(Obviating) negative island effects (part 3)

1. Negative island effect in Japanese

1.1 Introduction

Degree questions

(1) How high did Michael Jordan jump?
(2) How much does Shaq weigh?

(3) **how λd[Michael Jordan jumped d high]**
(4) **how λd[Shaq weighs d much]**

(5) How many questions did Lahm answer
(6) **how λd[[d many questions] λx[Lahm answer x]]**

Negative island effect

(7) *How high did Michael Jordan not jump?
(8) *How much does Shaq not weigh?

(9) $ **how λd[not [Michael Jordan jumped d high]]**
(10) $ **how λd[not [Shaq weighs d much]]**
($ = does not represent an attested reading)

(11) How many questions did Lahm not answer

(12) a. **how λd[[d many questions] not λx[Lahm answer x]]**
b. $ **how λd[not [d many questions] λx[Lahm answer x]]**

(13) *How many children does Madonna not have?
(14) $ **how λd[not [Madonna has [d many children]]]**

•Similar facts hold in Korean and Japanese. Syntactic accounts have been given in e.g. Ross (1984), Rizzi (1990), Beck (1996), Beck and Kim (1996).

1.2 Negative island effect in degree questions

(15) a. Taro-wa doredake takaku tobimasita ka?
Taro-top how high jumped Q
'How high did Taro jump?'

b. ??/* Taro-wa doredake takaku tobimasendesita ka?
Taro-top how high didn't.jump Q
'How high did Taro not jump?'

(16) [Taro-ga hon-o nan-satu tosyokan-ni kaesanakatta ka] (sitteiru).
Taro-nom book-acc what-cl library-to didn't.return Q (know)
'(I know) how many books Taro didn't return to the library.'

a. For which n: there are n books that Taro didn't return to the library.
b. $ For which n: it is not the case that Taro returned n books to the library.

(17) [sensyuu doredake hinpanni asagohan-o tabenakatta ka] (kaite kudasai).
last.week how often breakfast-acc didn't.eat Q (write.down please)
'(Please write down) how often you didn't eat breakfast last week.'

a. For which n: it was n times that you didn't eat breakfast last week.
b. $ For which n: it is not the case that you ate breakfast n times last week.

(18) [Hanako-ga doredake nagaku moguranakatta ka] (osiete).
Hanako-nom how long didn't.dive Q (tell.me)
'(Tell me) how long Hanako didn't dive.'

a. For which degree d: Hanako's not diving was long to degree d.
(Hanako usually goes diving frequently, but there was some time during last year when she didn't go diving at all. We want to know for how many months she didn't go diving.)
b. $ For which degree d: it is not the case that Hanako's diving was long to degree d.

1.3 Comparatives

(19) * John-wa [dare-mo/Mary-ga kawanakatta] -yori
John-TOP anybody/Mary-NOM didn't.buy -than
takai hon-o katta.
expensive book-ACC bought
*'John bought a more expensive book than nobody did/Mary didn't buy.'

1.4 Adjunct wh-questions

(20) Taro-wa naze/dooyuu riyuu-de tsuishi-o ukemasendesita ka?
Taro-top why/for.what.reason make.up.exam-acc didn't.take Q
'Why/for what reason did Taro not take the make up exam?'

A: a. [Because he overslept], he didn't take the make-up exam.
b. $ It's not that he took the make-up exam [because he had self-reported on H1N1].

Note

•Wide scope negation is often difficult in Japanese, though not impossible with certain quantifiers. For example, in (21), only the reading '*because > not*' is available. We'll come back to this.

(21) Taro-wa byookidatta-kara tsuishi-o ukemasendesita.
Taro-top was.sick-because make.up.exam-acc didn't.take

'Because he was sick, he didn't take the make-up exam.'

(22) Taro-wa [byookidatta-kara tsuishi-o uketa]-no-de-wa arimasen.
Taro-top was.sick-because make.up.exam-acc take -NO-DE-WA is.not
'It's not that Taro took the make-up exam because he was sick.'

(23) Taro-wa naze/dooyuu riyuu-de gakkoo-ni konakatta no?
Taro-top why/for.what.reason school-to didn't.come Q
'Why/for what reason did Taro not come to school?'

A: a. [Because he was ill], he didn't come to school.
b.$ It's not that he came to school [because he liked school].

2. Obviation effects in English

2.1 Fox and Hackl 2006

Fox and Hackl observe that possibility modals below negation and necessity modals above negation can obviate the negative island effect.

(24) How much are you sure that Shaq does not weigh?
(25) How much is Shaq not allowed to weigh?

(26) How many children are you sure that Madonna does not to have?
(27) How many children is Madonna not allowed to have?

2.2 Fox and Hackl's (2006) account[1]

2.2.1 Basic cases

(28) **how λd[Shaq weighs d much]**
(29) a. λd. that S's weight ≥ d (DE)
b. extension of (a) in w = [0, S's weight in w]

A *downward entailing* (DE) degree property maps higher degrees to stronger propositions than lower degrees; its extension is always an initial segment of the relevant scale, i.e. an interval of the form "[0, …".

(30) $**how λd[not [Shaq weighs d much]]**
(31) a. λd. that S's weight < d (UE)
b. extension of (a) in w = (S's weight in w, ∝)

[1] See Abrusan and Spector (2008, submitted) for a recent alternative.

A *upward entailing* (UE) degree property maps lower degrees to stronger propositions than higher degree; its extension is always a final segment of the relevant scale, i.e. an interval of the form "…,∝)". Also, if the scale is dense, the extension of (31)a is necessarily open at the bottom, i.e. it has no minimal element.

(32) a. answer set of (28): {that S's weight ≥ d: d is a degree of weight}
b. answer set of (30): {that S's weight < d: d is a degree of weight}

(33) *Maximal Informativity Presupposition*
A question presupposes that its answer set contains a most informative true proposition (cf. Dayal 1996).

2.3 Modal obviation

(34) How much are you sure that Shaq does not weigh?
(35) How much is Shaq not allowed to weigh?

(36) **how λd[Nec [not [Shaq weighs d much]]]**
(37) **how λd[not [Pos [Shaq weighs d much]]]**

(38) [λd. that ∀w∈Acc: S's weight in w < d] (UE)

For some choices of Acc, the extension of this UE degree property has a minimum.

(39) if Acc_w := {w': S's weight in w' < e},
then extension of (38) in w = [e, ∝)

The latter equality depends on the assumption that the set of possible worlds W is "dense" in the sense that e.g. for every degree d of weight, there are possible worlds where Shaq's weight is d.

(40) a. [e, ∝) ⊆ extension of (38) in w
b. extension of (38) in w ⊆ [e, ∝) (assuming "density" of W)

Note that if W were taken to be finite, hence not dense in the sense described, the extension of (39) would necessarily be open at the bottom (cf. (**Error! Reference source not found.**, (**Error! Reference source not found.**).

(41) if W is finite, then extension of (38) in w = (h, ∝),
where h = the weight Shaq in the worlds accessible from w where he is the heaviest

3. Negative island obviation in Japanese

3.1 Modal obviation

<not allowed>

(42) Taro-wa doredake takaku tondewa ikemasen ka?
Taro-top how high not.allowed.to.jump Q

'How high is Taro not allowed to jump?'

•Modal non-obviation
<allowed not>
(43) ?(?) Taro-wa doredake takaku tobanakute iidesu ka?
Taro-top how high allowed.not.to.jump Q
'How high is Taro allowed not to jump?'

3.2 Obviation by *-wa*
Q1: Could *-wa* be doing something analogous to modals?
Q2: Could any known properties of *-wa* be responsible for the obviation?

3.2.1 *-Wa* obviation in degree questions
Adding *-wa* to the wh-phrases in (15)-(18) makes the questions good or makes the b-readings available. In fact, they're the only readings available.

(15)' b. Taro-wa doredake takaku-**wa** tobimasendesita ka?
Taro-top how high-wa didn't.jump Q
'How high-WA did Taro not jump?'

(16)' i. [Taro-ga hon-o nan-satu-**wa** tosyokan-ni kaesanakatta ka] (sitteiru.)
Taro-nom book-acc what-cl-wa library-to didn't.return Q know
ii. hon nan-satu-**wa**
book what-cl-wa
iii. ?nan-satu-**wa** hon-o
what-cl-wa book-acc
(iv nan-satu-no hon-**wa**) <- wide-scope only
what-cl-gen book-wa
'(I know) how many books-WA Taro didn't return to the library.'

a. $For which n: there are n books that Taro didn't return to the library.
b. For which n: it is not the case that Taro returned n books to the library.

(16)'-(iv) only has the a-reading (JS: ok, slightly degraded/perfect if it's read contrastively; Ogihara: perfectly acceptable)

(17)' [sensyuu doredake hinpanni-**wa** asagohan-o tabenakatta ka] (kaite kudasai).
last.week how often-WA breakfast-acc didn't.eat Q (write.down please)
'(Please write down) how often-WA you didn't have breakfast last week.'

A: itsuka-**wa**/mainichi-**wa** tabenakatta
five.days-wa/everyday-wa didn't.eat
'It's not the case that I had breakfast five days/everyday last week.'

Q-a. $For which n: it was n times that you didn't eat breakfast last week.
Q-b. For which n: it is not the case that you ate breakfast n times last week.[2] ←

(18)' [Hanako-ga doredake nagaku-**wa** moguranakatta ka] (osiete).
Hanako-nom how long didn't.dive Q (tell.me)
'(Tell me) how long Hanako didn't dive.'

A: 1-jikan-**wa** moguranakatta.
1-hour-wa didn't.dive
'(She) didn't dive for one hour' '…she only dived for 45 minutes.'

Q-a. $For which degree d: Hanako's not diving was long to degree d.
Q-b. For which degree d: it is not the case that Hanako's diving was long to degree d.
(17)'/(18)': JS, Ogihara

•Modal non-obviation rescued by *-wa*
<allowed not> + *-wa*
(44) Taro-wa doredake takaku-**wa** tobanakute iidesu ka?
Taro-top how high-wa allowed.not.to.jump Q
'How high-WA is Taro allowed not to jump?'

Non-local association with *-wa*
(similar to other focus-sensitive particles such as *-sae* 'even' and *-dake* 'only')

(18)" [Hanako-ga [doredake nagaku moguri]-**wa** sinakatta ka] (osiete).
Hanako-nom how long dive-wa do.not.past Q (tell.me)
'(Tell me) how long Hanako didn't dive.'

Q-a. $For which degree d: Hanako's not diving was long to degree d.
Q-b. For which degree d: it is not the case that Hanako's diving was long to degree d.

•*-Wa* forces the phrase it attaches to to sit in the scope of negation at LF, for whatever reason. The questions in (15)'-(18)' have LF traces under negation as in the following.

(45) *[...$\mathbf{X_i}$...[Neg...[...$\mathbf{t_{i,degree}}$...]]]

Path 1: The syntactic constraint in (45) is weakened in the relevant cases.
Path 2: The maximality condition is satisfied in the relevant cases, or it is lifted for whatever reason.

[2] mikka-ni ichido-wa tabenakatta. -> both seem to be possible: 1 out of 3 > not, not > 1 out of 3.
zenin-wa ?*kita/konakatta, zenbu-wa ?*tabeta/tabenakatta vs. 3-kai-wa tabeta/tabenakatta

3.2.2 Comparatives
No rescuing with *-wa*.

3.2.3 *-Wa* obviation in adjunct wh-questions
(46) Taro-wa {*naze-wa/√dooyuu riyuu-de-**wa**} tsuishi-o ukemasendesita ka?
Taro-top why-WA/for.what.reason-DE-WA make.up.exam-acc didn't.take Q
'Why/for what reason did Taro not take the make up exam?'

A: a. $[Because he overslept], he didn't take the make-up exam.
b. It's not that he took the make-up exam [because he had self-reported on H1N1].
kooyuu riyuu-de-wa
this reason-DE-WA

(47) Taro-wa dooyuu riyuu-de-**wa** gakkoo-ni konakatta no?
Taro-wa what.kind.of reason-for-wa school-to didn't.come Q
'For what kind of reason-WA did Taro not come to school?'

A: a.$ He didn't come to school because he was ill.
b. It's not that he came to school because he liked school.

4. Could any known properties of *-wa* be responsible for the obviation?

4.1 How many different *-wa*'s?

A. Thematic *-wa* (*-wa* for the theme of a sentence)
(48) John-**wa** gakusei-desu.
John-wa student-is
'Speaking of John, he is a student.'

B. Contrastive *-wa*
(49) John-ga pai-**wa** tabeta (ga, keeki-**wa** tabenakatta).
John-ga pie-wa ate but cake-wa didn't.eat
'John ate (the) pie (but didn't eat (the) cake).'
(Kuroda 1965, data from Kuno 1973 via Heycock 2008)

C. Scope inverting *-wa* (Nakanishi 2006, Hara 2003, Sawada to appear, etc.)
(50) Zen'in-ga konakatta.
all-nom didn't.come
'All didn't come.' all > not (?)not > all

(51) Zen'in-**wa** konakatta.
all-wa didn't.come
'Not all came.' *all > not not > all

D. 'At least' *-wa*
(52) a. Yuya-wa natuyasumi-ni hon-o 5-satu-**wa** yonda.
Yuya-wa summer.vacation-in book-acc 5-cl-wa read
'Yuya read at least 5 books during the summer vacation.'
('I'm certain that Yuya read 5 books, but I'm not certain exactly how many he read.')

b. Yuya-wa natuyasumi-ni hon-o 5-satu-**wa** yomanakatta.
Yuya-wa summer.vacation-in book-acc 5-cl-wa didn't.read
'It is not the case that Yuya read (as many as) 5 books during the summer vacation.'
('I'm certain that it's not that Yuya read 5 books, but I'm not certain exactly how many he read.')
* 'There are at least 5 books that Yuya didn't read during the summer vacation.'

•When overt *sukunakutomo* 'at least' is added, the narrow scope reading of 5 books wrt negation in (52)b goes away. → PPI like English *at least*?

(53) Yuya-wa natuyasumi-ni hon-o **sukunakutomo** 5-satu(-wa) yomanakatta.
Yuya-wa summer.vacation-in book-acc at.least 5-cl-wa didn't.read
'There are at least 5 books that Yuya didn't read during the summer vacation.'

4.2 Maximal informativity

(54) This house costs 5 million dollars. ['exactly 5 million' implicature]

(55) This house doesn't cost 5 million dollars.

{…, 7 million, ….., 6 million, …, 5 million, …, 4 million, … 3 million, …}

•(57) vs. (58): Whatever *-wa* is doing in (58) must be contributing to satisfying the maximality condition (or weakening the condition).

(56) Kono ie-wa gohyakuman-doru suru.
this house-top 5.million-dollars cost
'This house costs 5 million dollars.'

(57) Kono ie-wa gohyakuman-doru sinai.
this house-top 5.million-dollars not.cost
'This house doesn't cost 5 million dollars.'

(58) Kono ie-wa gohyakuman-doru-**wa** sinai.
this house-top 5.million-dollars not.cost
'This house doesn't cost 5 million dollars-WA.'

4.3 Some things from the literature that are relevant

4.3.1 On epistemic *at least* (this section taken from Nakanishi and Rullmann 2009)

•Associated with a scale (=a set of contrastive expressions of the same category)

(59) a. Mary wrote at least 4 novels.
(The speaker is uncertain about exactly how many Mary wrote.)

n > … > 4 > 3 > 2 > 1 (Entailment scale)

b. Mary won at least a silver medal.
(The speaker is uncertain about what medal Mary won.)

gold medal > silver medal > bronze medal (Non-entailment scale)

(60) a. at least [Mary won a silver medal] (LF)

b. Scale: Mary won a gold medal >
Mary won a silver medal >
Mary won a bronze medal

c. Truth conditions: 'Mary won a silver medal' or 'Mary won a gold medal' is true.
Conventional implicature: The speaker considers it possible that 'Mary won a gold medal' is true.

Epistemic *at least* (Nakanishi and Rullmann 2009, based on Krifka 1999, Geurts and Nouwen 2007, Büring 2008)

a. Truth conditions
$\exists q \in C[q \geq p \wedge q(w) = 1]$
'There is a proposition q which ranks higher than or as high as the target proposition p, and which is true.'

b. Conventional implicature
$\exists w'[Epist(w,w') \wedge \exists q \in C[q > p \wedge q(w') = 1]$
'It is epistemically possible that some proposition q that ranks higher than p is true.'

4.3.2 Hara (2006) on *-wa*, as summarized in Tomioka (to appear)

(61)
a. Pitch accent of a Contrastive Topic (CT) generates a set of scalar alternatives, which are ordered in terms of their semantic strength (cf. Sauerland 2004).

b. The appearance of a CT in a sentence α presupposes that, among the set of scalar alternatives to [[α]], there must be a proposition that is stronger than [[α]].

c. The appearance of a CT in a sentence α conventionally implicates that the speaker of / attitude holder of [[α]]believes that the stronger proposition is possibly false.

(62) #MINNA-wa/Minna-WA kita.
ALL-Top/All-TOP came
'[All people]$_{CT}$ came.'

(63) {All people came, most people came, some people came, no one came}

(64) MINNA-wa/Minna-WA konakatta.
ALL-Top/All-TOP didn't.come
'Not [all people]$_{CT}$ came.'

4.3.3 Tomioka (to appear)

(65) Q: How many people will come to the party?
A: SAN-NIn-wa/ San-nin-WA kuru-desyoo.
THREE-CL-top/there-cl-TOP come-evid
'(At least) Three people will come, (as far as I can tell).'

(66) a. There is a set of alternative speech acts generated by the CT-marking on *san-nin* 'three people'. Let it be {assert(λw.1 person will come in w), assert(λw.2 people will come in w), assert(λw.3 people will come in w), assert(λw.4 people will come in w), assert(λw.5 people will come in w), assert(λw.6 people will come in w), …}

b. The speaker asserts that 3 people will come.

c. There is a reason for the speaker's not engaging the other acts. (cf. (67))

d. The speaker could have avoided using a CT, which would allow the implicature that three but no more than three people will come. There must be a reason for the speaker's choosing a CT. [the 'exactly three' implicature must be false. the idea: 'a CT is a more marked option than ordinary focus. The use of a CT is justified only when the result is distinct from that of a focus.']

(67) Q: How many people will come to the party?
A: SAN-NIn kuru-desyoo. ['exactly three' implicature]
THREE-CL come-evid
'Three people will come'

•How does the pragmatic reasoning work for the following kind of examples?

(68) SAN-NIn-wa ko-nai.
THREE-CL-wa come-not
'There won't be as many as three people who will come.' [not > 3]

(69) SAN-NIn ko-nai.
THREE-CL come-not
'Three people will not come.' [3 > not]

implicature: exactly three people will not come.

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