# The two phrasal comparatives of Greek

Jason Merchant
University of Chicago

2012

**Abstract**  Standards of comparison in Greek can be marked either by a preposition or by use of the genitive case. The prepositional standards are compatible with both synthetic and analytic comparative forms, while genitive standards are found only with synthetic comparatives. I show that this follows if genitive case is assigned by the affix to its complement, and that this structure furthermore supports a straightforward semantic composition, both in predicative and attributive uses: the genitive of comparison composes in situ, while the adpositional comparatives give rise to scopal ambiguities. A tight connection between the syntax and semantics of these elements must be made, and the simplest analysis that distinguishes them requires that, while their semantic core is the same, the order of composition of their arguments be posited to differ.[1]

# 1  Overview of comparative and standard markers in Greek

Greek[2] is particularly rich in the domain of comparison. In addition to a synthetic (or morphological) comparative formed with *-ter-*, it has two analytic (or periphrastic) comparatives, formed with *pjo* and *perisotero*.[3]

---

[1]Thanks to Anastasia Giannakidou for many fruitful discussions of this material and trenchant judgments above and beyond the call of duty; also to Roumyana Pancheva, Natalia Pavlou, and audiences at ICGL9, Harvard, Yale, and UCLA, where earlier versions of this material were presented.

[2]In this paper, I deal only with the situation in standard modern Greek as spoken in Greece. Earlier stages, as well as modern Cypriot Greek, deserve a separate investigation.

[3]See Holton et al. 1997 and Merchant 2009 for some discussion. *Pjo*, while always analyzed as an independent word, also reflected in the orthography, has a more limited distribution than *perisotero*; the latter can occur free-standing as an adverbial and as a fragment answer, while the

(1) comparative morphemes

| absolute | comparative | |
| --- | --- | --- |
| | synthetic | analytic |
| psil-os | psilo-**ter**-os | **pjo** psil-os |
| | | **perisotero** psil-os |
| *tall-* | *tall-er-* | *more* *tall-* |
| (-*os* is masc.sg.nom) | | |

(2) standard markers (first version)[4]

| phrasal | clausal |
| --- | --- |
| **apo** | **ap-oti** |
| *from* | *from-wh(free relative)* |
| *than*.PHRASAL | *than*.CLAUSAL |

Earlier work on the syntax and semantics of comparatives in Greek, such as Merchant 2009, has examined the properties of phrasal *apo* comparatives in contrast to clausal comparatives (both reduced and unreduced) at some length. The conclusion reached in Merchant 2009 for clausal comparatives, following much previous literature on other languages,[5] is that *apo* can take a free-relative-like degree-denoting clause (some part of which may be subject to ellipsis). For the phrasal comparatives (those in which what follows *apo* is a single accusative-marked DP), Merchant suggests either that the correlate to the standard undergoes movement at LF (with a simple PP structure for the *than*-phrase), or that the standard itself has moved out of a bigger clausal structure (with a uniform semantics for the comparative, with no type-shifting or ambiguity[6]).

former cannot, for example. *Perisotero* is also the comparative of *polis* 'much, many' and so appears by itself in amount comparatives; *pjo* cannot.

[4]For reasons of space, *ap-os-o/i/...* and *para* clausal markers will not be discussed here, though they share many properties with *ap'oti* clauses; see Xeila-Markopoulou 1986, Giannakidou and Stavrou 2009, and Giannakidou and Yoon 2011. *Para* is required when the comparison is metalinguistic; *ap-oso* is like *ap-oti* in using an invariant form (in *ap-oso*, neuter singular), but with a stem *-os-* that seems to require a degree or amount sortal (it is also found in *p-os-o* 'how many/much' and *t-os-o* 'that many/much'); the agreeing forms *ap-os-i/es/a* etc., where the final morpheme is an agreement morpheme covarying in number and gender with an amount NP and shows case appropriate to the position internal to the clausal standard, are used only in amount comparatives, where they are a free alternative to *ap-oti*.

[5]See e.g., Smith 1961, Lees 1961, Chomsky 1965, Hankamer 1973, Lechner 2001, 2004, Lerner and Pinkal 1995, Bhatt and Takahashi 2011, and Pancheva 2006, 2009, among many others.

[6]This latter is the kind of analysis that a uniform clausal approach to apparent phrasal comparatives would require, though Pancheva 2009 shows that a 'small' clausal analysis is desirable for

This earlier work has not, however, investigated at all the third strategy for marking the standard of comparison in Greek: the genitive case. The full picture of Greek standard markers, therefore, is the following:

(3)    standard markers (complete):

|  | phrasal | clausal |
|---|---|---|
| **apo** | GENITIVE | **ap-oti** |
| *from* | *'of'* | *from-wh(free relative)* |
| *than*.PHRASAL | *than*.GEN | *than*.CLAUSAL |

Modern Greek appears to be unique among the languages of the world in having *two* phrasal comparatives, as well as a clausal one. While there are many languages that have a distinction between phrasal and clausal comparison (Hankamer 1973 lists several; see also Stassen 1985, Donati 2000, Pancheva 2006), the phrasal in these languages tends to either be marked by an adposition or particle-like element (as in English, Serbo-Croatian, Bulgarian, Italian, and Spanish) or by a case (as in Latin, Hungarian, Turkish, and Russian): it has not been reliably reported for any other language that both phrasal strategies co-occur.

In this paper, I describe a new set of facts from Greek and show that a close analysis combining syntactic, semantic, and morphological analysis can account for the intricate set of properties. I begin in section 2 by establishing the nature of the genitive of comparison, documenting its distribution, and making explicit the generalizations that need to be accounted for. Section 3.1 gives analysis of the genitive of comparison, and section 3.2 of the prepositional comparative. I argue that, given a usual semantics for the comparative, and well-supported assumptions about the morphology and syntactic structure of comparatives, there is an important difference to be found in the order of composition: the genitive of comparison takes its arguments in one order (combining first with the standard), and the prepositional comparative in another (combining first with a degree predicate). This difference furthermore predicts that only the second kind of comparative will show scopal ambiguities (as only it requires QR), a prediction I show to be correct. Section 3.3 summarizes, and section 4 concludes.

---

Slavic 'phrasal' comparatives.

3

## 2 Genitives of comparison

The genitive of comparison, while more common in ancient Greek varieties,[7] is also found in modern Greek (Holton et al. 1997:471-472). It seems to be more rarely used, both in writing and in speech, and is certainly acquired much later than comparatives with *apo*.[8] In (4)-(6), we see that the genitive standards can occur with pronouns or full noun phrases, and with comparatives in predicate and attributive uses:[9]

(4) O  Giannis ine psiloteros tis.
    *the Giannis is  taller    her.*GEN
    'Giannis is taller than her.'

(5) I   Anna pandreftike enan psilotero tis     andra.
    *the Anna married.3s  a     taller    her.*GEN *man*
    'Anna married a man taller than her.'

(6) O   pirgos tha  ine psiloteros tu   spitiu.
    *the tower  will be  taller     the house.*GEN
    'The tower will be taller than the house.'

These occur with all possible genitive personal pronouns (all of which happen to be enclitics), and, more marginally, with demonstrative and relative pronouns:

(7) O  Giannis ine psiloteros mu/su/tu/tis/mas/sas/tus.
    *the Giannis is  taller     1s/2s/3smn/3sf/1p/2p/3p.*GEN
    'Giannis is taller than me/you/him/it/her/us/you/them.'

---

[7]See Hankamer 1973 for examples from classical Greek and from a variety of other languages that use case-marking to mark a phrasal comparative.

[8]Greek-speaking children produce analytic comparatives significantly before they produce synthetic comparatives. The first standard markers are phrasal *apo* (around age three) with *pjo*, then clausal *ap'oti* standards (possibly by around age seven), with an emergence of *perisotero* analytic comparatives and synthetic comparatives around this age as well. Despite the emergence of synthetic comparatives, genitive standards probably are not produced until adolescence, after significant schooling and exposure to ancient Greek (I at least have never heard a child produce a genitive of comparison), giving rise to the suspicion that these genitives begin as a calque on learned forms, leading to their semi-productivity in adult Greek. (Children do acquire the relevant genitive morphemes and clitics very early however: the genitive pronouns are in place by age two or three.)

[9]Greek thus differs from Russian, where synthetic comparatives are only possible as predicates, and the analytic forms appear in attributive positions, as pointed out in Townsend 1970 and analyzed in Matushansky 2001.

(8)  ?O Giannis ine psiloteros aftunu/aftinis.
     *the Giannis is  taller    dem.*GEN
     'Giannis is taller than that one.'

(9)  Ime  o  andras tu  opiu       ine psiloteros o   Giannis.
     *I.am the man    the which.*GEN *is  taller     the Giannis*
     'I am the man whom Giannis is taller than.'

As just seen, non-clitic (often called 'lexical') nominals may be possible in predicate comparatives, though infrequent and often judged to be marked, but seem to be even worse in attributive ones (presumably a reflection of the general tendency for longer genitive standards to be worse than short ones in attributives):

(10)  ?O Giannis ine psiloteros tu   patera      tu.
      *the Giannis is   taller     the father.*GEN *his*
      'Giannis is taller than his father.'

(11)  ??Dhen ine ena psilotero tu   patera      tu  pedhi.
      *not     is  a  taller     the father.*GEN *his child*
      'He is not a child taller than his father.'

Although the genitive is not the most common marker of the standard, it also is not necessarily only an archaism. It is well-attested, for example, in the sports and other pages of Greek newspapers, and on the internet, from which the following examples were culled:

(12)  a.  O  Zaneti ine kaliteros tu  Melo      ke  pistevo oti  se afti ti
          *the Zaneti is  better    the Melo.*GEN *and I.think  that in this the*
          thesi    enas Italos  ine kaliteros apo  enan Vraziliano.
          *position an  Italian is  better    than a    Brazilian*
          'Zaneti is better than Melo and I think that in this position, an Italian is better than a Brazilian.'

      b.  O  efetinos Olympiakos kaliteros tu  perisinu  Panathinaiku
          *the this.year Olympiakos better    the last.year Panathenian.*GEN
          'This year's Olympiakos better than last year's Panathenian'

      c.  Stin   epanalipsi o  Atromitos itan kaliteros tu   antipalu      tu.
          *in.the repetition  the Atromitos  was better    the opponent.*GEN *his*
          'In the rematch, Atromitos was better than his opponent'

      d.  Xiroteros tis gripis   ine o  ios   tu    paniku
          *worse     the flu.*GEN *is  the virus of.the panic*
          'Worse than the flu is the virus of panic.'

5

e. ke  meta su      lene    pos i   andres ine dhithen    eksipnoteri
*and then  you.dat they.say that the men    are supposedly smarter*
ton    jinekon!
*of.the women*
'And then they tell you how men are supposedly smarter than women!'

Genitives of comparison only attach to the synthetic comparative form of a degree adjective; they do not attach to adverbs of any kind, to analytic comparatives, or to amount comparatives:[10]

(13)  a. I   Maria pezi  kithara kalitera { apo  mena / *mu      }.
         *the Maria plays guitar  better     from me     me.GEN*
         'Maria plays guitar better than me.'

      b.  i. O  Giannis ine pjo   psilos { apo  mena / *mu      }.
             *the Giannis is  more tall     from me     me.GEN*
             'Giannis is taller than me.'

          ii. * O  Giannis ine pjo    { apo  mena / mu      } psilos .
              *the Giannis is  more  from me     me.GEN  tall*
              ('Giannis is taller than me.')

      c.  i. O  Giannis exi  perisotera periodika  { apo  mena / *mu      }.
             *the Giannis has more        magazines  from me     me.GEN*
             'Giannis has more magazines than I have.'

          ii. O  Giannis exi  perisotera { apo  mena / *mu      } periodika.
              *the Giannis has more        from me     me.GEN  magazines*
              'Giannis has more magazines than I have.'

Nor can degree-denoting measure NPs be marked with the genitive:

(14)  I   Anna ine psiloteri { apo  dio  metra  / *dio metron      }.
      *the Anna is  taller    than two  meters   two  meters.GEN*
      'Anna is taller than two meters.'

---

[10]The range of comparative adjectives which co-occur with genitive standards is also limited in ways that remain unclear. Corpus searches return dozens of common adjectives, but none with rarer ones, and these latter are also rejected by speaker informants. The Athens ILSP tagged corpus, unfortunately, has only four tokens of tagged comparatives, and string searches are made very onerous by the homophonous raised possessors (for example, *o kaliteros mu filos* (lit.) 'the better me.GEN friend' tends overwhelmingly to mean 'my best friend', not 'the friend who is better than me').

The genitive freely co-occurs with differential phrases and factor phrases:[11]

(15)   a.  I  Anna ine dio ekatosta   pslioteri mu.
          *the Anna is   two centimeters taller   me.*GEN
          'Anna is two centimeters taller than me.'

      b.  I  Anna ine dio fores psiloteri su.
          *the Anna is   two times taller   you.*GEN
          'Anna is twice as tall as you.'

Genitives do not occur with equatives:

(16)   a.  i.  *I  Anna ine toso psili su.
              *the Anna is   as   tall you.*GEN
              ('Anna is as tall as you.')

          ii.  *I  Anna ine toso su     psili.
              *the Anna is   as   you.*GEN *tall*
              ('Anna is as tall as you.')

---

[11]Differential and factor phrases can also appear with analytic comparatives in Greek, and with *apo*-marked standards as well; in this regard, Greek is thus different from Russian (see Matushansky 2001). Measure phrases do not occur with absolute adjectives (the (a) examples below), though these phrases make fine predicates (with implicit domain of extent); instead, Greek uses a nominal indicating the measure with an appositive measure (the (d) examples):

(1)   a.  *O Giannis ine dio metra psilos.
         *the Giannis is   two meters tall*

      b.  O  Giannis ine dio metra.
         *the Giannis is   two meters*

      c.  O  Giannis ine (poli) psilos.
         *the Giannis is   (very) tall*

      d.  O  Giannis exi ipsos dio metra.
         *the Giannis has height two meters*

(2)   a.  *To vivlio ine dio kila vari.
         *the book is   two kilos heavy*

      b.  To vivlio ine dio kila.
         *the book is   two kilos*

      c.  To vivlio ine (poli) vari.
         *the book is   (very) heavy*

      d.  To vivlio exi varos dio kila.
         *the book has weight two kilos*

b. I   Anna ine (toso) psili oso (ise) esi.
*the Anna is  as    tall as  are  you.*NOM
'Anna is as tall as you (are).'

Nor do genitives occur with comparisons of lesser value. These are formed with the invariant neuter singular synthetic comparative form of the adjective *ligos* 'little, few': *ligotero*; this combines with the absolute form of the adjective to express lesser degree, as in (17a) with the optional standard marked with *apo*.[12] Despite the fact that *ligotero* is itself a synthetic comparative form, the genitive cannot attach to it, either, as shown in (17c).

(17)   a.  I   Anna ine ligotero psili apo  sena.
           *the Anna is  less    tall  from you*
           'Anna is less tall than you.'

       b.  *I  Anna ine ligotero psili su.
           *the Anna is  less    tall  you.*GEN
           ('Anna is less tall than you.')

       c.  *I  Anna ine ligotero su      psili.
           *the Anna is  less    you.*GEN *tall*
           ('Anna is less tall than you.')

In sum, the following generalizations about the distribution of the genitive of comparison in Greek need to be accounted for:

(18)   The genitive of comparison...

       a.  ... must be adjacent to a synthetic degree adjective

       b.  ... must denote an individual which is a standard of comparison (that is, be a direct argument of the degree morpheme)

## 2.1   Previous typological research

It is typologically at the very least extremely rare, and quite possibly unique, for a single language to have two phrasal standard-marking strategies: the most extensive typological work on markers of standard of comparisons, Stassen 1985, lists only Mandinka (pp. 149, 239, with locative and allative comparatives) and Tamil

---

[12]As Bobaljik 2012 documents and explains, no language forms a synthetic comparison of lesser value.

(pp. 151f., 244f., with locative, separative [ablative], and allative [dative] comparatives) as potential cases. Unfortunately, that work gives such little data that is impossible to judge whether these cases are similar to the Greek or not, or even if they are actually true degree comparatives (and not something like '(compared) to Abby, Ben is tall'; see especially Kennedy 2007a for diagnostics for distinguishing the two). Sadly, that work not only lacks enough discussion of the empirical situation to allow us to draw conclusions about these languages, but several of the main generalizations it proposes are disproven by Greek.

The following three generalizations are proposed in Stassen 1985:

(19)    a.    Generalization (1a) (p. 54):
              If a language has a Separative Comparative[13], then its basic word order is SOV.

        b.    Universal 1A (p. 106):
              If a language has a derived-case comparative, then that language is balancing.[14]

        c.    Universal 1B:
              If a language has a fixed-case comparative, then that language is deranking.

Greek is not SOV: it is either SVO or VSO, depending on the analysis (see Alexiadou and Anagnostopoulou 1998 for discussion). (19b,c) are meant as exclusives, so Greek, which has both a derived-case and a fixed-case comparative, counterexemplifies one or the other (which one is shown to be false depends on whether one wants to claim that Greek is 'deranking' or 'balancing': it would seem to be 'deranking' based on the criteria that Stassen gives, making it (19b) that is wrong).

Stassen's empirical investigation is extremely shallow for most of the languages he considers, and therefore we cannot use his discussion as a basis for any kind of conclusions about the nature of standards of comparison: for the vast majority of languages, little or no data are given from measure phrases, crisp judgments, entailments to the absolute, or the like.

---

[13]A 'separative comparative' is a comparative that uses a word or morpheme to mark the standard which in other uses indicates separation, e.g., Greek *apo* 'from' (ablatives of comparison qualify as well).

[14]'Balancing' means that clause-chaining occurs without formal markers of subordination; 'deranking' means that subordinate clauses are marked in some way. Because Dutch and English have derived-case comparatives, Stassen is forced to argue that the *dan/than*-clause is a main clause, despite all the evidence that it is not.

In fact, Stassen is not unaware of such questions, which have emerged from careful, detailed empirical investigations of the properties of comparatives in well-studied languages. He refers to some of the relevant work, in the following passage, only to dismiss it:

(20) "Differently tuned approaches to the comparative problem are found in present-day 'formal semantics', in particular ... Cresswell (1976), Hellan (1981), Hoeksema (1983), Klein (1980) and von Stechow (1984). These studies have in common a general predilection for 'surface semantics', i.e., the view that no separate level of semantic representation is required for a semantic calculus to work upon. ... we must decide that in the context of the present study the relevance of this work is ... not apparent." (Stassen 1985:199)

In fact, something like the polar opposite of these assertions is closer to the truth, though Stassen never makes clear in any case why a 'surface semantic' approach would not be relevant. From a purely scholarly point of view, the previous work on the semantics of comparatives has been completely misrepresented in this passage. What is a true pity is that the author, due to his failure to understand the work he cites, has missed a great opportunity to investigate questions at a level of analysis that would allow for insightful generalizations to be made about comparatives cross-linguistically. Unlike some other, more informed typological work, Stassen's work suffers from a resolutely superficial examination of properties and traits, and is strait-jacketed by its overwhelming reliance on descriptive grammars that rarely devote more than a passing mention to the constructions of interest here. This is unfortunate for those of us interested in less superficial work, and it is with regret that we "must decide that in the context of the present study the relevance of this work is ... not apparent". It is to be hoped that future typological work is better informed as to what the relevant properties that must be documented are.

# 3   The two kinds of phrasal comparatives in Greek
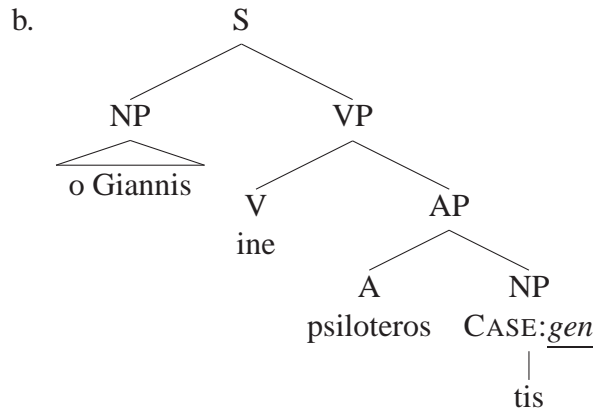
## 3.1   Genitive phrasal comparatives

The genitive of comparison appears to be a prototypical case of a phrasal comparative: it is a single nominal phrase and typically contrasts with the subject of a comparative predicate. These features of its distribution can be straightforwardly

accounted for with two assumptions: 1., the comparative morpheme *-ter-* assigns genitive case to a selected DP, and 2., the semantics of *-ter-* ensure that comparison is between individuals.

There is no reason to think that the genitive-marked DP goes proxy for or contains a clausal node (subject to some kind of reduction or ellipsis operation); while such an analysis may have some appeal for the prepositional *apo*-marked DPs (as Merchant 2009 considers), it has none for the genitive.

For the syntactic properties, several analyses are consistent with the facts: the simplest may be to suppose that a comparative adjective formed with *-ter-* itself assigns the genitive to a nominal, yielding the following structure for an example like (4), repeated here:

(21)    a.  O  Giannis ine psiloteros tis.
             *the Giannis is  taller    her.*GEN
             'Giannis is taller than her.'

        b.



Such a structure is entirely consistent with all the purely syntactic tests for constituency in Greek known to me (displacement, coordination, ellipsis, anaphorization, association with focus operators). Nonetheless, it has been argued against on more general syntactic and morphological grounds by Bobaljik 2012, who presents persuasive arguments against the notion of lexically 'declining' adjectives in this way. Second, it might complicate a uniform compositional analysis of comparatives.

An alternative consistent with the morphological and semantic decompositional approach to comparatives would posit that *-ter-*, *pjo*, and *perisotero* are degree morphemes which head a degree phrase DegP that necessarily co-occurs

with an AP and with a standard of comparison (though this latter may be implicit: that is, not expressed overtly in the syntax). Analyses that adopt this assumption tend to divide into two general classes depending on whether they posit the Degree head as selecting the AP (Larson 1988, Corver 1990, 1997, 1991, Kennedy 1999, Xiang 2005, and others) or as either in the specifier of AP (Bresnan 1973, Bowers 1975, Jackendoff 1977) or adjoined to AP (Neeleman et al. 2004; see McNabb 2012 for more refinements). (Morphological treatments such as Embick 2007 and Bobaljik 2012 are consistent with either, as long as the adjacency relations come out the same.)

A common approach to the semantics for comparatives posits that the comparative degree morpheme denotes a relation between two degrees as in (22a(i)), from Beck 2010 (or sets of degrees, as in (22a(ii)); see Schwarzschild 2008 and Beck 2010 for discussion), or a relation between a degree and a degree predicate true of some individual, as in (22b) from Kennedy 2007a. This is the morpheme that is used in clausal comparatives, assuming that the clausal standard denotes a set of degrees or a degree (assuming that a maximalization operation has applied), related to the wh-movement of a comparative operator within the clause. Typical LFs on such approaches include (23b), for (23a).

(22)  a.  (i) $[\![ -er^2 ]\!] = \lambda d \lambda d'[d > d']$
          (ii) $[\![ -er^2 ]\!] = \lambda D_{<dt>} \lambda D'_{<dt>}[max(D) > max(D')]$
      b.  $[\![ \text{MORE}_D ]\!] = \lambda d \lambda g_{<d,et>} \lambda x[max\{d'|g(d')(x) = 1\} > d]$

(23)  a.  Mary is taller than John is.
      b.  LF: [-er  [than $Op$  1 [John is $t_1$ tall]]
                          1 [Mary is $t_1$ tall]]

As Kennedy shows, the standard semantics for what Heim 1985 called the 'direct' comparative morpheme for phrasal comparatives (one that takes two individuals and a degree description as its arguments[15]) given in (24), can be derived from (22b) as in (25).

(24)  $[\![ \text{MORE}_I ]\!] = \lambda y \lambda g_{<d,et>} \lambda x[max\{d'|g(d')(x) = 1\} > max\{d''|g(d'')(y) = 1\}]$

---

[15]Bhatt and Takahashi 2011 call this the 'three-place comparative' and give a different semantics (given in (i)) for the comparative morphemes, however, one based on negation, an idea going back to Ross 1973 and Seuren 1973, according to Larson 1991. It is not entirely clear how this approach can accommodate differential and factor phrases, however (again see Beck 2010 for discussion of this point, including of Schwarzschild To appear), and so I won't consider it further here.
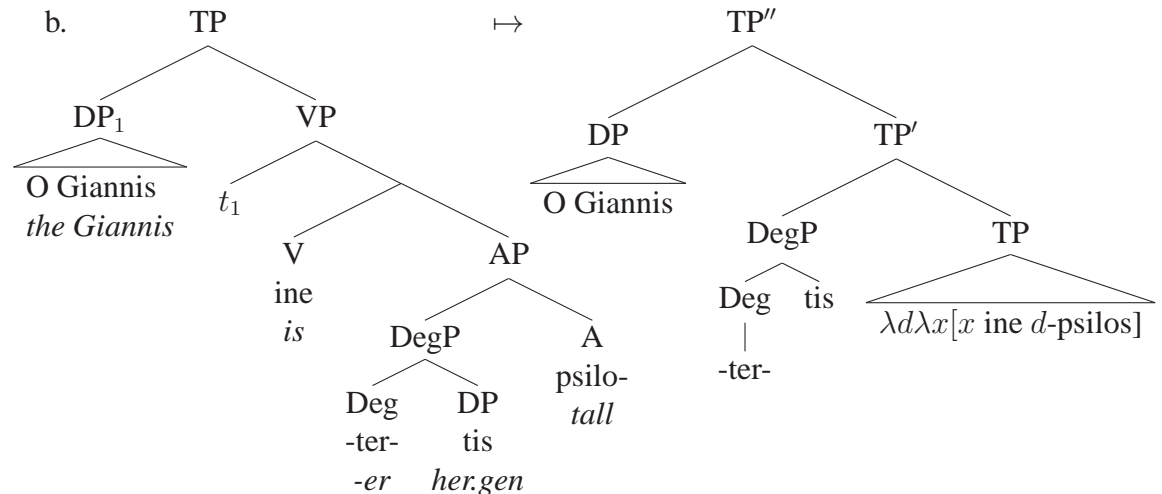(i) -er(x)(P)(y) $\leftrightarrow \exists d[P(y, d) \wedge \neg P(x, d)]$

(25)  $[\![\ \text{MORE}_I\ ]\!] = \lambda y \lambda g_{<d,et>} \lambda x [[\![\ \text{MORE}_D\ ]\!](max\{d''|g(d'')(y) = 1\})(g)(x)]$

In what follows, I will simplify the denotation of $\text{MORE}_I$ slightly, using the following:

(26)  $[\![\ \text{MORE}_I\ ]\!] = \lambda y \lambda D \lambda x [max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

If this denotation is assigned as an option to all three Greek comparative morphemes, and we furthermore make the standard assumption that the marker of the standard (*apo* or the genitive) is meaningless (that is, denotes an identity function over the type of its argument), then one is led to assume that DegP is in the specifier of or adjoined to AP (as Heim 2000, Beck 2010, and Bhatt and Takahashi 2011 do, for essentially the same reason). On such a Heimian analysis, a sentence like (44a) will have a derivation like that schematized in (44b). In this derivation, a phrase marker that feeds PF—the one on the left—is paired with an LF (on the right) by the application of two instances of QR.

(27)  a.  O   Giannis ine psiloteros tis.
          *the Giannis is   taller      her.*GEN
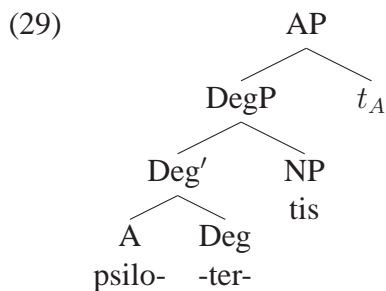          'Giannis is taller than her.'

   b.



The first instance of QR creates a derived predicate of individuals, and comes about by moving the subject DP to a clause-external position, and adding a corresponding $\lambda$-operator to abstract over the variable in its base position. The second instance of QR moves the DegP to a position *between* the derived position of the moved subject and the $\lambda$-operator that was introduced in the first instance (an instance of Barker 2002's 'parasitic scope'); this QR, targeting as it does a degree

13

quantifier, introduces a $\lambda$-operator that binds a type $d$ variable that is in the base position of the DegP.

The interpretations of the relevant nodes in this derived LF are given in (28):

(28)  a.  $[\![\, \text{DegP} \,]\!] \rightsquigarrow \lambda D \lambda x [max\{d|D(d)(x)\} > max\{d'|D(d')(her)\}]$
      b.  $[\![\, \text{TP}' \,]\!] \rightsquigarrow \lambda x [max\{d|tall(d)(x)\} > max\{d'|tall(d')(her)\}]$
      c.  $[\![\, \text{TP}'' \,]\!] \rightsquigarrow max\{d|tall(d)(Giannis)\} > max\{d'|tall(d')(her)\}$
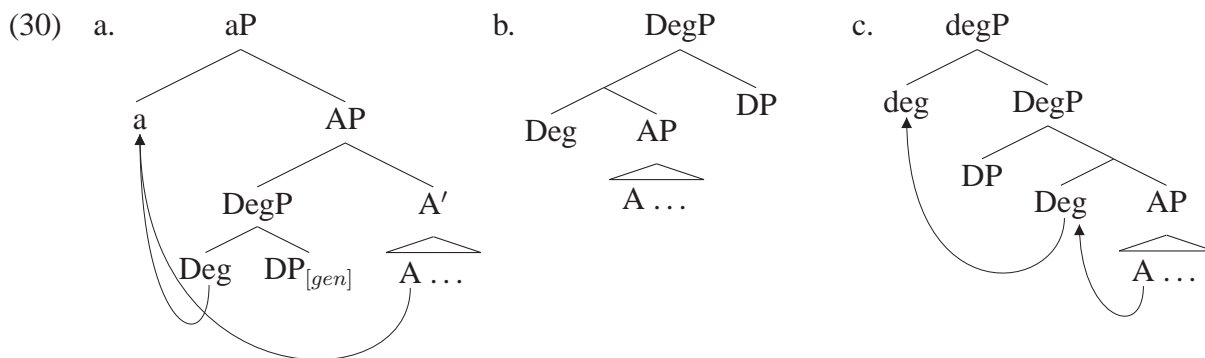
Naturally, this syntax, while perspicuous for the semantic composition, raises serious and nontrivial syntactic questions; it seems that there is in fact little to recommend this syntax on syntactic or morphological grounds. For starters, it would seem to require that we posit an otherwise unattested kind of head movement: movement of the A head to adjoin to the head of its own specifier:

(29)

```
                      AP
                     /  \
              DegP        t_A
             /    \
        Deg'       NP
       /   \       tis
      A     Deg
   psilo-   -ter-
```

Embick 2007 shows in fact that for similar facts from English, we do not want to posit a traditional kind of head movement, based especially on the fact that head movement would predict more interpretations than are possible: adverbs that intervene between the Deg head and the A head block synthetic comparatives, so *more amazingly smart ≠ amazingly smarter*. What he proposes instead, is that Deg and A, when adjacent, can be subject to a rule called Local Dislocation that takes the comparative Deg head and inverts it with the adjectival cluster; the result of this is subject to lexical insertion rules that yield the synthetic form. Bobaljik 2012 further shows that such a process correctly derives cross-linguistic generalizations about patterns of suppletion, while flatter, or purely lexical, approaches cannot. Unfortunately, Embick does not provide a structure that includes the standard, which is presumably selected for by the Deg head.

Several alternatives suggest themselves to account for the relative positioning of the standard and the adjectival head. First, we could posit, following Heim,

14

that Deg selects the standard as its complement and the resulting DegP is in the specifier of the AP, but that both the A and the Deg raise to another head above both, perhaps *a*, as in (30a). Second, we could suppose that exceptionally for Greek (and perhaps universally), the Deg head takes the standard as a rightward specifier, as in (30b) (or is a 'selected adjunct' in Kennedy 1999's sense, who makes a structurally equivalent proposal). Third, we could adopt a Larsonian DegP shell structure (Larson 1991, Xiang 2005), such as in (30c) (or a variant of it, in which Morphological Merger of Deg and A would feed head movement to deg). In the latter two structures, we would suppose that the genitive case is assigned to the specifier, while in the first, the genitive is assigned to the complement.

(30)  a.



Unfortunately, all three raise difficult issues, syntactic, semantic, or both. (30a) is convenient for case assignment (under the head-complement relation) and for the semantic composition, but involves two movements that are otherwise unattested to my knowledge: head movement out of a specifier, and double head movement to a single target. (30b) would provide an appropriate input to Embick or Bobaljik's algorithms, but involves the highly unusual positing of a rightward specifier, otherwise unattested in Greek, and would require that we change the order of arguments in the way we curry the function in (26). The third possibility, (30c), would leave Embick's intervention effects unexplained and require the same semantic move as (30b) (assuming that the head movements are undone for the purposes of the semantic computation).

More seriously than these technical objections, there is an empirical prediction that all three make that seems to be wrong: the structures in (30) all allow for the adjective to take internal arguments, as they indeed do in Greek as in English in absolute and analytic comparative forms:

(31)   a.  O   Giannis ine perifanos ja   tin  Anna.
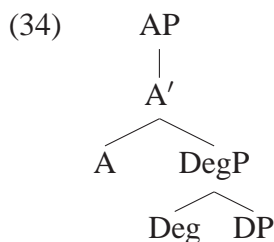          *the Giannis is   proud     for the Anna*

'Giannis is proud of Anna.'

b. O   Giannis ine veveos oti   tha  vreksi.
*the Giannis is   certain that will rain*
'Giannis is certain that is will rain.'

(32)   a. O   Giannis ine pjo   perifanos ja   tin Anna apo  ton Kosta.
*the Giannis is   more proud     for the Anna from the Kosta*
'Giannis is proud of Anna than Kostas is.'

b. O   Giannis ine pjo       veveos oti   tha  vreksi apo ton    Kosta.
*the Giannis is   certain that     will rain from   the  Kosta*
'Giannis is certain that is will rain than Kostas is.'

Adjectives with internal arguments appear to be far fewer in number than they are in English, both for PP complements and clausal complements. The result of this is that it appears that there is no adjective that takes a PP complement and has a synthetic comparative form (recall that adjectives formed from participles—by far the most common kind of adjective that takes PP complements—do not form synthetic comparatives); even *perifanos* 'proud', although not participial, does not appear to have a synthetic form (*\*perifanoteros*), and thus we cannot test to see where a genitive standard would appear with it. Luckily, *veveos* 'certain' does form a synthetic comparative, *veveoteros*, as in (33a); but this form does not allow a genitive of comparison when the internal argument is also expressed—compare (33e) and (33f).

(33)   a. O   Giannis ine veveoteros oti   tha  vreksi apo  sena.
*the Giannis is   certain-er  that will rain    from you*
'Giannis is more certain that it will rain than you are.'

b. O   Giannis ine veveoteros apo   sena oti   tha  vreksi.
*the Giannis is   certain-er  from you  that will rain*
'Giannis is more certain than you are that it will rain.'

c. O   Giannis ine pjo   veveos apo   sena oti   tha  vreksi.
*the Giannis is   more certain from you  that will rain*
'Giannis is more certain than you are that it will rain.'

d. O   Giannis ine pjo   veveos oti   tha  vreksi apo   sena.
*the Giannis is   more certain that will rain    from you*
'Giannis is more certain that it will rain than you are.'

e. O   Giannis ine veveoteros su.
*the Giannis is   certain-er  of.you*
'Giannis is more certain than you.'

f. * O   Giannis ine veveoteros su     oti  tha  vreksi.
   *the Giannis is   certain-er  of.you that will rain*
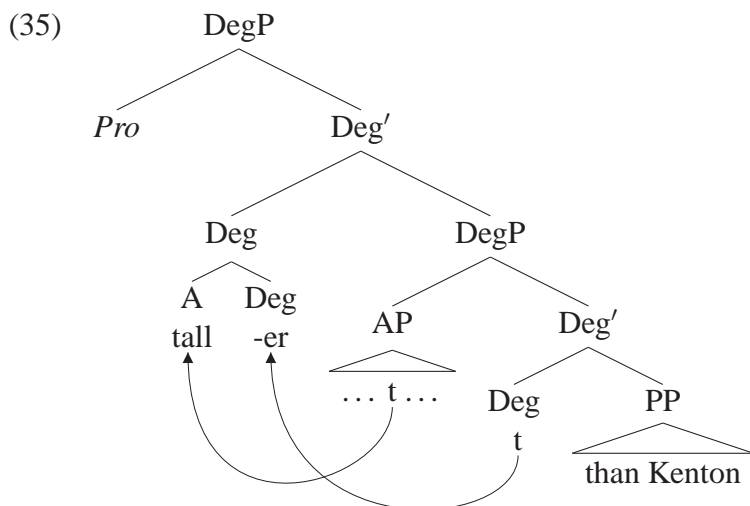   ('Giannis is more certain than you that it will rain.')

This pattern is reminiscent of the Righthand Head Rule of Williams 1981, which bans AP-internal arguments in attributive APs (*a proud of Anna woman, *a taller than Anna woman*). Greek does not have such a rule in general (as we will see below, both internal arguments of A and PP standards of comparison are possible with attributive APs), but one structural solution consistent with the facts and conducive to semantic interpretation would be to posit a consituent structure parallel to that which Abney 1987 did to account for the English Righthand Head Rule facts (and which Xiang 2005 argues is part of the correct structure for Chinese): just in this case, the A takes as its sole complement the DegP:

(34)     AP
         |
        A′
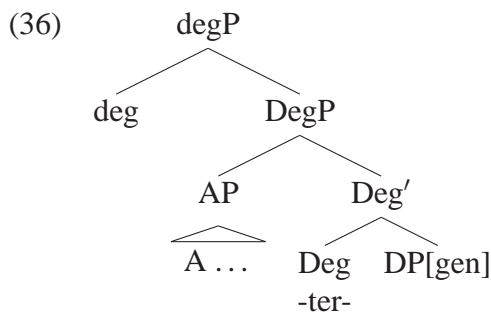      /   \
    A    DegP
        / \
     Deg  DP

Such a structure encodes the complementary distribution of internal adjectival arguments and the genitive standard, while making A and Deg adjacent, and thus able to undergo Bobaljik's Morphological Merger. In every other way, however, the structure in (34) seems unlikely. It also leaves unexplained the position of factor and differential phrases with the synthetic comparative, which, as (15) showed, appear before the adjectival head, just as they do with analytic comparatives (where they appear just before the morphemes *pjo* and *perisotero*, as expected).

In the end, we are left with a choice among alternatives that all bring with them something in need of additional explanation. Within the set of analyses that take it for given that *-ter-* is an independent Deg head, it seems that the degree shell idea of Larson 1991, in something hewing more closely to Larson's original proposal than (30c), does best justice to the word order facts (with factor and differentials optionally able to appear in the specifier of degP), while remaining consistent with Bobaljik's discoveries. Larson proposed that English *-er* moves from a lower Deg head to a higher one, and that head movement out of AP yields the attested synthetic form in English (Larson 1991:(133), with a thematic subject

in the higher specDegP; see also Izvorski 1995 and Xiang 2005 for variants of the DegP-shell analysis)):

(35)



The basic insight is to let the Deg head take as its complement the standard, and the AP as its second argument (again with factor or differentials appearing optionally in the specifier of degP). Applying this to the parallel Greek case with *-ter-* and the genitive standard yields the following:

(36)



The advantage of positing this structure is also that it allows us to assume, as is usual, that case assignment is done under a close locality relation: here, the head Deg assigns the genitive case to its complement. Under the Agree theory of case assignment, this means that this Deg head *-ter-* has a case feature with the value *genitive*, and that this head Agrees in case with the DP complement in (44), yielding the attested genitive form:

(37)   Partial lexical entry for *-ter-*:

a. *syntax*: [ Case:*genitive* ]

b. *semantics*: $\lambda y \lambda D \lambda x [max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

One can now posit head movement of Deg to deg, followed by Morphological Merger (for the synthetic comparative with *-ter-*):

(38)

```
                    degP
              ┌───────┴───────┐
            deg              DegP
          ┌──┴──┐         ┌────┴────┐
        Deg   deg        AP        Deg′
        -ter-          ┌──┴──┐    ┌──┴──────┐
                       A …      t   DP[gen]
```

If we assume that the empty deg head is irrelevant for the purposes of adjacency (if head movement always adjoins the moved element to the left of the target), the application of Morphol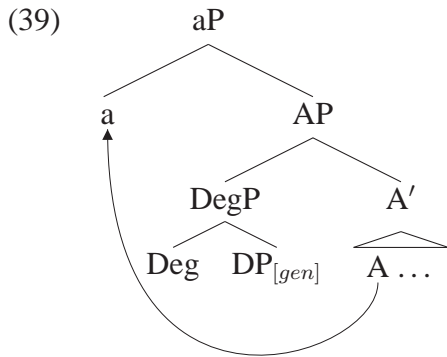ogical Merger and Local Dislocation between *-ter* and A will map the output of the concatenation operation, Deg⌢A, to A⊕Deg, for which lexical insertion will provide the synthetic form of A.

Naturally, if we follow Embick 2007 in positing that Local Dislocation operates on the output of linearization, we can consider a variant of (30a) above, namely one in which only A moves to *a* and the Deg head remains inside DegP:

(39)

```
                    aP
              ┌─────┴───────┐
             a             AP
                      ┌──────┴──────┐
                    DegP           A′
                  ┌──┴──────┐    ┌──┴──┐
                Deg   DP[gen]    A …
```

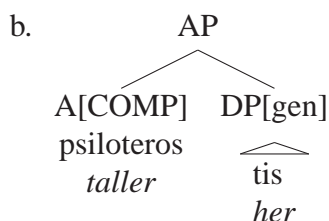This structure sidesteps the strange positing of head movement out of a specifier, as well as the necessity of having two instances of head movement target the same higher position. Instead, the structure in (39) involves only one, standard, instance of head movement, and yields the desired order of elements, to which Morphological Merger and morpheme insertion can apply directly: [$\sqrt{psilo}$-a]⌢Deg

$\mapsto$ *psiloteros*.[16] This structure also has the welcome consequence that the portmanteau agreement/case morphemes can be realized as *a*, or indeed on A in some kind of lexical assignment analysis.

The unsolved puzzle on all the plausible structures is the absence of internal arguments to A: I suspect, as others have for the Righthand Head Rule, that a prosodic constraint is violated when the genitive co-occurs with an internal argument. Both phrases need to be final in some prosodic domain created by or headed by the adjective, and when this is not possible, one must be phonologically absent. This constraint is in force only with the genitives, which only occur with the synthetic form; it is worth noting that the most frequent use of the genitive standard is with personal pronouns. These pronouns are enclitic on the adjective, and in fact famously add a floating accent to the adjective: *psilóteros apo ton Kósta* (taller from the Kosta) vs. *psilóterós tu* (taller of.him). This second lexical stress is unusual in Greek (Greek words have a single main stress) and the prosodic re-bracketing that seems to have to occur with these appears to leave no margin for additional material, however such a constraint is best implemented.

One could also pursue a flatter constituent structure, of course, and construct a different semantic analysis entirely; a simple set of phrase-structure rules with linear constraints would capture the data as well:

(40)  a.  AP $\rightarrow$ A[COMP] (DP[gen]) (XP), where DP[gen] must align with $]_{AP}$

   b.
```
              AP
             /  \
     A[COMP]    DP[gen]
     psiloteros    /\
       taller    tis
                 her
```

Bearing these complications in mind, I will adopt in the remainder of this paper the structure in (39), without in general indicating the result of head movement, so that an example like *psiloteros tis* (taller of.her) will have the following representation:

---

[16]This structure is also consistent with a more lexicalist theory of the realization of *-ter-*: a comparative DegP, headed by a comparative but empty Deg, could value A as 'comparative', with a traditional inflectional realization of synthetic comparative As.

(41)

```
              aP
             /  \
            a    AP
                /  \
             DegP    A
             /  \   psilo-
          Deg   DP
          -ter-  tis
```

We are now in a position to understand how the generalizations in (18) come about. First, the genitive must be adjacent to the synthetic degree adjective, formed with *-ter-*, because only *-ter-* assigns the genitive; *pjo* and *perisotero* do not, by hypothesis. We must further assume that the genitive-marked DP cannot scramble out of the DegP, of course, but this is a well known independent condition on the positioning of genitive DPs in Greek: selected genitives (or argumental genitives), unlike possessors, are restricted to their base positions. Second, the semantic restrictions (no measure phrase complements, etc.) follow from the posited denotation of the morpheme in (37).

The resulting structures are not just entirely consistent with Heimian assumptions about the derivation of comparatives, they are isomorphic to them. Recall that on such an account, as Bhatt and Takahashi 2011 show in detail, the derivation proceeds in two steps: first, the correlate (or 'associate') to the standard takes scope, creating a derived predicate of type <e,t>, as in (42a). Then the DegP takes 'parasitic scope', QRing to a position between the target of comparison and its associated predicate, yielding (42b) as the final LF representation, and which is interpretable with repeated applications of $\lambda$-conversion as shown above in (44).

(42)  a.  TP  ↦ b.  TP

DP  λ1  VP         DP  DegP  λ2

O Giannis          O Giannis  Deg  DP  λ1  VP
*the Giannis*  t₁  V  aP          -ter-  tis  t₁

                ine  a  AP                    V  aP
                *is*                          ine
                    DegP  A                        a  AP
                          psilo-
                    Deg  DP  *tall*                     t₂  A
                    -ter-  tis                              psilo-
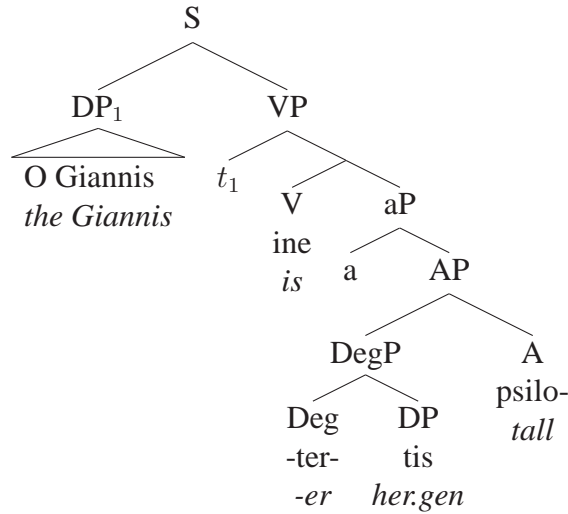                    *-er*  *her.gen*

While this yields the correct result for simple predicative structures like (42), allowing the DegP to scope gives an incorrect result in attributive comparatives. In (43a), for example, the derived predicate where DegP would take parasitic scope includes the predicate *man*, as seen in the LF in (43b): for a sentence with this LF to be true, the standard of comparison (here, *she*) would have to be a man. But the Greek does not entail this: indeed, the Greek means only that Kostas is a man who is taller than she is (tall).

(43)  a.  O  Kostas ine enas psiloteros tis  andras. ↦
          *the Kostas is  a  taller  of.her man*
          'Kostas is a man who is taller than she is.'
      b.  LF: (!) Kostas [$_{DegP}$ $-ter$ she ] [ $\lambda d \lambda x[x$ is a $d$-tall man]]

Fortunately, given the assumption adopted here that adjectives denotes in <d,et> (that is, they denote function from degrees to individuals who possess the relevant attibute to that degree), the adjective itself is the correct type to compose with DegP in situ: no QR is necessary. Indeed, as we've just seen, QR must *not* be allowed in these structures. Using Kennedy's (26) as the meaning of *-ter-*, then, permits the derivation sketched below:
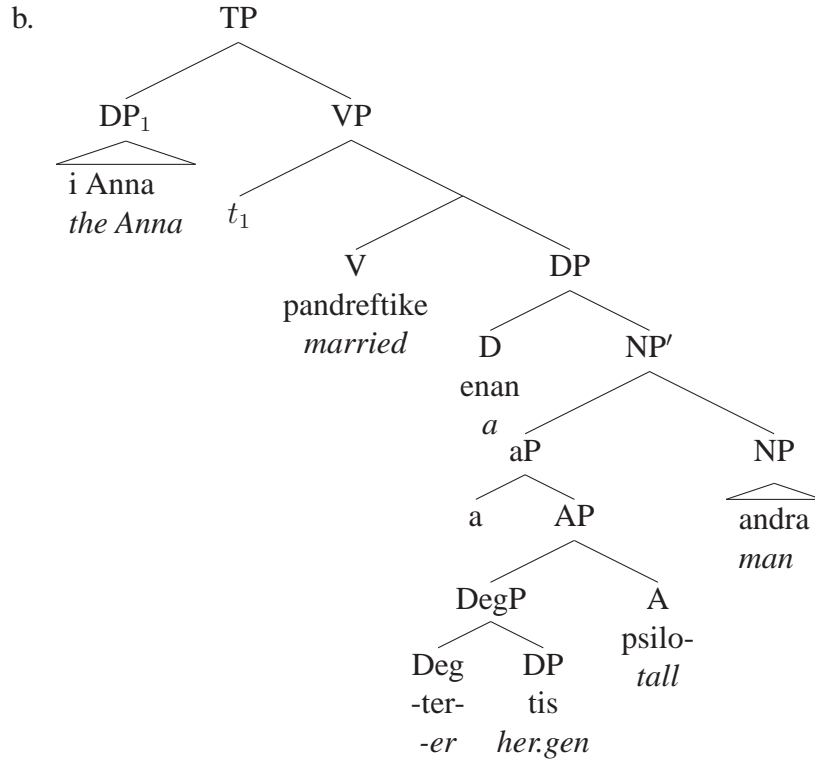
(44)

```
                    S
          ┌─────────┴─────────┐
        DP₁                   VP
     ┌────┴────┐          ┌───┴────┐
  O Giannis   t₁         V        aP
  the Giannis            ine   ┌───┴────┐
                          is   a       AP
                                   ┌────┴─────┐
                                 DegP         A
                              ┌───┴───┐     psilo-
                            Deg      DP      tall
                            -ter-    tis
                            -er    her.gen
```

(45)  a.  $[\![\,\text{DegP}\,]\!] \rightsquigarrow \lambda D \lambda x [max\{d|D(d)(x)\} > max\{d'|D(d')(her)\}]$
  b.  $[\![\,\text{AP}\,]\!] \rightsquigarrow \lambda x [max\{d|tall(d)(x)\} > max\{d'|tall(d')(her)\}]$
  c.  $[\![\,\text{S}\,]\!] \rightsquigarrow max\{d|tall(d)(Giannis)\} > max\{d'|tall(d')(her)\}$

This lexical entry for *-ter-* in (37) also accounts for its behavior in attributive phrases. As we've seen, genitives of comparison can be used in attributives, as in the following example, and the semantic computation is as follows (continuing to posit that the head *a* of aP contributes nothing):

(46)  a.  I    Anna pandreftike enan psilotero tis       andra.
      *the Anna married.3s a      taller   her.GEN man*
      'Anna married a man taller than her.'

23

b. TP

DP$_1$ VP

i Anna
*the Anna*   $t_1$

V   DP
pandreftike
*married*

D   NP′
enan
*a*

aP   NP

a   AP   andra
*man*

DegP   A
psilo-
*tall*

Deg   DP
-ter-   tis
*-er*   *her.gen*

(47)  a. ⟦ DegP ⟧ ⟿ $\lambda D\lambda x[max\{d|D(d)(x)\} > max\{d'|D(d')(\text{her})\}]$

b. ⟦ AP ⟧ ⟿ $\lambda x[max\{d|\text{tall}(d)(x)\} > max\{d'|\text{tall}(d')(\text{her})\}]$

c. ⟦ NP ⟧ ⟿ $\lambda z[\text{man}(z)]$

d. ⟦ NP′ ⟧ ⟿ $\lambda x[\text{man}(x)\wedge[max\{d|\text{tall}(d)(x)\} > max\{d'|\text{tall}(d')(\text{her})\}]]$
(by Predicate Modification)

e. ⟦ DP ⟧ ⟿ $\exists x[\text{man}(x)\wedge[max\{d|\text{tall}(d)(x)\} > max\{d'|\text{tall}(d')(\text{her})\}]]$

f. ⟦ TP ⟧ ⟿ $\exists x[\text{man}(x) \wedge [max\{d|\text{tall}(d)(x)\} > max\{d'|\text{tall}(d')(\text{her})\}]$
$\wedge \text{married}(\text{anna}, x)]$

We are free to understand *her* in (46a) as picking out the individual named by *Anna*, or not, just as in the English *Anna married a man taller than her*.

These facts also indicate that the gender feature on the adjective need not be interpreted under the scope of the comparative, as examples like (46a) do not entail that 'she' is a male (see Merchant 2011 for discussion of the nature of gender features in Greek). This result can be achieved by letting the gender feature node in Heim 2008's sense scope out, or, more simply given the structure I have argued for here, by assuming that the adjectival agreement morpheme is in *a* or

between *a* and AP: putting it higher than AP ensures that its interpretation will not form part of the meaning of the predicate that must be true of the standard. It is less than clear how a lexical approach to gender features on the adjective would accommodate this fact.

The analysis also makes the correct prediction that certain structural ambiguities found with other comparatives (in particular with *apo*-phrasal comparatives, as the next section explores) will not be found with genitives. Because a DegP headed by this *-ter-* cannot undergo QR, nonlocal readings of comparisons are expected to be absent. This expectation is correct: the example in (48) is unambiguous—it can mean only what is indicated in (48a), not (48b).

(48)  Thelo na    ime psiloteros tis.
      *I.want* SUBJ *I.am taller     of.her*
      'I want to be taller than her.'
      a.  = I want to be taller than she is <tall>.
      b.  ≠ I want to be taller than she wants to be <tall>.

A further correct prediction comes from the behavior of genitives in attributive comparatives. As is well known, even phrasal comparatives give rise to an ambiguity, seen in (49) (called the 'Narrow Reading' and 'Wide Reading' respectively in Lerner and Pinkal 1995, for example):

(49)  Abby met a taller man than you.
      a.  = Abby met a taller man than you are (a tall man).      'NP' reading
      b.  = Abby met a taller man than you met (a tall man).      'VP' reading

Because of the effects of the Righthand Head Rule in English, we cannot test the pure adjectival meaning with a prenominal attributive; such a meaning requires a permutation of the noun and adjective, as famously discussed by Bresnan 1973 and others:

(50)  Abby met a man taller than you. (= than you are (tall))      'AP' reading

Since Greek does not exhibit any restrictions like the Righthand Head Rule, we might well expect to find all three readings possible.[17] But in fact, with genitive-marked standards, only the 'AP'-reading (given in (51d)) is found; the 'VP' and

---

[17]As Heim 1985 points out, it's not quite clear what blocks the unattested narrow reading on the ellipsis (e.g., Bresnan's) analysis, other than the stipulation that the ellipsis take as its antecedent the node to which the *than*-clause is attached; this is unlike better understood ellipses, which are subject to no such requirement. Something similar would have to be said if Lechner and Bhatt

'NP'-readings of (51e,f) are absent. (A further difference is due to the adjacency requirement on the genitive, ruling out cases like (51c), where the genitive standard is not adjacent to the comparative adjective.)

(51) (Milondas ja tin adherfi mu tin Eleni... *Speaking of my sister Eleni...*)

    a. Exo    enan jo   megalitero tis.
      *I.have a     son older     her.*GEN

    b. Exo    enan megalitero tis      jo.
      *I.have an    older     her.*GEN *son*

    c. \* Exo   enan megalitero jo   tis.
       *I.have an   older     son her.*GEN

    d. (a),(b) = I have a son who is older than Eleni is. <$d$-old>

    e. (a),(b) $\neq$ I have a older son than Eleni does. <have an $d$-old son>

    f. (a),(b) $\neq$ I have an older son than Eleni is <a $d$-old son>.

These facts follow directly from the *in situ* analysis, as the DegP combines only with the A, and does not QR. Thus all the attested properties of synthetic comparatives with genitive standards are captured by the lexical entry in (37), of type <e,De>.

While this analysis is successful for the facts of the genitive of comparison, the other phrasal comparative in Greek, formed with the preposition *apo*, has a wider distribution.

## 3.2 *Apo*-marked phrasal comparatives

We have seen that *apo*-phrasal comparatives can occur both with synthetic and analytic forms of the comparative and that they enjoy a positional freedom not shared by the genitives of comparison (they also allow measure phrases as their complement, a fact which I will return to below, and in some circumstances license nominal subcomparatives). But *apo*-phrasal comparatives also give rise to a wider set of meanings that genitive phrasal comparatives: they give rise to the set of structural ambiguities that we have just seen are excluded for genitives. First, *apo*-phrases give rise to the following ambiguity:
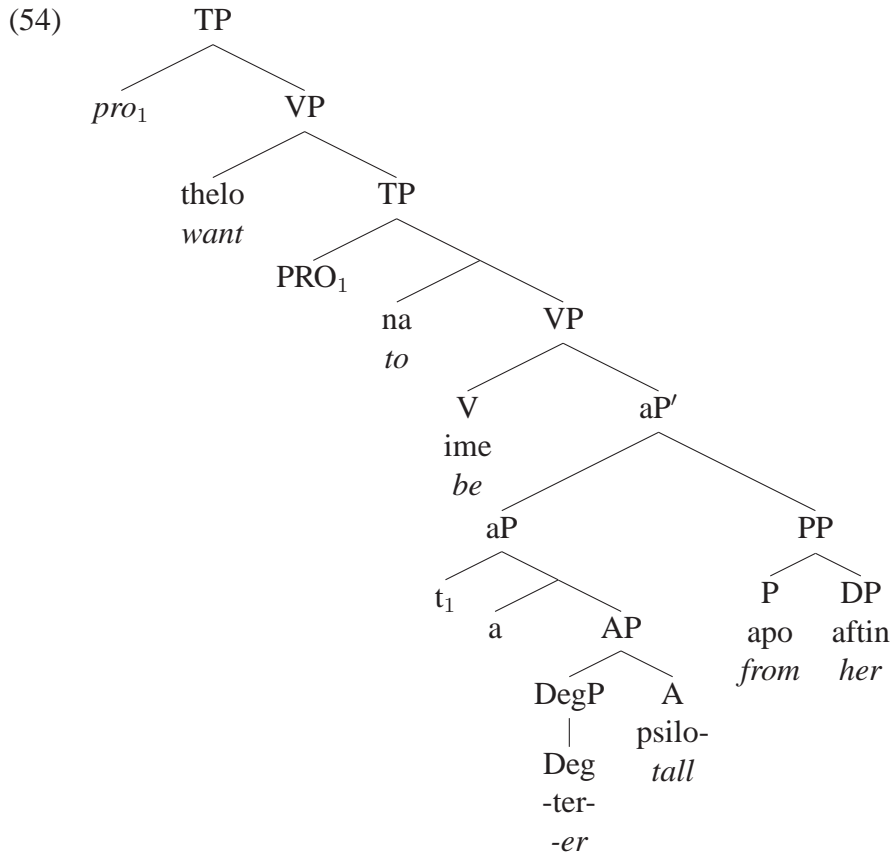
---

& Takahashi were right that English lacks phrasal comparatives. Analyses that follow Hankamer 1973 still need to block a reduced clausal source for such examples of course: cf. Italian *di* vs. *che* comparatives (Donati 2000).

(52)   Thelo na   ime psiloteros apo aftin.
       *I.want* SUBJ *I.am taller.masc from her*
       'I want to be taller than her.'

    a.   = I want to be taller than she is &lt;tall&gt;.

    b.   = I want to be taller than she wants to be &lt;tall&gt;.

This ambiguity can be accounted for if we allow *apo* to adjoin at various positions in the structure, and if the comparative morphemes that license *apo* have the meanings given in (53), while *apo* itself is an identity function over individuals: $[\![\,apo\,]\!] = \lambda x_e[x]$.

(53)   a.   $[\![\,pjo\,]\!] = \lambda D_{<d,et>}\lambda x_e\lambda y_e[max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

    b.   $[\![\,perisotero\,]\!] = \lambda D_{<d,et>}\lambda x_e\lambda y_e[max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

    c.   $[\![\,\text{-ter}\,]\!] = \lambda D_{<d,et>}\lambda x_e\lambda y_e[max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$
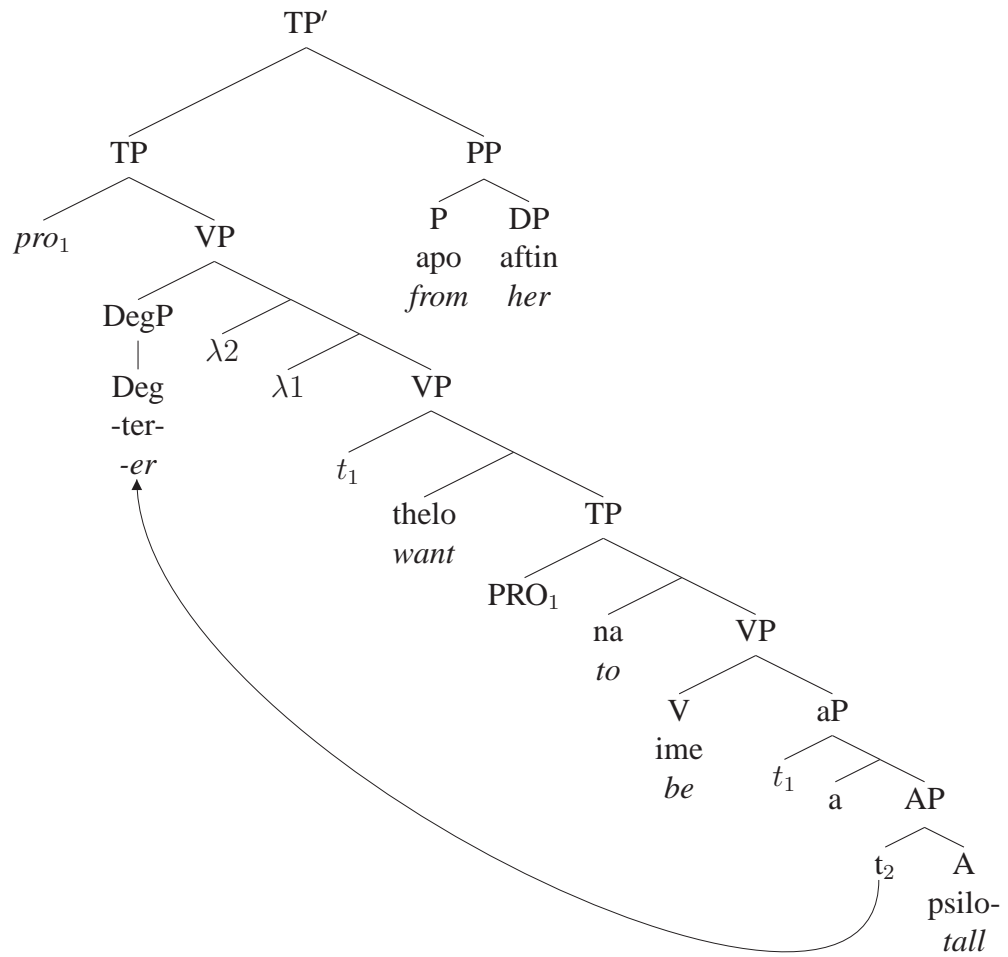
With the *apo*-PP attached low as in (54), at the edge of the aP, and assuming, following Larson 1991, that the subject of such predications starts as an argument of the extended aP, we generate the reading in (52a):

(54)

```
                    TP
          ┌─────────┴─────────┐
        pro₁                  VP
                    ┌─────────┴─────────┐
                  thelo                 TP
                  *want*      ┌──────────┴──────────┐
                            PRO₁                    
                                    ┌───────────────┴────────┐
                                   na                        VP
                                   *to*            ┌──────────┴──────────┐
                                                   V                     aP′
                                                  ime          ┌──────────┴──────────┐
                                                  *be*        aP                     PP
                                                      ┌────────┴───────┐        ┌─────┴─────┐
                                                     t₁               a    AP    P        DP
                                                              ┌───────┴───┐   apo      aftin
                                                             DegP          A  *from*    *her*
                                                              │          psilo-
                                                             Deg          *tall*
                                                            -ter-
                                                            *-er*
```

(55)  a.  $[\![$ psilo- $]\!] \rightsquigarrow \lambda d \lambda x[\text{tall}(d)(x)]]$

  b.  $[\![$ AP $]\!] \rightsquigarrow \lambda x \lambda y[max\{d|\text{tall}(d)(x)\} > max\{d'|\text{tall}(d')(y)\}]$

  c.  $[\![$ aP $]\!] \rightsquigarrow \lambda y[max\{d|\text{tall}(d)(t_1)\} > max\{d'|\text{tall}(d')(y)\}]$

  d.  $[\![$ aP′ $]\!] \rightsquigarrow [max\{d|\text{tall}(d)(t_1)\} > max\{d'|\text{tall}(d')(\text{she})\}]$

If the *apo*-PP attaches to the higher VP, however, we generate the reading in which the meaning of the matrix VP is in the scope of the comparison; this reading requires that the DegP headed by *-ter-* (or *pjo*, or *perisotero*) QR to a scope position below the associate (target) of comparison:

(56)

TP′
├── TP
│   ├── *pro*₁
│   └── VP
│       ├── DegP
│       │   └── Deg
│       │       -ter-
│       │       *-er*
│       └── λ2
│           └── λ1
│               └── VP
│                   ├── $t_1$
│                   └── thelo / *want*
│                       └── TP
│                           ├── PRO₁
│                           └── na / *to*
│                               └── VP
│                                   ├── V ime / *be*
│                                   └── aP
│                                       ├── $t_1$
│                                       └── a
│                                           └── AP
│                                               ├── t₂
│                                               └── A psilo- / *tall*
└── PP
    ├── P apo / *from*
    └── DP aftin / *her*

(57)  a.  $\lambda d \lambda x[x\text{-wants-to-be-}d\text{-tall}]$

b.  $[\![\, VP \,]\!] \rightsquigarrow \lambda x \lambda y[max\{d|x\text{-wants-to-be-}d\text{-tall}\} > max\{d'|y\text{-wants-to-be-}d'\text{-tall}\}]$

29

c. $[\![\text{ TP }]\!] \leadsto \lambda y[max\{d|pro\text{-wants-to-be-}d\text{-tall}\} > max\{d'|y\text{-wants-to-be-}d'\text{-tall}\}]$

d. $[\![\text{ TP}']\!] \leadsto [max\{d|pro\text{-wants-to-be-}d\text{-tall}\} > max\{d'|\text{she-wants-to-be-}d'\text{-tall}\}]$

The sister to the moved DegP will be the derived degree predicate in (57a), and the higher nodes will have the translations given in (57b-d). This derivation relies on two properties worth noting: first, *this* DegP can QR, even out of a finite clause; and second, the *than*-phrase is a simple adjunct to wherever the DegP ends up scoping to. One might suppose that the *than*-PP has 'extraposed' from within the DegP, but this operation of 'extraposition' would have to have properties different from usual instances of PP extraposition from AP (that is, since argument PPs of attributive As cannot extrapose outside the NP, but *than*-clauses can), and it is unclear how to distinguish this movement from better understood instances of movement. Furthermore, this 'extraposition' would have to leave no trace. It is simpler to base-generate the *than*-phrase in its surface position, which, in these cases, is also the position it is interpreted in. The apparent 'selection' of *apo* by *pjo* etc. is not; the co-variation among these items (and *as...as* for equatives) will have to be ascribed either to a kind of agreement mechanism or indeed to the semantics of the elements involved. One possibility for the latter would be to assign to *apo* a directional source meaning, which would map an individual to a set of vectors originating at that individual and pointing away from that individual (see Zwarts and Winter 2000); it is then trivial to redefine the meanings of *pjo*, etc. to take not an individual as their third argument, but a set of vectors, and to include in the meaning a reverse mapping from that set of vectors to the unique individual at those vectors' origin point. This move would assign a regular prepositional semantics to *apo*, and make the comparative morphemes that co-occur with *apo* undo the contribution of the preposition. There is no a priori way to decide whether traditional notions of 'selection' (implemented by selectional features of Deg, for example, or by phrase-structure rules) or such a semantic alternative is preferable. See Schwarzschild 2012 for a recent approach using a vector semantics.

The fact that (52) with the LF in (56) is uttered by a man (the adjective *psiloteros* shows masculine singular agreement with the unpronounced first person singular subject) again shows that the gender features on the AP must be able to take high scope, and can be interpreted outside the scope of comparison, or are not interpreted on the adjective at all, being merely a morphological reflex of the agreement relations controlled by the features of the matrix subject (see Merchant

2011 for discussion and references).

The contrast in the range of meanings possible with genitives of comparison compared to *apo*-marked standards of comparisons is seen with attributives as well. *Apo*-marked standards, when combined with attributive comparatives, either pre- or post-nominally,[18] give rise to the familiar ambiguity seen in (58); the permutations in (58a) and (58c) permit either of the readings indicated in (58d) and (58e), while the variant in (58b) appears to be unambiguous.[19] The examples in (59) illustrate the pattern as well.

(58)　(Milondas ja tin adherfi mu tin Eleni... *Speaking of my sister Eleni...*)

    a. Exo　enan jo　megalitero apo　aftin.
    *I.have a　　son older　　from her.*ACC

    b. Exo　enan megalitero apo　aftin　　jo.
    *I.have an　older　　from her.*ACC *son*

    c. Exo　enan megalitero jo　apo　aftin.
    *I.have an　older　　son from her.*ACC

    d. (a), (b), (c) = I have a son who is older than Eleni is. <*d*-old>　'AP'-reading

    e. (a), (c) = I have a older son than Eleni does.　<have an *d*-old son> 'VP'-reading

(59)　(A married woman speaking to her married sister:)

    a. Exis　　enan andra　　psilotero apo　mena.　　('AP' or 'VP')
    *you.have a　husband taller　　from me*

    b. Exis　　enan psilotero apo　mena andra.　　('AP', no 'VP')
    *you.have a　taller　　from me　husband*

    c. Exis　　enan psilotero andra　　apo　mena.　　('AP' or 'VP')
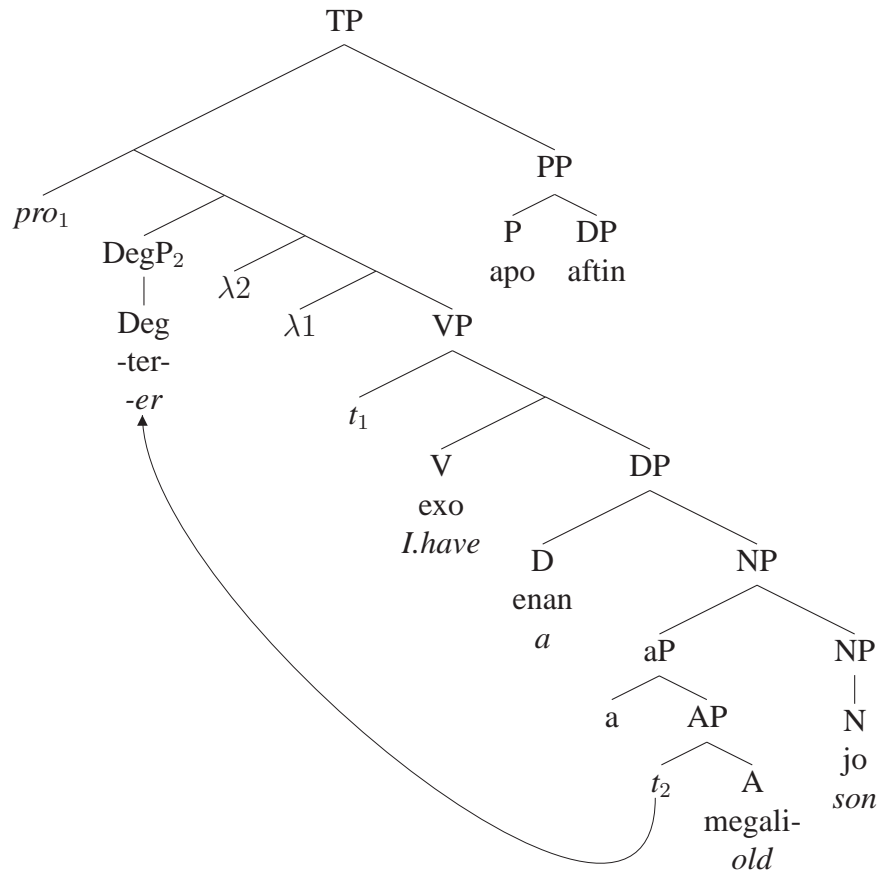    *you.have a　taller　　husband from me*

---

[18]As Alexiadou et al. 2007 note, the postnominal adjective ordering cannot be assimilated to a reduced relative structure, as the case on the adjective agrees with that of the noun, just as is usual for attributive APs; predicative APs would appear in the nominative: *Exo enan jo pu ine megaliteros/*megalitero* (I.have a.ACC son.ACC that is older.NOM/*older.ACC).

[19]I note that some speakers report the same ambiguity for the (b) examples in (58) and (59), though judgments do not seem secure; more empirical investigation is called for. To the extent that these speakers' judgments reflect these structures accurately (and are not merely influenced by extraneous factors of the judgment task, in particular interference from examples like (a) and (c)), such speakers apparently allow a kind of local dislocation of the *apo*-phrase from the pronominal adjectival phrase.
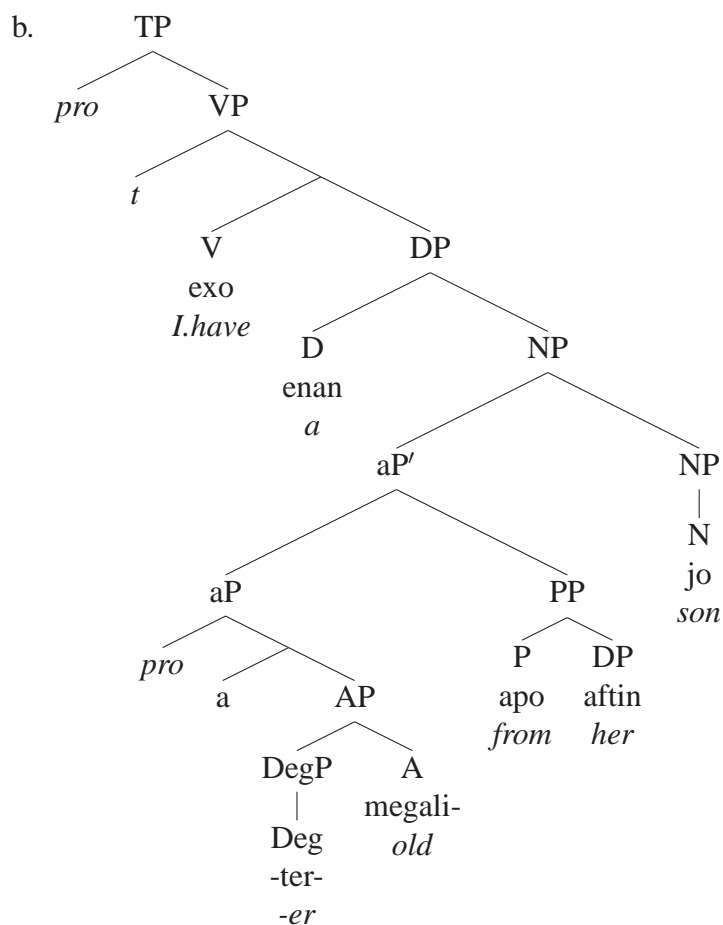
d.  (a), (b), (c) = you have a husband who is taller than I am.'AP'-reading

e.  (a), (c) = you have a taller husband than I have.          'VP'-reading

This ambiguity is also typically accounted for by positing a difference in height of attachment of the *than*-phrase: when the *than*-phrase attaches outside the VP,[20] the 'VP'-reading in (58e) is derived; when the *than*-phrase is read as attached internally to the attributive AP (or DegP), the 'AP'-reading in (58d) is derived. The relevant LFs for (58c), after QR of the DegP, are given in (60a) and (60b), respectively.

(60)  a.



---

[20]At LF, given the semantics; famously, the comparative can take scope no lower than where the *than*-phrase is attached overtly (the extraposition-scope generalization of Williams 1974; see Fox 2002 and Bhatt and Pancheva 2004 for recent discussions).

b.

```
                    TP
                  /    \
               pro      VP
                       /  \
                      t    \
                          /  \
                         V    DP
                        exo  /  \
                       I.have    \
                            D      NP
                          enan    /  \
                            a    /    \
                               aP'     NP
                              /  \      |
                            /     \     N
                          aP       PP   jo
                         /  \     /  \  son
                       pro   \   P    DP
                         a   AP  apo  aftin
                            /  \ from  her
                         DegP    A
                           |   megali-
                          Deg   old
                         -ter-
                          -er
```

Since (58b) and (59b) are unambiguous, lacking the 'VP'-reading, we conclude that the *apo*-PP is not allowed to take scope covertly.

Unlike the famous English facts discussed by Bresnan 1973 (*#You met a taller man than my mother is*), which are problematic for ellipsis analyses like those of like Lechner 2001, 2004, Pancheva 2006, 2009, and Merchant 2009, the Greek facts from *apo*-comparatives are readily understandable on ellipsis analyses: any suitable AP or VP can serve as the antecedent to the ellipsis, as long as the *apo*-phrase is not internal to that AP or VP (leading to antecedent-containment). One could, therefore, pursue a comparative ellipsis analysis for *apo*, with the properties that are explored in Merchant 2009 (because Greek allows for subject comparisons

with nonsubject standards, the particular ellipsis account that works for Slavic, as Pancheva 2009 showed, should not be extended to Greek). One possibility for distinguishing these approaches would come from binding theoretic facts of the kind that Lechner 2001 uses; given the relative complexity of the judgments tasks needed, however, I am not at this point able to report on the outcomes of those experiments. For that reason, I will here keep to the simple PP analysis for *apo*-phrases; while Merchant 2009 has shown that it is possible to posit a clausal source for what appear to be *apo* phrasal comparatives, doing so requires considerable analytical ingenuity and raises a number of questions that need not be addressed on the classical PP analysis following Hankamer 1973.

## 3.3 Inventory of comparative markers

If all the semantic work is done by the comparative morpheme(s), as is usually assumed, then we need to posit all of the following in Greek.

(61)  with *ap'oti*[21]:
$[\![ \text{MORE}_D ]\!] = [\![ \text{pjo/perisotero/-ter-}^1_{\text{dDe}} ]\!] = \lambda d\lambda g_{<d,et>}\lambda x[max\{d'|g(d')(x)\} > d]$

(62)  with *apo*:
$[\![ \text{MORE}_I ]\!] = [\![ \text{pjo/perisotero/-ter-}^2_{\text{Dee}} ]\!] = \lambda D_{<d,et>}\lambda x_e\lambda y_e[max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

(63)  with genitive:
$[\![ \text{MORE}_I ]\!] = [\![ \text{-ter-}^3_{\text{eDe}} ]\!] = \lambda y\lambda D\lambda x[max\{d|D(d)(x)\} > max\{d'|D(d')(y)\}]$

*Condition*: the DegP headed by *-ter-*$^3_{\text{eDe}}$ cannot QR

The last two items, in (62) and (63), are both variants of the individual-taking morpheme of Kennedy 2007b: they differ only in the order in which they take their arguments—in other words, the order in which currying the function occurs (as I have indicated with the mnemonic subscripts *Dee* and *eDe* on the two). There are thus three morphemes *-ter-* in the lexicon of Greek: one corresponding to MORE$_D$ that co-occurs with the clausal comparatives, and two phrasal comparatives variants. These last two, as we have seen, differ in more than just the semantic order of arguments: the *eDe* version assigns the genitive, while the *Dee* version does not. Neither of the other two variants of the *Dee*-morpheme, *pjo* and *perisotero*,

---

[21]Strictly speaking, this is just *apo* that takes a degree-denoting CP starting with *oti, oso, os-i, etc.* (if CP is the category of free relatives) or a degree-denoting DP (for measure phrases).

have the ability to assign the genitive, and this accounts for the fact that genitives of comparison only occur with synthetic comparatives built with *-ter-*.

Naturally, this is quite an inventory: one may well suspect that perhaps a fruitful route to explore would be to assign some meaning to the *than*-morphemes themselves, using a division of semantic labor. This is indeed the path pursued in more recent work by Alrenga et al. 2012 and Schwarzschild 2012, and strikes me as a logical next step, in particular as a way to account for the facts without needing to stipulate that the *eDe* cannot QR, while the *Dee* one can.

One possibility for reducing this inventory to two, instead of three, items would be to claim that there is only the scopable Dee version of (62), but that 1. only *-ter-* can assign genitive (though when it does not, there is no penalty; there is no 'Inverse Case Filter' requiring that Case features be assigned) and 2. the observed scopal effects are due to the fact that the genitive-marked DP cannot be moved, neither overtly (through 'extraposition' or the like) nor covertly (by QR). In that case, the differences in distribution would be entirely due to syntactic differences in the expression of the standard. I leave adjudication of these possibilities to another occasion.

# 4 Conclusions

While there are other languagues that mark the difference between phrasal and clausal comparatives, these all to my knowledge either contrast the clausal (included reduced clausal) with a single way of marking the phrasal comparative: with a case (ablative in Latin and Turkish, genitive in Russian, etc.) or an adposition (*di* in Italian, *ot* in Bulgarian, *se* in Hindi, *yori* in Japanese, etc.). I know of no other language that has *two* phrasal comparatives as Greek does, using *both* a case and an adposition strategy.

This richness is just what we expect, however, given the cross-linguistic distribution of standard markers: nothing leads us to expect that a single language could not make use of both strategies simultaneously. But, as we have seen, the two strategies are not coextensive: in Greek, the prepositional phrasal comparative has a wider distribution than the genitive, a fact that either reduces to the fact that the degree head that assigns the genitive cannot undergo QR, or a syntactic fact about the positional possibilities for genitive DPs.

Finally, this analysis makes crucial use of the fact that in the two phrasal comparatives, the order of semantic composition differs. This is consistent with their differing syntax, and is an interesting consequence of the restrictive theory of the

syntax-semantics interface adopted here.

# References

Abney, Steven. 1987. The English noun phrase in its sentential aspect. Doctoral Dissertation, Massachusetts Institute of Technology.

Alexiadou, Artemis, and Elena Anagnostopoulou. 1998. Parametrizing Agr: word order, V-movement and EPP-checking. *Natural Language and Linguistic Theory* 16:491–539.

Alexiadou, Artemis, Liliane Haegeman, and Melita Stavrou. 2007. *Noun phrase in the generative perspective*. Berlin: Mouton de Gruyter.

Alrenga, Peter, Chris Kennedy, and Jason Merchant. 2012. A new standard of comparison. In *Proceedings of WCCFL 30*, ed. James McCloskey. UC, Santa Cruz: West Coast Conference on Formal Linguistics.

Barker, Chris. 2002. Continuations and the nature of quantification. *Natural Language Semantics* 10:211–242.

Beck, Sigrid. 2010. Quantifiers in *than*-clauses. *Semantics and Pragmatics* 3:1–72.

Bhatt, Rajesh, and Roumyana Pancheva. 2004. Late merger of degree clauses. *Linguistic Inquiry* 35:1–46.

Bhatt, Rajesh, and Shoichi Takahashi. 2011. Reduced and unreduced phrasal comparatives. *Natural Language and Linguistic Theory* 29:581–620.

Bobaljik, Jonathan David. 2012. *Universals in comparative morphology*. Cambridge, Mass.: MIT Press.

Bowers, John. 1975. Adjectives and adverbs in English. *Foundations of Language* 13:529–562.

Bresnan, Joan. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4:275–343.

Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, Massachusetts: MIT Press.

Corver, Norbert. 1990. The syntax of left branch extractions. Doctoral Dissertation, Katholieke Universiteit Brabant.

Corver, Norbert. 1997. Much-support as a last resort. *Linguistic Inquiry* 28:119–164.

Donati, Caterina. 2000. *La sintassi della comparazione*. Padova: Unipress.

Embick, David. 2007. Blocking effects and analytic/synthetic alternations. *Natural Language and Linguistic Theory* 25:1–37.

Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33:63–96.

Giannakidou, Anastasia, and Melita Stavrou. 2009. On metalinguistic comparatives and negation in Greek. In *MIT Working Papers in Linguistics 57: Proceedings of the 2007 Workshop on Greek syntax and semantics*, ed. C. Halpert, Jeremy Hartman, and D. Hill. Cambridge, Mass.: Department of Linguistics and Philosophy, MIT.

Giannakidou, Anastasia, and Suwon Yoon. 2011. The subjective mode of comparison: Metalinguistic comparatives in Greek and Korean. *Natural Language and Linguistic Theory* 29:621–655.

Hankamer, Jorge. 1973. Why there are two *than*'s in English. In *Papers from the 9th regional meeting of the Chicago Linguistic Society*, ed. Claudia Corum, T. Cedric Smith-Stark, and Ann Weiser, 179–191. Chicago, Ill.: Chicago Linguistic Society.

Heim, Irene. 1985. Notes on comparatives and related matters. Ms., University of Texas, Austin.

Heim, Irene. 2000. Degree operators and scope. In *Proceedings of SALT X*, ed. Brendan Jackson and Tanya Matthews, 40–64.

Heim, Irene. 2008. Features on bound pronouns. In *Phi theory: Phi-features across modules and interfaces*, ed. Daniel Harbour, David Adger, and Susana Béjar, 35–56. Oxford: Oxford University Press.

Holton, David, Peter Mackridge, and Irene Philippaki-Warburton. 1997. *Greek: A comprehensive grammar of the modern language*. London: Routledge.

Izvorski, Roumyana. 1995. A DP-shell for comparatives. In *Proceedings of ConSoLE 4*, ed. A. Bisetti, L. Bruge, João Costa, Rob Goedemans, Nicola Munaro, and Ruben van de Vijver, 99–121.

Jackendoff, Ray. 1977. *X′ syntax*. Cambridge, Massachusetts: MIT Press.

Kennedy, Christopher. 1999. *Projecting the adjective: The syntax and semantics of gradability and comparison*. New York, NY: Garland.

Kennedy, Christopher. 2007a. Modes of comparison. In *Proceedings of Chicago Linguistics Society 43*, ed. Malcolm Elliott, James Kirby, Osamu Sawada, Eleni Staraki, and Suwon Yoon.

Kennedy, Christopher. 2007b. Standards of comparison. Paper presented at the Colloque de syntaxe et sémantique à Paris.

Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:335–392.

Larson, Richard K. 1991. The projection of DP (and DegP). Ms., SUNY Stony Brook.

Lechner, Winfried. 2001. Reduced and phrasal comparatives. *Natural Language and Linguistic Theory* 19:683–735.

Lechner, Winfried. 2004. *Ellipsis in comparatives*. Berlin: Mouton de Gruyter.

Lees, Robert B. 1961. Grammatical analysis of the English comparative construction. *Word* 17:171–185.

Lerner, Jan, and Manfred Pinkal. 1995. Comparative ellipsis and variable binding. Ms., University of the Saarland.

Matushansky, Ora. 2001. More of a good thing: Russian synthetic and analytic comparatives. In *Formal approaches to Slavic linguistics 10*, ed. Jindrich Toman. Ann Arbor: FASL.

McNabb, Yaron. 2012. The syntax of degree modification. Doctoral Dissertation, University of Chicago, Chicago, Ill.

Merchant, Jason. 2009. Phrasal and clausal comparatives in Greek and the abstractness of syntax. *Journal of Greek Linguistics* 9:134–164.

Merchant, Jason. 2011. Not all genders are created equal: Evidence from nominal ellipsis in Greek. Ms., University of Chicago.

Neeleman, Ad, Hans van de Koot, and Jenny Doetjes. 2004. Degree expressions. *The Linguistic Review* 21:1–66.

Pancheva, Roumyana. 2006. Phrasal and clausal comparatives in Slavic. In *Formal approaches to Slavic linguistics 14: The Princeton meeting*, ed. James Lavine, Steven Franks, M. Tasseva-Kurktchieva, and Hana Filip, 236–257. FASL.

Pancheva, Roumyana. 2009. More students attended FASL than CONSOLE. In *Proceedings of FASL 18: The Cornell meeting, 2009*, to appear.

Ross, John. 1973. A proposed rule of tree-pruning. In *Modern studies in English*, ed. D. Reibel and Sandford Schane. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Schwarzschild, Roger. 2008. The semantics of comparatives and other degree constructions. *Language and Linguistic Compass* 2:308–331.

Schwarzschild, Roger. 2012. Located vectors and bare comparatives. In *Proceedings of Semantics and Linguistic Theory 22*, ed. Ryan Bochnak.

Schwarzschild, Roger. To appear. Comparative markers and standard markers. In *Proceedings of the MIT workshop on comparatives*, ed. Michael Y. Erlewine and Yasutada Sudo. Cambridge, Mass.: MITWPL.

Seuren, Pieter. 1973. The comparative. In *Generative grammar in Europe*, ed. Ferenc Kiefer and Nicolas Ruwet. Dordrecht: D. Reidel.

Smith, Carlota S. 1961. A class of complex modifiers in English. *Language* 37:342–365.

Stassen, Leon. 1985. *Comparison and Universal Grammar*. Oxford: Basil Blackwell.

Townsend, Charles E. 1970. *Continuing with Russian*. New York, NY: McGraw-Hill.

Williams, Edwin. 1974. Rule ordering in syntax. Doctoral Dissertation, Massachusetts Institute of Technology.

Williams, Edwin. 1981. On the notions 'lexically related' and 'head of a word'. *Linguistic Inquiry* 12:245–274.

Xeila-Markopoulou, Despina. 1986. Ta sigritika tis Neas Elinikis [comparatives in Modern Greek]. Doctoral Dissertation, University of Athens.

Xiang, Ming. 2005. Some topics in comparative constructions. Doctoral Dissertation, Michigan State University, East Lansing, MI.

Zwarts, Joost, and Yoad Winter. 2000. Vector space semantics: A model-theoretic analysis of locative prepositions. *Journal of Logica, Language, and Information* 9:169–211.