THE STRUCTURE OF COMPLEMENTATION

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that once the facts are properly analysed, the Greek facts constitute a counter-proof of the theory of transformational grammar outlined in Chomsky (1965) and argues against the 'global derivational constraint' hypothesis advocated in Andrews (1971) and in Lakoff (1970; 1972b).

As a preliminary to this discussion, I present some well-known general facts involving case agreement of predicate modifiers in Classical Greek.

In simple constructions of the type Subject-Copula-Predicate, predicate adjectives and nouns agree with their subjects in gender, number, and case:

(3) *ho Kuros agathos estin*  
   the Cyrus good  be  
   Nom  Nom  
   Masc.  Masc.  
   Sing.  Sing.  
   'Cyrus is good'

(4) *ho Kuros basileus estin*  
   the Cyrus king  be  
   Nom  Nom  
   Masc.  Masc.  
   Sing.  Sing.  
   'Cyrus is king'

A second general fact about Greek is that, in surface structure, the subject of an infinitive is in the Accusative case and predicate modifiers must agree with:

(5) *dokei ton Kuron einai sophon*  
   seems the Cyrus (Acc) to-be wise (Acc)  
   'It seems that Cyrus is wise'

(6) *Dareios bouleitai tous politas polemikous einai*  
   Darius (Nom) want-3sg. the citizens (Acc) war-like (Acc)  
   'Darius wants the citizens (Acc) to be war-like (Acc)'

A third general fact is that in sentences where the 'missing' complement subject is understood to be identical to the subject of a matrix sentence, the predicate modifier must agree with the latter:

(7) *Dareios bouleitai polemikos einai*  
   Darius (Nom) want-3sg. war-like (Nom)  
   'Darius (Nom) wants to be war-like (Nom)'  
   (cf. Goodwin, 927)
2.0 Inadequacies of the 'global' hypothesis

I pass now to the discussion propot. The 'global' rule of Case Agreement for Greek, as stated informally in Andrews (1971: p. 147), is:

(8) A predicate modifier agrees with that NP which was its subject at the end of the first cycle applying to that predicate modifier.

The rule is essentially identical to the 'global' rule proposed in Lakoff (1970: p. 629):

(9) In surface structure, an adjective or participle must agree in case with the noun phrase that was its derived subject at the end of the first cycle on the innermost S containing that adjective or participle.

If we compare the two rules, we see that the only substantive difference between them is that Andrews' rule mentions predicate modifiers — adjectives, participles, and predicate nouns — whereas Lakoff's rule excludes predicate nouns. The reason for restricting the rule in this way, although not mentioned in Lakoff (1970; 1972b), is apparently to avoid some facts listed as counter-examples in Andrews' analysis. I return to those later in the discussion.

Consider now a first case. In his analysis, Andrews mentions sentences like:

(10) Kurou edeonto hios prothumotatou genesthai
     Cyrus (Gen) begged-3pl. as devoted (Gen) to-be
     'They begged Cyrus (Gen) to be as devoted (Gen) as possible'
     (X.H.1.2.2 = A(3))

For which he proposes an underlying structure like:

(11) [ They — begged — Cyrus ] [ Cyrus — be — (as) devoted ]
     S0
     S1

In the discussion, Andrews points out, correctly, that the NP Kurou 'Cyrus' which appears in sentence (10) is the object of edeonto. He gives two arguments supporting this. First, the NP Kurou 'Cyrus' is in the Genitive, which is the normal case of "the person of which the face is asked", and he gives as evidence sentences like:

(12) touto humon deomai
     this (Acc) you (Gen, Pl.) ask-1sg.
     'I ask this of you.'

And second, the NP Kurou 'Cyrus (Gen.)' cannot be the subject of

Now, the predicate modifier prothumotatou 'most devoted' is Genitive, in agreement with the object of the matrix S Kurou 'Cyrus (Gen.)'. Andrews proposes to account for the agreement facts by having the rule of Case Agreement apply after EQUI-NP Deletion.

Notice, however, that if things are left as they are at this point (i.e. with the Case Agreement rule as stated in (8) applying after the usual rule of EQUI-NP Deletion) there is no way to derive sentence (10) with the predicate modifier in the Genitive. In fact, the predicate modifier would have to be assigned any case at all. This point should be obvious, but let us make it explicit.

Observe that in Andrews' analysis, which is identical to Lakoff's (1970) analysis, EQUI is cyclic whereas Case Agreement, they claim, is post-cyclic. In that case EQUI would necessarily apply to deep structure (11), before Case Agreement, and produce a derived structure like:

(13) [They begged Cyrus [to-be- (as) devoted]]

Now, the Case Agreement rule in (8) states that the predicate modifier has to agree in case with that NP which was its subject at the end of the first cycle. But, as it turns out, 'that NP which was' the subject at the end of the 'first cycle' would no longer be in the structure at the time Case Agreement is to apply; for it would have been deleted by a previous cyclic application of EQUI. Hence, if we take the Case Agreement rule as stated in (8) literally, the rule would not be able to apply to (13) and the predicate modifier would not receive any case at all, an impossible situation.

One might then wish to modify the agreement rule in (8) so as to permit the predicate modifier to agree in case with the NP which was its subject at the end of the first cycle whether this subject is present in the structure or not at the time the agreement rule is to apply. Given the latitude of global rules this is no doubt possible.

However, this would again produce the wrong results. Observe that the subject at the end of the first cycle in (11) is the subject of an infinitive. Now if the 'cyclic subject' had any case at the time it was deleted by EQUI, this case would have to be Accusative which is the normal case of the subject of infinitives. It certainly could never be Genitive. Now, if one modifies the Case Agreement rule so as to permit agreement, the rule would generate sentence (10) with the predicate modifier most-devoted in the Accusative and not in the Genitive as desired.
EQUI is now claimed by Andrews (p. 146) to involve the ‘replacement’ of the ‘controller’ by the complement subject; or, as in Lakoff’s (1972b) terminology, the ‘superimposing of the vanishing NP over the triggering NP.’

With this modification of the rule of EQUI, the derivation of sentence (10) is accomplished as follows. EQUI would first apply, cyclically, to (11) and cause the NP Cyrus which is the subject at the end of the first cycle (i.e. the cyclic subject) to ‘replace’, or be ‘superimposed’ on, the ‘controller’. The cyclic subject superimposed on the object controller would then be marked Genitive, presumably by Case Marking. After this is done, Case Agreement would then apply, postcyclically, and cause the predicate modifier devoted to agree in case (Genitive) with its ‘cyclic subject’ (superimposed on this object of the matrix).

This immediately raises numberous questions. First of all, the observable fact in the case of sentence (10) is that the predicate modifier prothumolobien devoted-Gen., is Genitive, in agreement with the NP Kurou ‘Cyrus-Gen.’ which is the surface structure object of the matrix S — i.e. with the NP object of eido the ‘begged-3pl,’ which is a verb that requires Genitive objects. For this there is ample external evidence, including the two arguments given by Andrews which I reproduced earlier.

It should be then an uncontroversial matter that the burden of the proof in this case is not on someone claiming that the predicate modifier in (10) is agreeing with the object of the matrix, but rather on someone making a different claim. Since Andrews and Lakoff make an such claim, it is incumbent upon them to prove that the predicate modifier in (10) is, in fact, agreeing with the ‘cyclic subject’ superimposed on the object, and not simply with the object of the matrix. Unless this is proved, if it can be proved at all, Andrews’ and Lakoff’s contention that predicate modifiers agree with their ‘cyclic subject’ remains a purely arbitrary claim.

There is a second question which is even more serious. One of the main justifications for postulating global rules (cf. Lakoff, 1970; 1972b; Postal, 1972) has been the claim that global rules would permit the elimination of ‘coding mechanisms’ which ‘encode’ properties of the derivation at the stage of the transformational cycle to keep them available at postcyclical stages.

Now, Andrews’ and Lakoff’s “superimposition” is precisely one such ‘coding mechanism’: the EQUI rule is modified for the sole purpose of ‘coding information’ during the stage of the transformational cycle to make it available at postcyclical stages when the Case Agreement rule can make crucial use of it. Their proposal and a proposal involving a ‘coding mechanism’ are thus indistinguishable.3

Furthermore, it is an arbitrary ‘coding mechanism’, since, as I have shown above, there is no external evidence to support their modification of the EQUI rule as a process of superimposition of the complement subject on its ‘controller’.

If this is correct, we have here an instance where the postulation of a global rule for from eliminating recourse to ‘coding mechanisms’, would, in fact, depend crucially on the existence of one such mechanism. Hence, the reasons for postulating a global rule in order to avoid ‘coding devices’, at least in this particular case, are simply non-existent.

Consider a second case. Andrews lists as counter-examples to his own analysis sentences like:

(14) Athénaiai ede thias sphemi boitou genesthai
The Athenians (Gen) asked-3pl.to-them helpers (Acc) to be
'They asked the Athenians (Gen) to be helpers (Acc)'
(Hdt.6.100 = Andrews 25b)

(15) Southerei autois philous einai be-advantageous-to to-them (Dat) friends (Acc) to be
'It is advantageous to them (Dat) to be friends (Acc)'
(X.01.11.23 = Andrews 294a)

Both these sentences are listed as counter-examples to rule (8). This follows, since the predicate modifiers boitou ‘helpers (Acc)’ and philous ‘friends (Acc)’ which appear in these sentences are in the Accusative, whereas the cyclic subject which has ‘replaced’ the object of the matrix S by application of the revised EQUI rule is in the Genitive case. Therefore, the modifiers are not in agreement with their ‘cyclic subjects’ as predicted by rule (8).

Andrews contends that these counter-examples are not ‘spectacularly damaging’, and he suggests that in these cases one “may merely say that agreement has failed to operate at all” (p. 149), and when this happens, the predicate modifiers go to the Accusative, which, he assumes, is the ‘unmarked case’. However, it is clear that ‘merely’ here means:

(a) the introduction of a new late rule of Unmarked Case Assignment — in addition to Case Marking and Case Agreement — for the sole purpose of assigning the ‘unmarked case’ to predicate modifiers which have not been assigned case previously.

b. the introduction of some blocking device to block the application of the Case Agreement rule (8) in the examples under consideration.
There is, furthermore, relevant empirical evidence to show that the analysis suggested by Andrews is empirically inadequate. Consider initially the following. According to Andrews’ analysis, in order to derive sentences (14) and (15) it is necessary to block the application of the *Case Agreement* rule (8) so as to prevent agreement between the predicate nominals with their respective ‘cyclic subjects’ (superimposed on the ‘object controller’), so that predicate nominals can be marked *Accusative* by the *Unmarked Case Assignment* rule.

One might attempt to impose a condition on the *Case Agreement* rule (8) so as to optionally block agreement between the predicate nominal and its ‘cyclic subject’ if the latter is in object position under the matrix S. The effect of such condition can be roughly illustrated as in (18).

\[
\text{(18) } \quad \ldots[V \cdot NP \cdot [\ldots Y \ldots \text{Pred. Nominal}]]
\]

\[
\text{where NP was the subject at the end of the first cycle containing that predicate nominal.}
\]

This condition would correctly block application of the *Case Agreement* rule (8) in the case of sentences (14) and (15) since in Andrews’ and in Lakoff’s analysis the rule of EQUI is viewed as a process whereby the ‘vanishing NP’ (the ‘cyclic subject’ in this case) replaces, or is ‘superimposed’ on, its ‘controller’ (the object of the matrix in the case).

The condition would also correctly fail to apply in the case of sentences where the ‘cyclic subject’ is superimposed on a subject controller, so that sentences like (18) can be derived with the correct case.

\[
\text{(18) Dareios bouletai basileus einai}
\]

‘Darius (Nom) wants to be king (Nom)’

However, this would also have bad consequences. In Andrews’ and Lakoff’s analyses there is a cyclic rule of *Raising* (into object position); whereas *Case Agreement*, they claim, is a post-cyclic rule. Now under their analyses, sentences like (19) are derived by *Raising*:

\[
\text{(19) Dareios bouletai Kuron basileus einai}
\]

‘Darius (Nom) wants Cyrus (Acc) to be king (Acc)’

Now, it would be necessary to make also the unnatural claim that there is no agreement between the subject of the infinitive and its predicate nominal in (19). This follows, since in the derivation of (19) *Raising*, which is cyclic, would necessarily place the ‘cyclic subject’ in object position under the matrix S before the *Case Agreement*, which is a post-cyclic rule.

At the time the *Case Agreement* rule (8) were to apply, condition (18) would be met and the rule would block.

One might contend that the *Unmarked Case Assignment* rule would give *basileus* ‘king (Acc)’ in the *Accusative*, and the surface result would be the same. This would be true. But it is also true that the rule would be making the claim that the fact that the NP *Kuron* ‘Cyrus (Acc)’ and its predicate nominal *basileus* ‘king (Acc)’ are both in the *Accusative* is purely accidental, thus obscuring the linguistic generalization that the predicate nominal is in the *Accusative* because it is agreeing with its subject.

Furthermore, this approach to the problem is clearly incorrect. Parallel to sentences (14) and (15), where the predicate nominals ‘disagree’ in case with the ‘object controller’, there are also cases where they do agree. Thus parallel to:

\[
\text{(14) Athēnaion edēθēsan sphiisoi boēthous genesthai}
\]

‘They asked the Athenians (Gen) to be helpers (Acc)’

There are also sentences like:

\[
\text{(20) Dōkei hēmin Aiginētans (Gen) deesthai ton}
\]

I-believe to-us Aeginetans (Gen) to ask the

\[
\text{theon khrēsai timorēterin genesthai}
\]

god (Acc) to-proclaim helpers (Gen) to-be

‘I believe that god proclaimed to us to ask the Aeginetans (Gen) to be helpers (Gen)’

(Hdt.5,80 ; ap.Kuhner-Gerth.475)

And parallel to:

\[
\text{(15) Souspherei autois philous einai}
\]

‘It is advantageous to them (Dat) to be friends (Acc)’

There are also sentences like:

\[
\text{(21) nun soi exestin andri genesthai}
\]

now you (Dat) be-possible man (Dat) to-be

‘Now it is possible for you (Dat) to be a man (Dat)’

(X.A.7.1 ; ap.Goodwin,928)

Now it would be necessary to make *Case Agreement*, a rule which is normally obligatory, to apply optionally in the case of (14) and (20) ; (15) and (20), where the ‘cyclic subject’ is in object position under the matrix S due to the application of the superimposing rule of EQUI; but obligatorily again in the case of sentence (19) where the ‘cyclic subject’ is in object position under the matrix S due to the application of *Raising*. It is not difficult to see that there is actually no natural way of accounting for the
case of predicate nominals within Andrews' analysis and that these constitute clear counter-evidence against the Case Agreement rule in (8).

The counter-examples listed by Andrews are not counter-examples in Lakoff (1970; 1972b). Lakoff apparently tried to get rid of the problem by excluding case agreement of predicate nominals from his Case Agreement rule (9). The facts involving predicate nominals cannot therefore be used as arguments against Lakoff's rule in (9) since the latter is restricted specifically to adjectives and participles.

Instead of questioning the grounds of Lakoff's decision, I give now a series of sentences containing adjectives which are counter-examples to both Andrews's rule in (9) and to Andrews's rule in (8). Compare the pairs of sentences below:

(22) a. exestin humin genesthai eudaimosin
    be-necessary you (Dat) to-be happy (Dat)
    'It is necessary for you (Dat) to be happy (Dat)'

b. exestin humin genesthai eudaimonas
    be-necessary you (Dat) to-be happy (Acc)
    'It is necessary for you (Dat) to be happy (Acc)
    (in Kuhner-Gerth.475.1.c,Ann.2)

(23) a. sambouлевευσοι πρόθυμοι ειναι
    advise-sg. you (Dat) zealous (Dat) to-be
    'I advise you (Dat) to be zealous (Dat)'

b. sambouлевευσοι πρόθυμουν ειναι
    advise-sg. you (Dat) zealous (Acc) to-be
    'I advise you (Dat) to be zealous (Acc)
    (in Kuhner-Gerth.475.b)

(24) a. prepeι soi ειναι πρόθυμοι
    be-fitting you (Dat) to-be zealous (Dat)
    'It is fitting for you (Dat) to be zealous (Dat)'

b. prepeι soi ειναι πρόθυμοι
    be-fitting you (Dat) to-be zealous (Acc)
    'It is fitting for you (Dat) to be zealous (Acc)
    (in Goodwin.928)

The list could be greatly enlarged for there is a consensus among Greek scholars with respect to the data (cf. Smyth 1062; Goodwin 928.25; Kuhner-Gerth 475,b). Yet all the sentences in (22) through (24) are legitimate counter-examples to both Andrews's and Lakoff's rules. This follows since the 'cyclic subject' which, according to their proposals, is 'superimposed' on the object controller due to application of the revised EQUI rule would be in the Dative case, whereas the adjectives are in the

The situation is no different when we turn to participles. Counter-examples are again abundant:

(25) O Σοκράτες συμβουλεύει τῷ Χενοφόντι
    The Socrates (Nom) advises the Xenophon (Dat)
    etibonta eis Delphi anakoinōsai
    having-come (Acc) to Delphi to-inform
    τῷ θεῷ peri ōs poreias
    the god (Dat) about the journey
    'Socrates advises Xenophon (Dat), having-come (Acc)
    to Delphi, to inform the god about the journey.'
    (Kuhner-Gerth 475.2.b; An.3.1.5)

(26) ἀνδρὸν ἐκατομενον μὲν (Gen) good (Gen) be-lawful having-been-wronged (Acc)
    eikones polemein
    after peace to-fight
    'It is legitimate for good men (Gen), having-been
    wronged (Gen), to fight for peace'
    (Dem.4.47; ἀρκατ.475a)

In both these sentences, the 'object controllers' τῷ Χενοφόντι 'Xenophon (Dat)'; and andron agathon 'good men (Gen)’ are in the Dative and Genitive, respectively; whereas the embedded participles etibonta 'having-come (Acc)', and adikonomenos 'having-been-wronged (Acc)' are in the Accusative, therefore in disagreement with their 'cyclic subject' in contradiction to Andrews' and Lakoff's claim.

Finally, we see that Andrews' and Lakoff's analyses collapse totally. Andrews himself lists some extremely damaging counter-examples:

(27) a. sunoida emautoi édikemeno
    am-aware-of myself (Dat) having-been-wronged (Nom)

b. sunoida emautoi édikemenoi
    am-aware-of myself having-been-wronged (Dat)
    'I am aware (= conscious mihi sum) that I have been wronged'
    (= Andrews 30 a-b)

To these I add:

(28) a. sunoida emautoi eu poiēsas
    am-aware-of myself (Dat) well having-done (Nom)
b. sunoida emautōi eu poïēsantis
am-aware-of myself (Dat) well having-done (Dat)
'I am aware that I have done well'
(in Kuhner-Gerth.481.3 ; Ann.3)

(29) a. suggignŏskō emautōi eu poïēsas
am-conscious-of myself (Dat) well having-done
(Nom)
b. suggignŏskō emautōi eu poïēsantis
am-conscious-of myself (Dat) well having-done
(Dat)
'I am conscious to myself (of) having done well'
(cf. Kuhner-Gerth.481.3 ; Ann.3)

In sentences (27b), (28b), (29b), it could be claimed that the participles is agreeing with the ‘cyclic subject’ superimposed on the ‘object controller’. The problem here, as Andrews acknowledges, is to account for the existence of sentences (27a), (28a), (29a). Andrews suggests that perhaps when the subject and the object of the matrix are co-referential, EQUI can use either as controller so as to permit the participle to agree with the ‘cyclic subject’ superimposed either on the subject or on the object of the matrix S. However, this is clearly contradicted by the facts.

Thus in the case of sentences containing the verb lanthanō ‘to escape notice of’, where the facts are parallel, there is only one possibility:

(30) lanthanō emauton poïōn ti
1-escaped-myself (Acc) doing (Nom) something
notice-of
'I (Nom) escaped-notice-of myself (Acc) doing (Nom)
something'

In Kuhner-Gerth.481.3 ; Ann.3

Sentences like (31), with Accusative participle, as asserted in Kuhner-Gerth (1965 : vol. II, p. 50), are ungrammatical:

(31) *lanthanō emauton poiounta ti
1-escaped myself (Acc) doing (Acc) something
notice-of

Now it would be necessary to claim that with sunoida ‘be aware of’ EQUI can use either the co-referential subject of the object as controller but with lanthanō ‘to escape notice of’, in identical circumstances, rule of EQUI can use only the subject as controller. It is not difficult to see that an EQUI rule of the type required crucially to make Andrews and Lakoff’s analyses work is an impossible rule.

A further problem arises. The Case Agreement rule should be able to optionally ‘fail to apply’ in this environment so that Andrews’ analysis can account for sentences like:

(26) andrōn agathōn estin adikoumenous eks eirēnēs polemein
'It is legitimate for good men (Gen), having-been-wronged (Acc)
to fight for peace'

This follows, since in Andrews’ analysis, these cases, like in the cases involving predicate nominals in (14) and (15), can only be accounted for if Case Agreement optionally ‘fails to operate at all’ (cf. p. 149) so that the rule of Unmarked Case Agreement can apply and mark the participle Accusative.

As a consequence of Andrews’ analysis we should then have sentences of the following type:

(32) *a. sunoida myself (Dat) Participle (Acc)
*b. suggignŏskō myself (Dat) Participle (Acc)
*c. lanthanō myself (Dat) Participle (Acc)

where the Case Agreement rule would ‘fail to operate’ and the Unmarked Case Assignment rule would mark the participles Accusative. However, grammarians unanimously agree that these sentences are impossible. Later I show that, in fact, these sentences could never have existed in the language.

At this point, I find it quite superfluous to present further negative evidence. The bulk of counter-evidence so far is more than sufficient to prove, beyond any reasonable doubt, that Lakoff’s and Andrews’ analyses are observationally inadequate in fundamental respects and we must reject the analyses as a requisite for meeting the lower level of observational adequacy.

Similarly, Lakoff’s purported generalization that predicate modifiers in Greek must agree with its ‘cyclic subject’, which is based on an observationally incorrect analysis, draws absolutely no empirical support, but rather is contradicted by the mass of facts.

We have to consider still Lakoff’s and Andrews’ claim that the rule of Case Agreement in Greek cannot be stated as a transformation, but instead must be stated as a global rule. Now that some crucial facts have been added, it is possible to have a closer view of the dimensions of the problem. We see now that what Lakoff and Andrews were in fact claiming is that it is impossible to express as a transformation a rule of Case Agreement which would have the following properties:
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(33) a. the rule must be obligatory in the case of simple sentences that account for (3) and (4);

b. the rule must be able to operate optionally in the case of embedded non-finite embedded sentences so that the predicate nominal sentences (14) and (15); the adjective sentences (22b), (23b), (24b) and the participle sentences (25) and (26) can be derived; but the rule must operate obligatorily in the case of finite embedded clauses;

c. the rule must not be able to 'fail to operate' in embedded non-finite sentences in the case of sunoida 'be aware of' (27), (28); and in the case of suggignasko 'be conscious' (29). But in the case of lanthanó 'escape notice of' when the subject and the object are coreferential, the rule must permit agreement only with the subject controller to permit (28) but not with the object controller to exclude (31).

I prefer not to enter into consideration as to whether a Case Agreement rule with the properties of (33) can be stated as a global rule. Since Lakoff (1970; 1972b) and Adrews (1971) claim that Case Agreement in Greek must be stated as a global rule, I leave the matter open. There is a point in which Lakoff and Andrews are unquestionably correct. A Case Agreement rule which would have the properties of (33) cannot possibly be stated as an ordinary transformation. Most likely also, a rule with the properties of (33) could not be a rule in any natural language.

3.0 The 'transformational' hypothesis

In the previous section, I have demonstrated on empirical grounds that Andrews' and Lakoff's analyses are incompatible with the Greek data. The problem at this point then is clearly not one of deciding between two theories compatible with the same data. For there is none. The problem is rather, to construct at least one theory compatible with the facts.

In this and in subsequent sections, I will proceed to a re-assessment of the facts in an effort to build one such theory. This will be done within the framework of transformational grammar.

Let us examine first the problem involving predicate nominals. Notice first that case agreement with predicate nominals is obligatory:

(4) ho Kuros basileus estin
'Cyrus (Nom) is king (Nom)

(34) *ho Kuros basilea estin
'the Cyrus (Nom) king (Acc) to-be

Consider now sentences (14) and (21) for a moment:

(14) Athēnaiōn edēethēsan sphisí boēthous genesthai
'They asked the Athenians (Gen) to be helpers (Acc)

(21) nun soi exestin andri genesthai
'Now it is possible for you (Dat) to be a man (Dat)

These facts immediately pose serious difficulties for any effort at an explicit analysis. Case Agreement with predicate nominals is, as we have seen from (4) and (34), an obligatory rule. However, now we have a case where agreement seems to be optional. In view of our earlier discussion in section (2.0) it is highly unlikely that one can account for these sentences by imposing conditions on the Case Agreement rule. Even if one could state these conditions, the complexity of the rule would be such as to call for an immediate reanalysis.

Let us now examine sentence (14) for a moment. Notice that in this sentence the predicate nominal boēthous 'helper (Acc)' is Accusative whereas the object of the matrix S Athēnaiōn 'Athenians (Gen)' is Genitive. Now, traditional grammarians, without exception, claim that, in Greek, the subject of infinitives is Accusative. A second general fact about the language is that predicate nominals agree. The natural claim to make then is that in the case of sentence (14) the predicate nominal boēthous 'helper (Acc)' is in the Accusative in agreement with the underlying subject of the infinitive which has been deleted.

One might question the basis for the traditional grammarians' claim that subject of infinitives is Accusative since their claim is largely based on the existence of sentences like:

(6) Dareios bouletai tous politas polemikous einai
'Darius (Nom) wants-3sg. the citizens (Acc) war-like (Acc)
'to be

'-'Darius (Nom) wants the citizens (Acc) to be war-like (Acc)

But that their claim is correct becomes evident when we consider sentences like:

(5) dokei ton Kuron einai sophon
'seems the Cyrus (Acc) to-be wise (Acc)

'It seems that Cyrus is wise'

Clearly here the NP ton Kuron, which is in the Accusative case, is the subject of the infinitival clause. It cannot be the subject of the matrix verb, for if it were, it should be Nominative and not Accusative.
The alternative which has been often suggested within generative grammar (and accepted in Lakoff’s and Andrews’ analyses) is to explain the case of the complement subject in sentences like (6) by application of a rule of Raising (into object position) followed by a later application of Case Marking on the second cycle.

But, evidently, the Raising hypothesis, does not explain (5) and similarly it does not hold for sentence (14). First, because ἐδεηθεῖσαν ‘ask-3pl.’ requires Genitive object. Hence if Case Marking were to apply after Raising here, the complement subject would be marked Genitive and the predicate nominal, which must agree with it, would always have to be Genitive and not Accusative as in (14).

What these facts show is that in the derivation of sentence (14), like (5), the complement subject must be marked Accusative by application of Case Marking in the embedded S. I take this as evidence that the subject of non-finite sentences is marked Accusative by a rule of Case Marking, which has a subrule roughly like:

\[
(35) \text{NP} \rightarrow [\text{Acc}] V [\text{-finite}]
\]

The precise formulation of the Case Marking rule need not concern us here.

Under the analysis I am suggesting, sentences like (14) are derived by an application of Case Marking on the embedded S cycle, followed by an obligatory application of Case Agreement on the same cycle.

Observe also that if we assume Complement Subject Deletion to be non-cyclic, both Case Marking and Case Agreement would also have to be non-cyclic since in the derivation of (14), the latter two must apply before Complement Subject Deletion. Case Marking cannot be pre-cyclic because it must take place after Passive in the derivation of (36) from the structure underlying (37).

\[
(36) \text{ho pais hupo tou patros phileitai}
\]
the child (Nom.) by the father (Gen.) is loved
‘The child (Nom.) is loved by the father (Gen.)’

\[
(37) \text{ho patēr philei ton paida}
\]
the father (Nom.) loves the child (Acc)
‘The father (Nom.) loves the child (Acc)’

This leaves us with the problem of accounting for sentence (21):

\[
(21) \text{non soi exestin andri genesthai}
\]
now you (Dat) be possible man (Dat) to-be
‘Now it is possible for you (Dat) to be a man (Dat)’
\[= \text{Andrews.18a}\]

where the predicate nominal andri ‘man (Dat)’ is Dative in agreement with the object of the matrix soi ‘you (Dat)’.

We may account for this by posting an optional rule of Case Attraction which takes place at a later stage, after Case Agreement has applied, and changes the case of the predicate nominal, marked Accusative by an earlier application of Case Agreement, into Dative. In fact, this is precisely the claim made by a number of Greek scholars.

Thus, for instance, Smyth, in his classic Greek Grammar (p. 440: par. 1978) states the generalization involving case agreement of predicate nominals as follows:

\[
(38) \text{"When the subject of the infinitive is the same as the object (in the genitive or dative) of the governing verb, it is often omitted, and a predicate noun is either attracted into the genitive or dative, or stands in the accusative in agreement with the omitted subject of the infinitive." (emphasis mine).}
\]

If we compare the properties of the analysis represented by (38) to the properties of Andrews’ suggestion summarized in (16), we see that there is a substantive difference between them.

In the earlier analysis, it was suggested that the fact that the predicate nominal is Accusative in sentences like (14) is a purely accidental matter to be accounted for by an ad hoc rule of Unmarked Case Assignment.

The analysis represented by (38), on the other hand, claims that the fact that the predicate nominal in (14) is Accusative is not at all accidental, but rather follows from two general facts about the language, namely that the subject of infinitives is Accusative and that predicate nominals agree. It is quite apparent that the analysis represented in (38) makes a far more interesting claim and should clearly be tried first.

Observe further that we can extend Smyth’s generalization in (38) to cover not only predicate nominals but also adjectives and participles since the latter two behave in the same way as predicate nominals. Thus compare the following pair of sentences containing adjectives:

\[
(23) \text{a. sambouleœi soi prothumĩi einai advise-3sg. you (Dat. sg.) zealous (Dat) to-be 'I advise you (Dat. sg.) to be zealous (Dat sg.)'}
\]
\[= \text{Kuhner-Gerth 475.6}\]

\[
(23) \text{b. sambouleœi soi prothumoni einai advise you (Dat. sg.) zealous (Acc) to-be 'I advise you (Dat. sg.) to be zealous (Acc)'}
\]
\[= \text{Kuhner-Gerth 475.b}\]
And now, the following pair of sentences containing participles:

(39) sunoida soi eu poieonta
'Am aware-of you (Dat) well having-done (Acc)

(40) sunoida soi eu poieonta
'I (Nom) am aware of you (Dat) having done (Dat) well'

We can now replace Smyth's generalization in (38) by the more general descriptive statement in (41).

(41) When the subject of a non-finite verb (i.e. an infinitive, or a 'supplementary participle' (cf. Smyth. 2088; Goodwin. 1578-1579) is the same as the object, it its omitted and predicative nouns, adjectives and participles are either attracted into the genitive or dative, or stand in the accusative in agreement with the omitted subject.

The question now is to know whether the analysis represented in (41) can be substantiated on empirical grounds. The existence of a rule of Case Agreement is beyond dispute. The question to ask now is whether the rule of Case Attraction required by (41) is, in fact, a rule of the Greek grammar, or just an artifact forced upon the data by an inadequate theoretical framework. To make sure that the latter is not the case we must look for external evidence to motivate the Case Attraction rule. I will address myself to this problem later in the discussion.

3.1 Some properties of the rule of Case Agreement

Let us examine initially some essential properties of an adequate transformational rule of Case Agreement for Greek. Thus consider first sentence (6):

(6) Daries bouletai tous politas polemikous einai
'Darius (Nom) wants the citizens (Acc) to be war-like (Acc)'

and its deep structure in (42).

(42) [Darius - wants [the citizens - be - war-like]]

In order to account for the agreement facts in (6) we may propose, a first approximation, a rule of Case Agreement with essentially the properties of (43).

(43) Case Agreement: Obligatory

\[
\begin{align*}
\text{Adjective} & \quad \text{Participle} \\
\text{Pred. Nom.} & \quad [\text{a case}] \\
\end{align*}
\]

\[
\begin{align*}
X \quad \text{NP} \quad Y \quad \quad Z
\end{align*}
\]

Under the transformational hypothesis sketched in section (3.0) the derivation of sentence (6) from (42) is accomplished as follows. On the first cycle, Case Marking would first apply and mark the complement subject the citizens Accusative since it is the subject of a non-finite verb. On the same cycle, the Case Agreement rule outlined in (43) would then apply, obligatorily, and make the adjective war-like Accusative, in agreement with the complement subject. On the second cycle, Case Marking would again apply, cyclically, and mark the NP Darius Nominative since it is the subject of a finite verb. The derivation is as illustrated in (44).

(44) [Darius — wants [the citizens — be — war-like]]

\[
\begin{align*}
S_0 \quad S_1 \quad \text{Acc} \quad \text{C.M.} \quad \text{Acc} \quad \text{C.A.}
\end{align*}
\]

Notice that under this analysis, Case Marking must apply to the complement on the embedded S cycle. As noted earlier, the case of the complement subject cannot be explained in terms of a raising transformation because of sentences like:

(23b) sunbouleous soi prothumon einai
'I advise you (Dat) to be zealous (Acc)'
Consider a second argument. One might contend that sentences like (7) are derived by Case Attraction and that the latter is obligatory with Nominatives. In fact, many traditional grammarians make just such claim. To quote one of them:

\[(49)\] “When the subject of an infinitive is omitted because it is the same as the subject of the leading verb ..., adjective words and nouns which would agree with the omitted subject are assimilated to the preceding nominative.”

(Goodwin.927)

Notice that there is here an interesting empirical question to be resolved. The analyses represented by (49), and by the Case Agreement rule (48), respectively, make quite distinct empirical predictions.

In the case of the analysis represented by (49) it is claimed that what is relevant for the case ‘assimilation’ of the modifier is the presence of a Nominative NP. The analysis represented by the Case Agreement rule (48), on the other hand, claims that what is involved is not at all an ‘assimilation’ into Nominative, but rather case agreement with the subject on the matrix S cycle, regardless of case.

There is, however, relevant data to decide between these two analyses. Namely, the pair of sentences with sunoida ‘be aware of’ in (28):

\[(28)\] a. sunoida amauti eu poiessas
am-aware-of myself (Dat) well having-done (Nom)

b. sunoida amauti eu poiessantι
am-aware-of myself (Dat) well having-done (Dat)

‘I am aware that I have done well’

Notice that the analysis represented by (49) would have to claim that ‘assimilation’ to a ‘preceding nominative’ is obligatory, otherwise sentence (46) cannot be blocked. If this were true, however, there should be no sentences like (28b) at all in the language. This follows since the participle would always have to be Nominative by obligatory ‘assimilation’. But sentences like (28b) do exist. Consequently, the analysis represented by (49) is simply empirically incorrect.

The analysis represented by the Case Agreement rule (48), on the other hand, makes just the correct predictions in these cases. Sentences (28a) and (28b) are both derived from an intermediary structure roughly like:

\[(50)\]  \[
\begin{array}{c}
S_0 \\
S_1
\end{array}
\]

The derivation of (28a) would be accomplished as follows. On the first cycle $S_1$, Case Marking would first apply and mark the complement subject
Accusative since the verb is non-finite. On the same cycle, Case Agreement (case a), which comes next, would then apply and mark the participle having-done Accusative. On the second cycle $S_2$, after application of Complement Subject Deletion and Case Marking, respectively, Case Agreement (case b) would then apply and obligatory change the case of the participle into the case of the new subject on the cycle. The relevant steps in the derivation of (28a) are illustrated in (51).

(51) a. $I$ — am-aware-of — myself $I$ — having-done — well
    $S_0$  $S_1$

b. Acc
    $C_2$

c. $\emptyset$
    $C_2$

d. Nom
    $C_2$

e. Dat
    $C_2$

In order to derive (28b) with the participle having-done in the Dat case it is necessary only that the rule of Case Attraction apply to the derived structure at stage (51f) optionally changing the case of the participle from Nominative into the case of the object of the matrix.

Notice, furthermore, that this analysis not only permits the correct derivation of sentences (28a) and (28b), but also explains why there are no sentences like (52) in the language.

(52) *sunoi'da emautoi eu poi'hsanta
    am-aware-of myself (Dat) well having-done (Acc)
    I (Nom) am aware of myself (Dat) having-done (Acc) well

The ungrammatically of (52) follows as an automatic consequence of the analysis: since the Case Agreement rule is obligatory, and yet has not been applied on the second cycle, the analysis correctly predicts that the resulting sentence is ungrammatical.

These results become even more important in light of the contrasts between the correct empirical predictions made by the transformational hypothesis and the difficulties that the same facts posed to Andrew's "global" analysis, where they are listed as counter-examples.

3.2 The Cyclic Nature of Case Agreement

Thus far I have simply assumed that Case Agreement is a cyclic rule. In order to proceed with the discussion on a more solid basis I will now provide arguments to support the original assumption. Consider first sentence (23b) and its deep structure (53).

(23b) sumbouleu'd soi prothumon einai
    'I advise you (Dat) to be zealous (Acc)'

(53) [I — advise — you [you — be — zealous]]
    $S_0$
    $S_1$

Notice that in sentence (23b) the adjective zealous is Accusative, in agreement with the Accusative subject of the infinitive which has been deleted. The adjective is obviously not in agreement with the object of the matrix $S$ since the latter is Dative, not Accusative.

It follows from these facts that in order to derive (23b) from (53) the rules of Case Marking and Case Agreement must crucially apply on the first cycle before Complement Subject Deletion has had a chance to apply. The reason for this is that if Complement Subject Deletion is allowed to apply before Case Marking and Case Agreement it would delete the complement subject, thus eliminating the environment for these two rules to apply. As a consequence, there would be no natural way of accounting for the case of the adjective in (23b). It is clear then that the order of rule application in the derivation of (23b) must be:

(54) Case Marking
    Case Agreement
    Complement Subject Deletion

Consider now sentence (7) and its deep structure (45).

(7) Dareios bouleitai polemikos einai
    'Darius (Nom) wants to be war-like (Nom)'

(45) [Darius — wants [Darius — be — war-like]]
    $S_0$
    $S_1$

Suppose we follow the order of rule application (54) also here. In that case, after application of Case Marking, Case Agreement, and Complement Subject Deletion we would have a derived structure like:

(55) [Darius — want [to-be — war-like]]
    $S_0$
    Nom
    $S_1$
    Acc

which underlies the ungrammatical sentence (46):

(46) *Dareios bouleita polemikon einai
    Darius (Nom) wants to be war-like (Acc)

In order to derive sentence (7) with the correct case it is necessary that Case Agreement apply again, obligatorily, on the second cycle in (55), this time after Complement Subject Deletion. In other words, sentence (7) can
only be derived if Case Agreement is allowed to apply not only before Complement Subject Deletion, as required in (54), but also after Complement Subject Deletion, the order of rule application being:

(56) Case Marking  
Case Agreement  
Complement Subject Deletion  
Case Marking  
Case Agreement

We are clearly faced with an ordering paradox ultimately unsolvable within a 'non-cyclic' theory. The paradox can be overcome, however, if the three rules in question: Complement Subject Deletion, Case Marking and Case Agreement are made 'cyclic' and ordered as in (57).

(57) 1. Complement Subject Deletion  
2. Case Marking  
3. Case Agreement

Let us now explore some further consequences of this conclusion. In Greek there are sentences like:

(58) a. dokei moi tina ethnein  
seems to-me (Dat) someone (Acc) be-coming  
'It seems to me that someone is coming'

b. dokei his moi ethnein  
seems someone (Nom) to-me (Dat) be-coming  
'Someone (Nom) seems to me to be coming'  

(in Smyth.1983)

Traditional grammarians (cf. Smyth.1982,ff.; Goodwin.1522.2) observe that the verb dokei 'seem' can appear in 'personal' and 'impersonal' constructions. According to them, sentences like (58a) constitute instances of the 'impersonal' constructions; whereas sentences like (58b) constitute instances of the 'personal' construction.

The Greek facts are thus parallel to what happens in English and in many other languages. It seems reasonable then to assume, following standard transformational treatment of these cases, that both the sentences in (58) have a common underlying structure, and that sentence (58b) is derived from the outermost subjacency of (58a) by application of a rule of Subject Replacement (i.e. 'raising' into subject position) which places the complement subject into subject position under the matrix sentence.

Now, parallel to the sentences in (58) there are sentences containing predicate adjective such as:

(59) a. dokei ton Kuron einai sophon (=5)  
seems the Cyrus (Acc) to-be wise (Acc)  
'It seems that Cyrus (Acc) is wise (Acc)'

b. dokei ho Kuron einai sophos  
seems the Cyrus (Nom) to-be wise (Nom)  
'Cyrus (Nom) seems to be wise (Nom)'

(cf. Goodwin.1522.2)

A reasonable deep structure for these sentences is something like (60):

(60) \[ \Delta \] dokei [ Cyrus — be wise ]

\begin{align*}
S_0 & \quad S_1
\end{align*}

Following the lines of the transformational hypothesis that I am proposing here the derivation of the sentences in (59) from deep structure (60) is accomplished in a very natural manner. The derivation of (59a) is straightforward: Case Marking will first apply on the first cycle in (60) and mark the complement subject Accusative, since the latter is the subject of an infinitive verb; Case Agreement, which comes next, will then apply, on the same cycle, and make the adjective wise Accusative. The result will then be (59a).

Consider now sentence (59b). This sentence, like the earlier (58b), is derived by an application of Subject Replacement, which raises the complement subject position placing it in subject position under the matrix S (in substitution to the symbol \( \Delta \)).

Now observe that Case Marking and Case Agreement must apply before Subject Replacement in the derivation of this sentence. This follows since Case Marking and Case Agreement being both cyclic and obligatory must necessarily apply on the first cycle before Subject Replacements which must wait until the next cycle to be applicable. Consequently, at this time Subject Replacement is to apply on the second cycle there will be a derived structure like:

(61) \[ \Delta \] dokei [ Cyrus — be — wise ]

\begin{align*}
S_0 & \quad S_1 \quad \text{Acc} \quad \text{Acc}
\end{align*}

Now if Subject Replacement always followed Case Marking and Case Agreement, there would be no way to derive sentence (59b) with the NP Cyrus and the modifier wise in the Nominative since, as shown in (61), the NP moved by Subject Replacement, and the predicate adjective would have already been marked Accusative by application of cyclic Case Marking and Case Agreement on the previous cycle.

Sentences like (59b) with subject and modifier in the Nominative case can only be explained if Subject Replacement is allowed to apply not only
after, but also before, Case Marking and Case Agreement. In that case, the NP raised by Subject Replacement would undergo a second application of Case Marking, this time on the matrix S cycle where it would be marked Nominative since the verb is finite. An application of Case Agreement (case b) on the same cycle would then make the modifier Nominative.

The order of rule application in the derivation of sentences such as (59b) must then be:

(62) Case Marking
Case Agreement
Subject Replacement
Case Marking
Case Agreement

The rule of Subject Replacement in the derivation of (59b) must both follow and precede Case Marking and Case Agreement. In a non-cyclic theory of rule ordering there is no way to reconcile the facts. In a cyclic theory, however, the paradox is resolved if the three rules Subject Replacement, Case Marking, and Case Agreement are all made cyclic and ordered as in (63).

(63) Subject Replacement
Case Marking
Case Agreement

Consider still a third case. In Greek there are sentences like:

(64) ἐγγείλαν Κωρών ἔναισιν
reported-3pl. Cyrus (Acc) to-have-conquered
'It was reported that Cyrus had conquered'

(65) ἐγγείλθη Κωρών ἔναισιν
was-reported Cyrus (Acc) to-have-conquered
'It was reported that Cyrus had conquered'

Parallel to (64) there are related sentences to which Passive has applied. Thus if Passive applies to the structure underlying (64) two sentences are possible. We may have either an 'impersonal' passive sentence with the main verb in the passive voice and an 'Accusative plus infinitive' complement:

(66) Κωρός ἐγγείλθη ἔναισιν
Cyrus (Nom) was-reported to-have-conquered
'Cyrus was reported to have conquered'

Now with verbs of saying and thinking the embedded predicate adjective is connected with its NP subject by the copula einai (cf. Smyth, par.1043). Thus in Greek there are sentences containing predicate adjectives such as:

(67) ἐγγείλαν Κωρών einai sophon reported-3pl. Cyrus (Acc) to-be wise (Acc)
'They reported that Cyrus is wise'

Similarly here, if Passive applies to the structure underlying (67), two sentences may result. An 'impersonal' passive sentence like:

(68) ἐγγείλθη Κωρών einai sophon
was-reported Cyrus (Acc) to-be wise (Acc)
'It was reported that Cyrus is wise'

Or, alternatively, a 'personal' passive sentence like:

(69) Κωρός ἐγγείλτη einai sophon
Cyrus (Nom) was-reported to-be wise (Nom)
'Cyrus (Nom) was reported to be wise (Nom)'

A reasonable deep structure for these sentences will be something like:

(70) [PRO — report [Cyrus — to be wise]]

Observe first that in the derivation of (68) and (69) from deep structure (70) Passive takes place on the matrix S cycle. Now, since Case Marking and Case Agreement are cyclic rules, they would necessarily apply on the first cycle before Passive since in these cases, Passive takes place in the matrix sentence and not in the embedded sentence.

Consider now sentence (69) for a moment. Notice that in this sentence the NP Cyrus which was moved into subject position by application of Passive is Nominative. Similarly the predicate adjective wise is also Nominative.

Now, if Case Marking and Case Agreement applied always before Passive, as noted above, there is no way to derive (69) with the subject and the modifier in the Nominative case. This follows since Case Marking would first apply on the embedded sentence cycle and mark the subject of the infinitive Accusative, followed by an application of Case Agreement which would make the predicate adjective wise also Accusative. Consequently, if Passive applied always after Case Marking and Case Agreement,
the NP which ends up as the subject of the matrix sentence by which ends up as the subject of the matrix sentence by application of Passive, and its predicate modifier, would always be Accusative and not Nominative.

The existence of sentences like (69) with the surface structure subject and the predicate adjective Nominative can only be explained if Passive is able to apply both after and before Case Marking and Case Agreement. The ordering paradox involved can be overcome once again if Passive is also made cyclic and the three rules are ordered as in (71).

(71) Passive
Case Marking
Case Agreement

This proposal would ensure that in the derivation of (69) from (70) the NP Cyrus which ends up in subject position under the matrix sentence by application of Passive undergoes a new application of Case Marking on the matrix S cycle, which will make it Nominative since the verb is finite. After this, Case Agreement (case b) will then apply, on the same cycle, and change the case of the modifier wise into Nominative.

An identical analysis will be given to the following sentences listed in Andrews' paper:

(72) apēggelthē Philippos humin Hēraion
teikhos poliorkēn
was-reported Philip (Nom) to you (Dat) Herian
wall besieging (Nom)
'Philip (Nom) was reported to you to be besieging (Nom) the Herian wall'

(Dem.3.4 = Andrews(9a))

(73) euthus elegkhthēsetai geloios ōn
immediately he-will-be-proved ridiculous (Nom) being (Nom)
'He (Nom) will straightaway be proved to be (Nom) ridiculous (Nom)'

(X.M.I.7.2 = Andrews(9b))

To conclude, in this section I have presented three arguments to demonstrate that the rule of Case Agreement in Ancient Greek is cyclic. In the course of the discussion I presented evidence to substantiate empirically the existence of a 'transformational cycle' in Greek syntax. It was shown in this connection that the following rules are cyclic: Complement Subject Deletion; Passive; Subject Replacement; Case Marking; and Case Agreement. The facts from Ancient Greek, therefore, constitute further empirical support for the universality of the principle of the 'transformational cycle'.

4.0 The Rule of Case Attraction in Greek

Let us examine now the empirical basis for positing a rule of Case Attraction for Greek. Consider initially the following:

(74) hautē estin hē gunē hēn ezētoumen
Nom Acc
this is the woman whom (we)-were-looking for
'This is the woman (Nom) whom (Acc) we were looking for'

Notice that in this sentence the relative pronoun hēn 'whom' is in the Accusative case. A reasonable explanation for this fact is that the relative pronoun is in the Accusative due to the application of Case Marking prior to the application of Wh-Fronting at an earlier stage where the relative pronoun was still the object of ezētoumen 'we were looking for', a verb which requires Accusative objects.

This is confirmed since parallel to (74) there are sentences like:

(75) hautē estin hē stratia hēs ekeinos hēgemoneuei
Nom Gen
this is the army which he commands
'This is the army (Nom) which (Gen) he commands'

Here the verb hēgemoneuei 'he commands' is a verb which requires Genitive objects and, as predicted, the relative pronoun hēs 'which (Gen)' appears in the Genitive case. We must then conclude that in the derivation of (75), and similarly in the derivation of (74), the order of rule application must be:

(76) Case Marking
Wh-Fronting

The important point here is that relative pronouns must be marked for case before they are fronted.

Now, in Greek there are sentences like:

(77) axioi tēs eleutherias hēs kektēsthe
Gen Gen
worthy-of the freedom which you-possess
'Worthy of the freedom (Gen) which (Gen) you possess' (X.A.1.7.3; ap. Smyth.2522)

And parallel to this, there are also grammatical sentences like:

(78) axioi tēs eleutherias hēn kektēsthe
Gen Acc
worthy-of the freedom which you-possess
'Worthy of the freedom (Gen) which (Acc) you possess' (cf. Smyth.2522)
PROPERTIES OF AGREEMENT RULES

Now, the verb which appears in (77) and (78) — *kektashe* 'you-possess' — is a verb which requires *Accusative* objects and not *Genitive* objects. And yet, the relative pronoun which appears in (77) (bès 'which-Gen') is in the *Genitive* case in agreement with its antecedent, and not in the *Accusative*. The explanation for these facts is that there is a rule of ‘case attraction’ operating in the language which permits a relative pronoun to be attracted into the case of its referential antecedent. What these facts show then is that, quite independently from the facts involving *adjectives*, *participles* and *predicate nouns*, there must be a rule of *Case Attraction* in the language in order to account for the case change of *relative pronouns*.

I pass now to examine in some detail the essential properties of this rule of *Case Attraction*. Consider the following. In Greek, the antecedent of a relative pronoun is very often a demonstrative. Thus there are sentences such as:

(79) eidon *toutous* hoí parēsan
   Acc Nom
   'I saw those who were-present'
   'I saw (those) whom (Acc) he took'

   (in Goodwin.1007)

Now, in Greek, there is a rule which deletes the demonstrative antecedent if the latter is 'non-emphatic' (cf. Smyth. par.2522 ; Goodwin. par.1007). Thus parallel to sentence (79), there are also grammatical sentences like (80), where the antecedent *toutous* 'these-ones.Acc' has been deleted by the general rule of *Antecedent Deletion* just referred to.

(80) eidon *hous* elaben
   Acc
   'I saw whom he-took'

   (in Goodwin.1007)

The phenomena involving 'attraction' of relatives, and deletion of demonstrative antecedents, are well known among traditional grammarians. Smyth, for instance, states the generalization as follows:

“A relative pronoun is often attracted from its proper case into the case of its antecedent, especially from the accusative into the genitive or dative. A demonstrative pronoun to whose case the relative is attracted is usually omitted if unemphatic.”

(Smyth. par.2522 ; p.567)

The rules of *Case Attraction* and *Antecedent Deletion* thus explain the existence in the language of pairs of sentences like:

(81) sun *hois* malista phileis
   Dat
   'with whom most you-love'
   'With (those) whom (Dat) you most love'
   (X.A.19. ap. Goodwin.1032)

(82) sun *ekteinoihos* malista phileis
   Dat Acc
   'with those whom most you-love'
   'With those (Dat) whom (Acc) you most love'
   (cf. Goodwin.1032)

The derivation of (81) from the structure underlying sentence (82) is as illustrated in (83). Thus after *Wh-Fronting* we have:

(83) a. [sun — *ekteinoi* [hous — malista-(su) phileis]]
   Dat
   'with those whom most you-love'
   'With those (Dat) whom (Acc) you most love'
   (cf. Goodwin.1032)

b. [sun — *ekteinoi* [hois — malista-(su) phileis]] C. Attr.
   Dat Dat
   'with those whom most you-love'
   'With those (Dat) whom (Acc) you most love'
   (cf. Goodwin.1032)

c. [sun — ∅ [hois — malista-(su) phileis]] Ant. Del.
   Dat
   'with those whom most you-love'
   'With those (Dat) whom (Acc) you most love'

Evidence that *Case Attraction* must take place before *Antecedent Deletion*, as proposed above, is the existence of sentences like (84), where the antecedent *touton* 'those-Gen' is present in surface structure and *Case Attraction* has also taken place:

(84) ouk an moi dokos hupo ge *touton* hōn
   Gen Gen
   'not would to-me think by at-least those which
   su despoinon kaleis kōlusthai
   you mistresses call to-be-prevented
   'I would hardly think that I would be prevented by those (Gen)
   whom (Gen—Acc) you call mistresses (Gen—Acc)'

   (X. Dec.2.1 ap. Kuhnner-Gerth.555,Anmk.5)

Observe that the relative pronoun has its case changed into the case of its antecedent by application of *Case Attraction* when the antecedent is still present in the structure, and not by an application of *Case Marking* after the antecedent is deleted. This is clearly shown in the case of sentence (84), where there is no antecedent deletion and the relative pronoun is attracted. Further evidence for this claim is provided by the existence in the language of sentences like:
(85) stugōn men ἢ mētikten
hating on-the-one who me-bore hand
‘Hating (her) who (Nom) bore me’
(E.Alc.338 ap. Smyth.2530)

which derives from:

(86) stugōn men ekeinēn ἢ mētikten
hating on-the-one the-one who me-bore hand
‘Hating the one (Acc) who (Nom) bore me’
(cf. Smyth.2530)

In sentence (85), the demonstrative antecedent has been deleted. Now if (as in Lakoff’s analysis) the antecedent were deleted, so that the relative he were put into object position in the main clause, and then Case Marking were to apply to ἢ, we would expect the accusative hēn, since stugōn ‘hating’ requires an accusative object and Case Marking is obligatory. But (85) with hēn for ἢ is ungrammatical (Smyth.par.2530). The fact that the relative pronoun cannot be in the accusative in this sentence is a consequence of our analysis with a Case Attraction rule, given a well-motivated restriction which will be discussed later: namely, that nothing is ever attracted into the nominative or accusative case.

Sentence (85) is interesting for still another reason. It shows that Antecedent Deletion may occur even when Case Attraction does not take place, and therefore, the two rules are independent.

Thus far I have presented only instances where a relative pronoun in the Accusative case undergoes attraction. To show that the phenomenon is much more general I give now examples where relative pronouns in the Nominative or Dative also undergo the attraction rule. Examples of these are:

(87) bláptesthai ap’ hōn hēmin pareskeustai
Gen
to-be-harmed by which by-us have-been-prepared
‘To be harmed by what (Gen) has been prepared by us’
(T.7.67, ap. Smyth.2523)

Parallel to:

(88) bláptesthai apō ekeinōn hōn hēmin
Gen Nom
pareskeustai

to-be-harmed by those-things which by-us have-been-prepared
‘To be harmed by those things (Gen) which have been prepared by us’
(cf. Smyth.2523)

Similarly:

(89) emmenein hois arti edoxen hēmin
Dat
to remain- which recently seemed-good to-us true-to
‘To remain true to what (Dat) recently seemed good to us’
(Pl.Prot.353,b ; ap. Kuhner-Gerth.555,Anmk.4)

Parallel to:

(90) emmenein toutois ἢ arti
Dat Nom
to remain- those-things which recently true-to seem-good to-us
‘To remain true to those-things (Dat) which (Nom) recently seemed good to us’
(cf. Kuhner-Gerth.555,Anmk.4)

And also:

(91) ta men ex hōn
Gen
these-things on the out-of which other hand
memarturētai memathēkate pantes
have-been-witnessed you-have-learnt all
‘You have all learnt these-things from what (Gen) has been witnessed’
(Dem.57,46 ; ap. Kuhner-Gerth.555,Anmk.4)

Parallel to:

(92) ta men ek toutōn ἢ
(Gen) (Nom)
these things on the out-of the-things which other hand
memarturētai memathēkate pantes
have-been-witnessed you-have-learnt all
‘You have all learnt these-things from the things (Gen) which (Nom) have been witnessed’

As examples of Dative relative pronouns being attracted we have:

(93) oligoi bēn entetukhēka
Gen
a few of whom I-have-met-with
‘A few of those (Nom) whom (Gen) I have met with’
(Pl.Civ.531.e. : sp. Kuhner-Gerth.555,Anm.4)

Parallel to:

(94) oligoi ταυτών bōs entetukhēka
Gen Dat
a few of of-those whom I-have-met-with
‘A few of those (Gen) whom (Dat) I have met with’
(Cf. Kuhner-Gerth.555,Anmkn.4)

As a first approximation, in order to account for the ‘attraction’ of the relative pronouns in the sentences above we may propose a Case Attraction rule with essentially the properties of (95).

(95) Case Attraction (for Relatives) : Optional

\[ [\text{[wh-]} \rightarrow [\text{[a case]}] X \rightarrow \text{NP} \rightarrow Y \left[ \begin{array}{l} \text{[a case]} \\ \text{[+n-case]} \end{array} \right] Z \]

The effect of such a rule is to change the case of the relative pronoun to the case of its referential antecedent. However, application of Case Attraction is not without restrictions. We must, for instance, prevent the rule from applying and changing the case of the relative pronouns in sentences where the antecedent is Nominative as in:

(74) hautē estin bē ἰουν bēn exētoumen
Nom Acc
this is the woman whom (we)-were looking-for
‘This is the woman (Nom) whom (Acc) we were looking for’

For sentence (74) with bē ’who-Nom’ instead of bēn ’whom-Acc’ is simply ungrammatical (Smyth.2530).

Similarly, we must prevent the rule from applying to sentences like (85) where the antecedent (ekeinēn ‘her’, deleted) is Accusative:

(85) stugōn men bē mētikten
Nom
hating on-the-one who me-bore
hand
‘Hating her (Acc) who (Nom) bore me’

In view of these facts, we must, therefore, restrict the rule so as to prevent it from applying to structures where the antecedent of the relative pronoun is Nominative or Accusative. This restriction on the Case Attraction rule is pointed out, quite aptly, in Smyth (par. 2530):

(96) “When the omitted antecedent is nominative or accusative, the relative retains its own case.”

To account for these facts, we impose a condition on the Case Attraction rule (95), which we now replace by the more accurate rule:

(97) Case Attraction (For Relatives) : Optional

\[ [\text{[wh-]} \rightarrow [\text{[a case]}] X \rightarrow \text{NP} \rightarrow Y \left[ \begin{array}{l} \text{[a case]} \\ \text{[+n-case]} \end{array} \right] Z \]

Condition : \( \text{NP} \# \begin{cases} \text{[Nom]} \\ \text{[Acc]} \end{cases} \)

On the basis of the discussion above, I take then as established that an empirically adequate grammar for Greek must contain a rule of Case Attraction to account for the facts involving case change of relative pronouns.

An interesting question now is whether this Case Attraction, which must be in the grammar for independent reasons, can be generalized to account also for the case change of predicate adjectives, participles, and predicate nouns.

A first hint that restrictive relative clauses and predicate modifiers (i.e. participles, adjectives and predicate nominals) are related is provided by statements like the one found in Kuhner-Gerth (vol. II : parag.554.1):

“Die Adjectivsätze [i.e. relative clauses ACQ] entsprechen den Adjectiven oder Partizipien und bezeichnen wie die Adjective eine nähere Bestimmung eines Substantivs.”

* * * * * * * *

Adjective clauses correspond to adjectives or participles and, like adjectives, express a close determination (i.e. modify) of a noun.

And by an almost identical statement in Smyth (par.2488):

“Relative clauses correspond to attributive adjectives (or participles), since like adjectives they serve to define substantives.”

A second similarity between relative clauses and predicate modifiers in Greek is provided by their syntactic behavior with respect to case. Relative pronouns, as well as adjectives, participles, and predicate nouns may
optional have their original cases changed into the case of a noun phrase in the structure.

I give now a strong argument for extending the rule of Case Attraction originally postulated to account for relatives to cover also the facts involving predicate modifiers.

Observe initially that the Case Attraction rule first proposed for relatives must be restricted so as to block 'attraction' of the relative pronoun if its antecedent is a noun phrase in the Nominative or in the Accusative.

Consider now the sentences in (28):

(28) a. sunoïda emautōi eu poîēsas am-aware-of myself (Dat) well having-done (Nom)
b. sunoïda emautōt eu poîēsanti am-aware-of myself (Dat) well having-done (Dat)
'I am aware that I have done well'

(in Kuhner-Gerth.481.3, Anmkn.3)

A reasonable intermediary structure for both these sentences will be something like:

(50) [I am-aware-of — myself [I — having-done well]]

According to the analysis presented earlier, the derivation of sentence (28a) with Nominative participle is as follows. On the first cycle, S₁ in (50), Case Marking first applies marking the complement subject Accusative since it is the subject of a non-finite verb. Case Agreement, which comes next, will then obligatorily apply, on the same cycle, and mark the participle having-done Accusative. On the second cycle, S₀ in (50), after application of Complement Subject Deletion and Case Marking, respectively, Case Agreement (case b) applies obligatorily and changes the case of the participle into the case of the new subject on the cycle. The relevant steps in the derivation are illustrated in (51), repeated below.

(51) a. [I am-aware-of — myself [I — having-done — well]]
b. Acc Acc

Consider now the last stage in (100), namely, (100f). More fully, the derived structure at this point is:

(101) I escaped—notice-of — myself doing — something

Observe that (101) is identical to the derived structure for sunoïda in (98). We would then expect the optional 'attraction' rule to be able to apply
also to (101) and cause the participle to be ‘attracted’ into the case of the object of the matrix sentence. However, sentence (31) with Accusative participle is ungrammatical:

(31) *lanthano emauton poionanta ti I-escaped myself (Acc) doing (Acc) something notice-of

If we compare again the derived structure in (101) to the derived structure in (98) we see that they differ only in that in (98), where ‘attraction’ is possible, the NP object of the matrix sentence is Dative; whereas in (101), where ‘attraction’ is impossible, the NP object of the matrix sentence is Accusative. It is clear then that we must restrict the application of the rule so as to block ‘attraction’ of the participle into the case of an NP in the Accusative case.

But this is precisely the restriction that we find with respect to the rule of ‘attraction’ involving relatives. Relative pronouns also cannot undergo ‘attraction’ if its antecedent is a noun phrase in the Accusative case.

The restriction on the ‘attraction’ rule for relatives are thus identical to the restriction on the ‘attraction’ rule for predicate modifiers. We conclude then that the rule of ‘case attraction’ for relatives and the rule of ‘case attraction’ for predicate modifiers are, in fact, the same rule since they are subject to the same restrictions. We can now replace rule (97) for the more general rule in (102).

(102) Case Attraction : Optional

\[
\begin{align*}
\{ \text{Adjective} & \} \rightarrow [a \text{ case}] \\
\{ \text{Pred. Nominal} & \} \rightarrow [a \text{ case}] \\
\text{Condition: NP} & \neq \{ \text{Nom} \} \\
\end{align*}
\]

5.0 Case Agreement and Case Attraction : Refinements and Conclusions

In the previous sections I presented evidence that the facts involving case agreement in Greek are to be accounted for by two distinct transformational rules: an obligatory cyclic rule of Case Agreement; and an optional late rule of Case Attraction.

I will now introduce some necessary refinements in the analysis in order to account for all the relevant data. Consider first the rule of Case Agreement proposed earlier in (48).

(48) Case Agreement : Obligatory

\[
\begin{align*}
\{ \text{Adjective} & \} \rightarrow [a \text{ case}] \\
\{ \text{Participle} & \} \rightarrow [a \text{ case}] \\
\{ \text{Pred. Nom} & \} \rightarrow [a \text{ case}] \\
\end{align*}
\]

As formulated, the rule correctly accounts for simple sentences like:

(3) ho Kuros agathos estin the Cyrus (Nom) good (Nom) is 'Cyrus is good.'

Since the rule is cyclic, it also accounts for sentences like (7) where Case Agreement applies cyclically before and after Complement Subject Deletion:

(7) Dareios bouletai polemikos einai 'Darius (Nom) wants to be warlike (Nom)'.

And, similarly, the rule accounts for sentences like (59b), and for (67), where Case Agreement applies cyclically before and after Subject Replacement, and Passive, respectively:

(59b) dokei ko Kuros einai sophos 'Cyrus (Nom) seems to be wise (Nom)'.

(69) Kuros egeitthe einai sophos 'Cyrus (Nom) was reported to be wise (Nom)'.

However, the rule must be made more precise in order to account for the pair of sentences in (23).

(23) a. sambouleuō soi prosthunōi einai advise-1sg. you (Dat) zealous (Dat) to-be 'I advise you (Dat) to be zealous (Dat)'

b. sambouleuō soi prosthunōn einai advice-1sg. you (Dat) zealous (Acc) to-be 'I advise you (Dat) to be zealous (Acc)'

To illustrate, the structure underlying these sentences is roughly:

(53) I — advise — you [you — be — zealous]

Assuming the correctness of the analysis described in section (3.2), application of Case Marking and Case Agreement on the first cycle, and Complement Subject Deletion and Case Marking, on the second cycle, will produce a derived structure like (103).
Properties of Agreement Rules

(103) [ I advise — you [be — zealous].]
𝑆₀ Nom Dat 𝑆₁ Acc

Notice that if the Case Agreement rule in (48) is left in its present formulation, it would have to apply obligatorily also in the case of (103) and make the modifier agree obligatorily either with the subject or with the object of the matrix sentence.

But this is clearly incorrect. If Case Agreement makes the adjective zealous agree with the subject of the matrix, an ungrammatical sentence results. If, on the other hand, the Case Agreement rule establishes the agreement relationship between the modifier and the object of the matrix, the result would eventually be a grammatical sentence, namely (238). But it would also rule out the possibility of deriving the grammatical (23b) since Case Agreement, being an obligatory rule, would always apply in these cases, and make the adjective always Dative.

It is clear then that in the case of derived structures like (103) we must restrict the application of the Case Agreement rule so as to prevent obligatory case agreement with either the object of the subject of the matrix sentence.

In order to exclude case agreement with the object of the matrix, we formulate the Case Agreement rule so that the NP mentioned in the structural description of the rule always be a subject. We replace then rule (48) by a more precise rule, essentially:

(104) Case Agreement: Obligatory (cyclic)

\[
\begin{array}{c}
\text{Adjective} \\
\text{Participle} \\
\text{Pred. Nom.}
\end{array} \rightarrow [\text{a case}] (X) \quad \quad \left\{ \begin{array}{c}
\text{NP} \\
\text{n-case}
\end{array} \right. \quad \quad Y
\]

where NP is a subject.

The 'condition' to the effect that the NP mentioned by the rule must be a subject is here merely an informal notational device. Under a more formal approach, this device can be built into the rule by replacing the variable X between parenthesis in (104) by the actual elements which must occur in that position.

The rule now correctly ensures that Case Agreement takes place only with NP-subjects. Most likely this is not a restriction on the particular rule of Case Agreement for Greek. It seems rather to constitute a general principle of universal grammar according to which agreement involving case must involve only subject NP's.

We are now left with the problem of blocking the application

Case Agreement in Ancient Greek

Case Agreement between the modifier and the subject of the matrix in derived structure (103):

(103) [ I advise — you [be-zealous].]
Nom Dat Acc

One might suppose that it is the presence of the intervening lexically specified object you which blocks Case Agreement with the subject in this case. But clearly this is not so, as we can see from (105) which derives from (106).

(105) tous gar anthropous lesomen episontes

the for men (Acc.Pl.) we-will-escape-notice-of attaching (Nom.Pl.Sg.)

For (we) (Nom.Pl.) will escape notice of the men (Acc.Pl.) (when) attaching (Nom.Pl.).

(X.A. 7.3.43. (= Andrews 116)

(106) [(for) we-will-escape-notice-of-the-men [we-attaching]]

Similarly, the existence of sentence (105) eliminates the possibility of explaining the non-application of Case Agreement in (103) by imposing on the Case Agreement rule the condition that it be restricted strictly within a single clause, since in the derivation of (105) Case Agreement must involve the subject of the matrix and the participle in the embedded sentence. In fact, the phenomenon of Case Agreement in Greek constitutes rather an argument in support of the view that the general theory of transformations is not to be extended so as to permit transformations to be restricted to a single clause (cf. Chomsky, 1971).

Furthermore, it is simply not the case that we must always exclude case agreement with the subject in these examples. Thus while we must block case agreement between the modifier and the subject of the matrix in (103), we must, at the same time, allow Case Agreement to apply obligatorily after Passive and relate the modifier and the subject of the matrix so as to permit the derivation of sentence (107) from (108).

(107) peithomai prothumos einai
I-am-persuaded zealous (Nom) be

'I (Nom) am persuaded to be zealous (Nom)'

(108) [Pro — persuaded — I [I — be — zealous]]

S₀ S₁

We are now left with the problem of blocking the application
Evidently, the crucial factor governing the application of the rule of Case Agreement in these examples is the question of ‘control’ of the complement subject (to use the terminology suggested in Postal, 1970).

An immediate non-trivial consequence of the fact that the rule of Case Agreement is sensitive to the ‘control’ problem is that, independently of which theory is chosen, the rule will have to make crucial use of the linguistic property of coreference in its formulation.6

The way ‘coreference’ is to be formally represented in the grammar is clearly an open empirical question. But I take it as uncontroversial that this property must be represented in some fashion in a generative grammar (i.e. explicit grammar). This is necessary, independently of Case Agreement, for there are rules such as Complement Subject Deletion; Relativization; Reflexivization, which must make crucial use of ‘coreference’.

One concrete proposal for the formal representation of ‘coreference’ is the one suggested in Chomsky (1965), according to which this property is represented as a lexical feature:

quote: "The availability of lexical features suggests a new approach that might be explored. Suppose that lexical items are designated as ‘referential’ and that by a general convention each occurrence of a referential item is assigned a marker, say, an integer, as a feature." endquote

(Aspects, p. 145)

Chomsky’s proposal above was motivated by the existence of rules such as Relativization, Reflexivization, Complement Subject Deletion, which make crucial use of ‘coreference’.

Let us now explore some further consequences of Chomsky’s proposal above. Let us suppose, following Chomsky (1965), that noun phrases in general are designated as referential. In that case, according to the proposal above, noun phrases would always be assigned a referential index represented by an integer as one of its inherent syntactic features (in the sense of Chomsky, 1965: pp. 75ff.; pp. 164ff.)

Now, agreement rules in general are regarded as transformations that assign some features of noun phrases to a modifier. Thus, the rule of Agreement for Greek will have as one of its operations the assignment of the feature of case of a noun phrase to predicate modifiers. Since the rule has to be sensitive to ‘coreference’, I modify the rule so as to copy a lexical feature representing the referential index of the relevant phrase on to its predicate modifier.7 The modified rule is now as in (109).

\[
\begin{align*}
\text{(109) Case Agreement: Obligatory (cyclic)} \\
\begin{array}{c}
\text{Adjective} \\
\text{Participle} \\
\text{Pred. Nom.}
\end{array} \\
\rightarrow \begin{array}{c}
\text{[a case]} \\
\text{[a case]} \\
\text{[+i]}
\end{array} \\
\begin{array}{c}
\text{X} \\
\text{Y}
\end{array} \begin{array}{c}
\text{NP} \\
\text{Z}
\end{array} \\
\begin{array}{c}
\text{(a)} \\
\text{(b)}
\end{array}
\end{align*}
\]

where NP is a subject.

The copying of the feature representing the referential index of a noun phrase, along with its case feature, into its modifier is a formal way of expressing the significant linguistic generalization that the rule of Case Agreement is governed by ‘coreference’.

The assignment of referential index to modifiers by the application of Case Agreement rule is also a formal device to match the linguistic reality that in surface structure it is possible to pair off noun phrases with their respective agreeing modifiers even in cases where the linear order in which they appear has been greatly altered by transformations.

Notice that the empirical nature of the proposal above is quite clear. The analysis can be falsified, in an obvious way, if it can be proved, for instance, that Case Agreement is not governed by ‘coreference’ but rather by some other property. The question here is clearly one of right or wrong.

Since we have altered the Case Agreement rule, we must now modify, accordingly, the rule of Case Attraction. The rule is now as in (110).

\[
\begin{align*}
\text{(110) Case Attraction: Optional (post-cyclic)} \\
\begin{array}{c}
\text{Adject.} \\
\text{Partic.} \\
\text{Pre. Nom.}
\end{array} \\
\rightarrow \begin{array}{c}
\text{[a case]} \\
\text{[a case]} \\
\text{[+n-case]}
\end{array} \\
\begin{array}{c}
\text{X} \\
\text{Y}
\end{array} \begin{array}{c}
\text{NP} \\
\text{Z}
\end{array} \\
\begin{array}{c}
\text{wh-} \\
\text{Cond: NP} \neq \left\{ \text{Nom} \right\} \left\{ \text{Acc} \right\}
\end{array}
\end{align*}
\]

Let us now turn to the empirical problems raised earlier. Consider first deep structure (53) which I repeat below as (111) with referential indices added.

\[
\begin{align*}
\text{(111) } [I_j \rightarrow \text{advise} \ - \ y_{i_{\text{you}}} \ [y_{i_{\text{you}}} \ - \ \text{be} \ - \ \text{zealous}]] \\
\text{S}_0 \\
\text{S}_t
\end{align*}
\]

Following the analysis outlined earlier, on the first cycle, after Case Marking has marked the complement subject Accusative, the revised rule of Case Agreement will then apply and copy the feature Accusative as well
as the feature standing for the referential index into the predicate modifier. On the second cycle, Complement Subject Deletion and Case Marking will apply and produce (112) as derived structure.

\[(112) \quad [I_1 \quad \text{advise} \quad you_1 \quad [\text{be} \quad \text{zealous}_1]]\]

\[S_0 \quad \text{Dat} \quad S_1 \quad \text{Acc}\]

At this stage Case Agreement is to take place. Notice first that agreement with the NP-object of the matrix is now impossible since the Case Agreement is restricted to subject NP’s. The only other possibility would be agreement with the subject of the matrix. However, this is also impossible. Since the subject of the matrix and the predicate modifier have distinct referential indices, the structural description for the Case Agreement (case b) rule (109) is not met and the rule cannot apply. This correctly permits the derivation of (23b) from (112):

\[(23b) \quad \text{sambouleuō soi prothumōn einai advise-1sg. you (Dat) zealous (Acc)}\]

\[\text{‘I advise you (Dat) to be zealous (Acc)’}\]

Observe now that derived structure (112), which underlies (23b), meets the structural description for the Case Attraction rule (110). If Case Attraction optionally applies to it, it will then derive sentence (23a).

\[(23a) \quad \text{sambouleuō soi prothumōn einai advise-1sg. you (Dat) zealous (Dat)}\]

\[\text{‘I advise you (Dat) to be zealous (Dat)’}\]

An identical analysis would be given to pairs of sentences like:

\[(22) \quad a. \quad \text{exestin humin genesthai eudaimosin be-necessary you (Dat) be happy (Dat)}\]

\[\text{‘It is necessary for you (Dat) to be happy (Dat)’}\]

\[b. \quad \text{exestin humin genesthai eudaimonas be-necessary you (Dat) be happy (Dat)}\]

\[\text{‘It is necessary for you (Dat) to be happy (Acc)’}\]

\[(24) \quad a. \quad \text{prepei soi einai prothumōi be-fitting you (Dat) be zealous (Dat)}\]

\[\text{‘It is fitting for you (Dat) to be zealous (Dat)’}\]

\[b. \quad \text{prepei soi einai prothumon be-fitting you (Dat) be zealous (Acc)}\]

\[\text{‘It is fitting for you (Dat) to be zealous (Acc)’}\]

Similarly, sentences containing predicate nominals, which constituted counter-examples to Andrew’s analysis, now follow automatically. Thus

\[(107) \quad \text{peithomai prothumos einai I-am persuaded zealous (Nom)}\]

\[\text{‘I (I-Nom) am persuaded to be zealous (Nom)’}\]

\[(108) \quad [\text{PRO}_1 \quad \text{— persuaded} \quad I_1 \quad [I_1 \quad \text{be} \quad \text{zealous}_1]]\]

\[S_0 \quad \text{S}_1\]

Notice that deep structure (108) is identical to deep structure (111) discussed earlier. Unlike (111), however, agreement between the subject of the matrix and the modifier in the embedded S in (108) must now take place.

The reason for this becomes quite apparent when we compare sentence (107) to the earlier (23a) and (23b). A fundamental difference between the two cases is that the Passive transformation has applied in the derivation of sentence (107) but not in the derivation of the sentences in (23a) and (23b).

Within the present theory these facts can be explained in a very natural
fashion. The derivation of (107) from (108) is as follows. On the first cycle Case Marking will apply, as usual, followed by an application of Case Agreement on the same cycle. On the second, after Complement Subject Deletion the derived structure will be roughly:

(113) [Proj — persuaded — _I_ [be — zealous]]

Acc

Up to this point, there is no difference between the two examples. Now, Passive, which precedes Case Marking and Case Agreement, optionally applies on the second cycle in (113). Case Marking, which comes next, will then apply. As a result of these operations, the derived structure at the time Case Agreement is to apply is:

(114) [I_ — am-persuaded — by _I_ [be—zealous]]

Gen

Nom

Now, since the NP moved into subject position has a referential index identical to that of the modifier, the structural description for the Case Agreement rule (109) is met. The rule will then obligatorily apply to (114) and correctly derive sentence (107). Observe also that the Case Attraction rule (110) is correctly blocked in the case of (114). Since the NP in the by phrase and the predicate modifier have distinct indices the structural description for the rule is not met and Case Attraction cannot apply.

These facts constitute strong empirical evidence in favor of the transformational analysis, since they support both the claims that Case Agreement is governed by 'coreference' and the claim that Case Agreement applies only to NP-subjects.

From these facts we see that the generalization involving Case Agreement of predicate modifiers in Greek is not that predicate modifiers agree with that NP which was their subject at the end of the first cycle as claimed by Andrews and Lakoff. The correct generalization rather is that predicate modifiers agree with the NP which is the subject on the cycle at the time the agreement rule is to take place, and that the Case Agreement rule is cyclic and governed by 'coreference'.

We also see that the analysis receives further significant confirmation from the facts involving the case of participles. Thus consider first the sentence with sunoida 'be aware of' discussed earlier:

(28) a. sunoida emautoi eu poieasas
I-am-aware-of myswlf (Dat) well having-done (Nom)
’(I-Nom) am aware of myself (Dat) having-done (Nom) well’

b. sunoida emautoi eu poiesanti
I-am-aware-of myself (Dat) well having-done (Dat)
’(I-Nom) am aware of myself (Dat) having-done (Dat) well’

The deep structure underlying these two sentences is roughly:

(115) [I_ — am-aware-of — I_ [I_ — having-done-well]]

S_1

S_1

The derivation of the sentences in (28) from (115), according to the present analysis, is as follows. First Case Marking will apply on the first cycle followed by Case Agreement. On the next cycle Complement Subject Deletion will apply followed by an application of Case Marking on the same cycle. The structure at this point is:

(116) [I_ — am-aware-of — I_ [having-done_ — well]]

Nom

Dat

Nom

S_0

S_1

At this point, Case Agreement is to take place. Now, since the subject on the cycle and the participle have identical indices, the structural description for the Case Agreement rule (109) is met. The rule will then obligatorily apply to (116) and produce (117) from which sentence (28a) is derived.

(117) [I_ — am-aware-of — I_ [having-done_ — well]]

Nom

Dat

Nom

S_0

S_1

Alternatively, since (117) meets the structural description for the Case Attraction rule (110), the latter may optionally apply. If it does apply, then sentence (28b) with the participle in the Dative case is derived.

Notice that there is a substantive difference between the transformational analysis proposed here and the 'global' analysis in Andrews (1971) with respect to the facts above. Whereas these sentences are not explained, and are listed by Andrews as constituting counter-examples to his analysis, we see that the same facts follow automatically as a consequence of the transformational analysis.

Furthermore, the transformational analysis not only explains the existence of these sentences. It also explains why sentences like (118), with Accusative participle, do not exist in the language.

(118) *sunoida emautoi eu poiesanta
am-aware-of myself (Dat) well having-done (Acc)

Sentences like these could never be derived; for at the time the Case Agreement rule is to apply to the intermediary structure (116), its structural
description would always be met, and the rule, being obligatory, would necessarily apply and change the case of the participle to the case of the subject on the cycle which is in the Nominative case.

Consider some further facts. Notice that in the sunoida sentences in (28), the subject and the object of sunoida are coreferential. Under these conditions, the participle can be either Nominative, in agreement with the subject of sunoida due to application of Case Agreement on the second cycle or, alternatively, the participle may be Dative in agreement with the object of sunoida due to application of the optional rule of Case Attraction. The participle cannot be Accusative as in (118) by the reasons discussed in the preceding paragraph.

If, however, the subject and the object of sunoida are not coreferential, the transformational analysis predicts that there should be a pair of sentences including a sentence where the participle is Accusative, in agreement with the underlying complement subject deleted by Complement Subject Deletion, and a sentence where the participle is Dative by optional application of Case Attraction. In fact, these predictions are confirmed. Sentences (39) and (40) are grammatical.

(39) sunoida soi eu poiešanta
I-am-aware-of you (Dat) well having-done (Acc)  
‘I am aware of you (Dat) having-done (Acc) well’
  (cf. Kuhner-Gerth 481-3, Anm.3)

(40) sunoida soi eu poiešanti
I-am-aware-of you (Dat) well having-done (Dat) well
  (cf. Kuhner-Gerth, 481-3, Anm.3)

According to the transformational analysis, the structure underlying these sentences is essentially:

(119) I₁ — am-aware-of — you₁ [you₁ — having-done-well]

The derivation of sentences (39) and (40) from (119) is as follows. On the first cycle, Case Marking will apply and make the subject of the participle Accusative, as usual. Application of Case Agreement on the same cycle will make the participle also Accusative. On the second cycle, Complement Subject Deletion and Case Marking will apply, and as a result, there will be a derived structure like:

(120) [ I₁ — am-aware-of — you₁ [having-done₁ — well] ]
    Nom    Dat  Acc

If no major transformation applies to this structure, then sentence (39) will be derived. Notice that also (120) satisfies the structural description for Case Attraction. If the latter does apply to (120), then sentence (40) can be derived.

The analysis also correctly prevents application of Case Agreement between the subject of sunoida and the participle in (119) since their respective 'referential indices' are distinct, Case Agreement cannot apply. Therefore, the generation of an ungrammatical sentence with participle in the Nominative case from deep structure (119) is automatically excluded.

The sentences above are interesting for still another reason. In a recent paper, Chomsky (1971) has proposed a general condition on the application of transformations, which is re-stated in (121) below:

(121) Specified Subject Condition
"No rule can involve X, Y (X superior to Y) in the structure ...
...X... [Z... WYV...]
where Z is the subject of WYV and is not controlled by a category containing X."

In structure (119) the subject of the matrix S — the NP I — will be X, the complement subject you will be Z, and the participle having-done will be Y. The condition in (121) will then correctly predict that Case Agreement between the subject of the matrix X and the participle Y is blocked since in (119) the complement subject Z is 'not controlled' by the 'category containing X' (i.e. the complement subject is not controlled by the subject of the matrix sentence).

Notice, however, that in the case of structure (115) Case Agreement must be allowed to apply and relate the subject of sunoida and the embedded participle. It is clear then that we have to introduce some modifications on the 'specified subject condition' (121); otherwise, the condition would also prevent Case Agreement from applying in this example for, as it is clear from (39) and (40), the complement subject is normally controlled by the object of sunoida, and not by its subject.

What these facts indicate is that notion of 'controller' of the complement subject must be redefined as a 'transitive' notion so that in instances where the 'object controller' is coreferential with the subject of the matrix, the 'control' over the complement subject is exerted by both the object and the subject. With this modification on the notion of 'control', the 'specified subject condition' will now be able to make the correct empirical predictions.

Since the matter is of some interest, I will pursue the discussion a little further. An interesting question involving the 'specified subject condition' is posed by the existence in Latin of a pair of sentences like:

(122) ait se esse paratum
he-says himself (Acc) to-be prepared (Acc)
'(He-Nom) claims himself (Acc) to be prepared (Acc)'
he says to be prepared (Nom)
'(He-Nom) claims to be prepared (Nom)'

which derive from a structure like:

(124) [He — claims [he — be — prepared ]]

In the derivation of sentence (123) Case Agreement has applied to (124) and related the subject of the matrix (in the Nominative case) and the modifier in the embedded sentence. The application of Case Agreement in this instance is permitted by the 'specified subject condition' since the complement subject is 'controlled' by the subject of the matrix sentence.

However, Case Agreement cannot apply and relate the subject of the matrix and the modifier in the embedded sentence if, as in (123), the complement subject appears lexically specified, for sentences like (125) are ungrammatical.

(125) *ait se esse paratus
he says himself (Acc) to be prepared (Nom)
'(He-Nom) claims himself (Acc) to be prepared (Nom)'

These facts will follow from the 'specified subject condition', since, as stated in the condition, NP's which are lexically specified are never 'controlled' (cf. Chomsky, 1971).

Thus in sentence (123) where the complement subject is not lexically specified it is subject to obligatory 'control' by the subject of the matrix. Consequently, the condition will not block application of Case Agreement between the subject of the matrix and the modifier in the embedded sentence. In sentence (122), however, the complement subject is a lexically specified noun phrase. Hence it cannot be 'controlled'. Consequently, the 'specified subject condition' will correctly block Case Agreement between the subject of the matrix and the modifier in the embedded sentence in this example, therefore excluding (124), while at the same time allowing (123) to be generated.

Notice that this explanation is contingent on the non-application of a subject-raising transformation. The reason for this is quite simple. If there were a rule of subject-raising, this rule would have to apply to structure (123) before Case Agreement (see: Andrews, 1971; Lakoff, 1970; 1972b). As a consequence, due to a prior application of subject-raising, the derived structure at the time the Case Agreement rule is to apply on the second cycle would be:

Now, since there is no 'specified subject' in the embedded sentence, the 'specified subject condition' (121) is not applicable. The Case Agreement rule would then obligatorily apply to (126), just as it did apply in the derivation of (122), and the result would be the ungrammatical:

(125) *ait se esse paratus
he says himself (Acc) to be prepared (Nom)
'(He-Nom) claims himself (Acc) to be prepared (Nom)'

To complete the argument, notice that there is no possibility of excluding (125) by imposing a condition on the Case Agreement rule so as to block the application of the rule due to the presence of a lexically specified object. For Case Agreement must be able to apply in this situation in order to derive (28a), (30), and a large number of other sentences.

The Latin examples are interesting also because they show that Reflexivization in Latin cannot be restricted to a single clause. Consequently, the Latin facts constitute counter-evidence to the claim that parallel reflexive sentences in English are to be explained in terms of a subject-raising transformation.

Also, it is interesting to notice that one of the motivations for postulating a subject-raising rule for Greek (as assumed in Andrews, 1971; and in Lakoff, 1970; 1972b) and for Latin (as in Fauconnier 1971), seems to be the fact that the subject of infinitives in these two languages is marked Accusative in surface structure.

Not incidentally, such analyses lead to the claim that Case Marking and Case Agreement is not a cyclic rule; for it would have to apply after Raising, a rule which must wait until the matrix-S to be applicable. In fact, Fauconnier (1971: p. 149) makes just this claim.

Thus, for instance, Fauconnier (1971: p. 149ff) takes the fact that the subjects of infinitives are Accusative as constituting evidence for a rule of subject-raising in Latin. He contends that the case of the complement subject in infinitival clauses is dependent on the properties of the verb of the matrix sentence. The suggestion is that the subject of the infinitive must first undergo Raising and be placed in object position under the matrix-S. Only then will Case Marking take place and mark it with the case required by the main verb.

Now, the assumption that the case of the subject of infinitives in Latin depends on the properties of the main verb, as claimed by Fauconnier and others, is simply false, as evidenced by the existence of Latin sentences like (127).
(127) expedit bonás esse vobis  
is-advantageous good (Acc.Pl.) be you (Dat.Pl.)  
'It is advantageous for you (Dat.Pl.) to be good (Acc.Pl.)'  
(Ter.Haut.388 ; ap. Allen & Greenough.455.a)

Here the adjective bonás is Accusative, in agreement with the deleted complement subject. Notice that there can be no possibility of explaining these facts in terms of a Raising rule. This follows since the verb of the matrix sentence expedit is a verb which requires Dative objects. Consequently, if Raising were to apply, the raised complement subject would be marked Dative and the adjective, which must agree with it, would always be Dative and not Accusative as in (127). The existence of sentences like (127) can only be explained if the subject of the infinitive does not undergo the subject-raising transformation, but rather is marked Accusative in the embedded sentence.

Similarly, the assumption that the case of the subject of infinitives is dependent on the properties of the main verb is incorrect also in the case of Greek. Evidence for this is the existence of Greek sentences like:

(22b) exestin humin genesthai eudaimosin  
be-necessary you (Dat) be happy (Acc)  
'It is necessary for you (Dat) to be happy (Acc)'  
(in Kuhner-Gerth.575.1.c ; Anmkl.2)

(23b) symbouleuó soi prothomon einai  
'(I) advise you (Dat) to be zealous (Acc)'  
(in Kuhner-Gerth.475.b)

Sentence (22b) is parallel to the Latin sentence (127). The adjective eudaimosin is Accusative, in agreement with the deleted complement subject and, as in the Latin example, sentence (22b) cannot be accounted for in terms of a Raising transformation. For if the complement subject is first raised and then marked for case in the matrix sentence, it would be marked Dative since exestin ‘be necessary’ is a verb which requires Dative objects. The adjective, which must agree with the complement subject, would then be always Dative and never Accusative as in (22b). The existence of this sentence can be explained, however, if there is no Raising and the complement subject is marked for case in the embedded sentence, regardless, of the properties of the main verb.

Similarly, sentence (23b) cannot be explained in terms of a raising rule: first, because verbs of the symbouleuó type are not verbs for which Raising is normally postulated and, second, because if the complement subject is raised and marked for case in the matrix sentence, it would be marked Dative, which is the case of the NP-object of symbouleuó. Consequently, there would be no natural explanation for the fact that the adjective which must agree with the complement subject appears in the Accusative case in (23b). The facts can be explained, however, if Raising does not occur and the complement subject is marked for case in the embedded sentence, regardless of the properties of the main verb.

I present now a further argument against a subject-raising rule of the type assumed in Andrews’ and in Lakoff’s analyses of Greek. The structure of the argument is as follows: in order to decide whether the case of complement subject in a non-finite clause is dependent or not on the properties of the main verb, we select a verb which requires its object to be in a case other than the Accusative case. Under these conditions, if the complement subject is marked with the case required by the main verb, instead of Accusative, then its case is dependent on the properties of the main verb. Alternatively, if the complement subject is still marked Accusative, then the case of the complement subject is independent of the properties of the main verb and Case Marking must take place in the embedded sentence, and not in the matrix sentence after application of the subject-raising transformation. I pass now to the empirical data.

One verb which meets the specifications above in Greek is the verb sunoida ‘be aware of’ which, as can be seen in (28), (39), and (40), requires its object to be in the Dative case.

Now, in Greek, there are also grammatical sentences like (128):

(128) sunoida se eu poiesanta  
'I am aware you (Acc) well having-done (Acc)'  
(in Kuhner-Gerth.481.3 ; Anmkl.3)

Observe that in this sentence the NP se ‘you-Acc’ is in the Accusative case. Now, this cannot be explained on the assumption that the NP se is the object of sunoida; for the latter is a verb which requires its objects to be in the Dative case and not in the Accusative case.

Similarly, we cannot explain the case of the NP se ‘you-Acc’ by assuming that it is the subject of poiesanta ‘having-done-Acc’ which has undergone the subject-raising transformation; for if the complement subject were raised and then marked for case by application of Case Marking in the matrix sentence we should have soi ‘you-Dat’ in the Dative case, instead of the Accusative se, for sunoida requires Dative objects only.

The facts in (128) can be explained, however, if we assume that se ‘you-Acc’ is the subject of poiesanta, and that the complement subject is not raised but rather is marked for case in the embedded sentence. According to this view, sentence (128) will be derived from a deep structure which is essentially:
The underlying structure for these two sentences is essentially:

\[
\begin{align*}
(130) & [I_1 \quad \text{escaped-notice-of myself}_{i} \quad [I_1 \quad \text{doing} \quad \text{something}] ] \\
S_0 & \\
S_i &
\end{align*}
\]

According to the transformational analysis sentence (30) is derived as follows. On the first cycle Case Marking and Case Agreement will apply, followed by an application of Complement Subject Deletion and Case Marking on the second cycle. As a result of these operations a derived structure like (131) will be produced.

\[
\begin{align*}
(131) & [I_1 \quad \text{escaped-notice-of myself}_{i} \quad \text{doing}_{i} \quad \text{something}] ] \\
\text{Nom} & \\
\text{Acc} &
\end{align*}
\]

At this point Case Agreement is applicable on the second cycle \(S_0\) in (131). Now, since the subject of the matrix sentence and the embedded participle have identical 'referential indices', the structural description for the rule of Case Agreement (case b) is met. The rule will then obligatorily apply to (131) and produce the derived structure (132) from which sentence (30) is derived.

\[
\begin{align*}
(132) & [I_1 \quad \text{escaped-notice-of myself}_{i} \quad \text{doing}_{i} \quad \text{something}] ] \\
\text{Nom} & \\
\text{Acc} & \text{Nom}
\end{align*}
\]

Now one might expect Case Attraction to be able to optionally apply to (132), as in the case of the suoida sentences discussed earlier, and relate the participle with the object of the matrix sentence. However, the application of the rule of Case Attraction in this example is blocked by the well-motivated condition which prohibits 'case attraction' into Accusatives. If Case Attraction applies in violation to the condition, as in (31), the analysis correctly predicts that the resulting sentence is ungrammatical.

It is interesting to notice that there are two occasions in which the ungrammatical (31) with Accusative participle could have been produced. One is at the time the derived structure (131) is produced. But the sentence is prevented from being generated because the Case Agreement rule must obligatorily apply on the second cycle in (131). The second occasion where (31) could be generated by an application of Case Attraction to derived structure (132). But again the sentence is prevented from being generated by the independently motivated condition which prevents 'attraction' into the Accusative case. Notice that all these facts follow automatically as a consequence of the transformational analysis advanced here and, therefore, constitute important evidence in support of its empirical adequacy.

The same analysis described above would also account for sentences like:
sentences with Accusative participle, instead of Nominative participle, are automatically excluded.

The same analysis would also be given to sentences such as:

(105) tous gar anthrōpos lēsamen epistontes
the for men (Acc.Pl.) we-will-escape attacking
notice-of

'For we (Nom.Pl.) will escape notice of the men
(Acc.Pl.) (when) attacking (Nom.Pl.)'

(X.A.7.3-43. = Andrews (11.b))

(138) lanthānei (tiná) kleptōn
he-escapes (someone (Acc)) stealing (Nom)
notice-of

'(He-Nom) escapes notice of someone (Acc) (when)
stealing (Nom)'

(in Liddell & Scott: Gr.-Eng. Lex.: p. 466)

(139) bouloimen an lathein auton apēlthōn
I-would-like to-escape him (Acc) leaving (Nom)
notice-of

'(I-Nom) would-like to escape notice of him (Acc) while
leaving (Nom)'

As is clear from these examples, lanthanō is a verb which requires its
subject to be the ‘controller’ of the complement subject. We would then
expect other verbs which share the same characteristic to display identical
behavior with respect to Case Agreement, since the latter is a rule sensitive
to reference and to subject NP's. In fact, this prediction is confirmed. Verbs
of the ‘promise’ type in Greek require that the modifier in the embedded
sentence agree in case with the subject of the matrix, as shown in (140).

(140) oudepōpothe hupeskhēto didakhālos einai
never-yet he-promised teacher (Nom) to-be

'(He-Nom) never promised to be teacher (Nom)'

(X. Comm. 3.3; ap. Kuhnner-Gerth 389, Anm. 7)

There is still a last problem to be considered. First notice that, in Greek,
there are sentences like:

(141) endesan ton Karon basilea genomenon
they-know the the Cyrus (Acc) king (Acc) had-become (Acc)

'They knew that Cyrus had become king'

(in Goodwin 910)
which derives from:

(142) \[ \text{they — knew [ Cyrus — becoming — king]} \] 
\[ S_0 \]
\[ S_1 \]

Notice that in (141) both the participle \textit{genomenon} ‘had become (Acc)’ and the predicate nominal \textit{basilea} ‘king (Acc)’ are \textit{Accusative in agreement} with the complement subject \textit{ton Kuron} ‘Cyrus (Acc)’.

Since both the participle and the predicate nominal must undergo \textit{Case Agreement}, an interesting question arises. Does the \textit{Case Agreement} rule apply only \textit{one place at a time}, say first to the participle, reapplying subsequently to the \textit{predicate nominal}? or does it apply \textit{simultaneously} to the participle and to the \textit{predicate nominal}?

Consider first the proposal that \textit{Case Agreement} applies only \textit{one place at a time}. On this assumption, the \textit{Case Agreement} rule would have two subparts \textit{linearly ordered}; say: (a) participial agreement; (b) predicate agreement. However, it is clear that the order of application of the two rules is inmaterial: the same results would be obtained were the subparts to be applied in either order. The formulation of \textit{Case Agreement} as a sequence of \textit{arbitrary linearly ordered} rules is clearly not appropriate since no generalization is captured by ordering the rules.

Consider now the proposal that \textit{Case Agreement} applies \textit{simultaneously}. This is much closer to the facts since the generalization in the case of sentences like (141) is simply that the rule \textit{must} apply several times to a given string. In fact, as it will be shown later, this proposal has some rather interesting consequences. In order to achieve these results we make use of the ‘parentheses-star’ notation discussed in Chomsky and Halle (1968). To illustrate this, the notation (143) is an abbreviation for an infinite set of simultaneously applicable schemata (144).

(143) \(X(Y)\ast Z\)

(144) \(XZ, XYZ, XXXYZ, XYYYYZ, \ldots\)

Underlying this is the following convention of rule application proposed in Chomsky and Halle (1968: p. 344):

(145) To apply a rule, the string is first scanned for segments that satisfy the environmental constraints of the rule. After all segments have been identified in the string, the changes required by the rules are applied simultaneously.

In short, the convention (145) permits a rule to apply several times to a given string, the several applications being simultaneous.

We can now incorporate the results of this discussion, by reformulating the rule of \textit{Case Agreement} in (109) and the rule of \textit{Case Attraction} in (110). The rules will now be as in (146) and (147) below.

(146) \textit{Case Agreement: Obligatory (cyclic)}

\[
\begin{align*}
\text{Adjective} & \rightarrow [\alpha \text{case}] \\
\text{Participle} & \rightarrow [\alpha \text{case}] \\
\text{Pred.Nom.} & \rightarrow [\alpha \text{case}]
\end{align*}
\]

\[
\begin{array}{c}
Y \left( \frac{(\text{-case})}{i} \right) \ast  \\
\frac{(\text{-case})}{i} \end{array}
\]

where \(\text{NP}\) is a subject.

(147) \textit{Case Attraction: Optional (post-cyclic)}

\[
\begin{align*}
\text{wh-Adjective} & \rightarrow [\alpha \text{case}] \\
\text{Participle} & \rightarrow [\alpha \text{case}] \\
\text{Pred.Nom.} & \rightarrow [\alpha \text{case}]
\end{align*}
\]

\[
\begin{array}{c}
X \rightarrow \frac{\text{NP} \ast \{ \text{Nom} \}}{\{ \text{Acc} \}} \\
Y \left( \frac{(\text{-case})}{i} \right) \ast \\
\frac{(\text{-case})}{i} \end{array}
\]

The new formulation of the \textit{Case Agreement} rule in (146) makes it possible now to account for the more complex agreement facts in sentences like:

(141) \textit{endesan ton Kuron basilea genomenon} \\
\textit{Acc Acc} \\
\textit{they-knew the Cyrus king had-become} \\
\textit{‘They knew that Cyrus had become king’}

And, similarly, the rule now accounts also for:

(148) \textit{lelētha amauton sophos ōn} \\
\textit{Acc Nom Nom} \\
\textit{I-have-escaped myself wise being} \\
\textit{notice-of} \\
\textit{‘I have not realized that I am wise’}

\(\text{(P.Eu.249 A = Andrews(20z))}\)
(149) euthus elenkhetetai geloios an
Nom Nom
immediately he-will-be-proved ridiculous being
‘Immediately he will be proved to be ridiculous’
(X.M.I.7.2. = Andrews (9b))

We are now in condition to account for the crucial sentences in Andrews’ paper:

(150) a. emmenomen toutois ha homologesamen
Dat Acc
we-abide-by those-things which we-have-agreed
dikaios onto
Acc Acc
just being
Lit.: We abide-by those-things (Dat) which (Acc)
we have agreed being (Acc) just (Acc)
b. emmenomen hois homologesamen dikaiois
Dat Dat
we-abide-by which we-have-agreed just
ousi e ou?
Dat being or not
Lit.: We abide-by which (Dat) we have agreed being (Dat)
just (Dat) or not?
‘Do we abide by (those-things) which we consider just, or not?’
(P.C.50a = Andrews (15))

Assuming with Bresnan (1972) that Relativization involves the movement of a wb-word into complementizer position (COMP), we can represent the structure underlying these two sentences essentially as:

(151) [ Wej-abide-by — those-thingsi1 [COMP-wej-consider
S1
which_i1 being — just] ]
S2
S3

The derivation of sentence (150a) from (151) is as follows. On the first cycle Si, Case Marking first applies and marks the complement subject which Accusative since it is the subject of a non-finite verb. On the same cycle, Case Agreement, which comes next, will then obligatorily apply, simultaneously, to the participle being and to the adjective just yielding a derived structure like:

(152) [ wej — abide-by — those-thingsi1 [COMP — wej — consider
S1
which_i1 being — just ] ]
S2
S3
Acc Acc

Cyclic applications of Case Marking on the second cycle (S2), and on the first cycle (S1), respectively, and application of Wh-Fronting (after Case Marking as shown in (76)), on the second cycle (S3) will produce a derived structure like:

(153) [ wej — abide-by — those-thingsi1 [which_i1 — wej — consider
S1
being_i1 — just_i1 ] ]
S2
Dat S3
Acc
S3 Acc

Subsequent transformations will then apply to (153) and derive sentence (150a).

Consider now the derivation of sentence (150b). The derivation of this sentence goes through like that of (150a) until derived structure (153) is reached.

Then, more things happen. Notice that (153) meets the structural description for the Case Attraction rule (147). Case Attraction will optionally apply to (153) and simultaneously ‘attract’ the relative pronoun, the participle, and the adjective with the same ‘referential index’ to the case of the coreferential NP antecedent, thus producing:

(154) [ wej — abide — by — these — thingsi1 [which_i1 (wej) — consider
S1
being_i1 — just_i1 ] ]
S2 Dat
S3 Dat

This would result in a sentence...touoi hois... which would be grammatical. Evidence for this is the existence of parallel sentences like:

(84) ouk an moi doko hupo ge toui
not would to me think by at-least these
hôn su despoinon kaleis kölasthai
Gen.Pl.
which you mistresses you-call to-be-prevented
‘I Would hardly think that I would be prevented by those (Gen
Pl) whom (Gen Pl ← Acc) you call mistresses (Gen Pl ← Acc)’.
(X.Dec.2, 1 ap. Kuhner-Gerth 555, Anm. 5)

In order to derive sentence (150b), it is necessary only that the Antecedent
Deletion rule apply to (154) deleting the 'non emphatic' antecedent NP 'those-things (Dat)' (touitoi).

We see then that the complex phenomenon represented by the sentences in (149) also follow from the transformational analysis. Furthermore, we see that the analysis goes well beyond the original data and has far reaching empirical consequences.

First, since Case Attraction is formulated as a rule which involves simultaneous application, the analysis automatically excludes ungrammatical sentences of the type:

(155) *we abide-by those-things which we consider being just

\[
\begin{array}{ccc}
\text{Dat} & \text{Acc} & \text{Dat}\ 
\end{array}
\]

where the predicate modifiers, but not the relative pronoun, are attracted into the case of the antecedent. And, similarly, ungrammatical sentences of the type:

(156) a) *we abide-by those-things which we consider being just

\[
\begin{array}{ccc}
\text{Dat} & \text{Dat} & \text{Acc}\ 
\end{array}
\]

b) *we abide-by which we consider being just

\[
\begin{array}{ccc}
\text{Dat} & \text{Acc} & \text{Acc}\ 
\end{array}
\]

where the relative pronoun is "attracted" but the modifiers are not.10

The analysis permits thus an explicit account of significant linguistic generalization noted by traditional grammarians that a relative pronoun and its predicate modifiers must be in the same case. This generalization is pointed out, for instance, in Smyth (1920):

"Predicate nouns follow the case of the relative attracted to an antecedent expressed or omitted". (paragraph.2525)

And still more accurately in Kuhner-Gerth (1967):

"Wenn zu dem attractierten Relative prädikative Substantive oder Adjective gehören, nehmen auch diese an der Attraction teil [Examples omitted ACQ]. Diese Verbindung ist ganz natürlich, da auch da, wo keine Attraction stattfindet, die näheren Bestimmungen des Relatives mit diesem in gleichen Kausus stehen [Examples omitted ACQ]."

(Kuhner-Gerth. parag.555.2. Anmk.5.)

"When the predicate noun or adjective belongs to the attracted relative these too take part in the attraction. [Examples omitted ACQ]. This association is quite natural since even when no attraction takes place the closer modifiers of the relative stand in the same case as the latter. [Examples omitted ACQ]."

A second interesting consequence is that the analysis substantiates, and provides an explicit account of, the traditional grammarians insight that 'restrictive' relative clauses (which they call 'Adjective Clauses') correspond to 'attributive adjectives' (cf. Kuhner-Gerth.554.; Smyth.2488); and of Smyth's (1920; par. 2524) claim that "an attracted relative clause virtually has the force of an attributable adjective".

Finally, since Case Attraction is governed by 'coreference', the analysis explains why 'true' relative pronouns (hos, he, ho: who, which, that) may undergo 'attraction' whereas 'indefinite relative pronouns' such as hostis 'whoever' may not (cf. Smyth.2524). This follows as a consequence of the analysis since only 'relative pronouns', but not 'indefinite relatives', can have a coreferential NP as antecedent.

We have now accounted for all the relevant Greek data, including the counter-examples to Andrews', and Lakoff's analyses.

I will now summarize briefly the main points of this discussion. In this study I have shown that the facts involving case agreement of predicate modifiers in Ancient Greek can be adequately accounted for within a theory which contains two distinct transformational rules: an obligatory cyclic rule of Case Agreement, whose existence in the language is beyond controversy; and an optional post-cyclic rule of Case Attraction, which must be in the grammar quite independently from the facts involving case agreement of predicate modifiers.

It was argued that both the Case Agreement rule and the Case Attraction rule must make crucial use of the linguistic property of 'coreference' and it was claimed that this generalization is true, regardless of which theoretical framework is chosen.

It was shown also that the transformational hypothesis is empirically adequate to account for all the relevant data — including the cases where the previous analyses in Andrews (1970) and in Lakoff (1970; 1972b) proved to be empirically incorrect — and that significant linguistic generalizations can be captured if the transformational analysis is adopted.

In conclusion, therefore, that the claim made in Andrews (1971) and in Lakoff (1970; 1972b) that the facts involving case agreement of predicate modifiers in Greek cannot be stated in terms of transformational rules, but must instead be stated in terms of global derivational constraints, is incorrect. In fact, the examples discussed show that just the opposite is true. Whereas Andrews' and Lakoff's 'global' hypothesis is empirically inadequate in some fundamental respects, the 'transformational' hypothesis is not. We must then conclude that the 'global' hypothesis is to be rejected in favor of the 'transformational' hypothesis as a condition for empirical adequacy to be met.
the second optional rule (B) to apply obligatorily in case the first rule (A) has optionally applied in an earlier stage in the derivation.

The disadvantages of a 'global' proposal here would be obvious. First, instead of a single rule of Case Attraction, it would now be necessary to postulate two distinct rules. Furthermore, the two rules would be subject to the same restrictions, namely, neither rule can apply if the 'antecedent NP' is Accusative or Nominative. Consequently, the generalization captured by the rule of Case Attraction would now be lost.

1 Sources:

2 I am greatly indebted to Judith Alissen, Andrew Carnie, and Wayles Browne for helping me with the translation of the Greek examples and for invaluable suggestions. I am also greatly indebted to Noam Chomsky, Howard Lasnik, Wayles Browne, and Hu Mathews for numerous suggestions and criticism; and to Avery Andrews for profitable discussions.

3 This was pointed out to me by Wayles Browne.

4 This rule is grossly oversimplified and will be reformulated later. Meta-conditions on rule application such as the 'specified subject condition' (see Chomsky, 1971) will determine which NP the modifier agrees with.

5 I am assuming that all elements are [case] until some rule assigns some case to them. The 'feature' [case] is an abbreviation for

   - Nominative
   - Accusative
   - etc.

Similarly, the 'feature' [+n-case] is an abbreviation for [+Nominative] or [+Accusative] or whatever case is relevant.

6 The term "coreference" here is rather misleading, as in much of the literature, where the term "coreference" has been often used to mean "anaphoric" relations (See Wasow, 1972, Chapter 5 for discussion and clarification). "Anaphora" is a more exact term, as was pointed out to me by Noam Chomsky (personal communication).

7 A suggestion in this direction appears in Baker and Braine (1972). However, it failed to notice that the 'indices' are motivated for other rules which involve "coreference" (or, more properly, anaphora) and not merely an ad-hoc device just to account for Case Agreement. Consequently, Lakoff's (1972) criticisms to Baker and Braine (1972) do not apply to the present analysis.

8 Actually the facts given here can also be adequately accounted for by the 'specified subject condition' in its final formulation in Chomsky (1971). However, as I show later, there are more complex facts involving Case Attraction which require the presence of 'coreferential', or 'anaphoric' indices.

9 For an interesting discussion of this algorithm, see Anderson (1971) and Browne (1977).

10 Notice that the 'global' notion of 'cyclic subject' would raise some serious problems. In order to account for the facts it would be necessary to postulate two optional rules:
   (A) a rule to optionally change the case of the 'cyclic subject' (i.e. the relative pronoun)
   (B) a second rule to change the case of the modifiers into the case of the relevant NP. The latter must be optional because of pairs like:
   — I give (Dat) to be zealous (Acc)
   — I advise you (Dat) to be zealous (Dat).

Since the two rules would have to be optional, in order to block the ungrammatical sentences in (156) it would now be necessary to introduce a mechanism so as to condition...