Specificational Pseudoclefts and the Semantics of Lists[1]

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In this paper we propose a novel account of specificational -nonpredicational- copular sentences building on quite old insights found in Higgins (1979). We draw a distinction between equational and truly specificational sentences. Empirical motivation for this distinction will be provided by a detailed examination of specificational pseudocleft sentences in Greek, where two types of pseudoclefts can be identified: one introduced by a demonstrative and one introduced by a free relative pronoun. We show that these two types instantiate the distinction between equation and specification, respectively.

This paper is organized as follows. In section 1 we provide the background ideas and terminology which have come to be considered as standard in the studies of pseudoclefts since Higgins. In section 2 we concentrate on Greek pseudocleft sentences. We start out with some basic data and discuss Iatridou and Varlokosta's 1997 analysis of them in 2.1. We then highlight the problems encountered by this analysis, and elaborate briefly on the most serious ones; facts from Spanish and Catalan will also be discussed in this connection. By the end of section 2, the set of data and puzzles to be dealt with in this paper will have been established, and in section 3 we put forth the core elements of the theory we propose to account for them. We apply this theory to the data in section 4, showing that it can indeed handle them successfully. We conclude with some discussion of the crosslinguistic consequences of the proposed analysis.

1 Background: Higgins 1979

In the literature, the term 'pseudocleft' is invoked for copular sentences of the form in (1), where one of the phrases surrounding the copula is wh-, more specifically a free relative, and the other is not:

(1) What John is is silly.

Adopting the terminology of Merchant 1997, we will refer to the non-wh-part as the *pivot* of the pseudocleft, and to the wh-part as the *nonpivot* of it. We will see later on that nonpivots do not always contain a wh-phrase. Higgins 1979 (also appeared as Higgins 1973, 1976) is the most comprehensive study of the syntax and semantics of such sentences to date, and his analysis has been extremely influential (but see also Akmajian 1970, and Halvorsen 1976). Although it is designed to account for the English pseudocleft construction, the repercussions of Higgins's approach have been visible in the analysis of pseudoclefts crosslinguistically. We summarize below the most important points.

[1] This paper was presented at the Workshop on Clefts and (Pseudo)clefts, ZAS, Berlin, November 1997. We thank the audience for their generous feedback. We are especially indebted to Caroline Heycock, Roumyana Izvorski, and Ilze Zimmerman for discussion; to Josep Quer for providing the Spanish and Catalan data; and to Jason Merchant for detailed comments and suggestions on a previous draft.

(a) *Distinction between predicational and specificatinal pseudoclefts*

Following Akmajian 1970, Higgins distinguishes two readings in pseudocleft sentences: the *predicational*, and the *specificational*, illustrated for sentence (1) (Higgins 1979: 4) in (2a) and (2b):

(2) a. John is P. Being P is silly. or, P-hood is silly. (predicational)
b. John is the following: silly. (specificational)

Under the predicational reading, sentence (1) has a standard subject-predicate structure, but one of second order: Q(P). Q is the predicate provided by the postcopular material, a property of properties, and the property P expressed by the pseudocleft is the subject, the property predicated of by Q. Under the specificational reading, on the other hand, (1) does not have a subject predicate structure. Rather, it 'functions as a list, in which the subject is the heading of the list and the predicate complement is an item on the list' (Higgins 1979: 5). Higgins envisioned lists as open sets of individuals or properties, so sentence (2a) above would be roughly represented as {P| P is a property that John has} = {silly,...} (although we must note that Higgins does not offer a precise formulation of the notion of list, or the link between the heading of a list and its and extension) .

The semantic structure of a pseudocleft sentence under the specificational reading seems comparable to that of identity statements like the ones in (3), where identity is thought of in terms of equation '=':

(3) a. The Morning Star is the Evening Star.
b. Morning Star = Evening Star

This apparent similarity between specificational pseudocleft sentences and identity statements about atomic individuals made it theoretically attractive to collapse the two, thus moving away from Higgins's view of specificational pseudoclefts being lists, i.e. sets (cf. Veloudis 1979a,b, Rapoport 1987, Heycock & Kroch 1996). In this paper, we present empirical motivation for the need to maintain both assumptions for a comprehensive analysis of pseudeocleft sentences.

(b) *Various types of copular sentences*

According to Higgins, copular sentences are not uniform, a claim already detectable in the ambiguity he poses between the predicational and specificational readings mentioned above. Four types of copular sentences are distinguished, given in Table (1) (Higgins 1979:166):

Table 1

Type	*Subject*	*Predicate*
Identificational	Referential	Identificational
Identity	Referential	Referential
Predicational	Referential	Predicational
Specificational	Superscriptional	Specificational

The sentences below instantiate each type:

(4) That man over there is John Smith. (identificational)
(5) The Morning Star is the Evening Star. (identity)
(6) Paul is sick. (predicational)
(7) What I don't like like about John is his tie. (specificational)

Identificational and identity sentences express an equation relation between two referential noun phrases (NPs). Sentence (5) states that the object picked by 'that man over there' and by the name 'John Smith' is one and the same. Likewise, sentence (6) states that the referents of 'Morning Star' and 'Evening Star' are one and the same object. Obviously, then, identity and identificational sentences express the same semantic relation, namely identity of reference. It seems therefore reasonable to treat them as one class, as speculated by Higgins himself (see also Rapoport 1987). Here, we will treat them on a par, as equations between objects of various types (see dicsussion in sections 3,4). [2]

Predicative sentences are of the standard form P(x) familiar from predicate logic, and thus distinct from equative sentences. Interestingly, specificational sentences like (1) and (8) above are also treated as distinct from equatives in Higgins's typology. What makes them different is the assumption that the specificational subject is different from the subject in equatives. The former denotes a list, i.e. a set, (it is *superscriptional*), but the latter denotes an individual since it is referential. In what follows we take this distinction very seriously.

With his typology, Higgins partitions the space of copular sentences into a predicational and a nonpredicational domain. This partitioning correlates with proposals regarding the nature of the copula *be,* like Halliday 1967 where an ambiguity is introduced between equative and predicative *be.* Partee 1985, following Williams 1983, attempts to assign a unified analysis to both *be*s (see also Rapoport 1987 for syntactic arguments), proposing at the same time a type-shifting mechanism to derive predicative and equative readings. We will not go into the debate here, though it will become obvious that for the semantic analysis we propose in this paper the simplest hypothesis of an unambiguous *be* (with the associated shifting mechanisms) is adequate.

With this background, we turn now to the examination of the Greek data. We will ignore predicational pseudocleft sentences, and focus on the nonpredicational domain identified by Higgins. We will use the term 'specificational sentences' to refer to this domain, yet this should not be taken to indicate a unification of the two subtypes (equatives and specificational).

2 Specificational pseudoclefts in Greek (first encounter)

Pseudoclefts in Greek are discussed in Veloudis 1979 and more recently in Iatridou & Varlokosta 1997 (henceforth I&V). Each analysis discusses totally different sets of data, thus reaching strikingly different conclusions. Veloudis 1979 focuses on specificational pseudoclefts of the form *Aftos pu filise i jineka sou itane o Petros* 'The one your wife kissed was Peter', and he treats them as equatives. I&V 1997, on the other hand, cast their analysis in terms of inverse predication, in the sense Williams 1983 (see also Heggie 1988, Moro 1992), and in this context they claim that Greek lacks specificational pseudoclefts altogether.

The goal of this section is to show that, contrary to I&V'a claim, there is overwhelming evidence that Greek *has* specificational pseudoclefts. We start out with the crucial ungrammatical data and I&V's analysis of these. We then present a representative

[2] There is huge philosophical literature on identity which we take here for granted. Kripke 1972 offers a representative discussion of the relevant issues which goes back to Leibniz.

sample of Veloudis's grammatical data and a new set of data, which do not follow from I&V's approach. A subset of these involves grammatical specificational sentences minimally similar to the ungrammatical ones of I&V, but with material added to the nonpivot. We show that the ameliorating effect of 'addition' carries over to Spanish and Catalan, languages which according to I&V also lack specificiational pseudoclefts. The situation arising in view of these new facts requires a serious reconsideration of I&V's account. This is needed not only in order to handle the new data but also because other related problems can be shown to emerge regarding I&V's assumptions about inverse predication and their analysis of free relatives as universal quantifiers.

2.1 Pseudoclefts in Greek and crosslinguistically: Iatridou and Varlokosta 1997

Unlike English, Greek exhibits two types of pseudoclefts, one involving a free relative (FR), and one not. The nonpivot of the familiar English-type pseudocleft is introduced by the FR pronoun *oti* 'what(ever)'. We gloss *oti* as 'what(ever)' rather than 'what', because there are serious differences between *oti* and *what (*to be discussed in this paper), which make clear that the two items are not equivalent. We will refer to *oti-* pseudoclefts as *free relative pseudocleft*s(FRP).

Alternatively, the nonpivot of a pseudocleft may be introduced by the demonstative pronoun *afto* 'this.neut.sing' followed by the complementizer *pu* 'that'. Masculine, feminine, and plural forms of *afto* may also be used, but since *afto pu* nonpivots are more common, we use *afto pu* as a cover term. We will refer to this type of pseudocleft as a *demonstrative pseudocleft* (DemP). I&V argue that the specificational reading is unavailable in either case, and they use examples like (9) with plain copular nonpivots as evidence for this claim:

(9) a. *Afto pu ine o Pavlos ine vlakas.
this that is the Paul is stupid
"What Paul is is stupid."

b. * Oti ine o Pavlos ine vlakas.
what(ever) is the Paul is stupid
"*Whatever Paul is is stupid."

Note that specificational readings in such cases are unavailable with *ever*-FRs in English, as evidenced by the ungrammaticality of the English translation in (9b) (an issue to which we return in section 4).[3] I&V argue for an equivalence between FRPs in Greek and *ever*-FR

[3] In support of their argument, I&V note the absence of connectivity effects in Greek pseudoclefts. Since Higgins, who showed that connectivity effects do not arise with predicational pseudoclefts, such effects involving anaphor binding (in (i)) and NPI-licensing (in (ii)) have been used as diagnostics of the specificational nature of a pseudocleft:

(i) What John is is proud of himself.

(ii) ?What John forgot to buy was any books.

I&V present one example involving ungrammaticality of an anaphor. In (iii), however, we show that NPI licensing is bad:

(iii) * Afto pu/oti ksexase n'agorasi o Petros itane kanena vivlio.
What Peter forgot to buy was any books.

Veloudis 1979a, who presents numerous specificational pseudocleft sentences in Greek, gives sentences like (iv) where anaphors are fine, and in (v) we see that principle C effects are also visible:

(iv) Afto/ Aftos pu ida ston kathrefti dhen itan o eaftos mou. (Veloudis 1979a: 38)
What/ the one that I saw on the mirror was not myself.

(v) *Afto pu ipe pro_i itan oti o $Dimitris_i$ itan arostos.

pseudoclefts in English, in that they both denote universal quantifiers. This presupposes an ambiguity between *ever* and plain FRs in English which we do not adopt (see discussion in section 3) . The relation between the English *what*-paradigm and Greek DemPs is not addressed in I&V, the implicit assumption, however, is that the two are equivalent, and that the existing differences (also vis-a-vis the grammaticality of specificational pseudoclefts) relate to the demonstrative element present in DemPs.

I&V confine their discussion to data of the particular type in (9); based on these, they conclude that Greek lacks specificational pseudoclefts altogether. They note that CP-pceudoclefts of the form in (10) (I&V 1997: 18) are indeed available, but they cast doubt on Higgins's characterization of these as specificational:

(10) Afto pu ipe o Kostas ine oti i ji ine epipedi.
this that said the K. is that the earth is flat
"What Kostas said is that the earth is flat."

According to I&V, (10) is a predicational sentence, a claim not entirely justified by the arguments they give (see I&V for details). Here, we align with Higgins's judgment and treat cases like (10) as genuine specificational sentences. We will give more examples of similar sentences below, but before doing so, let us see how (9) is excluded in I&V's account.

Three basic assumptions are made. First, I&V assume that *ever*-FRs denote universal quantifiers. Second, they follow Williams 1983 in assuming that specificational sentences contain inverse predication: unlike regular predication structures, the precopular material- the nonpivot- is the predicate, and the postcopular material- the pivot- is the subject. The third assumption is that demonstratives can never be used predicatively. These assumptions exclude (9) as follows. FRP's are ruled out because they are universal quantifiers, and thus cannot type-shift to a predicative interpretation, as is required by the inverse predication assumption. DemPs are ruled out on the same grounds: a demonstrative can never be used predicatively.[4] Languages that resemble Greek in employing demonstrative-like elements in pseudoclefts are expected to give rise to same kind of ungrammaticality, for exactly the same reason. Although I&V do not provide the relevant data, this prediction appears, at first glance, to be borne out in Spanish and Catalan (Josep Quer (p.c)):[5]

(11) ??El que és en Joan és idiota. (Catalan)
the that is the John is stupid

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* What he$_i$ was that Dimitris$_i$ was sick.

Similar data hold in Spanish and Catalan, as pointed out to us by Josep Quer (p.c.). It appears, then, that connectivity tests give mixed results in languages like Greek, Catalan, and Spanish. This could also be taken to hold for English, given that certain effects, for instance Principle C effects, are stronger than others, e.g. NPI-licensing (which doesn't really give impeccable sentences, Jason Merchant (p.c.)). We will not discuss connectivity in this paper. The picture that arises, though, suggests that connectivity alone cannot be taken as a defining feature of what constitutes a specificational pseudocleft; its exclusive use to trace specificational readings may lead to the wrong conclusions.

[4] I&V do not state clearly what makes *what-* free relatives legitimate specificational objects. Presumably, *what-*free relatives are not universal quantifiers like the *ever*-ones, and hence amenable to predicative interpretations.

[5] Note, however, that the Catalan and Spanish sentences improve considerably in the S(ubject)-V(erb) order. Compare (11) nad (12) to (i) and (ii) , respectively:

(i) ?El que en Joan és és idiota.

(ii) ?Lo que Juan es es idiota.

This improvement, which is not observed in Greek., seriously undermines the crosslinguistic extension of I&V's account, but we will not pursue the issue here.

(12) ??Lo que es Juan es idiota. (Spanish)
the that is John is idiot
"What John is is an idiot."

Although the ungrammaticality in these languages is not as sharp as it is in Greek (?? versus *), it is present. As we see in the glosses, pseudoclefts in Catalan and Spanish are introduced by the definite determiner and perhaps the slight difference between these languages and Greek should be attributed to this fact.

I&V's account thus postulates a parametrization of the availabiity of pseudoclefts across languages which depends on the choice of morphology (and the semantic constraints associated with that morphology). We record this as the generalization in (13):

(13) *Iatridou & Varlokosta's generalization*
Crosslinguistically, the availability of specificational readings in pseudoclefts relies on whether the nonpivot XP of the pseudocleft can be intepreted as a predicate.

DemPs and FRPs are ruled out by (13) because they cannot obtain predicative interpretations, the former being demonstratives, the latter being universal quantifiers. Although the particular kind of data discussed by I&V conform to (13), once we move to a larger set of data it becomes impossible to maintain the original hypothesis. We see why in the next section.

2.2 Problems of Iatridou & Varlokosta 1997

The main problems arising with I&V's general account, and their generalization in (13), can be summarized as follows.

(a) Specificational sentences (Higgins's identity/indentificational and specificational) are generally available in Greek (as well as in the other languages mentioned above). Veloudis 1979a,b presents an impressive number of data supporting this conclusion.

(b) The ungrammatical copular specificational pseudoclefts in (9a) become grammatical if material is added to the pseudocleft. The effect is very robust and is observed in Spanish and Catalan too.

(c) The view of free relatives adopted in I&V is quite controversial. First it is questionable whether *ever-* and regular *wh*-FRs, in Greek as well as in English, are semantically distinct in the sense assumed by I&V. In fact there are good reasons to believe that they are not (cf Jacobson 1995, Rullman 1995, Grosu & Landman 1997, and Dayal 1995, 1997, among others), and some discussion in section 2.2.3). Second, it is quite disputable whether *ever-* and consequently *oti*-FRs, under the equivalence assumption of I&V, denote universal quantifiers. In fact, the properties of *ever/oti*-FRs used as arguments for the universal quantifier analysis can be shown to derive directly from the assumption that these denote maximal individuals, just like definite NPs (cf. Jacobson 1995, Rullman 1995, Dayal 1997), with some additional postulate concerning the contribution of the free choice morpheme *-ever* (see especially Dayal 1997).

(d) It is not desirable to invoke inverse predication in specificational sentences (for empirical arguments against it see Rapoport 1987 and Heycock & Kroch 1996). The obvious conceptual problem with imposing inverse predication in sentences like *Tully is Cicero*, and *The Morning Star is the Evening Star* is that no predication relation can be claimed to exist between two referring terms (without resorting to stipulations ignoring intuition).

(e) There are significant differences between DemPs and FRPs which are largely ignored in I&V's account, but which will be shown to have important consequences as to how the specificational domain is partitioned.

Points (c) and (d) have been thoroughly discussed in the literature, so we will not eloborate here. Because the rest concerns the specifics of I&V's analysis of Greek pseudoclefts, it will be helpful to go into the details. We will also point out some problems of the analysis of Greek FRs as universal quantifiers.

2.2.1 The general availability of specificational pseudocleft sentences

Greek allows for specificational sentences with both DemPs and FRPs. This is illustrated in great detail in Veloudis 1979a,b for DemPs. The majority of his examples involve sentences like the following, with masculine and feminine demonstratives, but pseudoclefts with neuter demonstratives are also given, especially in connection to anaphors (cf. fn2):

(14) Aftos pu filise ti jineka su itan o Petros. (Veloudis 1979b: 13)
this.masc that kissed the wife yours was the Peter
"The one who kissed your wife is Peter."

(15) Afti pu me eknevrizi ine i mitera tis.
this.fem that me irritates is the mother hers
"The one who irritates me is her mother."

We believe that there are animacy constraints determining the choice of nonneuter gender for the FR pronoun, but this is immaterial to us here. It is important to emphasize, however, that neuter and nonneuter DemPs are not semantically identical: the latter force equative readings, but the former do not (a point to which we return in section 4). The nonneuter DemP data Veloudis focuses on lead him to the conclusion that pseudocleft sentences like the above express equations.

Below we provide below more data involving neuter DemPs and FRPs (not discussed by Veloudis):

(16) Afto pu efaje o Petros itane patates.
this that ate the Peter was potatoes
"What Peter ate was potatoes."

(17) Afto pu agorase o Petros itan afto to palio leksiko.
this that bought the Peter was tthis the old dictionary
"What Peter bought was this old dictionary."

(18) Afto pu aresi stin Elena ine afto pu sixenete o Petros, (diladi to majirema).
this that likes in-the Elena is this that detests the Peter, (namely the cooking)
"What Elena likes is what Peter hates, namely cooking."

(19) Oti efaje o Petros oli mera itane patates.
what(ever) ate.3sg the Peter was.3sg potatoes
"What Peter ate all day was potatoes."

(20) Oti aresi stin Elena ine oti sixenete o Petros, (diladi to majirema).
what(ever) likes in-the Elena is oti detests the Peter, (namely the cooking)
"What Elena likes is what Peter hates, namely cooking."

In general, the use of FRPs is more restricted in specificational sentences than the use of DemPs. One difference regarding addition of material to the nonpivot will be discussed in 2.2 below, and should be connected to another substantial difference: although the pivot of a DemP may contain various types of XPs, the pivot of an FRP is more selective. We saw in examples (19) and (20) that pivots containing mass nouns (*patates* 'potatoes' in (19) or FRs in (20) are fine. Yet pivots containing a referential NP denoting an <e>- type entity, as in (21), are unacceptable (compare also (21) to (17)):

(21) *Oti agorase o Janis itan afto to palio leksiko.
what(ever) bought John was this the old dictionary
("*Whatever John bought was this old dictionary.")

This difference is important, because it shows that DemPs and FRPs are subject to distinct semantic constraints. We will deal with this in section 4. For the moment it is sufficient to point out that sentences like the ones discussed in this subsection are impeccable in Greek, athough under I&V's account they should not be available.

2.2.2. The 'Addition-Effect'
We share I&V's judgment about the ungrammaticality of (9), repeated here as (22) for convenience:

(22) a. *Afto pu ine o Pavlos ine vlakas.
this that is the Paul is stupid
"What Paul is is stupid. "
b. * Oti ine o Pavlos ine vlakas.
what(ever) is the Paul is stupid
"*Whatever Paul is is stupid."

Note, however, that the following sentences, minimally similar to (22), *are* grammatical:

(23) Afto pu dhen ine o Janis ine vlakas.
this that not is the John is stupid
"What John isn't is stupid. "
(24) Afto pou episis ine o Janis ine tsigounis.
this that also is the John is miser
"The other thing John is is a miser. "
(25) Afto pou prepi na ine o Janis (ja na pari ti doulia) ine dinamikos. "
this that must subjunctive is the John (so subjunctive take the job) is dynamic
"What John must be (in order to get the job) is dynamic."

These sentences contrast with the ungrammatical plain copular in (22) in one important way: material has been added to the copular nonpivot; negation *dhen* 'not' in (23),[6] *episis* "also" in

[6]Note that I&V very briefly discuss a similar example (1997: ft. 30):
(i) Afto pu den m'aresi ston Kosta ine to chiumor tu.
this that neg me pleases to Kostas i the humor his
What I don't like about Kostas is his humor.
They conclude that Greek might indeed have the pseudoclefts in which the free relative behaves like a supercriptional NP, in Higgins's terms, but lacks those where the free relative behaves as a predicate. However, they do not pursue this distinction any further.

(24), and the (deontic) modal *prepi* "must" in (25). Note that 'addition' improves only DemPs. As we see below, FRP*s* in Greek as well as in *ever*-FRs in English remain ungrammatical:

(26) *Oti dhen ine o Janis ine vlakas.
what(ever) not is the John is stupid
"*Whatever John isn't is stupid."

(27) *Oti episis ine o Janis ine tsigounis.
what(ever) also is the John is miser
"*Whatever else John is is a miser."

(28) *Oti prepi na ine o Janis ine dinamikos.
what(ever) must subjunctive is the John is energetic
"*Whatever John must be is energetic."

The effect of addition as well as this contrast are dealt with in section 4. For now it suffices to point out that addition improves copular DemPs also in Spanish and Catalan (data courtesy of Josep Quer).

(29) a. El que en Joan no és és idiota. Catalan
the that the John not is is stupid

b. Lo que Juan no es es idiota. Spanish
the that not is the John is stupid
"What John isn't is stupid."

c. El que tambe és en Joan és garrepa. Catalan
the that also is the John is miser

d. Lo que tambien es Juan es agarrado. Spanish
the that also is the John is miser
"The other thing John is is a miser."

(30) a. El que en Joan ha de ser és decidit. Catalan
the that the John must subjunctive is is decisive

b. Lo que Juan tiene que ser es decidido. Spanish
the that must subjunctive is the John is decisive
"What John must be is decisive."

These facts are extremely problematic under I&V's analysis and it is not at all obvious what would account for them in their terms. A possible hypothesis would be to say that the demonstrative admits a predicative use in the examples above. It would be hard to maintain this in their framework, however, given that it is the core assumption that demonstratives can never be predicational that rules out sentences like (22a) in the first place.

In fact, contrary to I&V's (1997: 15, fn. 21) claim, it can be shown that demonstratives do admit predicational uses:

(31) A: OJanis ine poli ergatikos.
John is very hard-working
"John is very hard-working."
B: Ne, afto (akrivos) ine (ke kamia fora su ti spai, jati olo ti doulia skeftete).
yes this (exactly) is
"Yes, that he is (which is sometimes very frustrating, because he always thinks of work)."

Similar uses of demonstratives abound, the claim therefore that demonstratives cannot be predicative is not correct, and I&V's generalization in (13) based on it should be seriously reconsidered.

2.2.3 Free relatives in Greek

We will not go here into a general discussion of the semantics of FRs since the debate is well known. On the one hand, there are theories which treat FRs unambiguously as definites (cf. Jacobson 1995, Rullman 1995, Dayal 1997 among others); on the other, there are authors who argue for what we call the *ambiguity hypothesis* (cf. Larson 1987, Treddinick 1993, I&V 1997 among others). According to this hypothesis, plain- and *ever*-FRs are semantically distinct in that the former are equivalent to definite NPs, while the latter denote universal quantifiers.[7] Here we will align with Jacobson and Dayal and analyze all FRs in Greek as definite NPs. We will show first that there is no ambiguity in the class of Greek FRs, and then we provide arguments against the analysis of these as universal quantifiers.[8]

(a) Greek FRs are not ambiguous.
Like English, Greek exhibits plain and *ever*-FRs. The Greek counterpart of *ever* is the bound morpheme *-dhipote.* As we see in the examples below, both paradigms obtain definite as well as universal readings, just like their English counterparts:

(32) a. Parigila oti parigile o Janis. (= the thing that John ordered)
ordered what ordered John
'I ordered what John ordered'.

b. Kane oti su pi i mitera su. (= everything that your mother tells you)
do what you tell the mother your
'Do what your mother tells you'

(33) a. Opjadhipote tenia pezi tora to Asti ine poli vareti.
whatever movie plays now the A. is very boring
Whatever movie Asti is playing right now is very boring.
(= the movie that Asti is playing now)

b. Opjadhipote tenia pezi to Asti ine poli vareti.
whatever movie plays now the A. is very boring
Whatever movie Asti plays is very boring.
(= every movie that Asti plays)

Perhaps the universal readings are more readily available with *dhipote/ever*-FRs, but this should be attributed to the fact that they can be free choice, due to the presence of *dhipote (*as argued in Giannakidou 1997a,b), but we will not go into this here. Most significantly, the availability of definite readings with *oti*-FRs, as in (32a), questions I&V's generalization that *oti* is a universal. Moreover, the fact that definite and universal readings arise with both types of FRs suggests that these are semantically uniform, contrary to what is assumed in the ambiguity hypothesis.

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[7] Actually it is only Larson (1987) who argues that plain FRs are equivalent to definite NPs. Treddinick (1995) states that plain FRs are compatible with both existential and quantificational interpretations without further characterizing them, whereas I&V (1997) do not take a position (see also footnote 3).

[8] Some speculative discussion in this direction is also given in Alexiadou & Varlokosta (1996).

(b) FRs in Greek are not universal quantifiers

Here we will go through two widely circulated arguments, some of them also discussed in I&V, in favor of the universal analysis of FRs. We show that these arguments in fact can be understood as supporting the definite analysis.

Argument (1): FRs license negative polarity items (NPIs). This has been shown in Alexiadou & Varlokosta (1996) and Giannakidou (1997a):

(34) Thavune opjus pune kamja kali kuvenda ja to Jani.
bury whoever say any good word about John
'They badmouth whoever says a good word about John."

However, definites also license polarity items (a fact illustrated in Giannakidou (1997a), cf. also May 1985 for this observation about English):

(35) I fitites pu ehun tipota na pu as milisun. (Giannakidou 1997a: 43)
the students that have anything to say let them speak
"The students who have anything to say should speak now. "

Hence, NPI licensing per se is not indicative of the universal nature of FRs.

Argument (2): *Almost/absolutely* modification. Jacobson (1995) shows that adverbs like *almost, absolutely,* and *nearly,* which are standardly taken to modify universal quantifiers (cf. Dahl 1970, Carlson 1981 among others) fail to modify FRs.

(36) a. For years I did almost everything you told me to.
b. *For years I did almost whatever you told me to.

Jacobson takes this as an argument in favor of her non-universal analysis of Frs. I&V, in support of the universal analysis, point out that there universal quantifiers which are not modifiable by *almost.*

(37) *For years I did almost each thing you told me to.

Note, however, that definites, contrary to universal quantifiers, are also resistant to *almost/absolutely* modification, as shown in (38).

(38) a. *Idha shedhon ta pedia.
saw almost the children
"*I saw almost the children."
b. Idha shedhon kathe pedi.
saw almost every child
"I saw almost every child."

This fact in conjunction with Vendler's (1967) view of *each* being semantically close to a definite NP, suggest that the impossibility of *almost/absolutely* modification in Frs and *each* NPs is indicative of their definite nature, rather than anything else.

I&V use other arguments concerning quantificational variability effects in FRs observed in Tredinnick (1993), which we will not discuss here (but see Dayal 1997 for a discussion of quantificational variability as applying to definites as well). Dayal also presents a very convincing argument in favor of the definite analysis of FRs based on a contrast noted in Grosu & Landman (1997). We reproduce the argument here for Greek.

Universals contrast with (plural) definites and FRs in partitive constructions. Although the former only exhibit a *distributive* partitive reading, definites and FRs are ambiguous between a distributive and *collective* partitive reading. The contrast is illustated in the sentences below:

(39) a. I Maria diavase ta dio trita apo kathe vivlio s'afti ti sira.
the Mary read the two thirds from every book in this the series
"Mary read two thirds of every book in this series."

b. I Maria diavase ta dio trita apo ta vivlia s'afti ti sira
the Mary read the two thirds from the books in this the series
"Mary read two thirds of the books in this series."

c. I Maria diavase ta dio trita apo opjo/opiodhipote vivlio perilamvanete s'afti ti sira.
the M. read the two thirds from what/whatever book included in this the series
"Mary read two thirds of whatever books are in this series."

(39a) says that for each book in the series Mary read two thirds of it. This is the distributive partitive reading. In this reading, there are no books that were not at least partly read by Mary.The distributive partitive reading is also available in (39b) and (39c). These sentences, however, have an additional collective reading. Under this reading, there are some books in the series that were not read at all. Mary might have read the two thirds of the sum of the books included in the series. The first reading is a truly quantificational one (possibly derived via a QR-like mechanism, which would make the universal scope out of the partitive as in Dayal 1997), but the second reading is in situ reading. The two readings are illustrated in (40) and (41) for (39a) and (39b) respectively:

(40) a. $[_{IP}$ Mary $[_{VP}$ every book in this series$_i$ $[_{VP}$ read $[_{NP}$ two thirds of $t_i]]]]$

b. $\forall x$ [book (x) & in this series (x) $\rightarrow$ read (Mary, $2/3 \leq x$)]

(41) a. $[_{IP}$ Mary $[_{VP}$ read $[_{NP}$ two thirds of the books in this series]]]

b. read (Mary, $2/3 \leq \iota x$ [*books (x) & in the series (x)])

The fact that FR in (39c) can obtain either reading in either version (plain and free choice) allows us to conlude that it behaves like a plural definite. As such, it denotes maximal non-atomic sums translated by the ι-operator. This is the view we adopt in this paper. For free choice readings we assume a plural definite analysis together with some constraint relating to the nature of free choice (cf. Dayal 1997, Giannakidou 1997b for more discussion).

Summarizing, the discussion in section 2 leads to two obvious conclusions. The first is that Greek *has* specificational pseudoclefts. The second conclusion is that FRPs and DemPs are semantically different. A comprehensive analysis of specificational pseudoclefts should be able to account for this difference in a simple and natural way.

3 The Proposal: Equation vs. Specification

We propose that SPPs come in two varieties: either as equative, or as truly specificational. As we see in (42), equation and specification both involve some instance of identity. In equation, we have identity between *objects* (which must be of the same type, equation is thus subject to matching constraints, see also Heycock & Kroch 1996). Specification, on the other hand, involves set-theoretic identity: α and β are coextensive sets.

(42) (a) *Equation*
α = β, where α and β range over elements of the same type.
Possible types are: e, <e, t>, and functional types.
(b) *Specification*
α = β, where α and β are coextensive sets, α specified by predicate notation {x| P(x)}, and β by list notation {a,b,c}.

Formalizing specification as in (42b) is consistent with Higgins's view of SPPs as conveying an identification relation between the heading of a list and its contents. Specified sets may consisting of individuals, or properties.

The distinction between equation and specification we propose here should not be translated into an ambiguity of the copula *be*. We take it that *be* of specification is identical to equative *be,* and following Williams 1983 and Partee 1986, we assume that both are identical to predicative *be*: in all cases, *be* is a semantically vacuous predicate. We believe, however, that equation/specification involves more structure than predication. One possible way to represent this is by postulating equative and specificational small clauses, extending the proposals in Heggie 1988, Carnie 1995 and Heycock & Kroch 1996. In order to compositionally derive the desired readings, we would then have to say that the heads of these small clauses belong to different types, since they combine with arguments of different types (an individual in equation, but a set in specification).

In this context, and given the empirical distinction between DemPs and FRPs, two hypotheses are plausible. The strong hypothesis would be to say equation and specification map onto FRPs and DemPs respectively. The weaker hypothesis would allow DemPs to be ocassionally equative. We will see below that only the weaker hypothesis can be faithfull to the facts.

4. Specificational Pseudoclefts in Greek II

Recall what the issues are that we have to account for:
(i) The difference underlying the constraints in the use of FRPs and DemPs.
(ii) The difference between neuter and nonneuter DemPs.
(iii) The ungrammaticality of plain copular nonpivots.
(iv) The 'addition' effect in copular nonpivots.
(v) The difference between English and Greek wrt to copular nonpivots.

First, we deal with (i) and (ii). Then, we examine pseudoclefts with copular nonpivots and address the issues in (iii)-(v).

4.1. Two Types of Specificational Pseudoclefts

(a) *Demonstrative pseudoclefts as specificational sentences*
Consider first the straightforward cases: DemPs with pivots containing count or mass nouns:

(43) Afto pu efaje o Petros itane patates.
this that ate the Peter was.3sg potatoes
"What Peter ate was potatoes."

(44) Afto pu agorase o Petros itan afto to palio leksiko.
this that bought the Peter was this the old dictionary
"What Peter bought was this old dictionary."

The demonstrative nonpivot receives its regular interpretation: a singular referring term as (45). The question is how the pivot is interpreted. The examples in (46) help us answer this question.

(45) [[afto pu efage o Petros]]= ιx [ate (Peter, x)],
where ιx [ate (Peter, x)]={x|Peter ate x∧¬∃x'[Peter ate x' ∧ x'< x]}

(46) a. Afto pu efaje o Petros itane patates, pagota, fistikia ke proino
this that ate the Peter was potatoes ice creams, nuts and breakfast
"What Peter ate was potatoes, ice creams, nuts and breakfast."

b. Afto pu efaje o Petros itane, metaksi alon, pagoto.
this that ate the Peter was among others the ice-cream
"What Peter ate was, among other things, ice-cream."

c. Afto pu efaje o Petros itane, ja paradigma, pagoto.
this that ate the Peter was for example ice-cream
"?What Peter ate was, for example, ice-cream."

The pivot in (46a) contains more than one item, indicating that there were more than one thing that Peter ate. Yet this does not entail that the nonpivot is interpreted as a set. One could argue that a collective interpretation of the objects (which would license the 'part of' relation and thus the plural interpretation of the demonstative clause) is possible. The felicity of *among other things* and *for example* in (46b,c) is, in this respect, decisive. *Among other things* and *for example* have been used as diagnostics for non-exhaustive, *mention-some* readings (cf. Groenendijk & Stokhof 1984, Merchant 1998). The appropriateness of nonexhaustive modification indicates that in these cases the nonpivot is interpreted as an open set, rather than as an (atomic or plural) individual. Note that nonexhaustive set modification is fine in the English *what* sentences too. We conclude then that the pivots in (43) and (46) are intepreted as sets specifying what Peter ate, as in (47):

(47) a. [[(43)]]= > {x|Peter ate x} = {potatoes}
b. [[(46a)]]= > {x| Peter ate x} = {potatoes, nuts, ice-cream, breakfast}
c. [[(47b)]] = > {x| Peter ate x} = {ice-cream,...}

Likewise, (44) has the logical form in (48). Modification by *among others,* and *for example* is possible, as we see in (59):

(48) [[(44)]] = > {x| Peter bought x}= {this old dictionary}

(49) Afto pu agorase o Petros itan, metaksi alon/ja paradigma, afto to palio leksiko.
this that bought the Peter was, among others/forexample,.
"What Peter bought was, for example/among others, this old dictionary."

Nonneuter DemPs, like (50) cannot be analyzed as specificational. Note that the pivot may not contain more than one item, and modification by *among others,* and *for example* is not tolerated, as is shown (51) and (52):

(50) Aftos pu filise ti jineka su itan o Petros. (Veloudis 1979a:!3)
this.masc.sg that kissed the wife yours was the Peter
"The one who kissed your wife was Peter."

(51) * Aftos pu filise ti jineka su itan o Petros ke o Pavlos.
this.masc.sg that kissed the wife yours was the P. and the P.
"*The one who kissed your wife was Peter and Paul."

(52) * Aftos pu filise ti jineka su itan metaksi alon/ja paradigma o Petros.
this.masc.sing that kissed the wife yours was among others/for example the P.
"*The one who kissed your wife was, among others/for example, Peter."

If we want to talk about more than one individual, the plural form *afti* "ones.masc.pl" must be used instead (in Greek as well as in English).

(53) Afti pu filisan ti jineka su itan o Petros ke o Pavlos
.this.masc.pl that kissed the wife yours was the Peter and the Paul
"The ones who kissed your wife is Peter and Paul."

Agreement, present in nonneuter DemPs but absent in neuters, has thus an intepretative effect: it licenses equative readings in DemPs. Cases like (51) and (52) should then be handled as type mismatches (recall that equated objects must of the same type). If this is correct, we have to assume that information coming from agreement is meaningful and visible at the level at which pseudoclefts are interpreted.

(b) Free relative pseudoclefts as equations
The simlest case here is provided by FRPs with two FRs, like (54). Since oti-FRs denote plural individuals (cf. (55)), the FRPs at hand express an equation between two plural individuals as in (56):

(54) Oti aresi stin Elena ine oti sixenete o Petros.
what(ever) likes in-the Elena is oti detests the Pete
What Elena likes is what Peter hates.

(55) a. $[\![\text{oti IP}]\!] = > \iota x\ [x \in [\![IP]\!] \wedge \forall x'[x' \in [\![IP]\!] \rightarrow x' < x]]$
b. $[\![\text{the } N_{plural}]\!] = > \iota x\ [x \in [\![N]\!] \wedge \forall x'[x' \in [\![N]\!] \rightarrow x' < x]]$

(56) a. $[\![\text{oti aresi stin Elena}]\!] => \iota x\ [\text{like (Elena, x)} \wedge \forall x'\ [\text{like (Elena, x')} \rightarrow x' < x]]$
b. $[\![\text{oti sihenete o Petros}]\!] => \iota x\ [\text{hate (Peter, x)} \wedge \forall x'\ [\text{hate (Peter, x')} \rightarrow x' < x]]$
c. $\iota x\ [\text{like (Elena, x)} \wedge \forall x'\ [\text{like (Elena, x')} \rightarrow x' < x]] =$
$\iota x\ [\text{hate (Peter, x)} \wedge \forall x'\ [\text{hate (Peter, x')} \rightarrow x' < x]]$

It is also conceivable to treat the (54) as involving properties rather than individuals, in which case the ι would range over objects of type <e, t>. Pseudoclefts with *afto pu* clauses in both

positions, as in (57), express exactly the same equation relation, this time between unique atomic individuals. We illustrate this in (58):

(57) Afto pu aresi stin Elena ine afto pu sixenete o Petros.
this that likes in-the Elena is this that detests the Peter
What Elena likes is what Peter hates (namely cooking).

(58) a. [[afto pu IP]] = > ιx [x ∈ [[IP]] ∧ ¬∃x'[x'∈ [[IP]] ∧ x' < x]]
b. [[afto pu aresi stin Elena]] => ιx [like (Elena, x)
∧ ¬∃x'[like (Elena,x') ∧ x' < x]]
c. [[afto pu sihenete o Petros]] = > ιx[hate (Peter, x) ∧¬∃x'[hate (Peter,x') ∧ x' < x]]
d. ιx [like (Elena, x) ∧ ¬∃x'[like (Elena,x') ∧ x' < x]] =
ιx[hate (Peter, x) ∧¬∃x'[hate (Peter, x') ∧ x' ≤ x]]

Appending something like *metaksi alon to majirema* "among other things cooking", which we use as diagnostics for specificational readings, would yield ungrammaticality. We can have equations of functional types too (cf. Groenendijk & Stokhof 1984, Engdahl 1986, Chierchia 1993, Dayal 1996, Sharvit 1997), with FRPs as well as with DemPs, as shown in (59), (60):

(59) Oti/afto pu aresi se kathe andra ine oti sixenete kathe jineka.
what(ever)/this that likes every husband is what detests every wife
"What every husband likes is what every wife hates."

(60) a. [[afto pu aresi se kathe andra]] = ιg [Dom(g) = [[husband]] ∧ ∀x∈ [[husband]] → like(x, g(x))]
b. [[afto pu sihenete kathe jineka]] = ιf [Dom(f) = [[wife]] ∧ ∀x∈ [[wife]] → detest (x, f(x))]
c. ιg [Dom(g) = [[husband]] ∧ ∀x∈[[husband]] → like(x, g(x))] =
ιf [Dom(f) = [[wife]] ∧ ∀x∈[[wife]] → detest (x, f(x)]

Finally, consider the ungrammatical (9) repeated here for convenience:

(9) *Oti agorase o Janis itan afto to palio leksiko.
what(ever) bought John was this the old dictionary
"*Whatever John bought was this old dictionary."

(9) is ungrammatical because its pivot is defined on atoms and not on plural individuals as is required by the semantics of the *oti* FR for the purposes of equation. It will therefore be ruled out as a type mismatch, cf. (61):

(61) a. [[oti agorase o Petros]] = > ιx[bought (Peter, x) ∧∀x'[bought (Peter,x')→ x' < x]]
b. [[afto to palio leksiko]] = > ιx [x∈ [[old dictionary]]∧¬∃x'[x'∈ [[old dictionary]]
∧ x' < x]]
c. ιx[bought (Peter, x) ∧∀x'[bought (Peter, x') → x' < x]] ≠
ιx [x∈ [[old dictionary]] ∧ ¬∃x'[x'∈ [[old dictionary]]∧ x' < x]]

Such mismaches do not arise with specification, so the DemP counterpart of (9), (44), is fine. We predict here that if we insert a plural individual in the pivot, (9) will improve. This is

precisely what we get, as illustrated in (62) with a mass noun (a plural definite would give a samilar result):

(62) Oti efaje o Petros oli mera itane patates.
what(ever) that ate the Peter was potatoes
What Peter ate all day was potatoes.

We conclude that the empirical contrast between FRPs and DemPs can be successfully captured by the distinction bewtween equation vs. specification we defined in (42).

4.2. Copular nonpivots in Greek and English

Recall the ungrammatical examples repeated here as (63), (64):

(63) *Afto pu ine o Pavlos ine vlakas.
this that is the Paul is stupid
"What Paul is is stupid."

(64) *Oti ine o Pavlos ine vlakas.
what(ever) is the Paul is stupid
"*Whatever Paul is is stupid."

Consider now what the demonstrative version of this example would mean.Because we have a demonstrative, it would probably be something like (65a), namely the unique property that John has (thus implicity assumming that *afto* is crosscategorial). The pivot identifies that unique property with the property of being stupid, as in (65b):

(65) a. [[afto pu ine o Janis]] = ιP [John is P]
b. ιP [John is P] = {stupid}

However, the representation in (65b) in not a wellformed list. Rather, it yields an equation between a unique property and a singleton set containing that property, which in turn is not a wellformed equation: it violates the matching requirement since α and β are not of the same semantic type. Cases like (65a) are then excluded because, on the one hand, they are not wellformed lists, and on the other, they cannot give rise to wellformed equations.

Addition of material in the nonpivot suspends uniqueness and renders a set interpretation possible. Consider for instance the case of negation in (66) and the possible translations of the nonpivot in (67a & b):

(66) Afto pu dhen ine o Janis ine vlakas.
this that not is the John is stupid
What John isn't is stupid.

(67) a. [[afto pu dhen ine o Janis]] = ιP [John is ¬ P]
b. [[afto pu dhen ine o Janis]] = λP [John is ¬ P]

According to the translation in (67a) the nonpivot denotes the unique property that John does not have. But this is not the right interpretation for the nonpivot, as shown by the fact that

possible continuations like the ones in (68), which void uniqueness and indicate a set interpretation, are legitimate:

(68) a. Afto pu dhen ine o Janis ine vlakas, kutos ki akindhinos.
this that not is the John is stupid silly and harmless
What John isn't is stupid, silly and harmless.
b. Afto pu dhen ine o Janis ine, metaksi alon, akindhinos.
this that not is the John is, among others, harmless
What John isn't is, among other things, harmless.

Hence, the *afto pu* nonpivot is not equivalent to the unique property that John does not have. Rather negation opens up the domain and it enables the creation of a set which will specify properties that John does not have. The nonpivot will enumerate these properties. The right interpretations for (66) and (68a,b) are then (69a,b,c), respectively:

(69) a. {P| John is not P} = {stupid}
b. {P| John is not P} = {stupid, silly, harmless}
c {P| John is not P} = {stupid,...}

In other words, the set containing the property of being stupid is included in the set containing the properties that John does not have, and the set {stupid, silly, harmless} is a subset of the same set in (67b).

In the same vein, *episis* 'also' in (70) opens up the domain and enables the creation of a set which will include additional properties of John, as in (71). The property of being a miser would be included in that set:

(70) Afto pu episis ine o Janis ine tsigounis.
this that also is the John is miser
The other thing John is is a miser.
(71) {P|John is also P} = {miser}, or {miser} $\subseteq$ {P|John is also P}

The modal in (72) has exactly the same effect, but this time we he have a set of possible properties of John's:

(72) Afto pu prepi na ine o Janis ine dinamikos.
this that must subjunctive is the John is dynamic
What John must be is dynamic.
(73) {P|J. is possibly P}=dynamic}, or{dynamic}$\subseteq${P|J. is possibly P}

The Catalan and Spanish facts presented in 2.2.2 are amenable to exactly the same analysis, but space prevents us from elaborating. The 'addition' effect is therefore accounted for under the assumption that DemPs are specificational in the sense of list identifying. This assumption also predicts that addition will have no effect in FRPs, since these are equational, and equations of the form in (63b) are illformed. The examples in (13)-(15) show this prediction to be fully borne out .

Recall now that plain copular *what* nonpivots are grammatical (cf. the translation of (63)). Does this follow from our system? The answer is positive. We assume, following Partee 1985, Jacobson 1995, and Heycock & Kroch 1996, that *what* is crosscategorial. Hence,

reference to properties, as is required for the interpretation of this sentence, is licit. Because *what,* unlike the demonstrative *afto*, is not by default associated with (unique) reference, it may denote a set, in this case a singleton:

(74) {P| John is P} = {stupid}

Note that this is consistent with Jacobson's view of *what*-FRs starting out as sets and then type-shifting to the individual intepretation. As our English informants tell us, it is possible to manipulate the context in such a way so that *among other things*, and *for example* modification on *what*-SPPs would be possible, as expected, since we are dealing with specifications.

Finally, why are *-ever* FRPs are excluded? (We refer now to the * translation of (64)). The answer is straightforward. *Whatever* is excluded for the same reasons Greek FRPs are excluded: *-ever* FRs would always contribute individuals and would thus give rise to illformed equations. An additional constraint here would be imposed by of the nature of free choice quantification (see Dayal 1997, Giannakidou 1997b).

We showed how our analysis handles the relevant Greek facts, and we presented a couple of tests diagnozing set intepretations in specificational pivots. Our analysis extends directly to Spanish and Catalan. Moreover, Izvorsky 1997 presents some discussion of Bulgarian demonstrative SPPs, supporting the distinction between equation and specification made here and the ensuing predictions, as regards the availability of set intepretation in DemPs and the 'addition effect'. It would be interesting to see whether our account can predict the behavior of specificational pseudoclefts in more languages, but this unfortunately will have to be left for future research. Another improtant task is to identify precisely what types of expressions can induce the 'addition effect'. We have discussed here negation, 'also', and deontic modals (epistemic modals have the same effect) as cases in point for Greek, note, however, that in Spanish and Catalan various kinds of modification in the nonpivot are able to bring about the set intepretation, even word order (cf. fn.2). For a more refined understanding of the 'addition'effect , more research towards identifying the class of possible inducers is required.

5. Conclusion

Two conclusions should be drawn from this paper. First, Greek *has* specificational pseudoclefts, and Spanish/Catalan were shown to be similar in this respect. Second, there is considerable empirical support for a distinction between equation and specification, connecting to Higgins's original view of the heterogeneity of the non-predicational domain. Iatridou &Varlokosta's 1997 account cannot be maintained in the light of these conclusions. Greek, Spanish, and Catalan do form a natural class in terms of excluding plain copular nonpivots, but this was shown to follow not from the exclusion of predicative interpretations altogether as proposed by Iatridou & Varlokosta, but from the inability of plain copular nonpivots to be intepretated as predicates *by default.*

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