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Author(s)	Komoto, Naoko
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Interpretation of PRO in Rationale Clauses ·

Naoko KOMOTO

1. Introduction

The Rationale Clause is a class of clausal adjuncts that contains a single gap (PRO) in the subject position, as in (1):[1]

(1) Mary$_i$ bought a rag doll$_j$ PRO$_i$ to play with it$_j$ when she had time off.

(Faraci 1974: 39)

As shown by the indices, the matrix agent is a controller of the infinitival subject PRO in sentence (1). Faraci (1974), Jones (1991), Whelpton (2002), and others suggest that in rationale clauses the PRO is typically controlled by the agent of the main clause. This can also be observed when an indirect object is added to sentence (1):

(2) Mary$_i$ bought *her daughter* a rag doll$_j$ PRO$_i$ to play with it$_j$ when she had time off.

(ibid., italics mine)

In sentence (2), the controller is still, as illustrated by the indices, the matrix agent.

Note the contrast between this control phenomenon and the control in purpose clauses, a different class of clausal adjuncts. Purpose clauses involve an obligatory single gap at either object or subject position, and the matrix agent is a controller of the infinitival subject PRO, as in (3a). When the indirect object is added, however, the controller is changed to the theme argument in the purpose clause, as indicated by indices in (3b):

(3) a. Mary$_i$ bought a rag doll$_j$ PRO$_i$ to play with e$_j$ when she had time off.

(ibid.)

b. Mary bought *her daughter*$_i$ a rag doll$_j$ PRO$_i$ to play with e$_j$ when she had time off.

(ibid., italics mine)

The aim of this paper is to provide an analysis of PRO interpretation in rationale clauses. This paper focuses, in particular, on the issue of what constitutes the controller when the rationale clause, where the typical controller is the matrix agent as in sentences (1) and (2), lacks the explicit controller in the matrix clause, for example:

(4) a. The boat was sunk [PRO to collect the insurance].

      b. No more than ten milligrams of lead was used in order to ensure good separation on the ion exchange column and to make it possible to keep the lead in solution in small volumes of dilute hydrochloric acid.   (WConc, *LOB* Corpus)

      c. Now it is always assumed that this larger church was built in order to accommodate a larger congregation, or to minister to a rapidly growing district.   (WConc, *LOB* Corpus)

A number of studies have already argued that the implicit agent, for example *a sailor* in (4a), functions as a controller (Chomsky 1981, Jaeggli 1986, Roeper 1987, Clark 1990). Williams (1985), Lasnik (1988), and Grimshaw (1990) point out, on the other hand, that implicit agent control analysis wrongly predicts sentence (5) to be grammatical, and they propose that in rationale clauses the matrix clause/event is a controller of the PRO:

(5) *The ship was sunk [PRO to become a hero].   (Lasnik 1988: 12)

In sentence (5), according to matrix clause/event analysis, the controller is *the ship's being sunk*, which cannot of course become a hero. Thus, sentence (5) is ruled out. We should note, however, that there are some problems inherent within matrix clause/event control analysis, as we shall see in the next section, and the problem of what constitutes the appropriate controller has not been settled.

This paper will examine PRO interpretation in rationale clauses, and will propose that when the explicit agent is available the agent is the controller, and when the explicit agent is not available, it can be understood that the matrix clause controls the PRO. Lasnik (1988) also argues that he is not claiming that all control is matrix clause/event control, but that the "implicit agent" control phenomenon is actually due to matrix clause/event control. The

departure from the previous matrix clause/event analyses is that we need to consider the predication between the matrix clause and *the infinitive*, not the predication between the matrix clause/event and *the VP in the infinitive*. It follows that when the explicit matrix agent is not available, "the controller of PRO" and "the actual actor/doer of the infinitive event" may be exposited separately. The controller of PRO is the matrix clause, while the actual actor/doer of the infinitival event is an intentional causer, which is obtained from the context.

The present paper is organized as follows: after Section 2 follows an overview of previous studies on PRO interpretation in rationale clauses, Section 3 examines the controller of rationale clauses. It is claimed that when the explicit agent controller is not available, matrix clause control analysis should be maintained, considering the predication between the matrix clause and *the infinitive*. It will also be argued that "the controller of PRO" and "the actual actor/doer of the infinitive event" need to be exposited separately. Section 4 introduces the Japanese rationale clause marker *-tame*. It is maintained that we also need to consider the predication between the matrix clause and the VP with the rationale clause marker, not the predication between the matrix clause and the VP in the rationale clause. Section 5 concludes this paper.

As for the syntactic structure, following the previous analyses, it is assumed that the rationale clause is generated at a higher level within the matrix, and specifically outside the minimal VP, but that the purpose clause is, on the other hand, merged into the lower level, and specifically inside the minimal VP (cf. Faraci 1974, Jones 1991, Whelpton 2002).

2. The Controller: Previous Analyses

2.1 Implicit Agent Control (Chomsky 1981, Jaeggli 1986, Roeper 1987, Clark 1990)

As mentioned in the previous section, in rationale clauses the matrix agent usually controls the PRO, as in (6):

(6)   The sailor sank the boat [PRO to collect the insurance].

When the possible controller does not appear explicitly, a number of studies argue that the agent implicit in a passive sentence, for example *a sailor,*

functions as a controller as shown in sentence (7) (Chomsky 1981, Jaeggli 1986, Roeper 1987, Clark 1990):

(7) The boat was sunk [PRO to collect the insurance].

They argue that one of the advantages of implicit agent analysis is that the analysis correctly rules out the ergative verb sentence. The agent is not involved in an ergative sentence (8), and thus the sentence below is correctly ruled out:

(8) *The boat sank [PRO to collect the insurance].

Although their account clearly explains the contrast in sentences (6–8), the following examples are problematic in analysis of implicit agent control. Williams (1985), Lasnik (1988), and Grimshaw (1990) point out that such analysis wrongly predicts sentence (9) to be grammatical. In fact, the ungrammaticality of passive sentence (9) indicates that the controller cannot be an implicit agent:[2]

(9) *The ship was sunk [PRO to become a hero]. (= (5))

As suggested by Lasnik (1988), the adoption of an implicit agent control analysis makes it unclear why sentence (9) is ungrammatical, while sentence (10) is grammatical:

(10) John sank the ship [PRO to become a hero].   (Lasnik 1988: 12)

In addition, Williams (1985) points out that the following sentence containing an ergative predicate is grammatical in a situation where a playwright is designing his play:

(11) The boat sank in order [PRO to impress the queen and move her to murder her husband by the end of act iii].

(Williams 1985: 311)

The examples in (9) and (11) suggest that the absence/presence of an implicit agent has no correlation with the (un)grammaticality of the sentence: thus an implicit agent analysis is not tenable.

2.2   Matrix Clause/Event Control (Williams 1985, Lasnik 1988, Grimshaw 1990)

Williams (1985), Lasnik (1988), and Grimshaw (1990) propose that in rationale clauses the matrix clause/event controls the PRO. According to their analyses, certain examples that are problematic so far as the implicit agent analysis is concerned may be explained as follows:

(12) *The ship was sunk [PRO to become a hero]. (= (5), (9))

In sentence (12), the controller is *the ship's being sunk*, which cannot become a hero. Thus, sentence (12) is correctly predicted to be ungrammatical. Further, Williams (1985) argues that sentence (11) (repeated as in (13)) is also explained by matrix clause/event control analysis:

(13)   The boat sank in order [PRO to impress the queen and move her to murder her husband by the end of act iii]. (= (11))

According to their analyses, the matrix clause/event *the sinking of the boat* can impress the queen, and thus sentence (13) is grammatical. Matrix clause/event analysis is also compatible with the following sentences:

(14) a. Flamingoes are pink in order to attract the opposite sex.

(cf. Roeper 1987: 299)

     b. The shopwindow has a big sale sign in it (in order) to attract customers.   (Farkas 1988: 36)

In the examples above, the controller is vague: it is difficult to say whether in sentence (14a) the controller is *flamingoes* or *the pink* and whether in sentence (14b) the controller is *the shopwindow* or *the big sale sign*. The matrix clause/event control analysis incorporates the vagueness:

(15) a. The pink of flamingoes is to attract the opposite sex.

     b. The big sale sign in the shopwindow is to attract customers.

There are, however, empirical problems for the matrix clause/event analysis. As Lasnik (1988) suggests, the following example cannot be explained:

(16)　The boat was sunk [PRO to collect the insurance]. (=(7))

It is odd to say *the boat's being sunk collect the insurance*, and thus the relevant analysis wrongly predicts sentence (16) to be ungrammatical. The grammaticality of sentence (16) indicates that the matrix clause/event approach is problematic in that whether the VP in the infinitive can be predicated of the matrix clause/event is not correlated with the (un)grammaticality of the sentence. Furthermore, as Clark (1990) points out, it is unclear why sentence (17a) is grammatical, while sentence (17b), in which the matrix clause is supposed to denote the same event, is ungrammatical: 3)

(17)　a.　Smoking marijuana became illegal in the 1930s.

　　　b.　*Marijuana was smoked to become illegal in the 1930s.

(Clark 1990: 206)

The previous main clause/event control analyses are not tenable, and the problem of what constitutes the controller has not been settled.

3.　Basic Observations

In this section, based on the paraphrasability of sentences with rationale clauses, it is proposed that the explicit agent or the matrix clause is the controller. When the explicit agent is available, the agent is the controller, but when the explicit agent is not available, it is understood that the matrix clause controls the PRO. Matrix clause/event analysis is tenable if we consider the predication between the matrix clause and *the infinitive*, as against the predication between the matrix clause/event and *the VP in the infinitive*.

3.1　Paraphrasability

Consider first the following relation in rationale clauses with the matrix agent:

(18)　a.　The sailor sank the boat to collect the insurance. (=(6))

　　　b.　The sailor was to collect the insurance.

When sentence (18a) is true, a part of sentence (18a) means *the sailor was to collect the insurance*, as in (18b). The matrix subject *the sailor* satisfies the

selection restriction of the VP in the infinitive *collect the insurance*. In other words, the VP in the infinitive *collect the insurance* can be predicated of the matrix subject *the sailor*, and the controller of the PRO in sentence (18a) is the matrix agent *the sailor*. The following binding example confirms that the explicit agent, not the matrix clause, is employed as a controller:

(19)   John trains the new recruits to make a living for himself.

(Faraci 1974: 29)

In sentence (19), PRO refers to the explicit agent *John*, not the matrix clause, and it binds the anaphor *himself*.

Next, consider examples without an agent:

(20)   a.   The book was translated in order to make it available to a wider
            readership.   (Grimshaw 1990: 57)
       b.   *The book was to make it available to a wider readership.
       c.   The translation of the book was to make it available to a wider
            readership.

It is nonsensical to say *the book was to make it available to a wider readership* because the subject *the book* in (20b), unlike the subject *the sailor* in (18b), does not satisfy the selection restriction of the VP in the infinitive clause *make it available to a wider readership*. When the explicit agent is not available, matrix clause/event control analysis states that the matrix clause/event controls the PRO. That is, when sentence (20a) is true, the controller of the PRO is the matrix clause/event *the translation of the book*, and the VP in the infinitive *make it available to a wider readership* is predicated of the matrix clause/event *the translation of the book*, as in (20c).

The problematic example for the previous matrix clause/event control analyses is as follows:

(21)   a.   The boat was sunk to collect the insurance. (=(7), (16))
       b.   *The boat was to collect the insurance.

It is odd to say that *the boat was to collect the insurance* because the subject *the boat* in (21b), unlike the subject *the sailor* in (18b), does not satisfy the selection restriction of the VP in the infinitive clause *collect the insurance*. Although

matrix clause/event control analysis states that the matrix clause/event controls the PRO when the explicit agent is not available, the explanation does not work for the grammaticality of sentence (21a), either. Consider the following sentence:

(22) *The boat's being sunk was to collect the insurance.

The subject *the boat's being sunk* does not satisfy the selection restriction of the VP in the infinitive clause *collect the insurance*, and thus matrix clause/ event control analysis predicts sentence (21a) to be ungrammatical, contrary to the fact.

The suggestion made in this paper is that the infinitival clause *to collect the insurance*, on the other hand, is predicated of the matrix clause. Examine the following relation:

(23) a. The boat was sunk to collect the insurance. (= (7), (16), (21a))
      b. The boat was sunk. It was to collect the insurance.

When sentence (23a) is true, the relation described in (23b) is also true. We should note that the infinitival clause *to collect the insurance* is predicated of *it*, which is supposed to refer to the preceding sentence as shown in (23b). It should also be noted that the first of the two sentences in (23b) is the matrix clause in (23a). The relations in (23b) suggest that the matrix clause control is available in (23a) and that sentence (23a) is grammatical. We can see that the VP in the infinitive *collect the insurance* cannot be predicated of the matrix clause/event *the boat's being sunk*, while the infinitive *to collect the insurance* can be predicated of *it*, which is supposed to refer to the matrix clause. The present matrix clause control analysis, unlike the previous matrix clause/event analyses, correctly explains the grammaticality of sentence (23a) by considering the predication between the subject and the infinitive. The relation between the matrix clause and the infinitival clause is delineated by employing the function of the infinitival marker *to*. The relation needs to be the relation between the "rationalee," which I call the clause which the rationale is predicated of, and the "rationale" in rationale clauses.

The ungrammaticality of the sentences in (24) below suggests that the controller of the PRO is neither the subject nor the matrix clause:

(24)   a. *The boat sank to collect the insurance. $(=(8))$

       b. *The boat was to collect the insurance.

       c. *The boat sank. It was to collect the insurance.

Sentence (24a) is ungrammatical because neither the agent control nor the matrix clause control is available, as indicated by the ungrammaticality of (24b) and (24c). Sentence (24b) is ungrammatical because the subject *the boat* does not satisfy the selection restriction of the infinitive *to collect the insurance*. Sentence (24c) is ungrammatical because the matrix clause and the infinitive clause are not in the relation between "rationalee" and "rationale." As indicated in (24b), the infinitive *to collect the insurance* cannot be predicated of the subject *the boat* and at the same time, in (24c), the infinitive cannot be predicated of the subject *it*, which is supposed to refer to the first sentence in (24c), i.e. the matrix clause in (24a).

The same explanation is true for the other examples. We can see that the grammaticality/ungrammaticality in the examples is correlated with whether or not the infinitival clause is predicated of *it* :

(25)   a. *The ship was sunk to become a hero. $(=(5), (9), (12))$

       b. *The ship was to become a hero.

       c. *The ship was sunk. It was to become a hero.

(26)   a. The boat sank in order to impress the queen and move her to murder her husband by the end of act iii. $(=(11), (13))$

       b. *The boat was to impress the queen and move her to murder her husband by the end of act iii.

       c. The boat sank. It was to impress the queen and move her to murder her husband by the end of act iii.

(27)   a. *Marijuana was smoked to become illegal in the 1930s. $(=(17b))$

       b. *Marijuana was to become illegal in the 1930s.

       c. *Marijuana was smoked. It was to become illegal in the 1930s.

These examples suggest that when the explicit agent is available, the agent is the controller, and when the explicit agent is not available, the matrix clause is the controller. In the sentences above, the infinitive is predicated of *it*, which is supposed to refer to the matrix clause.

3.2 Summary

It has been argued that when the explicit agent is available the agent is a controller, and when there is no explicit agent the matrix clause controls the PRO. What the previous analyses had failed to consider is that it is necessary to consider the predication between the matrix clause and *the infinitive*, not the predication between the matrix clause/event and *the VP in the infinitive*.

This paper claims that when the explicit agent is available, "the controller of PRO" and "the actual actor/doer of the infinitive event" are the same. When the matrix clause is the controller, on the other hand, "the controller of PRO" and "the actual actor/doer of the infinitive event" is to be obtained separately. That is, while this paper has detected "the controller of PRO" syntactically, the issue still remains unsolved of what constitutes the actual actor/doer of the infinitival event.

Landau (2000) argues that the intentional causer seems to be the most plausible candidate, but the notion of the intentional causer is still insufficient, in that it cannot rule out sentences with a passive matrix verb:

(28) a. *The ship was sunk to become a hero. (= (5), (9), (12), (25a))
      b. *The report was carefully prepared to be congratulated by the
         board of directors.   (Jaeggli 1986: 617)

Intentional causer analysis does not reveal why sentences as in (28), with a passive matrix verb, are ungrammatical: implicit intentional causer control analysis states the intentional causer controls the PRO and wrongly predicts sentences in (28) to be grammatical. Landau (2000) suggests that PRO must be agentive in those sentences.

The present paper, on the other hand, rules out the sentences above in that the relation between the matrix clause and the rationale clause is not in the relation between "rationalee" and "rationale," and thus it is possible to claim that the notion of intentional causer decides the actual actor/doer of the infinitive event.[4]

4. Rationale Clause Marker -*tame* in Japanese

In this paper it has been argued that we need to consider the predication between the subject and the infinitive. The same also holds for sentences with

a rationale clause marker -*tame* in Japanese. When the matrix clause is supposed to control the PRO, we also need to consider the predication between the matrix clause and the VP with the rationale clause marker, but not the predication between the matrix clause and the VP in the rationale clause:

(29) a. Doa-no   kagi-wa   [[PRO ie-ni   sinnyu-suru]
          Door-GEN   key-TOP   [[PRO house-LOC   break into]
          -tame-ni]   kowasareteita.
          -(in order) to]   was broken.

          'The key of the door was broken to break into the house.'

b. *Doa-no   kagi-wa   kowasareteita. Sore-wa   ie-ni
          Door-GEN   key-TOP   was broken.   It-TOP   house-LOC
          sinnyu-shita.
          break into-PAST

          'The key of the door was broken. It broke into the house.'

c. Doa-no   kagi-wa   kowasareteita. Sore-wa [[ie-ni
          Door-GEN   key-TOP   was broken.   It-TOP   house-LOC
          sinnyusuru] -tame]-datta.
          break into] -(in order) to]-was

          'The key of the door was broken. It was to break into the house.'

The ungrammaticality of (29b) suggests that the VP in the rationale clause cannot be predicated of *sore*, which is supposed to refer to the matrix clause, while the grammaticality of (29c) suggests that the VP with the rationale clause marker is predicated of *sore*, which is supposed to refer to the matrix clause.

5. Conclusion

The present paper has dealt with PRO interpretation in rationale clauses. It was proposed that, in rationale clauses, when the explicit agent is available the agent is a controller, and that when the explicit agent is not available the matrix clause is the controller of the PRO. It was maintained that we need to consider the predication between the matrix clause and *the infinitive*, not the predication between the matrix clause/event and *the VP in the infinitive*. It was then argued that "the controller of PRO" and "the actual actor/

doer of the infinitive event" might be detected separately, and that the actual actor/doer of the infinitival event is an intentional causer, which is obtained from the context. Finally, the Japanese rationale clause marker *-tame* was mentioned, and the argument was put forward that we also need to consider the predication between the matrix clause and the VP with the rationale clause marker, not the predication between the matrix clause and the VP in the rationale clause.

Acknowledgements

1) In Faraci's (1974) representation, the PRO position is just a gap due to the Equi rule. The present paper uses the PRO notation for simplicity.

2) The unavailability of the implicit controller can also be seen in the following sentences. As suggested by Jones (1991), the implicit "understood object" cannot control the subject in a subject-gap purpose clause or the object in an object-gap clause:

(i) a. We've been hiring guards$_i$ [e$_i$ to watch the children].

   b. We've been hiring Ø.

   c. *We've been hiring Ø$_i$ [e$_i$ to watch the children].

<div align="right">(Jones 1991: 38)</div>

(ii) a. We gave clothes$_i$ to the Salvation Army [to use e$_i$ as they see fit].

   b. We gave Ø to the Salvation Army.

   c. *We gave Ø$_i$ to the Salvation Army [to use e$_i$ as they see fit].

<div align="right">(ibid.: 39)</div>

3) Roeper (1987) also points out that the following examples are evidence against the matrix clause/event control approach:

(i) a. The doors were opened to enter the room.

   b. *The opening of the door entered the room.

<div align="right">(Roeper 1987: 277)</div>

The matrix clause/event control approach cannot explain why sentence (ia) is grammatical, while sentence (ib), which is supposed to denote the same

event, is ungrammatical. Grimshaw (1990: 132) argues that (ia) is grammatical because there is a second reading which involves an arbitrary PRO in the rationale clause. As Grimshaw (1990) herself suggests, however, her explanation cannot be applied to explain the ungrammaticality of the sentence in (5) (= (9), (12), (25a), (28a)) **The ship was sunk to become a hero.*

4) Williams (1992) maintains that the actual actor/doer of the event in the rationale clause might be specified logophorically. The issue about the actual actor/doer requires further investigation.

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Corpus

Web Concordancer (http://www.edict.com.hk/concordance) (WConc)

<div align="right">(Graduate student)</div>