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(Obviating) negative island effects (cont.)

1. 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]]**

2. Negative island effect

(7)   *How high did Michael Jordan <u>not</u> jump?
(8)   *How much does Shaq <u>not</u> 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 <u>not</u> 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 <u>not</u> 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).

3. Obviation effects (Fox & Hackl 2006)

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

(15)   How much are you <u>sure</u> that Shaq does <u>not</u> weigh?
(16)   How much is Shaq <u>not</u> <u>allowed</u> to weigh?

(17)   How many children are you <u>sure</u> that Madonna does <u>not</u> to have?
(18)   How many children is Madonna <u>not</u> <u>allowed</u> to have?

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For some speakers, non-modal quantifiers can also (partially) obviate the negative island effect.[1]

(19)   %How many assignments did no student turn in?

4. Fox and Hackl's (2006) account[2]

4.1 Basic cases

(20)   **how λd[Shaq weighs d much]**
(21)   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, …]".

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

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 (23)a is necessarily open at the bottom, i.e. it has no minimal element.

(24)   a.   answer set of (20): {that S's weight ≥ d: d is a degree of weight}
        b.   answer set of (22): {that S's weight < d: d is a degree of weight}

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

[Note: this condition receives independent support from e.g. alternative questions.

(26)   Did you invite Bill or Sue?
(27)   answer set: {that you invited Bill, that you invited Sue}]

This presupposition is contradictory for all questions based on UE degree properties whose extension is necessarily open at the bottom.

The account seemingly extends to cases with negative quantifiers. More on this below.

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[1] Fox and Hackl's judgment on example (19) is "(?)". Rullmann (1995) judges similar cases (e.g. *I wonder how tall no basketball player is*) as "*".
[2] See Abrusan and Spector (2008, submitted) for a recent alternative.

(28) ^{S}**how λd[no one weighs d much]**
(29) a.   λd. that everyone's weight is below d   (UE)
       b.   extension of (a) in w = (h, ∝)
               where h is the weight of the heaviest person in w

4.2 Universal Density and the Deductive System

(30) ^{S}**how λd[not [Madonna has d many children]]**
(31) [λd. M has fewer than d children]   (UE)

If the relevant scale for measuring amounts of children were discrete, the negative island effect should not be attested in how many questions. Fox and Hackl propose that presupposition satisfaction is checked by an encapsulated *Deductive System*, which treats all scales of degrees as dense.

(32) extension of (31) in w = (number of M's children in w, ∝)

4.3 Modal obviation

(33) How much are you <u>sure</u> that Shaq does <u>not</u> weigh?
(34) How much is Shaq <u>not</u> <u>allowed</u> to weigh?

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

(37) [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.

(38) if Acc$_w$:= {w': S's weight in w' < e},
       then extension of (37) 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.

(39) a.   [e, ∝) ⊆ extension of (37) in w
       b.   extension of (37) 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 (38) would necessarily be open at the bottom (cf. (28), (29)).

(40) if W is finite, then extension of (37) in w = (h, ∝),
       where h = the weight Shaq in the worlds accessible from w where he is the heaviest

4.4 Modal non-obviation

Fox and Hackl note that the negative island effect is obviated neither by a possibility modal above negation nor by a necessity modal below negation.

(41) *How much are you not <u>sure</u> that Shaq weighs?
(42) *How much is Shaq <u>allowed</u> <u>not</u> to weigh?

(43) **how λd[not [Nec [Shaq weighs d much]]]**
(44) **how λd[Pos [not [Shaq weighs d much]]]**

This is expected, as the extension of the degree properties in question is still necessarily open at the bottom.

(45) a.   [λd. that ∃w∈Acc: S's weight in w < d]   (UE)
       b.   extension in w = (... , ∝)

4.5 Quantificational obviation? The Deductive System again

(46) %How many assignments did no students turn in?
(47) %How much does no player weigh?

(48) **how λd[not [[a player] weighs d much]]]**

Fox and Hackl conclude from obviation by individual quantifiers that the Deductive System treats all quantification domains as potentially infinite.

Obviation is predicted to be possible if quantification is over an infinite set of players which is dense in the sense that for every degree of weight below a certain threshold, there is a player who has that weight.[3]

4.6 Questioning the Maximal Informativity Presupposition

(49) A: How much money are you not allowed to bring into this country?
       B: $10,000
       C: The maximum allowed is $10,000.
               = You're not allowed to bring in any amount that exceeds $10,000.
               (Fox & Hackl: 583)

In Fox and Hackl's judgment, (49)C does not contradict a presupposition of (49)A.

(50) A: How much are you sure Shaq does not weigh?
       B: 150kg
       C: He does not weigh more than 150kg, that's as much as I can say.

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[3] See Abrusan and Spector (submitted) for more discussion of this type of case.

(51)   if Acc$_w$:= {w': S's weight in w' ≤ e},
        then extension of (37) in w = (e, ∝)

(52)   A: How much is Shaq allowed to weigh?
        B: 150kg
        C: The only requirement is that he not weigh 150kg or more.

Fox and Hackl tentatively propose the following weakening of the Maximal Informativity Presupposition.

(53)   *Maximal Informativity Presupposition*
        A question presupposes that it is <u>possible</u> for its answer set to contain a most
        informative true proposition.

[Note: the weakened presupposition no longer derives the observed presupposition for alternative questions.

(54)   Did you invite Bill or Sue?
(55)   answer set: {that you invited Bill, that you invited Sue}]

5. Negative islands in Japanese

5.1 Degree questions

(56)   [Taro-ga <u>hon-o   nan-satu</u> tosyokan-ni kaesa<u>na</u>katta 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 <u>n books</u> that Taro di<u>dn't</u> return to the library.
b.   #For which n: it is <u>not</u> the case that Taro returned <u>n books</u> to the library.

(57)   [sensyuu <u>doredake hinpanni</u> asagohan-o tabe<u>na</u>katta 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 <u>n times</u> that you di<u>dn't</u> eat breakfast last week.
b.   #For which n: it is <u>not</u> the case that you ate breakfast <u>n times</u> last week.

(58)   [Hanako-ga <u>doredake nagaku</u> mogura<u>na</u>katta 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.)

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

<u>Comparatives</u>
(59) * 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.'

<u>Adjunct wh-questions</u>
(60)   Taro-wa naze/dooyuu riyuu-de   gakkoo-ni konakatta   no?
       Taro-wa 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.

5.2 Negative island obviation in Japanese

•Modal obviation

(61)   [Taro-ga <u>hon-o   nan-satu</u> tosyokan-ni kaesitewa ike<u>nai</u>   ka] (sitteiru).
        Taro-nom book-acc what-cl   library-to   not.allowed.to.return Q (know)
        '(I know) how many books Taro is not allowed to return to the library.'

•Addition of *-wa* – Could *-wa* be doing the same thing as modals?

<u>Degree questions</u>
Adding *-wa* to the wh-phrases in (56)-(58) makes the b-readings available. In fact, they're the only readings available.
(56)'   i. [Taro-ga   hon-o   nan-satu-**wa** tosyokan-ni kaesa<u>na</u>katta ka] (sitteiru.)
            Taro-nom   book-acc what-cl-wa   library-to   didn't.return Q   know
        ii.   <u>hon nan-satu-**wa**</u>
                 book what-cl-wa
        iii.   <u>?nan-satu-**wa** hon-o</u>
                 what-cl-wa   book-acc
        (iv   <u>nan-satu-no hon-**wa**</u>) <- 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 <u>n books</u> that Taro di<u>dn't</u> return to the library.
b.   For which n: it is <u>not</u> the case that Taro returned <u>n books</u> to the library.

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

(57)' [sensyuu doredake hinpanni-**wa** asagohan-o   tabe<u>na</u>katta 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 <u>n times</u> that you did<u>n</u>'t eat breakfast last week.
Q-b.   For which n: it is <u>not</u> the case that you ate breakfast <u>n times</u> last week.[4] ←

(58)' [Hanako-ga doredake nagaku-**wa** mogura<u>na</u>katta 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.
                                                                (57)'/(58)': JS, Ogihara

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

(58)" [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 (56)'-(58)' have LF traces under negation as in the following.

(62)   *[...X_i...[Neg...[...$t_{i,degree}$...]]]

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[4] 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

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<u>Path 1</u>: The syntactic constraint in (62) is weakened in the relevant cases.
<u>Path 2</u>: The maximality condition is satisfied in the relevant cases, or it is lifted for whatever reason.

<u>Comparatives</u>
No rescuing with -*wa*.

<u>Adjunct wh-questions</u>
(63)   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.

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

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

•Contrastive -*wa*
(65) 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)

•Scope inversion (Nakanishi 2006, Hara 2003, Sawada to appear, etc.)
(66) Zen'in-ga konakatta.
      all-nom   didn't.come
      'All didn't come.'   all > not   (?)not > all

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

•'At least'
(68) 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 five books during the summer vacation.'

     b. Yuya-**wa** natuyasumi-ni   hon-o   5-satu-**wa** yoma<u>na</u>katta.
        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.'

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When overt *sukunakutomo* 'at least' is added, the narrow scope reading of 5 books wrt negation in (68)b goes away. → PPI like English *at least*?

(69)   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 five books that Yuya didn't read during the summer vacation.'

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