Predicate Nominals are non-referential but allow long-distance movement, which is a contradictory fact under Rizzi-Cinque's approach to movement in terms of referentiality. This paper argues that this discrepancy can be explained under the VP-internal subject hypothesis in conjunction with the Split INFL hypothesis. It is also argued that predicate nominals must receive Case, contrary to Chomsky's (1986) Visibility Condition. The existence of AGRoP is discussed in connection with predicate nominals.*

1. Introduction

Koopman and Sportiche (1988), Rizzi (1990) and Cinque (1990) note that there is an asymmetry between an argument NP (ANP) and a measure phrase (MP), with the examples in (1) illustrating the generalization that the former is (marginally) extractable from islands but the latter is not:

(1) a. *How many apples do you wonder whether John weighed t? 
   b. *How many pounds do you wonder whether the refrigerator weighs t? (Koopman and Sportiche (1988: 26))

In (1a), ANP has been moved from a wh-island, which yields a weakly ill-formed sentence. This grammatical status is expected. The initial trace, t, is lexically governed by weighed, since the measure verb subcategorizes for the (theme) argument. MP in (1b), however, does not allow long-movement, despite the fact that the MP is also selected by the verb. It is, therefore, the status of MP-extraction that calls for explanation. Similar phenomena are manifest in (2)-(3):

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THE SYNTAX OF PREDICATE NOMINALS

(2) a. ?How many passages do you wonder whether she took from his book?
   b. *How many hours do you wonder whether the session took?

(3) a. ?What kinds of beans do you wonder whether the boy grew?
   b. *How many inches do you wonder whether the boy grew?

The examples show that ANPs enjoy relative freedom of movement when compared to MPs.

Cinque (1990) argues that the same asymmetry rears its head in the extraction from the negative island (4) and the factive island (5):

(4) a. ?How many apples don't you think that John weighed?
   b. *How many pounds don't you think that the refrigerator weighed?

(5) a. ?How many apples do you regret that John weighed?
   b. *How many pounds do you regret that the refrigerator weighed?

Coordination constructions provide yet another instance where MPs and ANPs are clearly distinguished:

(6) a. *John weighed 200lbs and three apples.
   b. *John grew 3 inches and corn here.

At the risk of redundancy, let us spell out the descriptive generalization: the (a) sentences in (1)-(5) show the status of a weak island violation, while the (b) sentences exhibit that of an ECP violation. Note here that weigh, for example, obligatorily requires ANP or MP:

(7) a. John weighed *(three apples).
   b. John weighed *(200 lbs).

A reasonable interpretation of (7) in terms of the extraction phenomena we have observed is that subcategorized phrases do not have the same prerogative of long wh-movement. This leads us to take the difference in long-movement between ANPs and MPs as being due to the difference in semantic properties between these two categories. The seminal studies in this regard are Rizzi (1990) and Cinque (1990), which will be reviewed in the next section.

2. Cinque-Rizzi’s Approach

Rizzi (1990) proposes that the semantic notion of “referentiality” based on theta roles should be incorporated into the characterization of island-sensitive extractees. His theory can be summarized as (8):
(8) a. A phrase is referential if it is assigned a "referential" theta role.
    b. A referential phrase is immune to islands effects.
    c. Referential theta roles include Agent, Patient, Goal, etc; non-referential ones include Measure, Manner, idiosyncratic roles in idioms, etc.

He assumes the following formulation of ECP:

(9) A nonpronominal empty category must be properly head-governed.

However, this is not sufficient to account for (1a) and (1b), since both ANP and MP are properly head-governed by weigh. In order to rule out the illegitimate extraction from islands, he proposes (10) as the condition on operators:

(10) An operator must be connected to its variable through binding or antecedent-government.

(11) X antecedent-governs Y iff
    (i) X and Y are nondistinct
    (ii) X c-commands Y
    (iii) no barrier intervenes
    (iv) Relativized Minimality is respected.¹

(12) X binds Y iff
    (i) X c-commands Y, and
    (ii) X and Y have the same referential index

Binding is assumed to apply only for referential expressions. Long-movement of a referential argument does not require locality, due to the fact that the extractee has a referential index licensed by a referential theta-role. In (1a), the referential wh-phrase how many apples is connected to its initial trace through binding, and the referential index, which the wh-phrase and the trace share, is licensed by the referential theta role assigned to the trace by weigh. This explains why referential ANPs are not subject to Relativized Minimality. (12i) indicates that binding is nonlocal in Rizzi's sense and this captures the descriptive generalization of (8b).

On the other hand, binding is not a legitimate choice in the case of the

¹ Relativized Minimality stipulates that X cannot govern Y if there is a closer potential governor Z in (i):
    (i) [X...Z...Y]

The potential governor for Y in an A' chain is any A' specifier c-commanding Y.
extraction of MPs, which are assumed to be non-referential and not to carry referential indices. So antecedent-government is the only mechanism which we can resort to here, inducing Relativized Minimality effects. A wh-phrase is in an A' specifier position, so the wh-phrase cannot cross any intervening A' specifier; otherwise, Relativized Minimality is not respected. The locality requirement of MP-extraction is thus characterized in terms of antecedent-government. The same consideration applies to adjunct-extraction, which also exhibits the strict locality effect:

(13) a. *Why do you wonder [whether John met Mary t]?
   \[Wh-island\]
   b. *Why don’t you think [that John met Mary t]?
   \[Negative inner island\]
   c. *Why do you regret [that John met Mary t]?
   \[Factive island\]

Adjuncts do not have referential indices, so they are indistinguishable from MPs in the status of non-referentiality. This means that an ECP violation in (13) is a subcase of the more general theory that binding is not available to non-referential phrases and that antecedent-government must be exploited to form the intended chain. Rizzi’s account is elegant in that adjunct-extraction and MP-extraction comprise a single phenomenon.

There is, however, some evidence suggesting that Rizzi’s account is not the whole story. Consider the following examples:

(14) a. ?Which apple do you wonder whether John weighed?
   b. *Which the hell apple do you wonder whether John weighed?

As regards the character of the extracted phrases, they are referential in Rizzi’s sense, since they are assigned the same (theme) theta role. Recall that referentiality is only defined in terms of theta roles. What these examples suggest then is that the notion of discourse-linking in the sense of Pesetsky (1987) must be utilized to account for (14). In (14), only the non-discourse-linked phrase which the hell apple is subject to the wh-island, a fact which suggests that the nature of the extracted phrase itself must be taken into consideration.

Cinque (1990: 55) refines Rizzi’s theory by adding the proviso that long-extracted phrases should be intrinsically referential (=discourse-linked).

(15) Long wh-movement is limited to the phrases that not only are in A-position (Chomsky (1986b)) and receive a referential theta-role (Rizzi (1990)), but also are intrinsically referential.

An immediate question is what is a reliable diagnostic of intrinsically ref-
erential phrases. Cinque cites "coreference" as a characteristic of these phrases. As seen in the following examples, MPs are not anaphorically related to pronouns, which leads us to the conclusion that MPs are intrinsically non-referential:

(16) a. *He would like to weigh 200 pounds since his favorite actor weighs them.
   b. *The book cost 100 dollars but I didn't have them with me.
   c. *The boy grew 10 inches but they did not make up for his play.
   d. *The session will take 3 hours but I don't mind them.

Note here that the coreference test is in fact the strongest argument there is for the claim that non-referential expressions do not enter into binding relations.

In Cinque's system, a (resumptive) pronoun cannot take a non-referential phrase as its antecedent. Given the assumption that parasitic gaps are null resumptive pronouns, it is a logical conclusion that non-referential phrases do not allow parasitic gap (PG) constructions.

(17) a. *How many pounds does he weigh t without believing he weighs PG?
   b. *How many inches did he grow t without believing he grew PG?

If this line of argument is on the right track, then we should expect adjuncts not to allow PGs, since they are assumed to be non-NPs and therefore non-referential.

(18) a. *Why did John leave t without seeing Mary PG?
   b. What is the reason, x, such that John left because of x without seeing Mary because of x.

Aoun and Clark (1988: 34) point out that (18a) cannot be interpreted as (18b). The innovative theory advanced in Rizzi (1990) and Cinque (1990) provides the impetus for new and old research on extraction by pushing the parallelism among non-referential phrases to the logical limit. Their approach has brought us closer to the goal of explaining the behavior of non-referential phrases, but we will see in the next section that discussions on predicate nominals raise questions on their proposal.

3. Predicate Nominals and Non-Referentiality

It is well known (see e.g. Kuno (1970)) that predicate nominals (PNs) do
not refer at all and cannot be anaphorically related to pronouns in discourse.

(19)  
   a. A doctor came to see me. I could trust him/the doctor.  
   b. My brother is a doctor. I cannot trust him/*the doctor.  
The example in (19b) shows that PN does not establish a discourse referent: him refers to my brother, not a doctor. The evidence regarding coreference immediately suggests that PNs are non-referential in Rizzi’s sense. The following examples are also illustrative of the non-referentiality of PNs:

(20)  
   a. John is president of the club. He cannot be elected.  
   b. Mary is a stewardess. I’m glad I’m not her.  
Doron (1988: 284) observes that (20a) means “John cannot be reelected,” not “there is a rule according to which a president cannot be reelected.” Similarly, her in (20b) has the subject, not PN, as its antecedent.

One could make the argument against analyzing PNs as non-referential by providing the examples in (21):

(21)  
   a. Carter is a politician. I’m glad I’m not one/that.  
   b. He is a rich man, though he doesn’t look it.  
   c. John is a doctor. He has been one since 1955.  
The difficulty with this claim is that the identity involved here is not coreference, but the identity of sense. It should be noted here that if the use of it is regarded as a reliable test of referentiality, the Rizzi-Cinque proposal breaks down completely.

(22)  
   a. He weighs 200lbs. I think it is too little for a sumo wrestler.  
   b. The journal costs 100 dollars. It is too much for my budget.  
   c. Most Japanese baseball games take 3 hours to play. It is too long to watch.  
Recall that there is an isomorphism between referentiality and long-movement. MPs could allow long-movement if it were to enter into co-referential relations. Of course, the facts are exactly contrary. The data in (21) do not establish the conclusion that PNs are referential.

There is another kind of evidence from Binding Theory suggesting that PNs are non-referential. If Binding Theory is a theory of referential dependencies (Chomsky (1986a: 143)), PNs are expected to induce a referential opacity. The pertinent data are given in (23):

(23)  
   a. I consider Konishiki an admirer of himself.  
   b. *Konishiki knows an admirer of himself.  
When the NP in question is referential, it constitutes its Complete Func-
tional Complex (=local domain). If it is not referential, it must extend its local domain to include its clusal subject.

The resumptive pronoun strategy also gives the confirmation that PNs are non-referential. Cinque (1990) assumes that resumptive pronouns do not have non-referential NPs as their antecedents. Consider the following sentences from Sells (1984: 11-12):

(24) a. I would like to meet the linguist that Mary couldn't remember if she had seen him before.
   b. *I would like to meet every linguist that Mary couldn't remember if she had seen him before.

With this contrast in mind, consider (25):

(25) a. *He is not the man that you asked me whether I knew his name.
   b. *He is not the man John met the woman who knows that he was one/it/him.
   c. ???This is the man that you asked me whether I knew his mother.

The ill-formedness of (25a-b) can be attributed to the non-referentiality of PNs. Jim Harris (p.c.) informs us that Spanish counterparts of these sentences are also bizarre. Susan Rothstein (p.c.), however, points out that (25c) has the marginal status of resumptive pronouns. We take it that the use of this makes this sentence identificational and the man is used referentially (See Declerk (1988)). In the preceding section we have seen that MPs are not referential. We should, if Cinque and Rizzi's analysis is on the right track, expect PNs to exhibit the same set of properties as MPs and adjuncts with respect to the extraction from islands: islands do block the extraction of PNs. Unfortunately, the data given below do not confirm this expectation:

(26) a. ?What kind of teacher do you wonder whether he was ten years ago?
   b. ?What do you wonder whether he in fact was?
(27) a. ??How successful a businessman do you wonder whether he

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3 Ishii (1990) shows from Japanese data that non-referential NPs cannot be rescued by resumptive pronouns.
became?
b. ?How successful a businessman do you wonder whether he in fact was?

(28) a. ?What did they admit/forget that John (in fact) was?
b. ?What kind of doctor do you regret that John was?

(29) a. ?What don’t you believe that he was ten years ago?
b. ?What did no one believe that he was ten years ago?

While the Rizz-Cinque approach correctly describes the facts of MP-extraction, it is incapable of accounting for the extraction of PNs, which strips their proposal of its intuitive motivation. It should be clear from (26)-(29) that the restriction on long-movement cannot be cashed in as a difference in referentiality.

Before turning to the problems posed by PNs, let it be noted that PNs behave on a par with arguments, not with adjuncts.

(30) a. ?Which book do you wonder whether John read t?
b. ?Which book do you admit/forget that John read t?
c. ?Which book don’t you believe that John read t?

(31) a. *Why do you wonder [whether John read the book t]?
b. *Why do you admit/forget [that John read the book t]?
c. *Why don’t you believe [that John read the book t]?

It is, therefore, not unreasonable to assume that PNs are arguments syntactically. The extraction from an adverbial clause also shows that PNs are arguments:

(32) a. ?Who did you go to Boston [without meeting t]?
b. *Why did you go to Boston [before resigning t]?
c. ??What did you go to Boston [before wishing to be t]?
d. *How many pound did you go to Boston [before weighing t]?

We have shown in this section that PNs, though non-referential, do not display the cluster of properties associated with non-referential MPs. The

4 Alternatively, it might be claimed that MPs are adjuncts, but Cinque (1990: 105) claims, based on ne-cliticization in Italian, that MPs are arguments. However, the distribution of the qualitative pronoun, er, in Dutch strongly indicates that MPs are adjuncts. See Corver (1990) for this observation. Recent discussions on double object constructions and scrambling raise definitional questions on the standard distinction between arguments and adjuncts, so we leave open the question of whether MPs are arguments or not.
problems posed by PNs cannot be resolved by assuming that the extraction of non-referential phrases causes an ECP violation. In the next section, we will see why PNs behave much like arguments.

4. "Argumenthood" of Predicate Nominals

PNs behave like arguments, but a copula verb be does not assign a theta-role. On the contrary, PNs assign their theta roles to subjects. This suggests that PNs have some grammatical properties of VPs. So a plausible clue to the long-extraction problem of PNs lies in a consideration of the syntactic category of PNs when they are preposed. Chomsky (1986b: 20) notes that VP-preposing is not subject to strong island effects:

(33) ?Fix the car, I wonder whether he will t.
How can the initial trace be properly governed to satisfy ECP? Two possible solutions can be envisaged: antecedent-government or lexical government. Consider the possible derivation of (33):

(34) [IP [Fix the car] [IP I [VP t' [VP wonder [CP t' [C whether [IP he will t]]]]]]]
Antecedent-government does not obtain between t' and t, since VP, not L-marked, is a blocking category and IP is a barrier for the VP trace. IP-adjunction is stipulated to be impossible. Chomsky (1986b) proposes an alternative that I theta-marks VP, which deprives VP of its nature of a blocking category. IP thus ceases to be a barrier and t is lexically governed by I.

One might ask what theta-role I assigns to VP, but it is sufficient to note here that VP-preposing in English does not cause an ECP violation. Consider the following examples of VP-fronting from Roberts (1990: 388):

(35) John said he'd win the race and
   a. ?win the race I wonder whether he did.
   b. ??win the race I believed the claim he did.
The paradigm in (35) is parallel to that of ANP-extraction. We are now in a position to see how the movement of PNs works: if PNs have the status of arguments, PNs should exhibit the same kind of extractability as ANPs and VPs, which turns out to be the case in the following sentences:

(36) John said he would be a linguist and
   a. ?a teacher I wonder whether he was.
   b. ??a teacher I believed the claim that he was.
Consider another parallelism of PNs and VPs in terms of other extractions:

(37) John said he'd win the race and
   a. ?win the race I admit that he did.
   b. ?win the race no one thought that he did.

(38) John said he'd be a teacher and
   a. ?a teacher I admit that he was.
   b. ?a teacher no one thought that he was.

These results suggest that when PNs and VPs are preposed, they take on the same category.

Chomsky (1990, MIT lectures) points out that predicate-preposing exhibits a narrower range of reconstruction effects than argument-preposing.

(39) a. Which pictures of himself did John think Mary saw?
   b. Pictures of himself, John thought Mary saw?

(40) a. *How proud of himself did John think Mary was?
   b. *Criticize himself, John thought (that) Mary would.

He assumes that these results straightforwardly come from the VP-internal subject hypothesis: the sentential subject is generated at D-structure within VP (Kuroda (1986), Koopman and Sportiche (1988), among others). Various empirical arguments have been put forth in support of this hypothesis, one of which can be drawn from predicate-preposing. According to this hypothesis, the fronted predicate contains a subject trace, which induces binding effects:

(41) \[
\text{[ti'' criticize himself], John thought [t' [that Maryi would t]]}
\]

The anaphor, himself, is always bound by the inappropriate subject trace, \( ti'' \), which gives rise to the violation of Binding Theory. This account, however, has one new problem with the proper government of \( ti'' \). Chomsky's solution to this problem comes from the Split INFL hypothesis: the INFL is divided into two functional categories, Tense and AGR (see Pollock (1989) and Chomsky (1989)). Under Chomsky's view, the structure of a clause takes on the following form:

(42) \[
\text{[AGRoP ... [TP ... [AGRoP ... [VP ...]]]]}
\]

Given (42), the syntactic category of the fronted predicate in (41) is not VP, but AGRoP:

(43) \[
\text{[AGRoP AGRo [ti'' criticize himself]], John thought [t' [that Maryi would t]]}
\]

The subject trace \( ti'' \) is properly governed by the AGRo, to which the verb, criticize, moves by LF-movement (see Huang (1990) for further discussion).

Assuming that predicate-preposing is in fact the movement of AGRP is
on the right track, the movement of PNs should exhibit the same behavior with respect to binding:

(44) a. *A victim of himself, John thought Mary was.
b. *What kind of a victim of himself did John think Mary was?
c. *How much of an admirer of himself did John think Mary was?

The same connectivity can be seen in though-constructions and pseudocleft constructions:

(45) a. *Fond of the girl John kissed yesterday though I think he is, ...
b. *Victim of the girl John kissed yesterday though I think he is, ...
c. *Criticize the girl John kissed yesterday though I think he does, ...

(46) a. *What Mary wants me to be is proud of herself.
b. *What Mary wants me not to be is a victim of herself.
c. *What Mary wants me to do is criticize herself.

In (45), the subject trace in the fronted predicate binds John, causing a Binding Condition C violation. In (46), the predicate phrase following the copula verb be contains an improper trace binding herself. Note, incidentally, that topicalization permits coreference in (47):

(47) a. The girl John kissed yesterday, I think he likes, ...
b. The victim of the girl John kissed yesterday, I think he knows, ...
c. The girl John kissed yesterday, I think he criticizes, ...

The data concerning PN-preposing suggest that even intransitive sentences have the projection of AGR0, which has been implicitly assumed in the Split INFL hypothesis. In the next section, we will give one more piece of syntactic evidence for the existence of the projection of AGR.

5. The Existence of AGRP

It is known that the non-restrictive which has VP as its antecedent:

(48) a. They say he likes sumo, which he doesn’t.
b. They say he likes sumo, which I don’t.

Here which can be anaphoric to the VP in the preceding sentences: which he doesn’t in (48a), for example, means either “he doesn’t like sumo”, or “he doesn’t say he likes sumo.” We will for the moment focus on the
former interpretation. The question here is why *which*, relative pronoun, can take VP as its antecedent. There is a mismatch in the categorial identity between *which* and VP, which has made this use of *which* mysterious. If we assume that the referent of non-restrictive *which* corresponds to a constituent, it is not unreasonable to claim that AGRP can be its antecedent.\(^5\) If AGR is inherently pronominal (e.g. Mahajan (1990)), the projection of AGR is also pronominal. Under the CASE-checking proposal, LF-movement of V into AGRo may cause AGRo to include phi-features, since V has phi-features in lexicon and phi-features are assumed to be pronominal. No mismatch arises under either interpretation of AGR.

AGRoP constitutes the core meaning of a sentence under the VP-internal subject hypothesis. This can be interpreted as meaning that AGRoP represents a proposition. In English, *it/that* can be connected to a proposition:

\[(49) \text{"He went there yesterday?" \ "Do you know it/that?"} \]

We might take this to be due to the fact that *it/that* has minimal pronominal features, which are compatible with those of AGR. Jackendoff (1977: 175) claims that *it/that* and *which* can take the same categories as their antecedents:

\[(50) \begin{align*}
\text{a. } & \text{Bill came late, and that bothered Susan.} \\
\text{b. } & \text{Bill came late, which bothered Susan.}
\end{align*} \]

\[(51) \begin{align*}
\text{a. } & \text{Bill is drunk all the time—is that how you'd like to be?} \\
\text{b. } & \text{Bill is drunk all the time—which is probably how you’d like to be.}
\end{align*} \]

We have seen in (43) that the subject trace in VP is always properly governed by AGRo, which means that the subject trace can be deleted after the proper-government at LF. Given the assumption that empty operator (OP) movement is involved in relative clauses, it is natural that OP should be connected to its antecedent, AGRoP in the case of non-restrictive *which* clauses.

\[(52) \ldots \text{AGRoP}_i [OP_i [\text{which}_i \ldots t_i \ldots]] \]

The AGRoP in the antecedent clause contains the trace of the subject, which is later deleted at LF. This explains why there is no incompatibility between the subject *I* and the trace of the subject *he* in (48b), whose reconstructed form, if we omit the irrelevant details, can be informally represented as in (53):

\[^5\text{We are indebted to an anonymous referee for clarifying our idea.}\]
(53) They say he, likes sumo, (but) I don’t [ti [like sumo]]
The trace of he, ti, is deleted at LF and no conflict arises here. This account
has the interesting consequence for control structures:

(54) a. It beckoned Scrooge [PRO to approach], which he did.
   b. She begged him [PRO to draw the curtain], which Alec
      accordingly did.
   c. She advised me [PRO to go there at once], which I did.
(The underlined parts correspond to the antecedents of which. (54a) is from
Jespersen (1927)) One property common to the examples in (54) is that the
controller of PRO is identical to the subject in the following non-restrictive
relative clause. PRO cannot be deleted for a number of reasons, among of
which is that PRO has phi-features in lexicon and items containing phi-
features in lexicon cannot be deleted under the recoverability condition.
Consider the rough reconstructed form of (54a) in relevant respects:

(55) which he did = hei did [PRO, (to) approach]
PRO in (54a) is controlled by Scrooge both in the antecedent clause and in
the reconstructed form (55). Thus there is no conflict in the choice of con-
troller, giving rise to the appropriate interpretation.

Ken Hale (p.c.) informs us that him must be coreferential with Alec in
(54b). This can be expected under the assumption that PRO cannot be
deleted. Hale’s suggestion leads us to predict the ungrammaticality of the
following sentences:

(56) a. *She asked me to draw the curtain, which Tom did instead.
   b. *The ghost beckoned me to approach, which Tom did instead.
   c. *They ordered me to go there, which Tom did instead.
We have seen that PRO is present in the reconstructed form of the non-
restrictive clause, but in (56a), for example, the controller of the PRO
(=me) is at odds with the subject Tom in the relative clause. We can
ascribe the ungrammaticality of (56b) to this incompatibility.6

6 An anonymous referee points out that the examples in (56) are not so bad as we
claim, and that the following sentences are acceptable under the interpretation that
"Tom fixed the car instead" and "Tom helped Mary instead":

   (i) a. John intended to fix the car, which Tom did instead.
      b. John promised to help Mary, which Tom did instead.
However, the sentences in (56) and (i) are all ungrammatical unless Tom gets stressed.
Furthermore, instead forces the focus interpretation here. We are indebted to Ken Hale
for this observation.
Our proposal also explains that small clauses can be antecedents of \textit{which} under the assumption that they are analyzed as AGRPs (e.g. Nakajima (1991), among others).

(57) a. John considers \([\text{AGRP}_1 \text{Mary a genius}], \) which is not true.
b. John considered \([\text{AGRP}_2 \text{Mary intelligent}], \) which I knew by her GPA.
c. I heard \([\text{AGRP}_3 \text{a dog bark suddenly}], \) which really surprised me.

The following sentences can be accounted for under the assumption that the copula verb \textit{be} takes a small clause, which, as pointed out, is AGRP:

(58) a. John is a TV personality, which I should like to be.
b. John think Mary is the prettiest girl in the world, which she is not.
c. John was considerate, which I wish to be.

(58c) is worth paying special attention to, since \textit{which} is anaphorically related to AP. However, the relative pronoun here has a small clause (AGRoP) as its antecedent, so we can unify the treatment of the sentences in (58). Lest one think that \textit{which} does not take as its antecedent a matrix VP in structures such as (57), let's consider the following sentence:

(59) John \([\text{AGRP}_1 \text{considered } \text{AGRP}_2 \text{my son a whiz kid}]\), which he does not any longer.

Here \textit{which} is anaphorically related to the matrix VP “consider my son a whiz kid”. A plausible answer lies in the assumption that the relative pronoun takes AGRP\textsubscript{1} as its antecedent.

Under the Split INFL hypothesis, Tense Phrase is a category distinct from AGRoP. Our analysis of \textit{which} also gives support to this structure. Notice that tense and aspect are irrelevant in the interpretation of \textit{which} in the following examples:

(60) a. The 5 o’clock bus was late yesterday, which always makes me angry.
b. The 5 o’clock bus was running at the speed of 100 miles, which always makes people terrified.
c. The 5 o’clock bus has just collided with another bus, which, of course, makes people wary of using public transportation again.

\textit{Which} in the above examples does not refer to individual events, but a generic statement about “the 5 o’clock bus.” In other words, tense and aspect do not affect the interpretation of the relative pronoun. In structural
terms, Tense and Aspect constitute categories different from AGRP, if we are right in stipulating that a proposition is represented by AGRP. Semantically, a proposition can be defined as a set of events, which means that the proposition represents a generic interpretation. The articulated clause structure (42) in conjunction with the VP-internal subject hypothesis can account for the situations just mentioned.

We may accommodate the following examples into our account by considering the fact that Neg is also outside AGRoP:

(61)  a. They said John hit Mary, which Tom didn’t.
    b. John didn’t hit Mary, which Tom did.

(61b) cannot mean “Tom did not hit Mary”, but it means “Tom hit Mary.” However, this explanation may not be satisfactory when we consider the following sentence:

(62) John didn’t hit Mary, which is true.

In (62), which refers to the preceding sentence including negation. However, this can be explained if we assume that the antecedent of the non-restrictive pronoun is not AGRoP, but AGRsP. In this section, we have seen that the behavior of the non-restrictive which can be accounted for under the Split INFL hypothesis and the VP-internal subject hypothesis.

6. Case and Predicate Nominals

We have seen in section 4 that the movement of PN is in fact the movement of AGRoP. Since AGRoP is an argument, we assume that it may also receive Case. Chomsky (1986: 95), however, points out that Visibility Condition does not require Case to be assigned to the bracketed NPs in (63):

(63)  a. John is [a fine mathematician]
    b. [John], I consider [a fine mathematician]

(64) Visibility Condition (VC)
An element is visible for theta-marking only if it is assigned Case.

Obviously, many languages show overt Case-marking on PNs.

(65)  a. Er wird [ein guten Arzt]NOM. (German)
“He became a good doctor.”
    b. Haraldur er [vondur kokkur]NOM. (Icelandic)
    “Haraldur is a bad cook.”

Two solutions can be imagined. One is to assume that T assigns a theta-
role to AGRoP. The other is to assume that AGR and VP are the same projection of a verb. Whatever the appropriate mechanism of the theta-assignment, there is a theoretical argument that PNs must receive Case.

Chomsky (1986b) proposes the chain composition of parasitic gaps, which unites the chain of the real gap and the the chain of the PG. Based on the assumption that each chain has one theta-marked position and one Case-marked position and that empty operator movement is involved in PG constructions, Nakamura et al. (1989) observe that PG appears in a Case-marked and theta-marked position. Relevant examples are given in (67):

(66) a. *Who did you see t without thinking PG to seem that Mary left.
   b. *Who did you see t because it seems PG to have left.

PG in (66a) appears in a non-theta marked position and PG in (66b) appears in a non-Case marked position. It might be claimed under Cinque’s proposal that given that the pronominal (i.e., PG in his proposal) must match in phi-features the operator and indirectly the real gap, the PG must be an argument. As such, it must get a theta-role. We can thus make the following generalization on PGs:

(67) PGs are restricted to arguments and they receive Case and theta-roles.

The following data confirm this generalization:

(68) a. *How important can one become t without feeling PG? (AP)
   b. *How kindly did he behave with you t without behaving with your friends PG? (ADV) (Cinque (1990))
   c. *Why did John leave t without seeing Mary PG? (Adjunct)
   d. *To whom did you write t after talking PG? (PP)

If PNs do receive Case, they should allow PGs, which is the case:

(69) a. ?What did he become t without thinking he could ever be PG?
   b. ?How successful a man did he become t without remotely wishing to be PG?
   c. ?What will he be t without really wanting to be PG?
   d. ?He is a successful businessman, which he is t without wanting to be PG.

It might be objected that the examples in (69) do not involve PGs but ellipsis under the identity of the real gaps, but this argument is not valid here. The following data show that VP-deletion can apply to PNs:

(70) a. I believe that John is a doctor but Mary doesn’t believe he is.
b. John will be a politician but in fact he doesn’t want to be. With this observation in mind, consider the following sentences:

(71) a. *He became a dancer without thinking he could ever be.
b. *He became a successful man without remotely wishing to be.
c. *He will be a politician without really wanting to be.

This paradigm patterns with the typical PG constructions

(72) a. ?What did he file t without reading PG?
b. *He filed the paper without reading.

So we can conclude that the examples in (70) involve PG constructions.

The PGs of PNs are interesting in another sense. Cinque (1990) assumes that PGs are empty pros and non-referential NPs are not accessible to the (empty) resumptive pronominal strategy. Recall that he attributes the ungrammaticality of the PGs of MPs to the fact that the MPs are not resumed by (overt) pronouns.

(73) a. *How many kilos does he weigh t without believing he weighs PG?
b. *He would like to weigh one hundred kilos since his favorite actor weighs them.

We have seen in section 3 that PNs are not resumed by resumptive pronouns, but they do allow PG constructions, a contradictory situation in Cinque’s proposal. This casts some doubt on the claim that PGs are empty pros. In this section we have argued, based on the PGs of PNs, that PNs must receive Case.

7. Case Assignment

Maling and Sprouse (1992) claim that the copula is a case-assigner in English, citing the following examples:

(74) a. That’s me/*I in the picture.
b. What would you do if you were me/*I?
c. You can be me/*I in the play.

However, the above sentences are not predicational but identificational. One of the differences between predicational sentences and identificational sentences can be seen in the applicability of through-movement:

(75) a. That’s me in the picture.

7 On further differences, see Declerk (1988).
b. *Me though that is in the picture, ...

(76) a. He is a teacher.

b. Teacher though he is, ...

Following Chomsky (1989), we assume that (structural) Case and agreement are reflections of Spec-Head agreement. Chomsky regards Case and agreement as CASE, which may be phonologically nothing but must be identified at LF. Languages differ in whether Case or agreement shows up at S-structure or not. Lexical elements, including PRO and pro, have phi-features, which have to be checked all the way. This amounts to saying that Case and inflection are not assigned but checked. It is also assumed that phi-features are left behind under movement, i.e., a trace carries its phi-features. (Note that Projection Principle only says that something is left behind under movement, but it is not necessarily a set of phi-features.) Under this proposal, Visibility can be defined as (77):

(77) Chain \((X_1 \ldots X_n)\) is visible if \(X_1\) is CASE-checked.

The Economy Principle says that when an element is already CASE-checked, it cannot move. Nothing can be moved from CASE-checked position. Consider the following structure:

(78)

\[
\begin{array}{c}
\text{AGRop} \\
/ \ \backslash \\
\text{SPEC} \quad \text{AGRop'} \\
/ \ \backslash \\
\text{AGR0} \quad \text{VP} \\
/ \ \backslash \\
\text{V} \quad \text{NP}
\end{array}
\]

V moves to AGRo, forming an V-AGRo complex. NP is Case-checked in the AGRoP-Spec position. Suppose that V is unaccusative, there is no Spec-Head agreement between NP in the AGRoP-Spec and the AGRo-V complex, probably due to the nature of the V. AGRo may be “catalyst” that allows V to check its phi-features, so it is the nature of V that is crucial for CASE-checking. This is exemplified in (65). The PNs in (65), not CASE-checked in AGRoP-Spec, must move to AGRsS-Spec to get CASE-checked.

Consider the following Icelandic examples from Maling and Kim (1991: 13):

‘Icelanders chose her president in 1980.’
she-Nom was chosen president-Nom 1980
‘She was chosen president in 1980.’

In (79a), *hana* is CASE-checked in the AGRoP-Spec position at LF. What about *forseta*? We can explain the Case-marking of ACC on the PN by adjoining it to the AGRoP.

\[(80) \ldots [\text{AGRoP } forseta \ [\text{AGRoP } hana \ [\text{AGRo } kusu]]] \ldots\]

We assume that AGRo can CASE-check XP in the adjoined position as well. The V-AGRo complex then CASE-checks *hana* and *forseta* at LF.

A similar explanation applies to (79b). Due to the lexical property of the passive verb, the V("kosin")-AGRo complex is incapable of CASE-checking the phrase in the AGRoP-Spec position. This causes *forseti* to the AGRs-Spec position, where it is CASE-checked and Nominative is licensed.

The analysis along this line can also account for the following data from Korean:

\[(81)\]

I-Nom child-ACC doctor-Inst/Acc make-Pst-Ind
‘I made my child a doctor.’

child-Nom doctor-Inst/*Nom make-Pass-Pst-Ind
‘My child was made a doctor.’

As is clear from the above sentences, small clauses in Korean do not normally show the Case-agreement: PN does not necessarily agree in Case with the NP it is predicated of. Since Instrumental (INST) Case is an inherent Case, it is not CASE-checked by Spec-Head relation, rather by Head-complement relation. This licensing is assumed to be optional. So if *uysa-lo* is not licensed at D-structure, it moves to the AGRoP-Spec and gets CASE-checked there. This is why *uysa* has ACC as well as INST. Recall that once an element is CASE-checked, the Economy Principle prevents the element from moving further. However, our account of (79b) does not go over to (81b), where the PN in question gets INST instead of NOM. Under the theory of parameters which associates parameters with functional categories rather than the principles of UG, it is not unreasonable to assume that AGRs cannot CASE-check the element in an adjoined position in a language whose agreement is “weak”. It follows from this assumption that the PN in (81b) has only INST. Given the absence of overt agreement between subjects and verbs in Korean, AGRs in Korean can be
considered to be "weak". In Icelandic, whose agreement is "strong", the PN gets Nom in such a passive structure as (79b) (See Maling and Sprouse (1992) for intriguing ideas on this matter).

We have observed in this section that Case-marking on PNs is in an elegant way accounted for under the CASE-checking proposal in the principles-and-parameters approach.

8. Long-Extraction and Full Interpretation

We have left open the question of why MPs are sensitive to islands. Chomsky (1989: 63-64) claims that homogeneity is the condition on LF chains. A-chains and adjunct chains are homogeneous in that they contain A-positions and A' positions, respectively. Operator-variable chains, which include the intervening adjunct chain (A', A), are heterogeneous but the chains become legitimate by eliminating the intervening adjunct chain. The Principle of Full Interpretation (FI) determines what are legitimate objects at LF. Chomsky (1990, MIT lectures) suggests that the typology of positions include at least two positions: L-related positions and non L-related positions. L-related positions can be defined as (82).

\[
(82) \text{X is L-related to Y if Y is a lexical category and X is included in a projection of Y}
\]

He further assumes that functional categories can be divided into L-projections and non-L projections. L-projections include Tense and AGR, which are projections of V. It follows that L-related positions are specifiers and complements of V, AGR and T. Non L-related positions include Spec CP and adjunction positions. One more relevant notion is "theta-relatedness", which can be defined as (83):

\[
(83) \text{X is theta-related if X either theta-marks or is theta-marked.}
\]

Chain uniformity is defined in term of L-relatedness and theta-relatedness. Notice here that uniformity is a relative notion. A-chain is uniform with respect to L-relatedness, since every member in the chain is L-related. An operator-variable chain, on the other hand, is non-uniform with respect to L-relatedness, since SPEC CP position is not L-related. Uniform Chain does not allow long distance movement, since no intermediate trace can be deleted. Non-uniform chain allows long-movement, since intermediate traces must be deleted in order to make non-uniform chain uniform. This explains the familiar paradigm of an A-chain and an operator-variable chain: the former does not allow long-movement, since it
is uniform with respect to L-relatedness but non-uniform with respect to theta-relatedness; the latter allows long-movement, since it is uniform with respect to both L-relatedness and theta-relatedness. According to this theory, X-chain which is non-uniform with respect to both L-relatedness and theta-relatedness does not induce an ECP violation. PN is given as an example of this:

(84) a. He is a teacher.
    b. What is he?
    c. What do you wonder whether he is?
    d. (A₁...Aₙ)

It is reasonable to assume that a teacher has a capacity of theta-marking, but A₁ does not theta-mark anything, making this chain non-uniform. As for L-relatedness, Aₙ is L-related, since as we assume, a teacher is in AGRoP, which is a complement of T, but A₁ is not L-related, so this chain is non-uniform with respect to L-relatedness. This explains the long-movement of PN in (85b):

(85) a. *How angry do you wonder whether he became?
    (Rizzi (1990: 130))
    b. How successful a man do you wonder whether he is?

Following Chomsky’s suggestion that become and angry make a complex predicate, we assume that angry does not assign theta-role. Instead, the complex predicate assigns a theta-role. This makes the chain in (85a) uniform with respect to theta-relatedness. However, this chain is not uniform with respect to theta relatedness, inducing an ECP violation.

We assume that measure verbs are identical to “become” in that both form complex predicates. Consider the following examples:

(86) a. I wonder whether he weighs 200lbs.
    b. *How many pounds do you wonder he weighs?

Conceivably, 200 lbs is not theta-marked, because it cannot be passivized. Measure verbs do not allow passivization:

(87) a. *200 dollars were cost by the book.
    b. *200 lbs were weighed by John.

These results follow from the chain condition, since the MPs did not move from theta positions. It is thus reasonable to assume that weigh and 200 lbs make a complex predicate in (86), and this explains the impossibility of long-movement of MPs. Another explanation might be that the trace of MP does not constitute an individual variable, hence it is not interpreted by FI. (See Heim (1988) for the notion of the individual variable.) In this
section, we have seen that chain uniformity can explain the mystery of MP-extraction.\(^8\)

9. Syntactic Category of Predicate Nominals

We have left open the categorial status of PN, so in this section we are going to speculate on the categorial identity. The point here is not, of course, to present and define a full-fledged theory of what category PN should take, but rather to observe some interesting properties relevant to the categorial status.

Corver (1990) proposes the existence of DegP, distinct from DP. The most obvious consequence of this proposal comes from the conjunction of PN and AP, under the assumption that AP is analyzed as DegP.

(88)  
\begin{itemize}
    \item a. John is both a student and highly competent.
    \item b. *The teacher is both John and highly competent.
\end{itemize}

This is an intriguing proposal, but from the fact that the same phrase is used predicatively as well as referentially, we would like to propose a different treatment. Under the DP theory, we can assume that so brilliant a scholar has the following D-structure:

(89)  
\[ [\text{DP} \ [a \ [\text{NP} \ [\text{AP} \ so \ brilliant] \ [\text{scholar}]]]] \]

We assume, following Tonoike (1991), that so brilliant has the feature [+Deg]. However, D is not specified as [+Deg]. In order for the whole DP to be specified as [+Deg], the AP must move to DP-Spec, which assigns the feature [+Deg] to the D\(^0\) by Spec-Head agreement. Percolation assures that the whole DP is marked as [+Deg]. PN is marked as [+Deg] under either approach. The relevant point here is that in English some degree phrases correlate with a complementizer that:\(^9\)

(90)  
\begin{itemize}
    \item a. She is so kind a girl that I like her.
    \item b. She is such a kind girl that I like her.
\end{itemize}

Tonoike (1991) makes the following generalization about the correlative structures:

---

\(^8\) See Ike-uchi (1990) for the extraction of secondary predicates in terms of chain uniformity.

\(^9\) Infinitives are also possible in these structures:

(91)  
\begin{itemize}
    \item a. She is so kind a girl as to help me.
    \item b. She is such a kind girl as to help me.
\end{itemize}
(91) Degree clauses are licensed by degree phrases. Heim (1988) observes that PN is a degree description and the meaning analogous to such/so is involved. If this is the case, this explains why a predicational relative requires that as an option of the relative pronoun:

(92) a. He is not the man that/which he was.
    b. The boy that he is tells us the man that he is to become. \(^{10}\)

(Kuno (1970: 354))

We might generalize this observation to the following sentences from Carlson (1977), which all represent degree/amount:

(93) a. The hours that/which the movie lasted past my bedtime passed quickly.
    b. The pounds that/which John weighs make little difference.

(94) a. The money that/which I spent on the race!
    b. The energy that/which I wasted on such useless things!

Further supporting evidence might come from comparative structures:

(95) a. The more friends that/whom you have, the better.
    b. The more degrees that/which you have, the better.

We can assume that that-clauses in the above examples are licensed by the head degree phrases. In this section, we have seen that the appearance of that in sentences representing “amount”/“degree” results from the licensing condition on degree expressions.

10 In Modern English, the use of which in a restrictive predicational relative is not permitted, but consider the following examples:

(i) a. He is not the man which he was. (Jespersen (1927: 123))
    b. He resembles more a Manchester solicitor which he is than a world record holder which he also is. (Scheurweghs (1959: 278))

10. Concluding Remarks

In this article, we argued, contrary to Rizzi and Cinque’s proposal, that referentiality is not the relevant notion to explain long-distance movement. Their theory predicts that non-referential phrases do not allow long-movement. However, PNs exhibit an apparent discrepancy between non-referentiality and the extractability from islands. This discrepancy disappears, once we get rid of the notion of referentiality and we assume the
VP-internal subject hypothesis and the Split INFL hypothesis. Furthermore, we argued for the existence for AGRoP even in an intransitive sentence, based on predicate-fronting and the non-restrictive which. The conclusion that PN located in AGRoP leads to the next conclusion that PNs should receive Case. We have proved this point by showing that predicate PNs do allow PGs. Finally, we speculated that the appearance of that in degree clauses might come from the licensing condition on degree phrases.

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