assertive Physical Determined Truth
- *Aspectual:* Physical Predetermined Action

The last four classes involve *na* exclusively (Papadopoulou 1994a:181), and have some overlap in Ransom's terms. These are, of course, the positions on the grid for these predicate classes with their unmarked complementiser; a change of complementiser, as already seen, forces a change of grid position.

An added advantage with Ransom's formulation rather than Noonan's is that Ransom's is explicitly scalar, while Noonan's make only qualitative distinctions. Thus, complementiser choice can be represented in a grid with Ransom's parameters, much more readily than Noonan's.

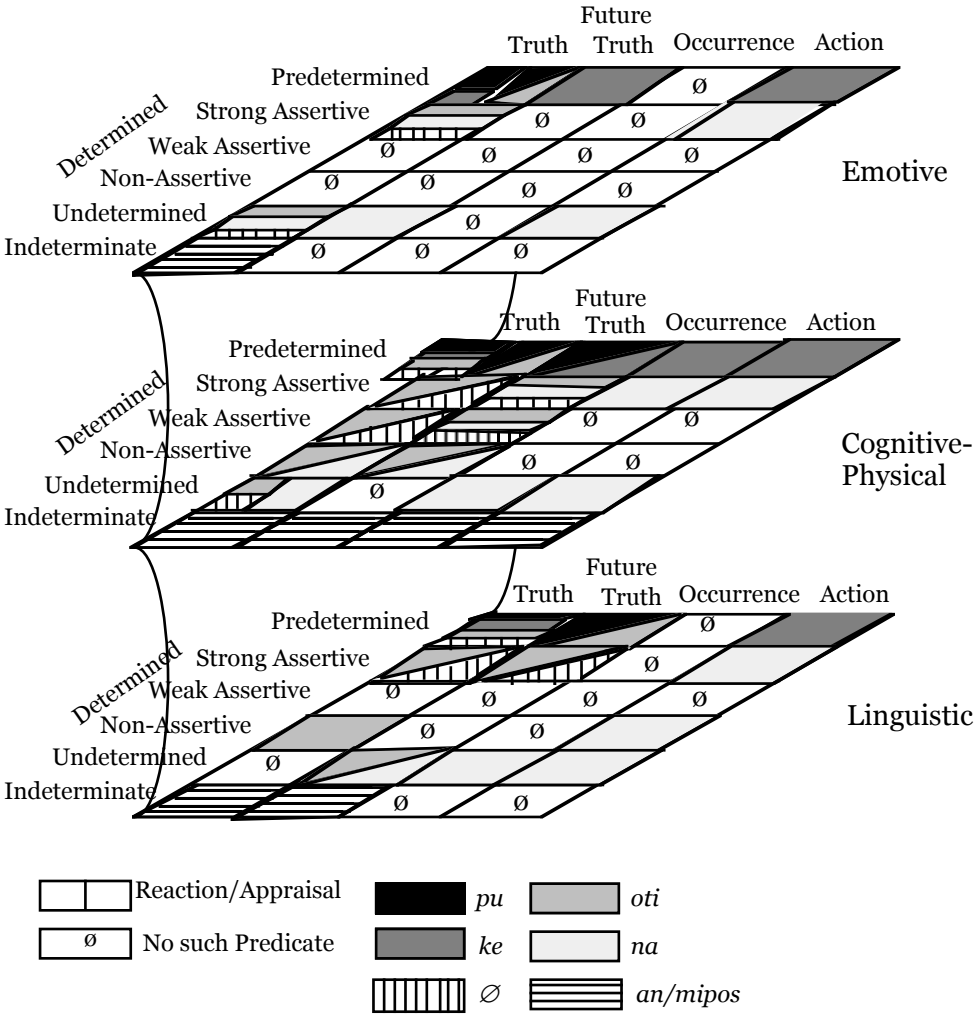


Figure 5. Distribution of Modern Greek complementisers

There remain many instances of Determined and Undetermined Truth and Future Truth predicates where *na* and *oti* coexist; the most that can be said without a special study is that *na* is marked for doubt, and weakens the Evaluation Modality of the predicate, which appears to be a continuum rather than a discrete scale.

While in broad terms the competition between *oti* and *na* matches that in English between *that* and the infinitive, there are some differences—notably the use of *na* with predicates like *elpizo* 'hope' and *piθano* 'probable' introducing states, and the new class of Non-Assertive Cognitive Truth, as in *pistevo na* 'believe to'.

Of the remaining complementisers, *ke* is restricted to Predetermined modality, but can take on any Evaluation modality; so it spans across the *oti/na* divide. Zero-complementation is broadly tied to assertive predicates (as is its parenthetical counterpart), although it appears to be incompatible with Appraisals, and has extended to Undetermined Cognitive predicates like *ikazo* 'speculate'.

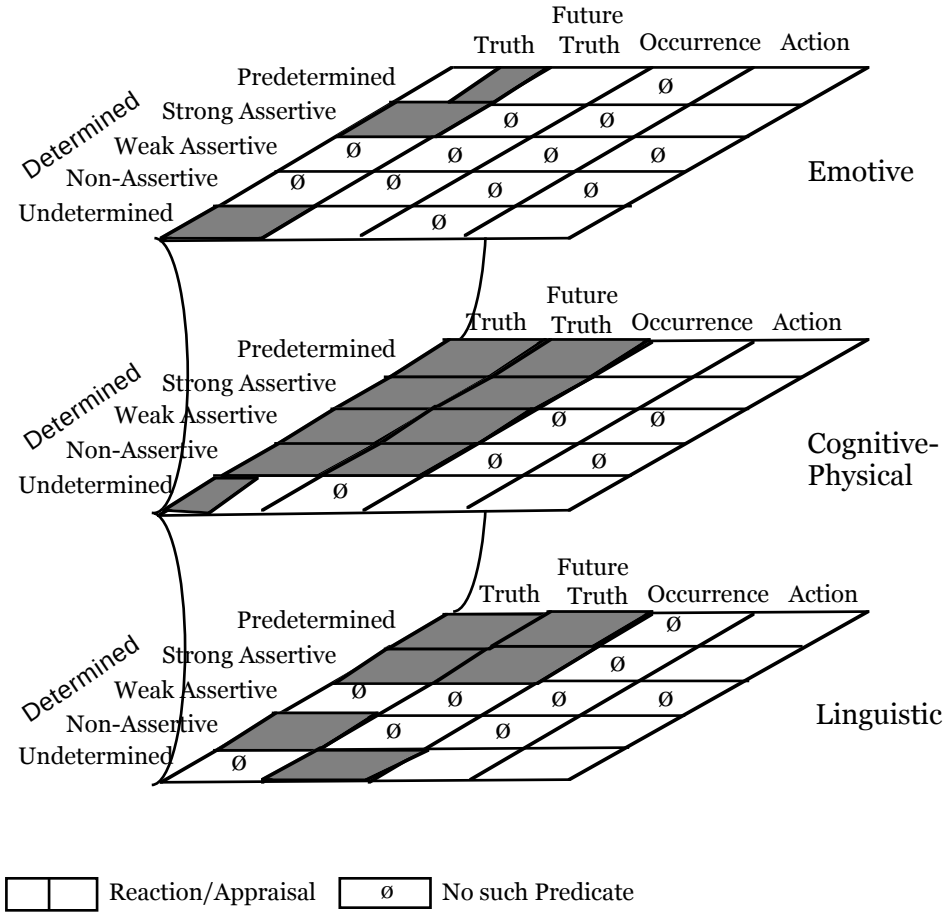


Figure 6. Distribution of *oti*

The complementiser whose distribution is of real interest in this study is *pu*. As is clear from Figure 5, *pu* may be said, without loss of generality, to be restricted to Predetermined stative predicates (Truth and Future Truth). Even within those limits, *pu* competes with both *oti* and *ke*. Furthermore, the prevalence of *pu* varies with the semantic factors already identified. Thus, after Emotive Reactions *pu* is virtually mandatory, whereas after Linguistic Reactions its presence is marginal. Similarly, after Reactions *pu* is much more prevalent than after Appraisals.[27]

There are other factors involved which have not yet been considered. For example, *pu* has been claimed to be factive—a more restrictive condition than Predetermined. Syntactic factors other than reaction/appraisal need to be considered: namely, whether the complement has been topicalised, and whether the complement subject has been raised. There are also pragmatic factors involved—such as whether the complement proposition is a given in the dis-

[27]This is true of other complementisers as well. For example, in my idiolect zero-complementation seems more natural with Weak Assertives than with any other category of predicates—notwithstanding Tzartzanos' (1991 [1946, 1963] §218 2) claim that they are more frequent with perception verbs.

course. So while the complementiser grid given above is very detailed, it is still not adequate to delimit the distribution of *pu* in CSMG. The next section gives more detail on these finer semantic differentiations.

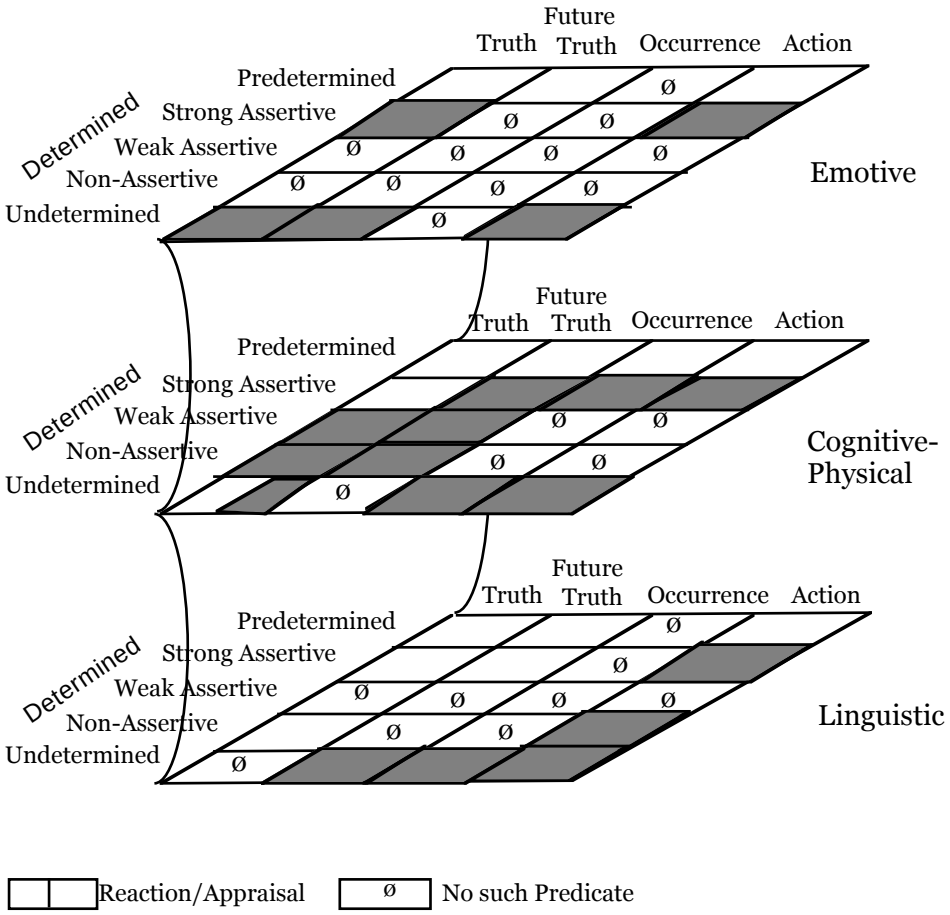


Figure 7. Distribution of *na*

4.3.2. Complementiser competition between *pu* and *oti*

The competition between *pu* and *oti* only applies to complementation, as *oti* hardly ever introduces adjuncts or forms collocations in CSMG. And the semantic distinctions drawn between *pu*- and *oti*-complements in Christidis' (1981) influential paper are quite subtle. Furthermore there is significant variation in the distribution of complementiser-*pu* amongst Modern Greek dialects, and between Puristic and CSMG. Nevertheless, the very complexity of the distribution of *pu* against *oti* has been the driving force behind most recent work on the semantics of *pu*.

Christidis (1981) represents the first substantial attempt to tackle the distribution of *pu* amongst all predicates in concrete terms. For cognitive predicates this involves determining the semantic property for which *pu* is marked, as *oti* is the unmarked complementiser for such predicates. Christidis thus outlines a

disparate set of semantic distinctions between *pu*- and *oti*-complements for a variety of predicates. The differences are as follows:

- For *ksexno* 'forget', a *pu*-complement implies that the event in question should not have been forgotten—that the memory is deliberately repressed, fictitiously repressed, or should have been recalled vividly.

(17a) Ξέχασε ***που/??ότι*** τον είχε συναντήσει στο Παρίσι—προτιμάει βέβαια να μη το θυμάται γιατί αισθάνεται ένοχος.
ksexase ***pu/??oti*** ton ixe sinadisi sto parisi—protimai vevea na mi to θimate ɣiati esθanete enoxos.
He's forgotten meeting him in Paris—of course, he'd rather not remember it, because he feels guilty. (Memory deliberately repressed)

Furthermore, *pu* is preferred in introducing continuous events:

(17b) Ξέχασε ***που/??ότι*** ξημεροβραδιαζόταν στο σπίτι μας.
ksexase ***pu/??oti*** ksimeroraðiazotan (IMPFP) sto spiti mas.
He's forgotten ***how/??that*** he would spend day and night at our house.

(17c) Ξέχασε ***που/??ότι*** τα πίναμε μαζί.
ksexase ***pu/??oti*** ta piname (IMPFP) mazi.
He's forgotten ***how/??that*** we used to drink together.

Christidis explains this as follows:

> Such situations [continuous events], for obvious reasons, constitute strong representations in memory, and are directly accessible. Precisely because they have that characteristic, [... they] are constrained to the emotive sense of the verb—with the conjunction *pu*. Since it is not natural for the subject to no longer remember the referent of the complement (['remember' =] the epistemic sence of the verb *[ksexno])*—and that pragmatic factor is responsible for the 'unnaturalness' of [examples with *oti*-complements]—the subject must have become oblivious—repressing, for some reason, the knowledge of the situation to which the complement is referring. (Christidis 1981:136)

In other words, *pu* introduces a proposition the speaker believes the subject should not have forgotten—particularly if it was a continuous activity which should have become imprinted on the subject's memory. So *pu* makes a stronger claim than that the complement is true: it claims that (as far as the speaker is concerned) the complement *should* be known to be true by the subject. Christidis therefore considers *ksexno pu* to be an emotive verb, as it involves a subjective judgement. This accounts for the choice of complementiser, as *pu* is associated most strongly with Emotive predicates.

But while *ksexno pu* does imply a negative reaction to the subject, imputing either negligence or deceit, it still seems odd to call 'forget'—or even 'pretend to forget'—an Emotive predicate. One can point to the counterexample of *kano* taking a *pos*-complement, and not a *pu*-complement, when it means 'pretend' rather than 'make; do'—as do, for that matter, predicates of lying like *leo psemata* 'tell lies'. The obviousness or givenness of the complement to the

speaker seems a way of looking at this complement more consistent with the other usages of *pu*.

- For perception predicates, the distinction between *pu* and *oti* lies in the fact that *pu* describes direct perception, whereas *oti* describes indirect perception, and emphasises cognition (hearsay, inference, etc.) over perception itself—giving the matrix epistemic force.[28]

(10e) *ton akusa* ***na*** *fevɣi* 'I heard him leave'
ton akusa ***pu*** *efevɣe* 'I heard him leave'
ton akusa ***ke*** *efevɣe* 'I heard him leave'
akusa ***oti*** *efiɣe* 'I heard that he felt'

- For *θimame* 'remember', *pu* deals with recalled, inchoative memory, while *oti* deals with possessed, stative memory. That is to say, *pu*-complements must spring immediately to mind (direct recall), whereas *oti*-complements are more abstract, and can be brought to mind after some conscious intellectual effort (indirect recall).

(18a) Θυμάμαι, σαν να ήταν χθες, ***που/??ότι*** τον είχα συναντήσει στο Παρίσι.
θimame, san na itan xθes, ***pu/??oti*** ton ixa sinadisi sto parisi.
I remember having met him in Paris as if it was yesterday.

(18b) Θυμήθηκα, ύστερα από πολλή προσπάθεια, ***ότι/??που*** τον είχα συναντήσει στο Παρίσι.
θimiθika, istera apo poli prospaθia, ***oti/??pu*** ton ixa sinadisi sto parisi.
After much effort, I remembered ***that*** I'd met him in Paris.

Similar restrictions on continuous complements apply as with *ksexno:*

(18c) Θυμάμαι ***που/??ότι*** τα πίναμε μαζί κάθε βράδυ στην ταβέρνα.
θimame ***pu/??oti*** ta piname mazi kaθe vraði stin taverna.
I remember ***how/??that*** we used to drink together every night at the taverna.

To elaborate on Christidis' criterion: an event recollected from personal experience is likelier to be introduced by *pu* (18c), whereas facts are introduced by *oti*.

(18d) Θυμάμαι ***ότι/??που*** ο Αλέξιος Κομνηνός υπήρξε πριν εννιακόσια χρόνια ένας μέγας Βυζαντινός αυτοκράτορας.
θimame ***oti/??pu*** o alexios komninos ipirkse prin eniakosia xronia enas meɣas vizadinos aftokratoras.
I remember ***that/??how*** Alexius Comnenus was a great Byzantine emperor nine hundred years ago.[29]

Since *pu* involves direct recall, it introduces a situation the speaker holds in no doubt; the truth of the complement follows directly. With *oti*-complements, the complement is necessarily true if the matrix is perfective, as the process of indi-

[28]Christidis' accounts ignores evidential perception.
[29]In (18d), *pu* would imply not only that the speaker was in Alexius Comnenus' inner circle in 1080, but also that he had some tangible experience of Comnenus' greatness—that his greatness manifested itself in a specific event, rather than being an abstract fact.

rect recall is already complete (19a). If the matrix is imperfective, the process of recall is not complete, and the truth of the complement cannot yet be held to be certain.[30] So imperfective *θimame oti* is not factive (19b):

(19a) *Θυμήθηκα ***ότι** τον είχα συναντήσει στο Παρίσι, αν και μπορεί να έκανα λάθος.
θimiθika (PERFP) ***oti*** ton ixa sinadisi sto parisi, an ke bori na ekana laθos.
I remembered ***that*** I had met him in Paris, although I might have been wrong.

(19b) Θυμάμαι ***ότι*** τον είχα συναντήσει στο Παρίσι, αν και μπορεί να κάνω λάθος.
θimame (IMPFS) ***oti*** ton ixa sinadisi sto parisi, an ke bori na kano laθos.
I remember ***that*** I had met him in Paris, although I may be wrong.[31]

So propositions introduced by *pu* after *θimame* are analogous to those introduced by *pu* after *ksexno;* for that very reason, Christidis argues, they are unlikely to have been forgotten (being vividly recallable), and imply that the referent should not have forgotten them.

- Christidis explains the distribution of *pu* for the remaining Semi-Factive predicates, such as *ksero* 'know' and *katalaveno* 'understand; realise', in a similar way. Just as *θimame*-complements are distinguished between directly recalled, concrete events *(pu)* and intellectually recalled, abstract facts *(oti),* so too these other semi-factives distinguish between 'indirect' intellectual knowledge *(oti)* and 'direct' experiential, internalised knowledge *(pu)*. The distinction between the two types is that the former denotes "the process of Ego's acquiring a piece of new information through an external source", while the latter involves "the process of Ego's becoming aware of the existence of something inside himself (e.g. an idea/belief)" (McCawley 1978:274).

Intellectual knowledge is thus acquired and inchoative: knowledge has come in the form of known facts, and there is a well-defined process by which such knowledge comes to be known. Experiential or internalised knowledge, on the other hand, is possessed, and arises 'internally'. Since such knowledge does not arise at a well-defined moment, it is impossible for a *pu*-complement to be inchoative—something these propositions have in common with the other class of *pu*-complements, emotive responses (20a). And since conditional utterances like (20b) place knowledge of the complement in the future, they cannot involve

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[30]As Papadopoulou (1994:154) puts it with regard to the analogous Acquisition of Knowledge predicates, "The truth of the complement proposition is negotiable in the present [...] because acquisition of consciousness, 'coming-to-know' is a culminating process, whose culminating point lies on the deictic now or beyond and cannot thus be considered as decided upon. [...] The past tense 'moves' both types of situation back in time, both 'points' *(realize)* and 'culminated processes' are presented as concluded and, are thus seen as equivalent to states, facts, that true factives typically are."

[31]Varlokosta (1994c:68) counterargues that imperfective *θimame oti* is still factive if qualified by *kala* 'well': *θimame **kala** oti ton ixa sinadisi sto parisi, *an ke bori na kano laθos* 'I remember *well* that I had met him in Paris, although I may be wrong'. Christidis would presumably answer that, if the adverb *well* can be used to characterise the process of recall, then the process itself must be complete enough to be subject to evaluation; so *θimame kala* is in fact crypto-perfective.

internalised knowledge: the speaker will not be able to realise when they will come to possess this knowledge.

(20a) Αρχίζω να καταλαβαίνω ***ότι/*που*** δεν με συμπαθεί.
arxizo na katalveno ***oti/*pu*** ðen me sibaθi.
I'm beginning to realise ***that*** she doesn't like me.

(20b) Αν καταλάβω ***ότι/*που*** δεν με συμπαθεί θα φύγω.
an katalavo ***oti/*pu*** ðen me sibaθi θa fiɣo.
If I realise she doesn't like me, I'll leave.

If *pu* were used in these utterances, the proposition *she doesn't like me* would have been pragmatically presupposed—i.e. it would have been given. So the question of realising the proposition could not arise—making *pu* unacceptable.

For internalised knowledge to be articulated, it must be already known to the speaker, and presupposed. In that case, the speaker has absolute commitment to the truth of the complement. Where knowledge of the complement is indirect, and the matrix does not contain an assertive adverbial like *kala* 'well', it is still possible to defeat the presupposition of truth of the complement—as was the case with *θimame* in (19b).

- Finally, *oti* is more readily used than *pu* in Emotive Appraisals (complement subject), while the reverse holds with Emotive Reactions (complement object). The semantic distinction Christidis draws between the two is that, while reactions give "a direct emotive reaction as a result of an event", appraisals, being impersonal (the experiencer is not a complement of the predication), give "a more permanent emotive/value position against an event" (Christidis 1981:145). In other words, *pu* gives a direct, personal response, whereas *oti* involves a more indirect, considered and impersonal response. This distinction is extended by Christidis (1981:172) to those examples, not acceptable to all speakers, where *oti* can be used after imperfective reactions (15a): the reponse is, again, relatively 'permanent', being imperfective, rather than a direct, instantaneous reaction, associated with a perfective matrix.
- One further class of predicates needs to be mentioned: these are factive cognitive predicates which never take *pu*-complements. They include *lamvano iposi* 'take under consideration', *adilamvanome* 'realise', *anakalipto* 'discover', *apokalipto* 'reveal', *ðiapistono* 'determine', and *anafero* 'mention':[32]

[32]As stated here, the set includes cognitive predicates; Delveroudi, Tsamadou & Vassilaki (1993a:42) also include the factive linguistic predicates *veveono* 'affirm', *eksiɣo* 'explain', *omoloɣo* 'admit', *ðiaðiðo* 'spread the rumour' and *paraðexome* 'admit'. In the framework adopted here, these predicates are excluded from taking *pu*-complements because they are linguistic rather than factive—as is also the case with the prototypical linguistic predicate, *leo* 'say'.

(21) Αντιλήφθηκα/Έλαβα υπόψη μου ***το γεγονός ότι/ότι/*που*** δεν ενδιαφέρεται για τη δουλειά του.
adiliftika/elava ipopsi mu ***to yeyonos oti/oti/*pu*** ðen enðiaferete ɣia ti ðulia tu.
I realised/took under consideration ***the fact that/that*** he is not interested in his job.

These predicates involve the intellectual acquisition of knowledge. As Givón (1973) discusses, the subject of *discover* does not know the complement to be a fact until the time of the matrix; so all these predicates are somehow associated with the intellectual acquisition of knowledge—some more than others, as *take into consideration* properly deals not with newly acquired, but newly attended knowledge. As Delveroudi, Tsamadou & Vassilaki (1993a:41–42) put it, "it is significant in this regard that the verbs that only take *oti* are those whose semantics is characterised by conferring the status of existence to a predicative relation."

A problem with this set is that two predicates belonging to it, *maθeno* 'learn' and *katalaveno* 'understand; realise', can take *pu*-complements—although much more infrequently than other semi-factives. So this may be another case of lexical diffusion; the fact that all these predicates are of Puristic origin, whereas *maθeno* and *katalaveno* had survived in the pre-literary language, may also be significant.

There is also a non-prototypical predicate set: the nominal cause predicates *loɣos* 'reason' and *etia* 'cause'. These predicates always take *pu* rather than *oti* in CSMG; the reason seems to be that complements after such predicates are conflated with relativisations (*o loɣos* ***pu*** *irθa* 'the reason ***that*** I came'). For that reason, such predicates are tabulated in text counts, but are differentiated from their verbal counterparts: *kano* 'make, cause' is listed as a Predetermined Physical Occurrence Verbal, and as a category for which *pu* is unacceptable in CSMG, while *loɣos* is listed as a Predetermined Physical Occurrence Nominal, for which *pu* is acceptable in CSMG. To preclude cross-category confusion, these nominals are excluded from aggregate complementiser counts.

It cannot always be determined in written texts whether a perception predicate refers to direct or indirect perception. For that reason, the following modified grid is used in this work to plot the relative distribution of complementiser-*pu;* as should be clear, emotive appraisals and reactions are differentiated, as are acquisition of knowledge predicates from static knowledge predicates; on the other hand, perception predicates are undifferentiated, and placed between emotive and cognitive truth predicates. In addition, the category of Linguistic Truth is made to include Strong Determined predicates (*leo* 'say'). Finally, Future Truth predicates tend to be statistically insignificant in text, and are omitted.

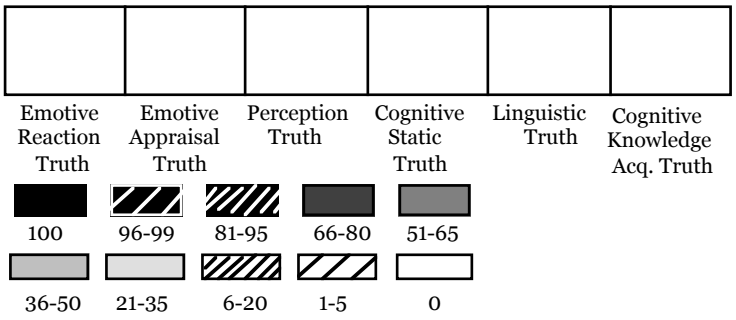

Figure 8. Modified complementiser-*pu* grid

This grid is used in conjunction with the larger grid of Fig. 4. The diagram has the drawback that it relies on CSMG intuitions as to the Information Modality of verbs—for example, that *ksero pu* is always predetermined. This is unlikely to be the case in those dialects where *pu* has become the unmarked realis complementiser; and intuitions unnecessarily bias the investigator. Therefore, when investigating given texts, *all* occurrences of a given verb are given the same information modality. For example, all instances of *proleɣo* 'foresay, predict' are considered strong assertives, whether followed by *pu* or *oti*. Because we are not considering *na*-complements, which frequently modify both the Information and Evaluation Modality of verbs, this does not change the apparent distribution significantly.

4.3.3. *The Third Wedding*

To illustrate the claims made for the distribution of *pu* in CSMG against an actual text, I analyse the complementation system with regard to the text *The Third Wedding,* which is taken as representative of CSMG.

There are 80 instances of complementiser-*pu* in the text, which encompasses around 118,000 words; there are 1131 instances of *pu* overall in the text, so that complementiser-*pu* has a textual frequency of 0.7‰, and involves 7% of all instances of *pu*. Instances of *pu* as against *oti* and *pos* are distributed as follows:

Complement	**80**
CSMG-Obligatory	***72***
PREDETERMINED EMOTIVE TRUTH REACTIONS	*51/2/2 (93%)*
PREDETERMINED EMOTIVE TRUTH APPRAISALS	*20/7/2 (69%)*
CSMG-Optional	***8***
PREDETERMINED TRUTH LINGUISTIC	*0/2/5 (0%)*
PERCEPTION	*4/27/28 (7%)*
PREDETERMINED TRUTH COGNITIVE	*4/140/102 (1.6%)*
STATIC	*4/99/61 (2.4%)*
KNOWLEDGE ACQUISITION	*0/41/41 (0%)*
CSMG-Unacceptable	***0***

Following the grid outlined in §4.3.2, the distribution of complementiser-*pu* may be plotted as follows:

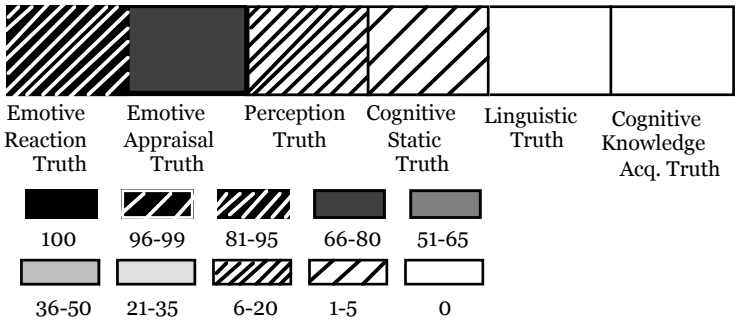

Figure 9. Complementiser-*pu* in *The Third Wedding*

This distribution is just what we anticipate of CSMG. The distribution of *pu* is restricted to Predetermined Modality; the following example looks like an exception, but on closer investigation turns out not to be a complementiser instance at all:

(22) (Nina needs to deceive a guard at hospital that Petros, who is wanted by the government, and has just entered the room, is someone else.)
«Δημήτρη!», του φωνάζω, κοιτώντας τον στα μάτια για να μπει στο νόημα. «Πες στον κύριο πώς σε λένε. Δε ***με πιστεύει που*** του λέω πως τ' όνομά σου είναι Δημήτριος Λόγγος.»
"ðimitri!", tu fonazo, kitodas ton sta matia ɣia na bi sto noima. "pes ston kirio pos se lene. ðe ***me pistevi pu*** tu leo pos t onoma su ine ðimitrios logos."
'Dimitris!' I shouted, looking hard at him so that he should catch on. 'Tell the officer here your name. He doesn't ***believe me when*** *I tell him your name is Dimitris Longos…'* (Tah 298)[33]

Hence there are no instances in this text of Determined or Undetermined predicates taking *pu*—even though this is permitted in CSMG, as a means of switching the category of a predicate from Determined to Factive.

The distribution of *pu* is gradient through Information Modality and Semantic Class: the hierarchies EMOTIVE > COGNITIVE > LINGUISTIC, REACTION > APPRAISAL, and PERCEPTION > COGNITION are maintained. The values gravitate to the extremes of the scale: 93% > 69% > 7% > 2.4% > 0%. For those instances where *pu* is marginal in CSMG—Linguistic predicates, Future Truth, and Truth Acquisition—there are no instances of *pu* at all. This text thus adheres quite strictly to the CSMG tendencies already described; in particular, *pu* is highly marked as a perception complementiser.

Of the 8 instances where *pu* follows a verb of perception or knowledge, 6 have negative and/or interrogative matrices, and 7 are in the second person. All of

[33]Clearly, from the translation, the *pu* clause should be considered a temporal adjunct, rather than the complement of *pistevo*. This is not as obvious in Greek, which tolerates clausal-ditransitivity (i.e. a verb having both an animate and a clausal direct object), for both *pu*- and (though less frequently) *pos*- and *oti*-complements. What decides against a complement interpretation is that, under such an interpretation, Nina would actually be saying 'the officer does not believe [me,] the fact that I am telling him your name is D.L.'—whereas the proposition being disbelieved is the complement, not of *pistevo,* but of *leo* 'say'.

these factors differentiate the speaker's stance on the complement from the referent's. A second person referent is distinct from the speaker, so the speaker's knowledge of the complement (which is presupposed by her) is contrasted with the referent's ignorance. (We have already seen this property exploited in evidential perception, of which there are two instances in the text.) Likewise, negative and interrogative matrices contrast the speaker's presupposition of the complement with the referent's ignorance of it (real or imputed).

So the conditions under which a marked *pu*-complement appears illuminate what *pu* is marked for: it differentiates the speaker's knowledge from the referent. In particular, Tahtsis uses a *pu*-complement after a predetermined cognitive truth predicate, not when the speaker presupposes the complement, but when this presupposition is marked by contrast with a referent other than the speaker. This deictic component needs to be included in any account of complementiser-*pu* semantics.

4.3.4. Makriyannis' *Memoirs*

As a counterweight to *The Third Wedding,* which represents CSMG after it was koineised and subject to Puristic influence, one may consider Makriyannis' *Memoirs,* widely regarded as an exemplar of mainstream Greek before Puristic influence (at least with respect to syntax.) There are 72 instances of complementiser-*pu* in the text, and 1610 instances of *pu* overall in the text, so that complementiser-*pu* has a textual frequency of 0.5‰, and 4% of all instances of *pu*. Instances of *pu* as against *oti* and *pos* are distributed as follows:

Function	Memoirs, *First period (1829–1840?)*	Memoirs, *Second Period (1844-1851)*	*Total*
Complement	**51**	**21**	**72**
CSMG-Obligatory	***18***	***9***	***27***
PREDETERMINED TRUTH EMOTIVE REACTIONS	*16/10/0 (62%)*	*7/7/1 (47%)*	*23/17/1 (56%)*
PREDETERMINED TRUTH EMOTIVE APPRAISALS	*2/2/0 (50%)*	*2/2/0 (50%)*	*4/4/0 (50%)*
CSMG-Optional	***28***	***9***	***37***
PREDETERMINED TRUTH LINGUISTIC	*0/1/0 (0%)*	*0/0/0 (0%)*	*0/1/0 (0%)*
PERCEPTION	*15/16/1 (47%)*	*6/12/0 (33%)*	*21/28/1 (44%)*
PREDETERMINED TRUTH COGNITIVE	*13/61/2 (17%)*	*3/22/1 (11%)*	*16/83/3 (16%)*
STATIC	*6/12/1 (32%)*	*2/10/0 (17%(*	*8/22/1 (26%)*
KNOWLEDGE ACQ'N	*7/49/1 (12%)*	*1/12/1 (7%)*	*8/61/2 (11%)*
CSMG-Unacceptable	***5 (0.1)***	***3 (0.1)***	***8 (0.1)***
DETERMINED ACTION LINGUISTIC	*0/3/0 (0%)*	*0/4/0 (0%)*	*0/7/0 (0%)*
STRONG DETERMINED TRUTH LINGUISTIC	*5/147/8 (3%)*	*1/80/3 (1%)*	*6/227/11 (2%)*
STRONG DETERMINED TRUTH COGNITIVE	*0/12/0 (0%)*	*0/4/1 (0%)*	*0/16/1 (0%)*
WEAK DETERMINED TRUTH COGNITIVE	*0/5/0 (0%)*	*1/13/0 (7%)*	*1/18/0 (5%)*

NON-ASSERTIVE DETERMINED TRUTH LINGUISTIC	*0/9/0 (0%)*	*0/6/0 (0%)*	*0/15/0 (0%)*
NON-ASSERTIVE DETERMINED TRUTH COGNITIVE	*0/0/0 (0%)*	*0/2/0 (0%)*	*0/2/0 (0%)*
UNDETERMINED TRUTH EMOTIVE REACTION	*0/8/0 (0%)*	*1/2/0 (33%)*	*1/10/0 (9%)*

The distribution of complementiser-*pu* may be plotted as follows:

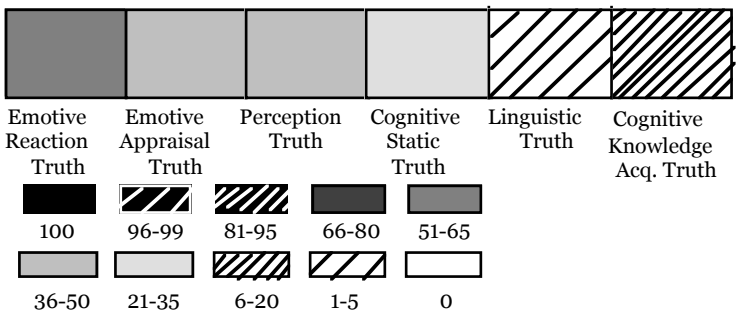

Figure 10. Complementiser-*pu* in Makriyannis' *Memoirs*

What is immediately noticeable, by contrast with *The Third Wedding,* is the elimination of the polarisation in the complementiser distribution. Where Tahtsis uses extremes of the scale (93% > 69% > 7% > 2.4% > 0%), Makriyannis effaces both the tendency away from *oti* for emotives, and the tendency away from *pu* for linguistic and cognitive predicates (56% > 50% > 44% > 26% > 2.5% < 11%). The high count in Knowledge Acquisition predicates, largely due to the use of *pu* with *maθeno* 'learn, be informed' (7 out of 8 instances), is characteristic of colloquial knowledge acquisition predicates avoiding *pu* much less than their learned counterparts in CSMG.

The concentration of *pu* in Emotive Reactions is somewhat less than expected: Makriyannis occasionally uses forms like *xerome oti* 'glad that', which are unacceptable in CSMG. These are probably loans from Puristic, although the prominent usage of *oti* as a causal connective (now also unacceptable in CSMG, but constituting 712 out of 1143 occurrences of *oti* in the *Memoirs*—63%) may also have contributed. (Recall that complements of emotives are frequently considered causal.)

The Predetermined/Determined barrier for *pu* is also leaky in this text: *pu* turns up (very rarely) after Determined Linguistic verbs (*leo* 'say', *milo* 'speak'), Weak Assertive Cognitives (*fadazome* 'imagine') and Undetermined Emotives (*elpizo* 'hope'). As can be seen from the contexts for these predicates, cases can be made for a factive reading for all these instances—although none of them is overwhelmingly convincing.

So where Tahtsis' text is characteristic of CSMG, in imposing the distinctions discussed quite rigorously, there is a certain laxity in the way the distinctions are followed in Makriyannis. This serves as a warning about something that becomes quite obvious in §6: the CSMG conditions on the distribution of comple-

mentiser-*pu,* intricate though they may be, are not a diatopic reality for Greek as a whole.

4.4. The factivity of pu

Και μετά τούτο ώρισεν να μετεωρισθούσιν,
να συντυχαίνῃ μόνος είς, ν' απιλογήται άλλος
και πάλιν άλλος είς προς είς δια την ευταξίαν
ίνα μη γένῃ σύγχυσις ή ταραχή τυχούσα.
And then he bade them all to start to jest:
when each one spoke, another should reply,
and then another, always taking turns,
to keep things orderly, and to preclude
all unforseen disorder or confusion.
(Quad 115–118)

We have the facts about the semantic conditioning on complementiser-*pu;* but what unifies these disparate usages? I give extensive discussion of Christidis' findings on the subject, since his account has been the most pervasive in modern thinking on the subject. I then allude briefly to other attempts at resolving the same issue, some of which have been more coherent than others, and have raised new challenges to theory.

4.4.1. Christidis

pu

Before proceeding any further, let us summarise the semantic factors identified by Christidis (1981) in §4.3.2:

Predicate Class	*pu*	*oti*
Perception	direct sensation	indirect/epistemic perception
ksexno 'forget'	emotive	epistemic
θimame 'remember'	direct recall	indirect/intellectual recall
Semi-Factives	internalised knowledge	intellectual knowledge
Emotives	direct reaction	indirect appraisal

Table 12. Semantic factors determining *pu/oti* complementiser choice (after Christidis 1981)

According to Christidis (1981), semantic presupposition is not a sufficient condition for *pu*-usage, since *oti*-complements can still preserve their truth under negation (14b).[34] Rather, in all cases *oti/pos* is used when the predicate has epis-

[34]This preempts the arguments made by subsequent researchers against Christidis' analysis, such as Ginzburg & Kolliakou (1997 [1995]) and Varlokosta (1994c:69): Christidis never claimed that *oti*-complements cannot be presuppositional.
Christidis (1981:120–121) also argued that the converse is the case: *pu*-complements do not always presuppose the truth of their complements. His example involves the perception predicate *vlepo* 'see'. *lipame pu efiγe* 'I regret that he left' can be paraphrased as *efiγe, ke lipame γi afto* 'he left, and I regret it'; but *ton iða pu efevγe* 'I saw him leaving' cannot be paraphrased as *efevγe, ke ton iða* 'he was leaving, and I saw him'. Christidis (1982:59), however, acknowledges that it is

temic force, and makes an evaluation of some sort on the truth of the complement. For *pu*-complements, on the other hand, the question of the truth of the complement is not posed (τίθεται)—i.e. subjected to a truth valuation—but presupposed (προϋποτίθεται),[35] with 'presupposed' understood pragmatically—the truth of the proposition is not questioned or evaluated, but rather consitutes the background to the sentence assertion. Thus:

- For perception predicates, *pu* merely reports a perception; *oti* treats the matrix as an epistemic justification for posing the complement.
- For *ksexno* 'forget', *pu* conveys an emotive, subjective response to the complement, which is not itself questioned; *oti* makes an epistemic claim about a fact, whose truth can be questioned.
- For *θimame* 'remember', and semi-factives in general, *pu* introduces directly recalled, internalised knowledge, whose truth is not questioned; *oti* makes an epistemic claim that a proposition is known thanks to an intellectual process of recall.
- For emotives, *pu* conveys a reponse to the complement, whose truth is not questioned; *oti* states the complement independently as a truth in the world, and then presents a valuation of it.

But for a predicate to comment somehow on the truth of its complement, and to 'pose' it, is tantamount to saying that it asserts that truth—which reduces the choice between *oti* and *pu,* and Christidis' new notion of 'presupposition', to one of assertivity. Christidis (1981) does so explicitly at the end of his paper:

> So we can say that, while complements expressed with *oti/pos* express an assertion (namely, they are complements of assertive verbs, verbs which state that the speaker or subject has a positive opinion as to the truth value of the complement), complements introduced by *pu* presuppose an assertion—they are complements of non-assertive verbs. (Christidis 1981:155)[36]

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na-complements of perception verbs, not *pu*-complements, that fail to be presupposed after perception predicates; and that his 1981 argument was mistaken.

The argument is raised again by Varlokosta (1994c:67), who believes the following sentence to be acceptable, and proof that *pu* does not presuppose its clause:

(23) Τον είδα ***που*** έφευγε, αν και ήταν σκοτάδι και μπορεί να κάνω λάθος.
ton iða ***pu*** efevɣe, an ke itan skotaði ke bori na kano laθos
I saw him leaving; however it was dark and I may be wrong

Christidis (1982) finds the cancellation of *vlepo pu*-complements pragmatically anomalous, so presumably (23) would not be acceptable to him. It is not acceptable in my idiolect, either. For her own part, Varlokosta notes that such presupposition cancellation only occurs with perception predicates, which she concludes are inherently non-factive. (Varlokosta does not accept Christidis' claim that factivity is a property of the complementiser rather than the matrix.)

[35]The description employed by Christidis, and largely inspired by that of Josephs (1976) on Japanese complementation, suggests directness/indirectness as a criterion; Christidis (1981:150), however, believes this criterion is epiphenomenal to the epistemic/non-epistemic distinction.

[36]This is despite the fact that some predicates appearing with *oti* fail the syntactic test for assertivity: they cannot be parenthetically placed after their complements. Thus:

So *pu* is tied up not with factivity, but with non-assertivity. This is corroborated by the fact that there are factive predicates which fail to take *pu,* like *lamvano ipopsi* 'take under consideration'; according to Christidis (1981:148), this is because these are exclusively epistemic predicates, which cannot refer to internalised knowledge, but only to intellectual processes. As a result, these predicates must always 'pose' the truth of their complements—even if the complements are true under negation.

pu *vs.* na

When Christidis adds *na*-complements to his scheme (Christidis 1982; 1983), he opposes both *na* and *pu* to *pos/oti* as not making a truth claim; the difference between the two is that *pu* always presupposes its complement, whereas *na* never does. More specifically, for each predicate type, *na* denotes the following:

- Cognitive Truth: *na* expresses doubt or lack of knowledge about the complement. Thus, *na* makes no truth claim, and involves no presupposition. (This is consistent with the analysis above, that cognitive-*na* is non-assertive).
- Action: *na* introduces an action. Thus it cannot make a truth claim, since its complement is not a proposition. Where the Action predicate is Predetermined, it still cannot be considered factive, since such predicates do not preserve their complements under negation *(John didn't remember to post the letter↛ John posted the letter);* they are rather *implicative* (Karttunen 1971a), implying the truth of their complement *(John remembered to post the letter→ John posted the letter)*. So the issue of presupposition does not arise for *na*-complements.
- Physical Occurrence: *na* expresses involvement in an action. Again, a truth claim cannot be made.
- Perception: *na* communicates the direct perception of an on-going, non-delimited process. In that it involves direct perception, *na* behaves the same way as *pu;* the distinction is that one cannot see someone being tall using *na (*ton iða **na** ine psilos),* since the state described is permanent: it is anchored to a well-defined temporal duration, and is not 'underway' but fixed in time. No such problem arises when one sees what is a transitory state (*ton iða **na** ine kurasmenos* 'I saw him being tired').

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(24) **ton ixe sinadisi sto parisi, ksexase.* 'He'd met him in Paris, he forgot.'
**o ɣiannis apetixe stis eksetasis, ine lipiro.* 'John failed his exams, it's sad.'
**ðen enðiaferete ɣia ti ðulia tu, elave ipopsi tu.* 'He wasn't interested in his work, he took into consideration.'

Christidis is not concerned about these discrepancies. He considers the use of *oti* with the properly non-assertive verbs above to be 'borderline-assertive'.

- Emotive: *na* introduces a reaction to a possible, non-delimited state. As with *pu,* the question of a truth claim does not arise; but unlike *pu,* the *na*-complement is not presupposed.

In all these cases, the referent is not a realised, temporally specific event; it is either irrealis, or temporally unbounded/underway. For *pu*-complements, the event is always realis, and bound to a specific time. Thus, *pu* is anchored to a real, delimited event, whereas *na* is not. This explains the distribution of *pu* and *na* after the following three predicates:

(25a) Τον είδα ***που***/*****να*** έφυγε
ton iða ***pu***/*****na*** efiɣe (PERFP)
I saw him leave

(25b) Αισθάνομαι ***να***/*****που*** χάνομαι
esθanome ***na***/*****pu*** xanome
I feel myself perishing

(25c) Τον πρόσεξα ***που*** χαμογελούσε/*??****να*** χαμογελάει ειρωνικά
ton proseksa ***pu*** xamoɣeluse (IMPFP)/*??****na*** xamoɣelai (IMPFS) ironika
I noticed him smiling sardonically

If *na* serves to point out that a perception complement is underway, Christidis (1983:116) reasons, the complement cannot be in the past tense (25a) or perfective: it can only appear in IMPFS. Indeed, perfective *na*-complements are unacceptable after perception predicates, although they are acceptable after all other 'irrealis' predicates: thus, **ton iða na fiɣi* (PERFS) 'I saw him leave', but *ton anagasa na fiɣi* 'I forced him to leave'. When the predicate can only take as an argument a temporally unbound event underway, as in (25b), *pu* is unacceptable. But when the predicate involves an act of observation, which locates the complement in space and time, as in (25c), the complement becomes temporally anchored, having been 'located'; so it takes *pu*.

The distinction between *na* and *pu* led Christidis (1982; 1983:120) to conclude that *na,* being temporally unbounded and describing on-going processes, is associated with 'dynamic' situations, and is more verb-like as a nominaliser. In contrast, *pu,* being temporally delimited and describing permanent states, is associated with 'static' situations, and more noun-like as a nominaliser. The static/dynamic distinction follows Lyons (1977:I 483), according to whom static situations includes states, while dynamic situations include events, processes, acts and activities, the distinction being that between what "is conceived of as existing rather than happening" and what "happens (or occurs or takes place)".

In associating static situations with nouns and dynamic situations with verbs, Christidis appeals to Givón's (1979:321) continuum of time-stability. All 'percepts' which can be talked about in language are situated along this continuum; nouns are aligned along one end of the continuum, as prototypically time-stable entities, while verbs are aligned along the other, as prototypically time-unstable and subject to rapid change. According to Christidis, permanent states, closer to

nouns in this continuum, are associated with the more 'noun-like' *pu;* while processes and actions, closer to verbs in the continuum as more transitory temporally, are associated with the more 'verb-like' *na*.[37]

Nominals and definiteness

Complementiser choice correlates with the degree to which the complement is a noun phrase. Thus, *pu*-complements, being factive, can be substituted by simple nouns (*lipiθika* ***pu apetixe*** *o ɣianis* 'I was sad ***that*** John ***failed***' → *lipiθika ɣia tin* ***apotixia*** *tu ɣiani* 'I was sad about John's ***failure***'). While this cannot occur for *oti*-complements (*pistevi oti θa apotixia tu ɣiani* 'He believes that John will fail' ↛ *pistevi stin apotixia tu ɣiani* 'He believes in John's failure'), *oti*-complements can be pronominalised and topicalised (***to*** *pistevi oti θa apotixi o ɣianis* 'He believes ***it***, that John will fail'). This is not possible for *na*-complements (****to*** *pistevi na apotixi o ɣianis* 'He believes ***it***, that John might fail').

As a nominaliser, Christidis (1983; 1986) argues, *pu* is not only more 'noun-like', but generates definite noun phrases—explaining the presuppositions it evokes as a factive complementiser. As noted in §4.1.1, a highly salient presupposition in language, exemplified by utterances like *The King of France is bald,* is the presupposition generated by a definite article that its referent exists. If *the X* (or Greek *to X*) presupposes that *X* exists, and *pu* is the clausal equivalent of *the/to,* as a definite nominaliser, then *pu X* must also presuppose that *X* is true.[38]

Corroboration that *pu* is a definite nominaliser comes from the very fact that it is associated with time-delimited states, anchored in space and time—and thus specific. As further corroboration, the simple noun phrases which can substitute for *pu*-complements are definite: *lipiθika* ***pu*** *apetixe o ɣianis* 'I was sad ***that*** John failed' → *lipiθika ɣia* ***tin*** *apotixia tu ɣiani* 'I was sad about ***the*** failure of John', *lipiθika ɣia* ***to*** *ɣeɣonos oti apetixe o ɣianis* 'I was sad about ***the*** fact that John failed' (Christidis 1986:137). By contrast, Christidis claims, *oti*-complements are indefinite. This is consistent with the discourse interpretation of definiteness as reflecting the given/new information dichotomy (Prince 1981): definite *pu*-complements represent given information, while indefinite *oti*-complements represent new information.

If Christidis is correct, then *to oti* (which is morphologically definite, since it includes the definite article) should be completely equivalent with *pu, mutatis*

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[37]This distinction is echoed in the two Spanish copulas *estar* and *ser* (discussed in Givón 1979:322–323): the former is associated with temporary locations and states, while the latter is associated with permanent states and nouns. Thus, *está enfermo* 'he is sick' as against *es enfermo* 'he is an invalid'.

[38]For more extensive argumentation on the commonality between factivity and definiteness, see Melvold (1991).

mutandis.[39] Discussion in §4.3.2 strongly suggests this is not the case; recall also from §3.9 that *to na* is also used, and while morphologically definite, it is no more time-delimited than simple *na*-clauses. So while *pu* probably does incorporate definiteness in its lexical meaning (as indicated by the almost complete absence of *to pu*-clauses), definiteness is not adequate to characterise the distribution of *pu*.

Christidis (1986:137) extends the definiteness of *pu*-complements to the other major function of *pu,* relativisation: relative clauses constitute definite noun phrases, inasmuch as relativisers are associated with definite articles. This association is diachronic (a form equivalent to the definite article, *to,* acted as a relativiser in Greek from antiquity until the Early Modern period), cross-linguistic (definite articles and demonstratives are frequent origins of relativisers), synchronic (the declinable Modern relativiser *o opios* contains the definite article), and pragmatic (relative clause information tends to be backgrounded, presupposed information).

The crucial point in Christidis' account for our purposes is where he ties in the synchronic semantics of *pu* and *na* with their diachrony. The etymology of *pu* and *na* corroborates the dynamic/static dichotomy nicely, according to Christidis (1983:121–122): *pu* was originally the stationary locative relativiser *hópou* 'where'—consistent with its 'static' function, while *na* was originally the directional locative relativiser *hína* 'whither'—consistent with its 'dynamic' function. Furthermore, the locative origin of the two 'concrete' complementisers contrasts with the non-locative origin of the 'abstract' complementisers *oti* and *pos* (Christidis 1982:68).

The dynamic/static dichotomy Christidis set up for *pu* and *na* has determined subsequent thought on the grammaticalisation of the two particles; any account of these must take his work as a starting point. Yet Christidis' account is unsatisfactory in several respects. Christidis (1981), which provides the crucial data for determining the distribution of complementiser-*pu,* is lengthly and diffuse; the reader has to tease out its results, and its wording encourages misunderstandings, as with the putative presuppositionality of *oti*.[40] Its conclusion as to the unifying semantic factor involved is unsatisfactory: it calls the factor *factivity;* but it becomes obvious that this is not semantic factivity, but either non-assertivity, pragmatic presupposition (which may or may not be givenness), directness, nominalhood, or some combination of all of the above. The value Christidis settles on, *truth claim,* alludes to all of these, and fits none.

The difficulty with Christidis' other papers is that, by contrast, they are too abstract, rather than too specific. Christidis (1982; 1983) in particular describes

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[39]Recall that the complements of emotives are obliques rather than direct objects, so that *pu* there corresponds to *ɣia to oti* 'for the that'.

[40]Witness for example the attempts of Ginzburg & Kolliakou (1997 [1995]) to grapple with the implications of Christidis' account.

na by contrast with *pu;* so he clearly needs to abstract out a more workable, background notion of the distribution of *pu*. The characteristics he works towards—nominalhood, presupposition, definiteness—are valuable observations, but still fall short of an adequate account.

In part, this is because an adequate account, explaining why complementation in Greek is the way it is, probably involves a good deal of diachronic messiness, with lexical diffusion of the various complementisers, and with complementisers taking on different valencies for different semantic contexts, rather than one overriding value (§8.2). The distribution is paradigmatic for *pu* and *na,* with *pu* taking on the 'stronger' value in the complementation grid and *na* the 'weaker' value, for a given predicate. But the semantic factor distinguishing between stronger and weaker value varies for different parts of the complementiser grid—which is why it can only be summarised as presupposition vs. no presupposition.

The details of the diachronic diffusion of complementisers into their respective paradigms is a matter to be investigated with EMG data, and is thus not included in this study (although there are some speculative comments in §8.1.) Christidis' account involving dynamic vs. static etyma, however, can be evaluated with respect to Ancient Greek, and this is attempted in §5. The results from that study contradict Christidis. Even if the overall driving semantic opposition between the two particles were founded in their etymology, it is doubtful that it would be determined by it. The paradigms the particles encountered as they expanded in Greek would have forced modifications and adjustments of their distribution on the spot; and while such an account is not as satisfyingly global, it can account for many of the idiosyncracies seen in these distributions.

A major such adjustment seems to have taken place in Greek complementation; in contrast to other syntactic domains, *pu* found itself in paradigmatic competition not only with *na,* but also *oti/pos/∅* and *ke*. The most clearcut semantic differentiation, unsuprisingly, is that for emotives, where *pu* contrasts only with *na*. Where *pu* contrasts with *oti,* the differentiation is often subtle, and involves characteristic properties of *pu* in a piecemeal way. This suggests a dynamic diachronic development, rather than an ordered semantic situation—as seems to have developed with *pu/na,* in comparison.

4.4.2. Other accounts

There have been six accounts of Greek complementation attempted, each situating *pu* with respect to a different semantic facet. *Kakouriotis* (1982) works with the distinction between topic and presupposition; *Vande Ostinje* (1985) with degree of speaker commitment; *Svalberg* (1992) with immediacy/directness and realis mood; *Ginzburg & Kolliakou* (1997 [1995]) with eventhood; *Delveroudi, Tsamadou & Vassilaki* (Delveroudi 1994; Delveroudi, Tsamadou & Vassilaki 1993a; Delveroudi, Tsamadou & Vassilaki 1993b; Delveroudi,

Tsamadou & Vassilaki 1994 [1993]) with directionality of assertion; and *Varlokosta* (1994a; 1994b; 1994c; 1995 [1993]) with givenness.

A full exposition of these accounts lies outside the scope of this treatment (Nicholas 1998c); the discrepancies between dialects dealt with in this work are far grosser than the minute distinctions valid for CSMG. Each of the last three accounts are particularly promising, though originating in different theoretical models. Ginzburg & Kolliakou have a rather neat formal model of complement semantics (exploiting the binary features ±event, ±proposition, and ±fact), and the distinction between *pu*-events and *oti*-facts is one that finds echoes elsewhere in the distribution of *pu;* yet it is too restrictive to account for the full range of complements in Greek.

The account by Delveroudi, Tsamadou & Vassilaki has the fullest coverage of any account, fitting complementiser-*ke* rather naturally into its scheme. For *pu,* their account is a somewhat different statement of assertivity: the grounds for knowing the matrix to be true lie in the complement (i.e. *She is angry that you came:* the grounds for asserting she is angry lie in the fact that you came), whereas for *oti* the grounds for knowing the complement to be true lie in the matrix (*She knows that you came:* the grounds for asserting that you came lie in her epistemic status.) This distinction is neatly characterised as δεξιόστροφη versus αριστερόστροφη (rightward, leftward) assertion.

Varlokosta's account appeals to factivity-as-givenness, and exploits a more rigorous notion of givenness: she explans *pu*-complements as encoding the speaker's assumption that the complement is familiar to the addressee, particularly if the complement was established as a background issue in the current discourse. This accounts for the fact that Greek does occasionally use *pu* to mark givenness where it is not normally used—e.g. linguistic predicates.[41]

The distributional facts for complementiser-*pu* are as follows; I adduce the relative frequency of *pu* against *oti/pos* in the text I regard as most characteristic of CSMG, *The Third Wedding* (§4.3.3).

- After **Emotive Reactions,** *pu* is obligatory. (93%)
- After **Emotive Appraisals,** *pu* is preferred. (69%)

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[41]Of the other three accounts, Kakouriotis' independently asserted primacy of assertivity over factivity is not in the end in contradiction to Christidis' (admittedly confusingly expressed) position.
Vande Ostinje's approach relies on faulty data, but introduces an interesting parameter of speaker commitment to the truth of the complement. The speaker/referent distinction has proved crucial to explaining the distribution of complementiser-*pu* in *The Third Wedding;* but as it turns out such an account does not distinguish *pu*-complements from topicalised *oti*-complements, and again does not represent a significant advance over Christidis' analysis.
Svalberg uses a notion of immediacy which is somewhat complex (involvement of the matrix subject in the complement event; spatial and temporal coincidence of matrix subject and complement event; degree to which the matrix subject assesses and valuates the complement.)

- After **Perception predicates**, *na* is preferred, then *oti/pos,* then *pu*. *oti/pos* are marked for indirect perception, while *na* and *pu* mark direct perception; *pu* is factive. (6.8%)
- After **Cognitive predicates of Static Knowledge**,[42] *p u* is marked. (2.2%)
- After **Colloquial Cognitive predicates of Acquired Knowledge**, *pu* is even more highly marked. (0%)
- After **Learned Cognitive predicates of Acquiring Knowledge**, *pu* is unacceptable. (0%)
- After **Linguistic predicates**, *pu* is marked to the point of being marginal. (0%)
- After all **Non-Predetermined predicates**, *pu* is unacceptable in CSMG. (0%)

Three questions arise from this data. First, what in particular is *pu* marked for with the semi-factives—the Cognitive predicates? Second, what semantic factor determines the possible matrices of *pu*-complements? Finally, how are the insights on the conditioning for complementiser-*pu* relevant to an understanding of the overall semantics of *pu?*

Markedness of complementiser-pu

The first attempt to resolve this question is Christidis'. The paper identifies two major interrelated factors: directness rather than indirectness (direct/indirect perception, direct/indirect recall, direct/indirect reaction), and internalised rather than intellectual knowledge or recall. Christidis dismisses directness as an epiphenomenon of what he holds is actually going on: *oti* evaluates the truth value of its complement, posing it for epistemic/intellectual scrutiny, while *pu* does not make a truth valuation, but rather treats its complement as background to the matrix assertion. As a corollary, *oti* is assertive, while *pu* is non-assertive. So factivity is not a sufficient condition for *pu* use; the factive must also be non-assertive—which is normally the case for true factives, but a marked situation for semi-factives.

Svalberg accords directness ('immediacy') a primary role in her account, and gives it a specific epistemological basis; but while this is a valid alternative way of looking at the data, it does not significantly alter our understanding of it: directness and truth valuation are reducible one to the other.

In Ginzburg & Kolliakou's scheme, *pu* marks for eventhood rather than propositionhood or facthood. The scheme has some problems with covering the entirity of the data; more significantly, though, eventhood is probably not all that distant conceptually from the other two parameters hitherto associated

[42]This category includes Static Knowledge *(know, agree, remember, etc.)* and Knowledge Loss *(forget)*.

with *pu*—directness, and absence of truth valuation. This is perhaps more apparent with complements: indirectness and truth valuation both translate to epistemic—i.e. propositional—knowledge,[43] and *oti* in Ginzburg & Kolliakou's scheme is analysed as [+proposition].

Delveroudi, Tsamadou & Vassilaki and Varlokosta independently arrive at the other major conditioning factor for marked *pu,* already anticipated in Kakouriotis' work, and in the association between *pu*-complements and topic: *pu*-complements are in some sense given. For Delveroudi, Tsamadou & Vassilaki, the *pu*-complement is theme to the matrix rheme (although they do not use those terms). For Varlokosta, the *pu*-complement is given—assumed-familiar, rather than novel.

So there have been two sets of factors identified as conditioning the distribution of marked complementiser-*pu*. The factors within each set appear to be reducible one to the other in some way; but they cannot be so reduced across the sets—truth valuation/directness/eventhood, on the one hand, and theme/topic/givenness, on the other. However, the lack of truth valuation is defined by Christidis as constituting the pragmatic background to an assertion; this provides a connection between the two factor sets, although the precise nature of the connection is yet to be specified.

*Predicates taking complementiser-*pu

Traditionally, the conditioning factor for complementiser-*pu* has been called factivity; this is the term used in §3. Factivity is a more restrictive condition than Predetermined evaluation modality, and as seen in §4.3 all instances of CSMG complementiser-*pu* are Predetermined.[44] Yet as early as Christidis (1981), we have known that factivity is an insufficiently strong condition to describe the distribution: learned predicates of acquiring intellectual knowledge, such as *anakalipto* 'discover', do not allow *pu,* although they are factive.

What is required is a semantic factor which unites the conditioning for marked-*pu* considered above, with the cases for which *pu* is unmarked—true factives, and excludes *pu* from acquired knowledge predicates. The only complete attempt in this direction remains Christidis', and what essentially constitute its reformulations by Svalberg and Ginzburg & Kolliakou: *pu* denotes truth non-valuation/directness/eventhood. The formulations by Delveroudi, Tsamadou & Vassilaki and Varlokosta do capture true factives, but they do not con-

[43]On the interrelationship of factivity, lack of truth valuation, and eventhood, see e.g. Melvold (1991:97): "Expressions which represent an assertion have as their extension a truth value. Expressions which represent a presupposition, on the other hand, are definite descriptions of events. They are neither true nor false; rather they refer or fail to refer to an object in the world, namely an event."

[44]This sets aside the problematic case of *pu* after *leo;* yet the instances of Linguistic-*pu* investigated clearly shows the predicate to be Predetermined rather than Determined in those instances.

sider the discrepancy with emotive appraisals taking *oti;* and the implicit claim in their accounts that true factive complements are always topical is suspect.

4.5. Conclusion: Implications for semantics of pu

The semantics of complementiser-*pu* is the tail that wags the dog of the overall semantics of *pu*. For non-complementiser usages, *pu* is in complementary distribution with *na* alone, where *pu* is realis and *na* irrealis. Because of this single division, the semantic character of non–complementiser-*pu* admits much flexibility of definition, and can be readily brought in line with whatever is decided for the much more complex semantics of complementiser-*pu*. If we claim complementiser-*pu* is factive, we can equally claim non-complementiser-*pu* is factive: there are no non-factive realis usages of *pu* that this would leave out. If we constrain complementiser-*pu* further, delimiting it through eventhood or givenness, we are likewise unlikely to run into any problem in delimiting non-complementiser-*pu* correspondingly.

The problem with rejecting factivity in favour of other descriptive parameters is that these other parameters are conceived in terms of complementation; they are not necessarily relevant to the distribution of non–complementiser-*pu,* particularly as the latter is in complementary distribution not with *oti,* but with *na*. So directness is not really useful in the description of *pu* introducing adjuncts or collocations. Since lack of truth valuation is what *pu* and *na* have in common, it too is not useful. Nor does the alternative course of thought, involving theme or givenness, seem useful; relative clauses, at least, can be rhemes or novel.

So for all the useful work on complementation that has happened in the past decade, when it comes to a more global view of the semantics of *pu* we still have no advance on Christidis' (1986) conclusion: *pu* generally presupposes its clause (for some sufficiently liberal sense of presupposition), and in that regard is semantically equivalent to a definite article. Yet as seen with the irrealis exclamatories in §3.8, there are senses of *pu* which are not only non-factive, but not even realis; and no elaboration of semantic factors can hope to encompass both these exclamatories and emotive complements.

The position taken in this study is that it is futile to search for an overriding semantic factor determining the entirety of functions of *pu;* these functions lie in a family resemblance, and this results from the diachronic career of the particle. It is clear that, in given senses, the semantics of *pu* is determined by its etymology, as Christidis has speculated. It is also clear that the majority of usages of *pu* can be unified by factivity. But not all the usages can or should be so united; as a dynamic process, grammaticalisation takes *pu* into different paradigms, where it encounters different linguistic and semantic pressures. A proper account of *pu* should encompass both the rules—such as the factivity of *pu*—and the exceptions—such as the irrealis exclamatories or the knowledge acquisition

predicates. It should also encompass the diachronic and diatopic variability in the usage of *pu*—which is considerable, and of which CSMG is only one instance.