

## On the Interpretation of Pro

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### 1. Introduction

Recent research on PRO seems to involve the strong arguments whether the derivation is based upon the Chomsky's theory (1986<sup>1</sup>, 1991<sup>2</sup>, 1995<sup>3</sup>) or the Baltin's theory (1995)<sup>4</sup>; namely, the former is based upon the general concept of PRO, in which PRO is assigned a special null Case in the specifier position of infinitive or gerund, and the latter is based upon the initiative concept, where PRO remains in VP-internal position and subjects are generated within lexical projections. These two alternative concepts of PRO seem to show the peculiarities of the distribution of PRO.

In Section 2, general concepts of PRO will be shown to manifest various unsolved problems still now, and the interpretation of controller will be shown based upon the control theory. For deciding the controller, the tentative approach of thematic relations will be shown. In Section 3, the most recent theory of Chomsky on PRO will be shown to consider various unsolved problems. In Section 4, the estimation will be shown whether the recent theory is appropriate or not, by applying the initiative theory by Baltin.

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<sup>1</sup> N. Chomsky. (1986). *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.

<sup>2</sup> \_\_\_\_\_. (1991). "Some Notes on Economy of Derivation and Representation." *Principles and Parameters in Comparative Grammar* ed. Robert Freidin. 417-454. Cambridge, Mass.: MIT Press.

<sup>3</sup> \_\_\_\_\_ with H. Lasnik. (1995). "The Theory of Principles and Parameters." *The Minimalist Program*. 13-129. Cambridge, Mass.: MIT Press.

<sup>4</sup> M. Baltin. (1995). "Floating Quantifiers, PRO, and Predication." *Linguistic Inquiry Vol. 26 No. 2*. 199-248. Cambridge, Mass.: MIT Press.

## 2. General Concept of PRO<sup>5</sup>

Generally speaking, PRO can be treated as a pronominal anaphor in the early transformational generative framework, and PRO seems to be recognized as a subject-oriented pronoun. The appearance of GB theory makes it possible to refer to the peculiarity of PRO, in connection with Control theory and Binding theory. As PRO can be recognized as a pronominal anaphor, PRO has to suffice both peculiarities of pronoun and anaphor; namely PRO has to suffice the inconsistent conditions of Binding theory such as an anaphor has to be bound in the governing category, and a pronoun has to be free in the governing category. Therefore, considering the opposite peculiarities of PRO, PRO cannot have the governing category; namely, PRO cannot have the governor. Thus, PRO can be recognized in infinitive clauses and gerund. This peculiar theory on PRO can be generally recognized as PRO theorem, which defines the distinct properties from the empty category trace. The distinct properties of empty category trace can be recognized that trace is governed, the antecedent of trace is not in a  $\theta$ -position, and that the antecedent-trace relation satisfies the subjacency condition. On the contrary, PRO does not suffice these properties. Then, PRO is ungoverned, if there is one, its antecedent has an independent  $\theta$ -role, and the relation between PRO and its antecedent need not satisfy the subjacency condition. Besides, PRO needs no antecedent, while trace always has an antecedent.

To explain the peculiarities of PRO, the Control theory plays a crucial role to explain the antecedent. If PRO has an antecedent, the antecedent of PRO can be called as a controller based upon the Control theory, and this kind of control phenomena can be called obligatory control, which involves three peculiarities; a controller is always required, a controller has to be a subject or an object in the closest clause to PRO, and PRO cannot be replaced with lexical NP. Obligatory control has to contain these peculiarities, while optional control need not have these peculiarities.

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<sup>5</sup> Most general concept depends upon the following books:

N. Chomsky. (1981). *Lectures on Government and Binding*. Dordrecht: Foris.

S. Haraguchi and M. Nakamura(eds.). (1992). *Kenkyusha's Dictionary of Theoretical Linguistics*. Tokyo: Kenkyusha Printing Co.

- (1) It is unclear [what PRO to do].  
 (2) John<sub>i</sub> thought that I said that [it was impossible [PRO<sub>i</sub> to kill himself]].  
 (3) [PRO/For him to leave ] would be nice.

These sentences have control phenomena; optional control one. Sentence (1) does not have an antecedent PRO, but has an arbitrary reference. Sentence (2) does not have the closest controller, but has a long-distance control. Sentence (3) has the lexical NP replaced with PRO.

Concerning the peculiarity of control verb, which has the antecedent of PRO in the subject or object position, how to select subject or object as a controller depends upon the selectional restriction of the verb. Generally speaking, control verb can be divided into six types, which depends upon the selectional restriction of each verb.

- (4) John<sub>i</sub>    tried            [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> to persuade Mary]].  
              attempted  
              condescended  
              managed  
              sought  
              offered  
              remembered  
              refused  
              forgot  
      \*John    tried            [<sub>CP</sub> for [<sub>IP</sub> Mark to persuade Mary]].  
 (5) I        persuaded    Mark<sub>i</sub>    [<sub>CP</sub> [<sub>IP</sub> PRO to see a doctor ]].  
              compelled  
              forced  
              encouraged  
              urged  
      \*I        persuaded    [<sub>CP</sub> [<sub>IP</sub> PRO to leave]].  
 (6) John<sub>i</sub>    promised    Mary    [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> to leave ]].  
              vowed  
      John<sub>i</sub>    promised    [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> to leave ]].  
              vowed  
 (7) John    got       Tom<sub>i</sub>    [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> to leave ]].  
              kept  
      John<sub>i</sub>    got       [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> to leave ]].  
              kept

- (8) I            wanted        [<sub>CP</sub>[<sub>IP</sub> PRO/John to leave ].  
                  preferred  
                  hoped  
                  expected  
                  liked
- (9) I            begged        Bill    [<sub>CP</sub>[<sub>IP</sub> PRO for Harry to go ].  
                  asked  
                  appealed to  
                  shouted to  
                  pleaded with

In the sentences shown above, the distribution of controller depends upon the selectional restriction of control verb. Sentence (4), (5), (6), and (7) have an obligatory control, and Sentence (8) and (9) have an optional control. In Sentence (4), the antecedent of PRO; controller is necessary, and the controller; *John* has to be in the closest to infinitive clause, and PRO cannot be replaced with lexical NP, then this sentence has an obligatory control. In the similar verbs, the same conditions can be found, then these verbs can belong to the same category concerning the control phenomena; subject control phenomena. However, this type of verb cannot have a complementizer *for*. In Sentence (5), the antecedent of PRO can be considered in the object position, but the antecedent of PRO; controller is necessary, the antecedent *Mark* has to be situated in the closest to the infinitive, and PRO cannot be replaced with lexical NP. Then this type of verb can belong to the same category concerning the control phenomena; object control phenomena. In Sentence (6), the antecedent of PRO; controller has to be in the subject position, but the object is optional. Whether there is an object or not, the controller is always in the subject position. In Sentence (7), the antecedent of PRO can be alternative in the subject position or the object position. If Sentence (7) has an object, the antecedent of PRO can be considered in the object position, while Sentence (7) has no object, the antecedent of PRO can be considered in the subject position. These control phenomena have to be obligatory. On the contrary, Sentence (8) and (9) have an optional control phenomena, where PRO can be replaced with other lexical NP. If Sentence (8) has PRO, the controller can be considered in the subject position; *I*. If Sentence (8) has a lexical NP; *John*, the subject of the infinitive can be considered *John*. If Sentence (9) has PRO, the controller can be considered in the object position. Sentence (8) and (9) can have a complementizer *for*, but the structure of complement depends upon the selectional restriction of each verb.

The distribution of PRO as shown above in these sentences can be decided based upon PRO theorem, but it is interesting to note that thematic relations can be effective to decide the antecedent of PRO; controller. If we apply the thematic relations to decide the controller, each verb seems to decide the thematic role of the controller based upon the semantics. Based upon the semantic notion of thematic relations, each verb seems to select the antecedent PRO; controller. Generally speaking, the notion of traditional thematic relations are based upon R. Jackendoff<sup>6</sup>; *Theme, Source, Goal* etc., later including  $\theta$  - criterion by Chomsky, such a sentence as Sentence (7) has an optional object. To decide the controller, the thematic notion can easily show the antecedent. The verb *get* seems to select *Theme* as the controller, the verb *persuade* as in Sentence (5) seems to select *Goal*, and the verb *promise* such as in Sentence (6) based upon the semantic relations. Indeed, thematic relations can play a different concept on selecting the controller, but on the thematic conditions on control R. Jackendoff, the pioneer of thematic relations, claims as follows:<sup>7</sup>

Under the present treatment, reflexives are of course not the only items subject to principle (18)<sup>8</sup>: PRO must also be treated in terms of argument binding. Like reflexives, PRO has the conceptual structure [ $\zeta$ ], that is, "Bind me." Thus one would expect semantic conditions to appear in the theory of control. This section reviews evidence that this is the case.

As it happens, Gruber's theory of thematic relations first attracted my attention because it provides an approach to problems of control in examples like (21)-(22).

- (21) a. John<sub>i</sub> gave Sue<sub>j</sub> orders PRO<sub>i</sub> to leave.  
       b. John<sub>i</sub> got from Sue<sub>j</sub> orders PRO<sub>i</sub> to leave.
- (22) a. John<sub>i</sub> gave Sue<sub>j</sub> a promise PRO<sub>i</sub> to leave.  
       b. John<sub>i</sub> got from Sue<sub>j</sub> a promise PRO<sub>i</sub> to leave.

The problem is that these are all structurally identical in the relevant respects, so there is no apparent syntactic condition that determines the proper antecedent PRO.

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<sup>6</sup> R. Jackendoff. (1972). *Semantic Interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.

<sup>7</sup> R. Jackendoff. (1990). *Semantic Structure*. 69-71. Cambridge, Mass.: MIT Press.

<sup>8</sup> *Ibid.*, 81. (18) *Binding Principles* Bind a conceptual constituent consisting of a variable  $\zeta$  to a conceptual constituent superscripted  $\alpha$  under the following conditions: [List of conditions].

However, the sentences differ in the positions of Source and Goal in a way appropriate to predict the results. Intuitively, it is part of the meaning order that the recipient (or Goal) of an *order* is under obligation to perform the action described by the complement clause; it is part of the meaning of *promise* that the issuer (or Source) of a promise undertakes an obligation to perform the action described by the complement. This difference, crossed with the difference in  $\theta$ -roles between *give* and *get*, correctly predicts the control properties of (21)-(22): the subject of the complement of *order* should be controlled by the Goal of the speech-act — the indirect object of *give* or the subject of *get*; the subject of the complement of *promise* should be controlled by the Source of the speech-act — the subject of *give* or the oblique object of *get from*.

The approach was sketched in Jackendoff 1972 and elaborated in Jackendoff 1974<sup>9</sup>. If it is correct, thematic roles play an important role alongside syntactic structure in regulating control, especially in nominals. Similar conclusions have since been reached by Cattell(1984)<sup>10</sup>, Chierchia(1988)<sup>11</sup>, and Farkas(1988)<sup>12</sup>.

In a review of Jackendoff 1972, Hust and Brame (1976)<sup>13</sup> take issue with this conclusion, offering the single counterexample (23) to the claim that thematic roles help determine control.

(23) Bill was promised to be allowed to leave.

Here the recipient of the promise controls the complement subject, contrary to the analysis above. On these grounds, Hust and Brame (and many subsequent writers) dismiss the whole notion of thematic involvement in control.

However, the issue is not so simple. Notice that control by the recipient of a promise is restricted to a class of complement that is very tiny — and also syntactically and semantically extremely coherent:

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<sup>9</sup> R. Jackendoff. (1974). "A Deep Structure Projection Rule." *Linguistic Inquiry*. Vol. 5. 481-506. Cambridge, Mass.: MIT Press.

<sup>10</sup> R. Cattell. (1984). *Composite Predicates in English*. Academic Press: New York.

<sup>11</sup> G. Chierchia. (1988). "Structured Meanings, Thematic Roles, and Control." *Properties, Types, and Meaning*. Vol. 2: *Semantic Issues*. 131-166. Dordrecht: Kluwer.

<sup>12</sup> D. Farkas. (1988). "On Obligatory Control." *Linguistics and Philosophy* Vol 11. 27-58. Dordrecht: Kluwer.

<sup>13</sup> J. Hust and M. Brame. (1976). "Jackendoff on Interpretive Semantics" [review of Jackendoff 1972]. *Linguistic Analysis*. Vol. 2. 243-277. New York: Elsevier.

- (24) a. Bill was promised to be permitted to leave.  
 b. \*Bill was promised to permit Harry to leave.  
 c. \*Bill was promised to get permission to leave.  
 d. \*Bill was promised to leave the room.  
 e. \*Bill was promised to be hit on the head.

As shown above, R. Jackendoff was the first linguist to initiate the thematic notions, but he himself mentions that concerning the decision of controller thematic notions do not always seem to play a crucial role. However, the notion of thematic relations seems to play a very important role on the semantic structure. Concerning the thematic relations, recent research by T. Parsons shows a very interesting development about thematic relations and argument. He classifies thematic relations as Agent, Experiencer, Theme, Source, Goal, Instrument, Benefactive in the following definitions:<sup>15</sup>

Agent	e is by x
Experiencer	x experiences e
Theme	e is of x
Source	e is from x
Goal	e is to x
Instrument	e is with x [or 'e is by means of x']
Benefactive	e is for x

He attempts to correlate argument of verbs with roles based upon the above definition as follows:<sup>16</sup>

Active direct object	Theme(/Patient)
Active indirect object	Source, Goal, Benefactive
Active subject	Agent, Experiencer, Instrument, Theme

However, he does not mention the applicability of thematic relations on control phenomena. On the applicability of control phenomena, not only from the semantic point of view, but also from the syntactic point of view, detailed examinations have to be made.

As shown above including thematic relations, various kinds of obligatory control phenomena can be found, but optional control phenomena can be found as well in the following sentences.

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<sup>14</sup> T. Parsons. (1995). "Thematic Relations and Arguments." *Linguistic Inquiry* Vol. 26. 635-662. Cambridge, Mass.: MIT Press.

<sup>15</sup> *Ibid.*.. 639.

<sup>16</sup> *Ibid.*.. 640.

- (10) It is clear (to me) [<sub>CP</sub> what [<sub>IP</sub> PRO to do]].
- (11) Mary thinks that it is impossible [<sub>IP</sub> PRO to solve this problem].
- (12) Mary told John [<sub>CP</sub> that PRO helping                      herself                      could be difficult].
- himself
- themselves
- oneself

In the sentences shown above, the antecedent of PRO can be interpreted arbitrary; namely this type of control phenomena can be called an optional one. Then, the existence of controller is not always required. In Sentence (10), the antecedent of PRO can be interpreted in several ways, for the definite controller cannot be found. In Sentence (11) also, the interpretation of PRO can be interpreted in several ways; if long-distance control can be permitted, *John* can be interpreted as a controller. If Sentence (11) does not have a long-distance control phenomena, the antecedent of PRO can be interpreted as an arbitrary person, or as a speaker. Sentence (12), containing reflexives can well show why these multiple interpretations are permitted.

Concerning the restriction of long-distance control in the following sentences, some restrictions seem to be required. Without some restrictions, the pronominal anaphor PRO will be interpreted in the same way as the pure pronoun.

- (13) [PRO to get up so early] would bother Mary.
- (14) [PRO finishing my/one's work perfectly] is impossible to me.

In the sentences shown above, PRO precedes the antecedent: the controller, so that this type of control can be called backward control, where PRO can be interpreted arbitrarily, including the normal interpretation of PRO; namely, *Mary* can be the controller in Sentence (13), and *me* can be the controller in Sentence (14). This shows that the condition of backward control phenomena does not include that the controller need not appear within the possible NP of the controller, and the only condition required for the backward control is that the controller has to appear in the same CP as the CP immediately dominating the clause with PRO. However, it is interesting to note the arbitrary interpretation in the above Sentence (13) and (14), this type of control can be called backward, but concerning the peculiarities of arbitrary interpretation, the preceding PRO seems to have the different shades of meaning. In Sentence (13), it is true that *Mary* can be interpreted as the the antecedent of PRO, but PRO in the subject position, particularly in the initial position seems to contain another shades of meaning; namely, speaker-oriented meaning. To manifest this different shades of meaning, it is interesting to note the following rewritten sentences, though these sentences cannot contain backward control phenomena.



(15) It would bother Mary [PRO to get up sp early].

(16) It is impossible to me [PRO to finish my/one's work perfectly].

Comparing Sentence (13) and (14) with Sentence (15) and (16), the degree of defining the specific person seems to be increased in Sentence (15) and (16). On the contrary, in Sentence (13) and (14) with PRO in the subject initial position, the degree of speaker-oriented meaning seems to be increased. Thus, PRO in the sentence initial position seems to be defined as some different kind of meaning from the speaker-oriented position.

However, concerning the forward control phenomena, some restrictions have to be required as shown in the following sentences:

(17) Mary<sub>i</sub> thought that [PRO<sub>i</sub> to feed herself] would be difficult.

(18) \*Mary's<sub>i</sub> friends thought that [PRO<sub>i</sub> to feed herself] would be difficult.

These sentences with forward control phenomena show the difference of grammatically, in Sentence (17), the antecedent of PRO<sub>i</sub>; namely, *Mary* c-commands PRO, while in Sentence (18), the possible antecedent *Mary* does not c-command PRO, then Sentence (17) is grammatical, Sentence (18) is ungrammatical. Concerning the structural restrictions, the c-command relations can play a crucial point to exclude the deviant sentences with forward control phenomena. Considering the semantic viewpoint from speaker-oriented notion, the subject position in the embedded sentence as in Sentence (17) has to be treated as an exceptional one; namely, only the PRO in the main sentence initial position has different shades of meaning. But, it is dubious to decide PRO in Sentence (17) cannot be permitted as an arbitrary person. Indeed, the antecedent of PRO; *Mary* c-commands PRO, the possibility of arbitrary interpretation might still remain, though some evidence has to be required to manifest this possibility. On the contrary, in Sentence (18), the possible antecedent *Mary* does not c-command PRO, this sentence can be treated as deviant. But, it is still dubious PRO in the embedded sentence initial position cannot be permitted as an arbitrary interpretation. Indeed, in Sentence (18), concerning the c-command restriction, this sentence can be treated as ungrammatical, but the interpretation of PRO in the embedded sentence is still dubious. In Sentence (18), where there is no clear antecedent in the main sentence, PRO in the embedded sentence seems to get strong restriction of control phenomena; namely, PRO might be permitted to have an arbitrary interpretation only. If PRO could have some phonological feature, this possibility might prove on the phonological level, but actually, PRO has a null-phonological feature, so that there is no way accounting for this subtle shades of reference.

Furthermore, it is interesting to note that the antecedent of PRO, controller can have a wide scope; sometimes the controller can expand the whole clause. Considering the following sentences, the controller seems to refer to the wide scope sometimes.

(19) Mary went to New York to annoy Tom.

(20) Mary went to New York to visit Tom.

These two sentences look like the same with infinitive clauses, but it is interesting to note the antecedent of PRO in the upper sentence.

(21) [Mary went to New York]<sub>i</sub> [PRO<sub>i</sub> to annoy Tom].

(22) Mary<sub>i</sub> went to New York [PRO<sub>i</sub> to visit Tom].

(23) Mary<sub>i</sub> went to New York [PRO<sub>i</sub> to annoy Tom].

Sentence (22) has the common control phenomena; the infinitive subject PRO has the antecedent of PRO; *Mary* in the upper sentence, and the antecedent *Mary* c-commands PRO. However, whether the same interpretation can be permitted or not might be dubious in Sentence (19), but Sentence (19) also has an ambiguous interpretation if some specific situations can be permitted. The same sentence; Sentence (24) suggests the ambiguous interpretation according to the circumstances.

(24) Mary went to New York to encourage Tom to study.

(25) Mary<sub>i</sub> went to New York [PRO<sub>i</sub> to encourage Tom to study].

(26) [Mary went to New York]<sub>i</sub> [PRO<sub>i</sub> to encourage Tom to study].

Clause control phenomena as in Sentence (21) and (26) still remain unsolved, but the ambiguity of sentences permits two control phenomena; namely NP argument control and clause control one. These differences seem to derive the different treatment of infinitive clause. In Sentence (19), when the infinitive clause can be treated as a consequence; namely, no-intention to annoy *Tom*, PRO might have a clause control. However, Sentence (19) has an ambiguous meaning, when Sentence (19) has the infinitive clause can be treated as a purpose, which contains intentional meaning; namely the subject of *annoy* can be interpreted as *Mary*, PRO might have an argument control; namely, the antecedent of PRO might be *Mary*. The same interpretations can be found in the similar sentences as in Sentence (24). If Sentence (24) can be interpreted ambiguously, Sentence (25) might show an argument control and Sentence (26) might show a clause control. When the infinitive clause in Sentence (24) can be treated as a consequence; namely, no-intention to *encourage Tom*, PRO in this case might have clause control as shown in Sentence (26). However, when Sentence (24) has the infinitive clause as a purpose, containing intentional meaning; the subject of *encourage* can be interpreted as *Mary*, PRO might have an argument control. Whether these ambiguous interpretations can be permitted or not needs lots of research still now.

As shown above, various kinds of control phenomena can be found according to the historical development of PRO theorem and control theory, but it is interesting to note recent arguments between Chomsky<sup>17</sup> and Baltin<sup>18</sup>.

### 3. Recent Chomsky's Theory on PRO

Concerning the different distribution between PRO and trace, Chomsky mentions the following sentences:<sup>19</sup>

- (27) John asked whether [PRO to leave].
- (28) John expected that it would be fun [PRO to visit London].
- (29) \*John was asked whether [t to leave].
- (30) \*John was expected that it would be fun [t to visit London].

The difference of the grammaticality between Sentence (27), (28) and Sentence (29), (30) shows the peculiarity of PRO different from the trace in the syntactic distribution. In Sentence (27), the antecedent of PRO can be recognized easily in the upper clause; namely, *John*. In Sentence (28), though the antecedent of PRO can be interpreted in several ways, the subject *John* can be considered as a possible controller. On the contrary, the similar sentence with trace; Sentence (29) and (30) cannot be recognized as grammatical. This difference shows that PRO and trace cannot overlap in their syntactic distribution.

Concerning the C-command Condition on PRO, Chomsky mentions like this:<sup>21</sup>

Similar but not quite identical conditions hold of PRO. Thus, the C-Command Condition is illustrated by (39).

- (39) a. John expects [PRO to hurt himself]
- b. \*[John's mother] expects [PRO to hurt himself]
- c. \*John expects [PRO to tell [Mary's brother] about herself]

In (39c) PRO is in a position to bind *herself* but the C-Command Condition requires that its antecedent be *John*, not *Mary*.

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<sup>17</sup> N. Chomsky with H. Lasnik. (1995). "The Theory of Principles and Parameters." 116-130.

<sup>18</sup> M. Baltin. (1995). "Floating Quantifiers, PRO, and Predication." 199-248.

<sup>19</sup> *Opcit.* 40.

<sup>20</sup> *Ibid.* 116.

<sup>21</sup> *Ibid.* 42.

Similarly, variables share relevant properties of *r*-expressions, as expected.

- (40) a. i. They think [John will leave tomorrow]  
           ii. I wonder who they think [t will leave tomorrow]  
       b. i. \*it seems [John to be intelligent]  
           ii. \*I wonder who it seems [t to be intelligent]  
       c. i. he thinks [John is intelligent]  
           ii. I wonder who [he thinks [t is intelligent]]  
           iii. John thinks [he is intelligent]  
           iv. I wonder who [t thinks [he is intelligent]]

In (40a) the name and the variable appear as Case-marked subject of finite clauses, and the expressions are well formed, satisfying the Case-marking condition on *r*-expressions, to which we return directly. In (40b) the name and the variable appear as subjects of infinitives lacking Case, and the expressions are severely deviant. In (40ci) *he* is not referentially bound by *John* (we cannot take *he* to refer to *John*, as we may in (40ciii)); and in the parallel structure (40cii) *he* and the variable *t* are unrelated referentially (we cannot take *he* to be a variable bound by the operator *who*, which binds *t*, as we may in (40civ)). Again, many conditions on movement fall out as special cases.

In Sentence (39a), the reflexive *himself* has to be A-bound in the governing category based upon the Binding Principle C, and pronominal anaphor PRO can be recognized as binding reflexive, and C-Command Condition requires the antecedent of PRO; *John*. On the contrary, where C-Command Condition cannot hold as in Sentence (39b), the antecedent of PRO cannot be recognized as *John*, for PRO cannot be C-commanded by *John*. In Sentence (39c), both violations as in Sentence (39a) and (39c) can be found, for the governing category of reflexivization can be restricted and with C-Command Condition PRO can be considered a possible antecedent of reflexive, and the controller has to be *John*, then this sentence is deviant.

Besides, Chomsky mentions that the problems with PRO with chain conditions are serious. He mentions the following generalization:

- (31) A chain is visible for  $\theta$ -marking if it contains a Case position (necessarily, its head) or is headed by PRO.<sup>22</sup>

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<sup>22</sup> *Ibid.*.. 116 (307).

Concerning expletives and PRO, he attempts to generalize the Chain Condition, but the problem PRO seems to need lots of explanation. PRO is forced to move from a non-Case position, and cannot move from a Case-marked position. As Chomsky mentions, the following constructions can illustrate the problem:<sup>23</sup>

(32) we never expected [there to be found  $\alpha$ ]

(33) we never expected [PRO to be found t]

As in Sentence (32) with indefinite NP  $\alpha$ , the sentence is permitted as grammatical. At LF,  $\alpha$  can raise to the position of *there*, which shows a chain that satisfies the Visibility Condition. However, with  $\alpha$  =PRO, the sentence is completely deviant. But, various conditions are satisfied; PRO occupied a  $\theta$ -position as object of *find*, the arbitrary interpretation of PRO can be permitted under definiteness condition, even though the subject of infinitive clause can be recognized as "some arbitrary person," where overt raising of PRO to the position of *there* is possible. Under the condition of Control theory, the meaning is completely different; the antecedent of PRO can be recognized as *we*, so that the different peculiarity of PRO can be found; PRO must move from a non-Case position at S-structure, while other arguments can move from such a position at S-structure and at LF. To exclude the deviant structure.

To explain such a structure as (33), Chomsky claims that the modification of Last Resort might be required to permit movement of PRO from a governed position.<sup>24</sup> Furthermore, he mentions that the assumption that the binding theory applies at S-Structure and the extension of Last Resort are open to question.<sup>25</sup> Considering the problem that PRO is not permitted from a Case-marked position like other arguments, even to escape government, Chomsky explains as follows:<sup>26</sup>

(310) a.  $\alpha$  to talk about  $i^3$

b.  $\alpha$  to strike  $i^3$  [that the problems are insoluble]

c.  $\alpha$  to seem to  $i^3$  [that the problems are insoluble]

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<sup>23</sup> *Ibid.* 117. (32) = (308) (33) = (309)

<sup>24</sup> *Ibid.* 117.

<sup>25</sup> *Ibid.* 117.

<sup>26</sup> *Ibid.* 117-118.

Suppose the (310a) is a D-Structure in the context *it is unfair* —, with  $\alpha = e$  and  $\beta = \text{John}$ . Last Resort bars raising of  $\beta$  to position  $\alpha$ , yielding (311a), because the chain (John) is already visible for  $\theta$ -marking without movement. Suppose  $\beta = \text{PRO}$ . On the assumptions now under consideration, PRO must raise to the position  $\alpha$  to satisfy the nongovernment requirement. But that movement is impermissible, even though  $\alpha$  is a legitimate position for PRO in other constructions, as in (311c).

- (311) a. \*it is unfair [John to talk about *t*]  
 b. \*it is unfair [PRO to talk about *t*]  
 c. it is unfair [PRO to talk about John]

One might argue in this case that there is a  $\theta$ -theory violation, the subject being an obligatorily  $\theta$ -marked position (a dubious move, as illustrated by nominalizations in which no external  $\theta$ -role is assigned; see Chomsky 1981a). But that argument will not suffice for (310b-c) (Lasnik 1992). Here  $\alpha$  is in a non- $\theta$ -position, so that the sentences are well formed with  $\alpha = \text{expletive } it$  and  $\beta = \text{John}$  as in (312a-b).

- (312) a. it is rare for it to strike John that the problems are insoluble  
 b. it is rare for it to seem to John that the problems are insoluble

Still,  $\beta = \text{John}$  cannot raise to the position  $\alpha$  leaving trace, as in (313).

- (313) a. \*We want John to strike *t* that the problems are insoluble  
 b. \*We want John to seem to *t* that the problems are insoluble.

In the case of  $\beta = \text{John}$ , Last Resort accounts for the phenomena, Case being assigned in the trace position and therefore barring further movement. But suppose that  $\beta = \text{PRO}$  in (310). The requirement of non-government forces movement, to yield (314).

- (314) a. PRO to strike *t* [that the problems are insoluble]  
 b. PRO to seem to *t* [that the problems are insoluble]

PRO is now in an ungoverned position, heading a  $\theta$ -marked chain. Hence, all conditions are satisfied. But the constructions are radically ungrammatical, whatever the context.

After making the explanations, Chomsky suggests that the proposal did not solve the problem. Then, some other principle seems to be required that PRO can behave like other arguments, which can move from non-Case positions and barred from moving Case positions. Besides, for seeking the similar treatment of PRO, Chomsky suggests PRO might be regarded as a "minimal" NP argument, even though PRO does not have phonetic and other properties, then PRO might be considered as the sole NP with null Case. Based upon this assumption, Last Resort can apply to PRO like other arguments; namely, PRO can move from a non-Case position to a position where its Case can be assigned or checked, and PRO cannot move from a Case position. Based upon this viewpoint, Chomsky suggests that Visibility Condition can be simplified as

follows:

- (34) A Chain is visible for  $\theta$ -marking if it contains a Case position.<sup>27</sup>

#### 4. Other Arguments against the Last Resort

Contrary to the Last Resort, M. Baltin<sup>28</sup> claims that PRO might appear in VP internal position as preverbs, which assumption seems to need much more explanation and more evidence, for general theory of PRO can be stipulated in the theoretical linguistic fields, and that the most recent theory by Chomsky PRO theorem can be recognized generally based upon the theoretical linguistic field. Based upon the recent linguistic development, the assumption suggested by M. Baltin might be radical, but this assumption might be worthy finding the lacking point or additional principle within the scope of Chomsky's theory.

Concerning the VP internal hypothesis by M. Baltin, much more research seems to be required in relation with other conditions. Now only the estimation of the Last Resort can be manifested.

Concerning the Chain Condition suggested by Chomsky, M. Baltin suggests that some counterexample might be found, for the Chain Condition might lead to the question of what PRO and a Case-marked DP share and it might permit CHAINS like this:

- (35) \*[PRO<sub>i</sub> to strike t<sub>i</sub> that John is unpopular]

- (36) It strikes me that John is unpopular.

In (35), the sequence  $\langle \text{PRO}_i, t_i \rangle$  can be considered as a legitimate LF object under the assumption that PRO has moved to a non- $\theta$ -position to satisfy the requirement that it should be governed.

Concerning the Chain Conditions by Chomsky, M. Baltin claims like this:<sup>29</sup>

It will be noted, however, that nothing in the preceding line of argument requires that PRO be Case-marked in the specifier position of the projection headed by *to*. Indeed, the range of environments in which PRO may appear is wider than just infinitives. For example, PRO may also appear as the subject of gerunds...

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<sup>27</sup> *Ibid.* (119. (34) = (315))

<sup>28</sup> M. Baltin. (1995). "Floating Quantifiers, PRO, and Predication."

<sup>29</sup> *Ibid.* 205.

As shown above, much more counexamples have to be found to show empirical evidence against Chomsky's Last Resort, so that in the following paper, based upon the universal linguistic theory, finding the value of M. Baltin's radical assumption, some hypothesis, involving other language phenomena, will be shown to modify or strengthen the recent linguistic theory.

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(Recieved October 1, 1996)