

A Major Object Analysis of the So-called Raising-to-Object Construction in Japanese (and Korean)

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Abstract

Empirically, this talk is concerned with examples such as (1).

- (1) John-wa Mary-o Itariazin da to omotteita.
John-TOP Mary-ACC Italian be that thought
- (2) a. John believed about Mary that she was Italian.
b. John believed Mary to be Italian.

I have the following three goals in mind.

- (3) a. To argue for and defend a Major Object analysis of the so-called Raising-to-Object (henceforth simply *RtoO*) Construction in Japanese (and Korean), according to which *NP-o* that corresponds to *Mary-o* in (1) is 'base-generated' in the matrix clause and is not part of the embedded CP at any stage of derivation, and (1) corresponds more closely to (2a) than to (2b), in terms of the relevant formal properties.
- b. To give a brief illustration of how we/I have been trying to conduct syntactic experiments, and what 'criteria' can be profitably placed in determining when a hypothesis is *falsified* and when it is *corroborated* (the latter not in the Popperian sense).
- c. To explore (further) consequences of the proposed analysis alluded to in (3a).

I have concrete things/results to say/report about (3a) and (3b), and feedback from the workshop participants would be much appreciated. As to (3c), I have specific issues I have been concerned with, but without clear answers yet, and I am hoping to be able to make some progress in regard to those issues through the discussion at the workshop.

I will try to do (3a) by examining (i) what negative predictions the proposed analysis makes, in conjunction with an independent hypothesis, and (ii) how the predictions are borne out. An answer to (ii) brings us to (3b), whose main points have to do with when a hypothesis is to be considered as being *falsified* and when it is to be considered as being *corroborated* (not in Popper's sense). I wish to adopt the following 'criterion' for evaluating our hypotheses. A hypothesis is *falsified* if examples that are predicted to be unacceptable (under a specified interpretation) are judged acceptable (under the specified interpretation), and it is *corroborated* if it is not *falsified* and a

sufficiently compelling degree of contrast is detected between (i) the examples that are predicted to be unacceptable and (ii) those that are not so predicted by virtue of being minimally different from the former in regard to the grammatical or formal factor that is hypothesized to be responsible for the status of the former. A concrete way to execute this idea will be introduced, along with a way to conduct relevant syntactic experiments in which judgments are solicited from informants.

The experiments whose results I will report in this presentation include those on (4).

- (4) a. the distribution of negation-sensitive elements (often referred to in the literature as "negative polarity items") in Japanese
b. the effects of Proper Binding Condition in the 'scrambling construction' and RtoO

The result on the experiment on (4a) corroborates the Major Object hypothesis, and that on the experiment on (4b) falsifies the hypothesis in (5).

- (5) RtoO necessarily involves syntactic movement of the relevant *o*-marked NP in RtoO and its trace is subject to the Proper Binding Condition.

In addition to providing support for the Major Object analysis of the so-called RtoO in Japanese (and arguably in Korean), I suggest in this talk that it is necessary for us to bind ourselves by the criteria of the sort alluded to above in regard to *falsification* and *corroboration*, if we want to be taken seriously by linguists outside generative grammar, and perhaps more importantly by researchers in the neighboring disciplines and beyond, in regard to the claim that we are engaged in an empirical science *with progress in mind*.

1. The so-called raising-to-object construction in Japanese

- (6) John-wa Mary-o Itariazin da to omotteita.
John-TOP Mary-ACC Italian be that thought

'John believed about Mary that she was Italian.'

- (7) Raising Analysis:
The *o*-marked NP in (6) (henceforth *Mob*) is 'base-generated' in the embedded clause and gets raised to a position in the matrix clause. (Kuno's (1976) proposal is of this type.)
- (8) ECM Analysis:
Mob is 'base-generated' in the embedded clause and stays inside the embedded clause.

Several (or perhaps more than several) proposals have appeared since around 1990, discussing (6) and its Korean counterpart. Among the analyses I

know of are (9) and (10).

- (9) The movement-of-the-major-subject analysis:
Mob is 'base-generated' as the major subject in the embedded clause and gets raised to a position in the matrix clause.
- (10) The combination of (7) and (8):
The option in (7) and the one in (8) are both allowed.

(James) Yoon 2004 argues for (9) and Hiraiwa 2002 proposes (10). The latter claims that *Mob* always moves from 'its theta position' to a/the Spec of the embedded CP, and what is optional is the subsequent movement of *Mob* out of the embedded CP.

J.-E. Yoon (1989) argued for a 'major-subject' analysis but she combined it with the ECM approach. So, her analysis does not have the raising part of Yoon 2004.¹ Hong 1990, written in the LFG framework, seems to propose something quite close to what is proposed in Hoji 1991, and further defended in Takano 2003, i.e., the hypothesis/analysis that *Mob* is 'base-generated' in the matrix clause and is not part of the embedded CP at any stage of derivation.²

2. CFJs, falsification, and corroboration

A brief illustration of (11) will be provided here.

- (11) a. the structure of a *CFJ* (Call For Judgments)
b. when a hypothesis is regarded as being *falsified*
c. when a hypothesis is regarded as being *corroborated*

¹ Parallelism between *Mob* and a major subject is considered in Hoji 1991, and it is noted there that the parallelism is not complete, as indicated by the contrast in (i).

- (i) (=Hoji 1991: (43))
a. IBM-wa [soko-no atarasii konpyuutaa-no himitu]_i-o asita-no kisyakaiken-de [CP Hitati-ga (spai-o tukatte) {*pro*/*sore*,-o} nusunda to] happyoo suru tumorida
'IBM intends to announce about [the secret of their new computer]_i at tomorrow's press interview that Hitachi stole it_i (by using spies).'
- b. *[soko-no atarasii konpyuutaa-no himitu]_i-ga [CP Hitati-ga (spai-o tukatte) {*pro*/*sore*,-o} nusunda/nusumidasita
'It is [the secret of their new computer]_i that Hitachi stole (by using spies).'

It is further suggested there that *Mob* is closer to the 'aboutness' topic than to the major subject, on the basis of the parallelism between (i-a) and (ii).

- (ii) (=Hoji 1991: (44))
[soko-no atarasii konpyuutaa-no himitu]_i-wa [CP Hitati-ga (spai-o tukatte) {*pro*/*sore*,-o} nusunda/nusumidasita
'As for [the secret of their new computer]_i, Hitachi stole it_i (by using spies).'

² Saito (1983) hints at the proposal being pursued here. According to Hoji 1991, Kitagawa (1985) also suggests or argues for the possibility of the proposed structure (along with the ECM-type structure for it).

- (12) The content of a CFJ
a. A set of example sentences are placed on a web page.
b. Informants are asked to judge each sentence by choosing one of the five circles placed under (i).³
(i) Bad < ===== > Good
 o o o o o
c. The five choices will be computed as in (ii), "-2" corresponding to "Bad" and "+2" to "Good" but the informants do not know what numeric values will be assigned to each of the five circles.
(ii) -2, -1, 0, +1, +2

In regard to when a given hypothesis is to be considered *falsified*, the basic idea is that the hypothesis should be considered *falsified* if the examples that are predicted to be unacceptable are judged acceptable. For the ease of exposition, let us refer to an example in a CFJ that is predicted to be impossible (under a specified interpretation) as *Eg**. The crucial assumption here is that if an *Eg** is predicted to be impossible due to a grammatical reason, no lexical or pragmatic adjustments should be able to save it; hence, the native speakers should find the *Eg** to be unacceptable, as long as it is constructed with care (i.e., controlling the unwanted factors that would contribute to noise) and as long as the informants are following the instructions correctly. The predicted value on such an *Eg** should therefore be "-2," if everything were to go *ideally*. Since we cannot expect everything to go ideally, however, we must decide on some numeric value F such that the hypothesis in question is to be regarded *falsified* if the average score on the *Eg** in a CFJ is greater than F. While the selection of the *exact numeric value* of F is bound to be arbitrary; let us, for the time being, adopt (13).

(13) Falsification

A hypothesis is *falsified* iff the average score for the example that is predicted to be unacceptable, i.e., the average score for *Eg**, is greater than -1.0.

That a given hypothesis is not *falsified* does not necessarily make it plausible. After all, an *Eg** can be felt to be unacceptable for reasons that are independent of what is hypothesized to be responsible for its unacceptability. We thus need to make sure that an example that forms a minimal pair with an *Eg** is indeed judged to be fairly acceptable. Let us refer to such an example as *Eg*, in contrast to *Eg**.

For ease of exposition and intelligibility of the presentation, I state in (14) what is meant by *Eg** and *Eg*.

- (14) a. *Eg** (which will be read as "star *Eg*" or "star example"): an example in a CFJ that is predicted to be impossible (under a specified

³ No time limit is placed on the task. The informants can judge some of the examples on a CFJ during a given visit to the web page, and can come back to the page to judge other examples later. They are also allowed to change their judgments later.

interpretation)

- b. Eg_1 (which will be read as simply "Eg" or "supporting example"): an example that forms a minimal pair with an Eg^*_1

We may use an index to specify which Eg^* a given Eg forms a minimal pair with, as in Eg_1 and Eg^*_1 . Just as we wish the average score on an Eg^* to be as close to "-2" as possible, so we would like the one on an Eg to be as close to "+2" as possible.

As noted, an Eg^* is predicted to be unacceptable by the hypothesis, in the conjunction with another hypothesis (or a set of hypotheses). Hence, a single occurrence of an Eg^* that is judged to be not so unacceptable can, in principle, *falsify* the hypothesis in question. By contrast, an Eg is not predicted to be acceptable, it is only *not predicted to be unacceptable*. The score on an Eg would therefore never result in the *falsification* of a hypothesis in question. It could, however, enhance the plausibility of the hypothesis. Let us thus adopt (15).

(15) *Corroboration*

A hypothesis is *corroborated* iff the difference between the average score on Eg^*_n and that on Eg_n (henceforth *Dif-Eg_n*) is greater than 3.

As in the case of (13), the numerical value specified in (15) is somewhat arbitrary, but not totally so. Suppose that *Dif-Eg_n* is greater than 3. Since the scale is between -2 and +2, the average score on Eg^*_n cannot in that case be greater than -1. Hence, when a hypothesis is *corroborated*, it is never *falsified*.

3. The Kataoka hypotheses

(16) and (17) are taken from Kataoka to appear: (1) & (2).

- (16) a. Taro-wa manga-**sika** yoma-**nai**. / *yomu.
Taro-TOP comics-all:but read-Neg / *read

'Taro does not read any kind of book but comics.'

- b. Taro-**sika** manga-o yoma-**nai** / *yomu (koto)
Taro-all:but comics-ACC read-Neg / *read (Comp)

'Nobody but Taro reads comics.'

- (17) a. Saikin **rokuna**-sakka-ga syoo-o {tora-**nai** / *toru}.
recently good-writer-NOM award-ACC get-Neg / *get

'Recently, no good writers have got an award.'

- b. Taro-wa itumo **rokuna**-koto-o {si-**nai** / *suru}.
Taro-TOP always good-thing-ACC do-Neg / *do

'Taro always does damn things.'

Kataoka 2004 and to appear propose (18) and (19), the latter of which has been

reformulated here.

- (18) (Kataoka to appear: (4))

Rokuna-N must be c-commanded by Neg at LF.

- (19) (My reformulation of Kataoka to appear: (23)⁴)

At LF *XP-sika* must be in a mutual c-command relation with a projection of Neg, as an instance of **subject-predicate relation**.

4. Predictions and results of experiments⁵

4.1. *Rokuna-N* and Neg

Given (18), and given the assumptions that downward movement is disallowed and Neg does not raise at LF crossing a clause boundary, we make the prediction in (20).

- (20) The chart and the predicted values under the Kataoka hypothesis:

	<i>rokuna-N</i> in the matrix	<i>rokuna-N</i> in the embedded
Neg in the matrix		
Neg in the embedded	-2	

4.2. *Rokuna-N* as a Major Object

The Major Object hypothesis, combined with (18), and the assumptions just noted, give rise to the prediction recorded in (21).

- (21) The chart and the predicted values under the Major Object hypothesis, together with the Kataoka hypothesis:

	<i>rokuna-N-o</i> as <i>Mob</i>
Neg in the matrix	
Neg in the embedded	-2

⁴ Kataoka states this in terms of Spec-head relation, as in (i).

- (i) (Kataoka to appear: (23))
XP-sika must be in NegP-Spec at LF.

⁵ I tried in Hoji 1991: 2.6 to make the same point as what is to be given in this section, on the basis of the following paradigm, with the gloss and translation newly added here.

- (i) John-ga [kurasu-no ko]_{-o} [_{CP} *pro*; **hitorimo** waruku **nai** to] omotteita
John- NOM class-GEN students-ACC not:a:single:one bad NEG that thought
'John thought about the students in the class that none of them was at fault.'

- (ii) *John-ga [kurasu-no ko]_{-o} **hitorimo** ima-wa [_{CP} *pro*; waruku
John-NOM class-GEN students-ACC not:a:single:one now-TOP bad
nakatta to] omotteiru (koto)
NEG:past that think
'John now thinks about none of the students in the class that s/he was not at fault.'

- (iii) John-ga [kurasu-no ko]_{-o} **hitorimo** ima-wa [_{CP} *pro*;
John- NOM class-GEN students-ACC not:a:single:one now-TOP
warukatta to] omotteinai (koto)
bad-past that think:NEG

'John now does not think about a single of student in the class that s/he was at fault.'

4.2.1. CFJ-16

(22) CFJ-16: the average scores (29 informants)⁶

(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(3'a)	(3'b)
+1.83 (29) ⁷	-1.72 (29)	+0.81 (26)	-1.70 (27)	+1.00 (27)	-1.74 (27)	+1.26 (27)	-1.78 (27)
<i>Eg</i> ₁	<i>Eg</i> * ₁	<i>Eg</i> ₂	<i>Eg</i> * ₂	<i>Eg</i> ₃	<i>Eg</i> * ₃	<i>Eg</i> ₄	<i>Eg</i> * ₄

(23) CFJ-16: Adjusted average scores; for each pair in (1), (2), (3) and (3') in CFJ-16, the scores are counted only if the informant has given a score of "+2" on the (a) example (i.e., on *Eg*).

(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(3'a)	(3'b)
+2.00 (25)	-1.72 (25)	+2.00 (10)	-1.90 (10)	+2.00 (13)	-1.77 (13)	+2.00 (17)	-1.88 (17)
<i>Eg</i> ₁	<i>Eg</i> * ₁	<i>Eg</i> ₂	<i>Eg</i> * ₂	<i>Eg</i> ₃	<i>Eg</i> * ₃	<i>Eg</i> ₄	<i>Eg</i> * ₄

4.2.2. The predicted values and the outcome of CFJ-16

(24) a. (=20)

The chart and the predicted values under the Kataoka hypothesis:

	<i>rokuna-N</i> in the matrix	<i>rokuna-N</i> in the embedded
Neg in the matrix		
Neg in the embedded	-2	

b. (The numbers refer to the example numbers in CFJ-16.)

	<i>rokuna-N-ga</i> in the matrix	<i>rokuna-N-ga</i> in the embedded
Neg in the matrix	<i>Eg</i> : (3a), (3'a)	
Neg in the embedded	<i>Eg</i> *: (3b), (3'b)	<i>Eg</i> : (1a)

(25) The average scores on (3a), (3'a), (3b) and (3'b) in (24b); see (22).

	<i>rokuna-N-ga</i> in the matrix	<i>rokuna-N-ga</i> in the embedded
Neg in the matrix	<i>Eg</i> : +1.00, +1.26	
Neg in the embedded	<i>Eg</i> *: -1.74, -1.78	<i>Eg</i> : +1.83

(26) a. (=21)

The chart and the predicted values under the Major Object hypothesis, together with the Kataoka hypothesis:

	<i>rokuna-N-o</i> as <i>Mob</i>
Neg in the matrix	
Neg in the embedded	-2

⁶ From here on, example numbers included in a chart refer to the examples in the CFJs, not to the examples given in this handout.

⁷ The number in the parentheses indicates the number of informants counted.

b. (The numbers refer to the example numbers in CFJ-16.)

	<i>rokuna-N-o</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : (2a)
Neg in the embedded	<i>Eg</i> *: (1b), (2b)

(27) The average scores on (2a), (1b), and (2b) in (26b); see (22).

	<i>rokuna-N-o</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : +0.81
Neg in the embedded	<i>Eg</i> *: -1.72, -1.70

(28) The adjusted average scores (2a), (1b), and (2b) in (26b); see (23) for the number of informants counted here.

	<i>rokuna-N-o</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : +2.0
Neg in the embedded	<i>Eg</i> *: -1.72, -1.90

4.3. NP-(cm)-sika and Neg

Given (19), repeated here, and given the assumptions that downward movement is disallowed and Neg does not raise at LF crossing a clause boundary, we make the prediction in (29).

(19) (My reformulation of Kataoka to appear: (23))

At LF *XP-sika* must be in a mutual c-command relation with a projection of Neg, as an instance of **subject-predicate relation**.

(29) The chart and the predicted values under the Kataoka hypothesis in (19):

	<i>NP-(cm)-sika</i> in the matrix	<i>NP-(cm)-sika</i> in the embedded
Neg in the matrix		-2
Neg in the embedded	-2	

4.4. NP-o-sika as a Major Object

The Major Object hypothesis, combined with (19), and the assumptions just noted, give rise to the prediction recorded in (30).

(30) The chart and the predicted values under the Major Object hypothesis, together with the Kataoka hypothesis in (19):

	<i>NP-o-sika</i> as <i>Mob</i>
Neg in the matrix	
Neg in the embedded	-2

4.4.1. CJF-40 (16 examples, 20 informants)

(31) CFJ-40: the average scores

	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(3a)	(3b)
Average	+1.95	-1.20	+1.90	-1.30	+0.55	+0.55	-1.84	-1.58

	(4a)	(4b)	(4c)	(4d)	(2a')	(2b')	(3a')	(3b')
Average	+1.89	-1.53	+1.95	-1.32	+1.53	+1.56	-1.37	-1.16

4.4.2. The predicted values and the outcome of CFJ-40

(32) a. (=29)

The chart and the predicted values under the Kataoka hypothesis in (19):

	<i>NP(-cm)-sika</i> in the matrix	<i>NP(-cm)-sika</i> in the embedded
Neg in the matrix		-2
Neg in the embedded	-2	

b. (The numbers refer to the example numbers in CFJ-40.)

	<i>NP(-cm)-sika</i> in the matrix	<i>NP(-cm)-sika</i> in the embedded
Neg in the matrix	<i>Eg</i> : (1a), (4a)	<i>Eg*</i> : (1d), (4d)
Neg in the embedded	<i>Eg*</i> : (1b), (4b)	<i>Eg</i> : (1c), (4c)

(33) The average scores on (1) and (4) in CFJ-40:

	<i>NP(-cm)-sika</i> in the matrix	<i>NP(-cm)-sika</i> in the embedded
Neg in the matrix	<i>Eg</i> : +1.95, +1.89	<i>Eg*</i> : -1.30, -1.32
Neg in the embedded	<i>Eg*</i> : -1.20, -1.53	<i>Eg</i> : +1.90, +1.95

(34) a. (=30)

The chart and the predicted values under the Major Object hypothesis, together with the Kataoka hypothesis in (19)

	<i>NP-o-sika</i> as <i>Mob</i>
Neg in the matrix	
Neg in the embedded	-2

b. (The numbers refer to the example numbers in CFJ-40.)

	<i>NP-o-sika</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : (2a), (2b)
Neg in the embedded	<i>Eg*</i> : (3a), (3b)

(35) The average scores on (2) and (3) in CFJ-40:

	<i>NP-o-sika</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : +0.55, +0.55
Neg in the embedded	<i>Eg*</i> : -1.84, -1.58

(36) CFJ-40: The adjusted average scores; for each pair in (2) and (3), the scores are counted only if the informant gave a score of "+1" or "+2" on the (a) example. The number in the parentheses indicates the number of informants counted.

	<i>NP-o-sika</i> as <i>Mob</i>
Neg in the matrix	<i>Eg</i> : +1.38 (13), +1.42 (12)
Neg in the embedded	<i>Eg*</i> : -2.00 (12), -1.91 (11)

(37) The crucial part of CFJ-40: the average score

(2a)	(2b)	(3a)	(3b)
+0.55 (20)	+0.55 (20)	-1.84 (19)	-1.58 (19)
<i>Eg</i> ₁	<i>Eg</i> ₂	<i>Eg*</i> ₁	<i>Eg*</i> ₂

(38) The crucial part of CFJ-40: Adjusted average scores (I); for each pair in (2) and (3), the scores on *Eg* are counted only if the informant has given a score of "+2" or "+1" on *Eg*. The number in the parentheses indicates the number of informants counted.

(2a)	(2b)	(3a)	(3b)
+1.38 (13)	+1.42 (12)	-2.00 (12)	-1.91 (11)
<i>Eg</i> ₁	<i>Eg</i> ₂	<i>Eg*</i> ₁	<i>Eg*</i> ₂

(39) The crucial part of CFJ-40: Adjusted average scores (II); for each pair in (2) and (3), the scores are counted only if the informant has given a score of "+2" on *Eg*. The number in the parentheses indicates the number of informants counted.

(2a)	(2b)	(3a)	(3b)
+2.00 (5)	+2.00 (5)	-2.00 (5)	-1.80 (5)
<i>Eg</i> ₁	<i>Eg</i> ₂	<i>Eg*</i> ₁	<i>Eg*</i> ₂

5. Proper Binding Condition (PBC)

An often-held view is that the raising is necessarily involved in the derivation of sentences of the form in (6), and it is also often claimed, and fairly widely accepted, that the Proper Binding Condition (PBC) gets violated in the derivation of sentences corresponding to (41), as they are analyzed as in (42).⁸

- (40) NP-NOM NP-ACC ... V1 that V2
(41) a. ... V1 that NP-ACC NP1-NOM V2

⁸ It is, however, not immediately clear what the formal nature of this movement might be. 'Theoretically', one can propose to regard the movement in terms of notions such as (i).

- (i) a. A or A'-positions
b. theta or non-theta positions
c. whether the movement is triggered by a formal feature

If we wanted to consider the empirical consequences of our choice, a minimal requirement imposed upon us would be that we relate this movement with another instance of movement in Japanese that has independently been shown to have the same formal property so that we would be in a position to assess the empirical consequence that the movement under discussion indeed exhibits the same clustering of properties as the latter. The proponents of the raising analysis of RtoO in Japanese (and Korean) have in fact proposed to relate the movement involved in RtoO to 'scrambling' in terms of PBC effects, as will be discussed immediately.

- b. ... V1 that NP-NOM NP-ACC V2
 (42) a. [[t₃ ... V1 that]₄ [NP1-ACC₃ [NP1-NOM t₄ V2]]]
 b. [[t₃ ... V1 that]₄ [NP1-NOM NP1-ACC₃ [t₄V2]]]

The offending trace in (42) is shaded. The negative prediction here is that sentences of the form in (42) are unacceptable due to the PBC.

The results of an experiment on PBC effects in Japanese, however, indicate that such an hypothesis is falsified, rather remarkably, providing support for the conclusion reached in Hoji 1991: section 1. Some experiments have also been conducted on the PBC effects in Korean and their results are strikingly similar to those of the experiments on the PBC effects in Japanese. Although I will most likely be unable to discuss those CFJs in my presentation, I will be happy to discuss them during the free time.

(43) CFJ-32: Average Scores (18 informants)

	(1)	(2a)	(2b)	(2c)	(3)	(4a)	(4b)	(4c)
Average	+2.00	+0.67	+2.00	-1.56	+1.00	+1.11	+0.56	+0.28

	(5)	(6a)	(6b)	(6c)	(7)	(8a)	(8b)	(8c)
Average	+1.56	+0.50	+1.94	-1.61	+0.56	+1.06	+0.89	-0.06

(44) Preliminaries (I): PBC effects in 'Scrambling' constructions in CFJ-32

	NP-ga/wa CP V	NP-'scrambling'	CP-'scrambling'	PBC
Example # in CFJ-32	(1), (3)	(2a), (6a)	(2b), (6b)	(2c), (6c)
Average Score	+2.00, +1.00	+0.67, +0.50	+2.00, +1.94	-1.56, -1.61

(45) CFJ-32: Adjusted Average Scores⁹

	(1)	(2a)	(2b)	(2c)	(3)	(4a)	(4b)	(4c)
Average	+2.00	+2.00	+2.00	-1.57	+1.00	+2.00	+0.56	+0.80
# of informants	18	7	18	7	18	10	18	10

	(5)	(6a)	(6b)	(6c)	(7)	(8a)	(8b)	(8c)
Average	+1.56	+2.00	+1.94	-1.50	+0.56	+2.00	+0.89	+0.00
# of informants	18	6	18	6	18	9	18	9

⁹ The adjustments have been made as follows.

- (i) a. If [the score of (2a)] < 2, then [the answer of (2a)] and [the answer of (2c)] will be excluded from the average.
 b. If [the answer of (6a)] < 2, then [the answer of (6a)] and [the answer of (6c)] will be excluded from the average.
 (ii) a. If [the answer of (4a)] < 2, then [the answer of (4a)] and [the answer of (4c)] will be excluded from the average.
 b. If [the answer of (8a)] < 2, then [the answer of (8a)] and [the answer of (8c)] will be excluded from the average.

- (46) Preliminaries (II): PBC effects in 'Scrambling' constructions in CFJ-32:
 Adjusted scores; the scores for (2c) and (6c) by a given informant are counted only if s/he has given "+2" to (2a) and (6a), respectively.
 The number in the parentheses after the score indicates the number of informants counted.

	NP-'scrambling'	PBC
Example # in CFJ-32	(2a), (6a)	(2c), (6c)
Adjusted Average Score	+2.00 (7), +2.00 (6)	-1.57 (7), -1.50 (6)

(47) The predicted values under the Raising Analysis

	RtoO 'base order'	NP-o NP-wa/ga ... to V	NP-o ... to NP-wa/ga V	PBC
Example # in CFJ-32	Eg: (3), (7)	Eg: (4a), (8a)	Eg: (4b), (8b)	Eg*: (4c), (8c)
Predicted Values				-2

(48) The results of CFJ-32

	RtoO 'base order'	NP-o NP-wa/ga ... to V	NP-o ... to NP-wa/ga V	'PBC'
Example # in CFJ-32	Eg: (3), (7)	Eg: (4a), (8a)	Eg: (4b), (8b)	Eg*: (4c), (8c)
Average scores	+1.00, +0.56	+1.11, +1.06	+0.56, +0.89	+0.28, -0.06

- The hypothesis that pursues the raising analysis has been falsified. Hence, no adjustment would save it.
 But just out of curiosity, what would adjustments do?

(49) The adjusted scores of CFJ-32 (I): On the basis of "+2" on (3) and (7).

	RtoO 'base order'	'PBC'
Example # in CFJ-32	Eg ₁ : (3), Eg ₂ : (7)	Eg* ₁ : (4c), Eg* ₂ : (8c)
Average scores	+2.00 (10), +2.00 (9)	+0.50 (10), -0.00 (9)

(50) The adjusted scores of CFJ-32 (II): On the basis of "+2" on (4) and (8a).

	NP-o NP-wa/ga ... to V	'PBC'
Example # in CFJ-32	Eg ₁ : (4a), Eg ₂ : (8a)	Eg* ₁ : (4c), Eg* ₂ : (8c)
Average scores	+2.00 (10), +2.00 (9)	+0.80 (10), -0.00 (9)

(51) The adjusted scores of CFJ-32 (II): On the basis of "+2" on (4) and (8a).

	NP-o ... to NP-wa/ga V	'PBC'
Example # in CFJ-32	Eg: (4b), (8b)	Eg*: (4c), (8c)
Average scores	+2.00 (6), +2.00 (7)	+0.67 (6), +0.14 (7)

6. Concluding remarks: toward the establishment of generative grammar as an empirical science (GGES) (*with progress in mind*)

The emphasis placed on negative predictions makes it possible to obtain a clearer understanding of, hence how to deal with, judgmental fluctuation and disagreement. Judgmental fluctuation on *Eg** is significant and serious; it could directly lead to the *falsification* of a hypothesis. Judgmental fluctuation on *Eg*, on the other hand, is much less significant and serious. Although it could affect whether our hypothesis gets *corroborated*, it would not bear on whether our hypothesis is *falsified*. Failure to recognize this difference seems to me to have resulted in a (not uncommon, if not prevailing) attitude of not being compelled to make one's hypothesis falsifiable, which is generally accompanied by the lack of concerns for articulating what should count as a falsification of a hypothesis.

Recognizing this point perhaps helps us appreciate the real significance of a minimal pair. The preceding discussion suggests that obtaining a contrast is not sufficient for a given hypothesis to be considered plausible (let alone compelling). A contrast may obtain even when a hypothesis is falsified, in the sense defined above. If a hypothesis, combined with an independent hypothesis, predicts a specific example is an instance of *Eg**, due to a proposition deduced from the hypotheses in question, there is no excuse for one not to seriously doubt one's hypothesis if many speakers accept such an example, even to varying degrees.

What we need to aspire to is obtain *corroboration* for our hypothesis, which necessarily includes the hypothesis not being *falsified*; see (13), (14), (15). Proceeding in the manner described above would make it possible to address the issues about *repeatability* in a much more concrete and realistic manner than has been possible in the past, as far as I can tell.¹⁰

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¹⁰ Incidentally, the researcher's own judgments should be fairly close to the average scores (perhaps 'adjusted' scores—see (23), for example) of a CFJ, provided that the CFJ is checking a hypothesis that is on the right track and if there are not dialectal issues at stake.

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7. Appendix I: 'Scrambling' and RtoO

The empirical concern of this talk was initially stated in relation to (1).

(52) (=1))

John-wa Mary-o Itariazin da to omotteita.
John-TOP Mary-ACC Italian be that thought

(53) (=2))

- a. John believed about Mary that she was Italian.
b. John believed Mary to be Italian.

While (52) can be translated either as (slightly awkward, but acceptable) (53a) or as (more natural) (53b), I have argued for the thesis, put forth in Hoji 1991 and further defended in Takano 2003, that (53a) is a structurally more accurate English rendition of (52), pursuing the view that *NP-o* that corresponds to *Mary-o* in (52), which has been dubbed above as *Mob*, is 'base-generated' in the matrix clause and is not part of the embedded clause at any stage of derivation.

Since the mid 1960s, examples such as (53b) have been discussed in relation to ones like (54).

(54) John believed (that) Mary was Italian.

Among the crucial properties of English (53b) that have been noted and widely discussed are:

- (55) a. The apparent object NP in the matrix clause in (53b), i.e., the NP corresponding to *Mary* in (53b) *always corresponds to the subject* of the embedded clause in (54).
b. The NP corresponding to *Mary* in (53b) can be a pleonastic element or an idiom chunk.
c. The embedded 'clause' in (53b) is limited to an infinitive.

In regard to Japanese (52), the properties listed in (56) have been noted in the literature since the mid 1970s.

- (56) a. *NP2-o* in (57a) below *need not correspond to the subject* of the embedded clause in (57b)¹¹; it may correspond to an argument inside

¹¹ The point is illustrated in Hoji 1991: section 3, (19) by the following examples, where C. Kitagawa 1977 is cited.

- (i) a. Watasi-wa ano hito-o [_{CP} [_{pro}_i musuko san]-ga moo daigakusei
I-TOP that person-ACC son-NOM already college student
da to] (bakari) omotte imasita
is that thought
'I thought of that person; that {her/his_i} son is already a college student.'
b. Watasi-wa sono zyookamati-o [_{CP} [_{NP} doowa-no Kurushima Takehiko-san-no
senzo]-ga {_{pro}/soko_i-no} tonosama datta to] omotte ita

a complex NP contained in the embedded clause; it need not correspond to anything (overtly expressed)¹².

- b. *NP2-o* in (57a) below cannot be a pleonastic element, an idiom chunk, or something that is, semantically, part of a predicate; see (71a) below.
c. It is not clear that the embedded 'clause' in (57b), corresponding to (57a), is limited to an infinitive. (If the presence of a *ga*-marked subject NP or that of the tense marker *-ru* / *-ta* is sufficient evidence that the embedded clause in (57b) is a tensed clause, the embedded 'clause' in (57a) clearly can be tensed.)

- (57) a. NP1-ga NP2-o ... V
b. NP-ga [_{CP} ... V-I to] V

Given that the structure of (52) (and (57a)) is as in (58a), and its basic interpretation is very much like (58b), the properties listed in (56) are as expected for examples under discussion.

- (58) a. NP1-ga NP2-o CP V
b. NP1 V about NP2 CP

Now consider the schematic structures in (59).

- (59) a. NP1-ga *NP2-o* [_{CP} NP3-ga *ec* V-I to] V
b. NP1-ga [_{CP} *NP2-o* NP3-ga *ec* V-I to] V

(59a) is the Major Object construction and (59b) contains a 'scrambled' sentence as its embedded clause. Notice that the surface forms are identical between (59a) and (59b).^{13, 14}

-
- 'I thought of that castle city_i that **NP** had been its_i lord.'
- c. Daitasuu no hito-ga [sono hooan]_i-o [_{CP} Tanaka moto syusyoo-ga
{_{pro}/sono_i} hatuansya da to] omoikonde ita
'Most people thought of that bill, that ex Prime Minister Tanaka was its_i
initiator.'
- d. IBM-wa [soko-no atarasii konpyuutaa-no himitu]_i-o asita-no kisyakaiken-de
[_{CP} Hitati-ga (spai-o tukatte) {_{pro}/sore_i-o} nusunda to] happyoo suru
tomurida
'IBM intends to announce about [the secret of their new computer]_i; at
tomorrow's press interview that Hitachi stole it_i (by using spies).'

¹² Hoji 1991: (42) is reproduced here, with the judgments reported there.

- (i) a. ?Watasi-wa kono kusuri-o [_{CP} atama-ga yoku naru to] (bakari)
I-TOP this medicine-ACC brain-NOM better become that
omoikondeita
firmly believed
'I firmly believed of this medicine that (if we take it) we become smarter.'
b. Kono kusuri-ga atama-ga yoku naru (from H. Teramura's work)
'It is true of this medicine that (if we take it) we become smarter.'

¹³ Once we have adopted the Major Object analysis, it follows that *NP-o* should not be used as the 'scrambled NP' in a 'long-distance scrambling' construction, as it is in fact

While the surface string corresponding to (59) can be of the structure in (59a), the one corresponding to (60) cannot be of the structure in (61a), provided that the only *o*-marked NP can 'function' as the Major Object. Hence it must be of the structure in (61b), in which the embedded clause contains a 'scrambled' sentence.

(60) NP1-ga NP2-ni NP3-ga ec V-I to V
where NP2 is 'related to' the embedded V

(61) a. NP1-ga NP2-ni [_{CP} NP3-ga ec V-I to] V
b. NP1-ga [_{CP} NP2-ni NP3-ga ec V-I to] V

Let us now consider (62).

(62) NP3-ga ec V₁-I to NP2-ni NP1-ga V₂
where NP3 and NP2 are 'related to' (e.g., theta-related to) V₁

Given the conclusion above in regard to (61), *NP2-ni* in (62) must be related to a position inside the embedded CP by movement. Hence, in (62) there must be an unbound trace inside the embedded CP at the sentence-initial position, either as in (63), where the embedded OS order (at the intermediate stage of derivation) is due to the PF movement of *NP2-ni*, or as in (64), where it is due to the 'base-generation' of *NP2-ni* at the embedded IP-initial position (as in Ueyama's (1998) Deep OS analysis).

(63) Where NP3 and NP2 are 'related to' V₁:
a. [_{IP} [_{CP} [_{IP} NP3-ga *t*₂ V₁-I] to]₄ [_{IP} NP2-ni₂ [_{IP} NP1-ga *t*₄ V₂-I]]]
b. [_{IP} [_{CP} [_{IP} *t*₂ [_{IP} NP3-ga *t*₂ V₁-I]] to]₄ [_{IP} NP2-ni₂ [_{IP} NP1-ga *t*₄ V₂-I]]]

(64) Where NP3 and NP2 are 'related to' V₁:
[_{IP} [_{CP} [_{IP} *t*₂ [_{IP} NP3-ga *ec*₂ V₁-I] to]₄ [_{IP} NP2-ni₂ [_{IP} NP1-ga *t*₄ V₂-I]]]

Either way, the shaded trace in (63) and (64) would not be bound, resulting in the violation of the Proper Binding Condition.

The surface string corresponding to (65), by contrast, does not have to be analyzed as in (66) since it can be analyzed as in (67a), derived from (67b).

pointed out in the concluding section of Hoji 1991.

(i) (Hoji 1991: section 8)

Most of the so-called long-distance scrambling examples in [the] literature may not indeed be long-distance, unless what is scrambled is an argument that is *not* marked by *o*, such as *NP-ni*.

¹⁴ How could we attain disambiguation? (i) Reconstruction? Yes, that would force it to be (59b). (ii) Resumption? Well, if we use a small *so*-NP, in the terms of Ueyama 1998, we cannot distinguish between the two. But if we use an *a*-NP, for example, that would force it to be (59b), given that such 'resumption' is allowed in (59a), as in the case of the topic construction (and the major subject construction). (iii) The use of *rokuna-N* and *NP-o-sika* would also attain disambiguation, as we have seen.

(65) NP3-ga ec V₁-I to NP2-o NP1-ga V₂
where NP3 and NP2 are 'related to' V₁

(66) a. [[_{CP} [_{IP} NP3-ga *t*₂ V₁-I] to]₄ [_{IP} NP2-o₂ [_{IP} NP1-ga *t*₄ V₂-I]]]
b. [[_{CP} [_{IP} *t*₂ [_{IP} NP3-ga *t*₂ V₁-I] to]₄ [_{IP} NP2-o₂ [_{IP} NP1-ga *t*₄ V₂-I]]]
c. [[_{CP} [_{IP} *t*₂ [_{IP} NP3-ga *ec*₂ V₁-I] to]₄ [_{IP} NP2-o₂ [_{IP} NP1-ga *t*₄ V₂-I]]]

(67) a. [[_{CP} [_{IP} NP3-ga *ec*₂ V₁-I] to]₄ [_{IP} NP2-o₂ [_{IP} NP1-ga *t*₂ *t*₄ V₂-I]]]
b. [_{IP} [_{IP} NP1-ga NP2-o₂ [_{CP} [_{IP} NP3-ga *ec*₂ V₁-I] to] V₂-I]]]

And this accounts for the contrast in CFJ-32 between examples corresponding to (62) and those corresponding to (65).

8. Further consequences

8.1. What must underlie the proposed analysis

Theoretically, the proposed analysis must be accompanied by the theses in (68).

(68) a. (i) is a possible structure in Japanese.
(i) *NP1-NOM NP2-ACC CP think/believe/determine/etc.*
b. It is not possible for a category in the embedded clause to be *o*-marked in relation to, or assigned the *o*-marking by an element of, the matrix clause.
c. It is not possible for a category in the embedded clause to get raised to a position in the matrix clause where the *o*-marking 'takes place'.

(68b) and (68c) effectively rule out the possibility of the ECM approach and the raising approach, respectively.

We want to be able to argue that (68) is consistent with the properties of UG and the general properties of the Japanese language, and among the questions that need to be addressed are:

(69) a. What 'licenses' the *o*-marking on *Mob*? How is the mechanism in question related to UG? What kind of position does *Mob* occupy?
b. What thematic role, if any, does *Mob* receive, and how? Again, how is the relevant property related to the properties of UG?

8.2. Some structure-independent predictions

Mary-o in (6) has been treated on a par with *about Mary* in (70) in English, at least on an observational level, along the lines of Hoji 1991, and Takano 2003.

(70) John firmly believed about Mary [_{CP} that she was an Italian].

A question remains as to whether we want to assign a formal content to this observational point. If we decide to do so, we might be able to make some additional predictions. We might, for example, assume that due to the formal (though presumably not structural) property of *NP-o* in the 'construction' in

question (which, by hypothesis, is the same as that of *about NP* in (70)) the grammar gives the following instruction, so to speak, to the language user).¹⁵

- (71) a. *NP-o* in the 'construction' in question, i.e., *Mob*, denotes some entity about which one can hold some belief/assumption/judgment/etc. (depending upon the predicate used).
 b. (What appears to be) the CP complement of the verb in the 'construction' in question denotes a property that can be attributed to some entity, reasonably and meaningfully.

Consider again the English examples in (2), repeated here, and their schematic representations in (72).

- (2) a. John believed about Mary that she was Italian.
 b. John believed Mary to be Italian.
- (72) a. A believes about B that IP
 b. A believes B to be VP

As noted, one of the hallmark properties of the construction in (72b) in English (and other languages that have a structure formally corresponding to (72b)) is that *B* in (72b) can be a pleonastic element and/or an idiom chunk, which clearly would not satisfy the condition imposed on *Mob* in (71a). A prediction is therefore that if we place as *Mob* something that is like a pleonastic element, an idiom chunk, or any other element that cannot satisfy the condition in (71b), the resulting sentence is unacceptable. Japanese does not seem to have an (overt) pleonastic element, and it is not entirely clear how to identify idioms. But, to the extent that we can identify such elements, the prediction does seem to be borne out.¹⁶

¹⁵ Tomoda's (1976-77: 372) represents the meaning of *NP-o* in question, as *NP-ni tuite* (regarding NP). The intuitions recorded in (71) have been expressed in various ways in the literature.

- (i) a. (Hong 1990: 223)
 "The object of the special class of (RTO) predicate should 'denote a *specific thing*, in the sense that its reference is registered in the speaker's mind so that it can be identified by the speaker (Lee 1989:12)."
 b. The semantic relation between the ACC-marked NP and the following IP in RtoO is the same as that between a major subject and an IP that follows it. (J.-E. Yoon 1989, James Yoon to appear, 2004)

¹⁶ Hoji 1991 makes an attempt to provide an argument of this sort on the basis of observations such as the following, perhaps taking the *ga*-marked NP in (v) as part of a predicate.

- (i) (Hoji 1991: (50))
 John believes it to have rained (while he was asleep).
 (ii) (Hoji 1991: (51))
 a. Watasi-wa [_{CP} ame-ga (neteiru aida-ni) hutta to] omotta.
 I-TOP rain-NOM while sleeping fell that thought
 'I thought that it [had] rained (while I was asleep).'

8.3. Further support for the Major Object Hypothesis?

There are other 'phenomena' that one might consider as providing support for the Major Object hypothesis, at least to the extent that they provide support for the thesis that *Mob* belongs to the matrix clause in RtoO. I will make brief remarks on each of the potential arguments for the Major Object hypothesis, noting that they are not as compelling as one would wish them to be.

8.3.1. Adverb Placement

CFJ-23 by Emi Mukai (12 examples, 15 informants)

Conclusion: Repeatability in regard to the judgments expected of the widely-held generalization (see Kuno 1976: (21) and (22), for example) is rather low. (The result is consistent with the hypothesis that Japanese allows PF movement.)

8.3.2. Idiom chunks

CFJ-14 (12 relevant examples, 8 informants); see the discussion above.¹⁷

Conclusion: The weakness of the argument here is that we do not have an independent means to determine what is to be regarded as an idiom or other similar expressions beyond our intuitions. But the paradigms (see footnote 16, for example) and the results of CFJ-14 do seem to provide support for the Major Object hypothesis.

-
- (iii) b. *Watasi-wa ame-o (neteiru aida-ni) hutta to omotta.
 (Hoji 1991: (52))
 a. *John believes of it that it (has) rained.
 b. John believes of Mary that she VP.
- (iv) (Hoji 1991: (53))
 a. John-wa [_{CP} henna nioi-ga (itumo) suru to] omotteita.
 John-TOP strange smell-NOM always do that thought
 'John thought that it (always) smelled strange.'
 b. *John-wa henna nioi-o (itumo) suru to omotteita
- (v) (Hoji 1991: (54))
 a. Ame-ga hutta.
 'It rained.'
 b. Henna nioi-ga suru.
 'It smells funny.'
 c. Oto-ga suru.
 'There is a sound.'

¹⁷ Takano 2003: 822 also provides the examples in (i) in support of the same point.

- (i) (Takano 2003: (79))
 a. John-wa soko-made te-ga mawar-anai to itta.
 John-TOP there-to hand-NOM get:around-not that said
 'John said that he couldn't take good care of it.'
 b. John-wa te-ga soko-made mawar-anai to itta.
 John-TOP hand-NOM there-to get:around-not that said
 c. *John-wa te-ga soko-made mawar-anai to itta.
 John-TOP hand-ACC there-to get:around-not that said

8.3.3. Inverse scope

The relevant paradigms and observations regarding inverse scope, which go back to Kuno 1976: (32), (37), and (39), are also compatible with the Major Object hypothesis. Given Hayashishita's (including his 2004 dissertation) conclusion that the crucial aspect of what gives rise to inverse scope is not grammatical in nature, however, we cannot expect to be able to make a negative prediction of the sort discussed in the earlier sections.

8.3.4. Local disjointness effects

The original argument here also goes back to Kuno 1976. The local disjointness effects (the effects of so-called Principle B of the Binding Theory) show up clearly only if we consider the availability of bound variable anaphora of a certain type, as discussed in some depth in Hoji 1995. Furthermore, even if we concentrate on the availability of a certain type of bound variable anaphora, the possibility of major subjects blurs the effects in question, as discussed in Hoji 2003. It seems that the problem is in part due to the fact that we do not yet have a satisfactory theoretical characterization of the effects in question. For this reason, I do not think we are yet in a position to have a CFJ on local disjointness effects whose results would corroborate our hypothesis.

9. Appendix II: Further remarks on syntactic experiments

9.1. The significance of a negative prediction

--how a hypothesis that makes a 'positive prediction' can be falsified
--what significance we could assign to it

9.2. Remarks on alternative hypotheses

9.2.1. Negative predictions

If we are to assess alternative hypotheses such as (73), we must consider whether a particular implementation of each of (73) makes a negative prediction.

- (73) a. the ECM analysis
b. the Raising analysis

If (73a), for example, is taken to be the only option, it perhaps makes a negative prediction, at least to the extent that (74) is independently demonstrated.

- (74) Something is possible with α in relation to β only if α and β are clause-mates or α is a major constituent of β , with β being a clause (CP, IP, vP, or VP?).¹⁸

If (73a) is a possible analysis *in addition to* the Major Object analysis, it is not clear if we make any negative predictions. Furthermore, the judgments that confirm the negative predictions under the Major Object hypothesis will remain a mystery under such an analysis.

¹⁸ Inverse scope is a potential case of this sort.

9.2.2. An 'edge' analysis

--Given Kataoka's (2004, to appear) hypothesis about *rokuna-N*, the result of the CFJ with *rokuna-N* (i.e., CFJ-16 (8 examples, 28 informants) is compatible with an 'edge' analysis as long as *Mob* is assumed/stipulated to occur outside the scope of the embedded Neg at LF; for example, *Mob* may be located at the edge of the embedded CP (such as Spec of CP).

--The result of the CFJs with *NP-cm-sika* (CFJ-38 (16 examples, 16 informants) and CFJ-40 (16 examples, 7 informants)) is more problematic to the 'edge' analysis for the following reason. The Deep DL in the sense of Ueyama 1998 is outside the scope of Neg at LF; it is quite high on the clausal structure. *NP-cm-sika* can occur as a Deep DL, as demonstrated by Kataoka (2004, to appear). *NP-cm-sika* can also occur as a major subject. Yet, *NP-cm-sika* cannot occur as *Mob* unless the matrix clause has Neg, i.e., Neg in the embedded clause does not 'license' *NP-cm-sika* occurring as *Mob*. In order to accommodate all these facts, the 'edge' analysis would have to stipulate that the position of *Mob* is higher than what Deep DL occupies or what the major subject occupies while being in the embedded clause.

--Once such a stipulation is made, one should not be surprised if the 'edge' analysis and the Major Object analysis would have the same empirical consequences not only in regard to *NP-o-sika* and *rokuna-N* but also in regard to local disjointness effects and inverse scope. I.e., the two analyses will in that case end up being notational variants, with respect to these empirical issues.

--If one proposed to move the NP from 'its base position' to the edge of CP, one would make a negative prediction re. PBC effects, as in Hiraiwa 2002. But the prediction is disconfirmed, as we have seen. If one proposed to base-generate *Mob* in the edge of CP, on the other hand, it would not be clear what kind of position that would be and how an NP in such a position can be based-generated at the edge of CP and have the property noted in (71a).

9.3. The significance of the results of a given experiment

Some remarks are perhaps in order on the significance of the results of a given experiment. Suppose a hypothesis H1, in conjunction with another hypothesis H2 that has been independently established, makes a negative prediction. There must be a set of specifications by following which one can construct examples that are predicted to be unacceptable (under a certain interpretation) as well as those that are not.

In the terms of (13) and (15), repeated below, there are three logically possible outcomes of a specific instance of an experiment that has been designed by following such specifications.

(13) *Falsification*

A hypothesis is *falsified* iff the average score for the example that is predicted to be unacceptable, i.e., the average score for *Eg**, is greater than -1.0 .

(15) *Corroboration*

A hypothesis is *corroborated* iff the difference between the average

score on Eg^*_n and that on Eg_n (henceforth $Dif-Eg_n$) is greater than 3.

(75) Three possible outcomes of an experiment

	Falsified	Not falsified
Corroborated		A
Not corroborated	B	C

Let EP stand for an experimental design as specified by the hypotheses in question, distinguishing it from an actual instance of it. Outcome B in (75) is predicted not to come about *in any instance* of EP . Hence outcome B in a single instance of EP seriously undermines $H1$.¹⁹ Outcomes A and C would have rather different significance. Clearly, outcome C would not have significance beyond $H1$ not being falsified; $H1$ having failed to be *corroborated*, we are not certain that what is responsible for the negative prediction is indeed as stated in $H1$. Outcome A has a much greater significance; not only has $H1$ not been falsified, there is indication that $H1$ seems to correctly identify what is responsible for the unacceptability of Eg^* .

It must be emphasized, however, the significance of outcome A *in one instance* of EP is qualitatively different from that of outcome B *in one instance* of EP . After all, what is predicted is the non-occurrence of outcome B *in any instance* of EP , and it is *not predicted* whether we will have outcome A or outcome C. It is for this reason that we should not be content with obtaining outcome A *in one instance* of EP . We should always be willing to test $H1$ by *other instances* of EP , and expect other researchers to conduct experiments in accordance with the specifications. And we should be prepared to take very seriously *any instance* of EP that yields outcome B.

10. Appendix III: Other experiments

10.1. PBC effects in Korean

CFJ-33 by Hyuna Byun (18 examples, 15 informants)

CFJ-31 by Seonkyung Jeon (20 examples, 13 informants)

CFJ-25 by Yonjoon Cho (42 examples, 25 informants)

10.2. "Indeterminate Agreement"

CFJ-30 by Maki Irie (6 relevant examples, 14 informants)

CFJ-34 by Yukiko Tsuboi (21 examples, 21 informants)

¹⁹ Assuming, of course, that the number of informants is *large enough* by some reasonable standard, about which we might have to turn to a field where there is an agreement on the relevant issues.