A semantic explanation of factive and *wh*-islands

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Preview

- Propose that weak islands, rather than being arguments for an important constraint on representations in fact show an **interpretive problem**.
(cf. also Szabolcsi and Zwarts 1993, Honcoop 1998, Fox and Hackl 2007)

(1) a. Who do you wonder **how** to insult?
    b. *How tall do you wonder **who** should be?

(2) a. Who do you **regret** that John invited to the party?
    b. *How do you **regret** that John behaved?

- But that will lead us to a second question: Intuitively, it seems that there are two different types of problems:
    - semantic anomaly: #I am here and not here
    - ungrammaticality: *How tall isn't Bill?

→ Why does a problem of semantic interpretation lead to a second type of anomaly?

Weak Island Phenomena

(3) *Wh-Islands*

a. Who do you wonder **how** to insult__?

b. *How do you wonder **who** to insult__?

c. *How tall do you wonder **who** should be__?

(4) Factive Islands

a. Who does John **regret** that he invited to the party?

b. *How does John **regret** that he fixed the car?

c. *How tall does John **regret** that he is?

(5) *Negative Islands*

a. Who did**n't** John invite to the party?

b. *How did**n't** John behave at the party?

c. *How tall is**n't** John?

Weak Island Phenomena

- **A syntactic solution** (Rizzi 1990, etc): **Relativised Minimality**

(6) Weak Islands

a. Who ……….**how/regret/not**……………. __?

b. *How …………..**wh/regret/not**……… __?

c. *How tall ……….**wh/regret/not**……… __?

x

(7) a. AB …………… A……………… __?

b. *A ………………..… A…….…..……….. __?

b'. *A ………………….AB……….………. __?

x

Against a syntactic solution: Modal obviation

(cf. Fox and Hackl 2007)

- Recall the classic negative island violation:

(8) a. *How tall is**n't** John?
b. *How did**n't** John behave at the party?

- An **existential** modal under negation ameliorates the violation:

(9) a. How tall is John **not** allowed to be?
b. How was John **not** allowed to behave at the party?

- A **universal** modal under negation does not ameliorate the violation:

(10) a. *How tall is John **not** required to be?
b. *How was John **not** required to behave at the party?

→it seems that a constraint on representations of the type shown above is **not** what is behind these facts. Rather, some aspect of interpretation is the culprit.

Previous semantic accounts

- **General Semantic accounts: Szabolcsi and Zwarts (1993), Honcoop (1998)**
    - Do not extend to obviation effects by modals
    - The proposal for presuppositional and wh-islands is only programmatic

- **Domain specific accounts 1: Negative Islands**

  Rullmann (1995)
    - Cannot predict the obviation effects by modals

  Fox and Hackl (2007), Fox (2007)
    - **Similarity** with the present proposal: The unacceptability of (negative) islands is due to there not being a maximally informative true answer

- **Domain specific accounts 2: Factive Islands**
  Oshima (2006)
    - Does not apply to factive islands created by degree expressions.

Plan

Extend the idea of Fox and Hackl (2007) to other types of weak islands:

- **The core idea developed here:**

The unacceptable questions lead to a **contradiction** at some level

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- **Part 1:** Presuppositional Islands

- **Part 2:** wh-Islands

- **Part 3:** About various notions of analyticity and grammaticality

Part 1: Presuppositional Islands

■ **Questions about individuals** with a variable in the scope of a factive verb**:**

(11) **Who of these ten people does Mary <u>regret</u> that Bill invited?**

$[[(11)]]^w$ = {that Mary regrets <u>that Bill invited x</u> | x∈{these ten people} }

= { that Mary regrets <u>that Bill invited Sue</u>
that Mary regrets <u>that Bill invited Jane</u>
that Mary regrets <u>that Bill invited Lea…etc}</u>

■ **Empirically**, it seems that the question above presupposes that for every x in the given domain, Bill invited x:[1]

(12) ***presupposition* of (11)**: ∀x∈{these ten people} : Bill invited x

→The context can easily satisfy the set of presuppositions that the question has: The presuppositions of the alternatives are independent from each other.

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[1] The presupposition of x *regrets that p* might be that *p is true and that x believes p*. This would not change the validity of the argument. (cf. Heim 1992, Karttunen 1973)

Explanation of factive islands with manners

- Manner questions that contain a factive verb are predicted to presuppose a contradiction.

(13) ***How does Mary regret that John fixed the car**?

(14) $[\![13]\!]^{w}$= {that Mary regrets that John fixed the car in α | $\alpha \in D_{Manner}$}

- The alternative propositions in the H/K denotation of the question range over a set of manners that contains contraries

(15) $[\![13]\!]^{w}$= {that Mary regrets that John fixed the car properly
that Mary regrets that John fixed the car improperly,
that Mary regrets that John fixed the car fast
that Mary regrets that John fixed the car slowly etc.}

- A universal projection pattern for the presupposition embedded in the scope of the question will project a set of propositions that are contradictory:

(16) **presupposition of the question in (13)**:
for every manner $\alpha \in D_M$: John fixed the car in α

Questions about manners

■ ASSUMPTION 1: CONTRARIES

The domain of manners always contains contraries: every manner predicate has at least one contrary in the domain of manners.

(17) Manners denote functions from events to truth values. The set of manners (D_M) in a context C is a subset of $[\{f \mid E \rightarrow \{0,1\}\} = \wp(E)]$ such that for each predicate of manners $P \in D_M$, there is at least one contrary predicate of manners $P' \in D_M$, such that P and P' do not overlap: $P \cap P' = \varnothing$.

■ ASSUMPTION 2: ADMISSIBLE DOMAINS

The context might implicitly restrict the domain of manners (just as the domain of individuals), but for any manner predicate P, its contrary predicates will be alternatives to it in any context.

(18) a. {wisely, unwisely, etc…}
b. {fast, slowly, etc…}

‘D-linking ’

(19) **In what manner does John regret that Mary fixed the car?**

■ We are dealing with an **identity question**:

(20) ‘For what manner α, $\alpha = \iota\beta$ st. Mary regrets that John fixed the car in β?’

→ The factive presupposition is in the restrictor of the definite description

(***the manner*** *[such that Mary* ***regrets*** *that John fixed the car that way] is* α *)*

→ Presuppositions embedded in restrictors of quantifiers are independently known to project weakly or not at all [cf. Schlenker (2006)]:

(21) (among these 10 boys) No one [who is **aware** that he is incompetent] applied

→ ***Presupposition* of (19):** there is a unique manner β st. Mary regrets that John fixed the car in β

Degree and *how many* questions

- **Assumption about Intervals:**
  - Schwarzschild and Wilkinson (2002), Schwarzschild (2004), Heim (2006): degree predicates denote relations between individuals and intervals:

(22) $[\![\text{tall}]\!] = \lambda I_{<d,t>}.\ \lambda x_e.\ \text{x's height} \in I$

(23) $[\![\text{How tall is John?}]\!]^w$ = 'For what interval I, John's height is in I?'

- **Explanation of factive islands with degree predicates**

(24) a. [[***How tall do you regret that you are**?]]^w
= 'For what interval I, you regret that your height is in I?'

b. **---------[---------]$_1$-------------[----------]$_2$---------------**

(25) **Presupposition** of (24):
$\forall I \in D_I$: you believe that your height $\in I$
'you believe your height to be contained in every interval'

Similar explanation to various other related phenomena

- ***One time only* predicates** (Szabolcsi and Zwarts 1993)

(26) a. To whom do you regret having shown this letter?
b. *From whom do you regret having gotten this letter?

- **Extraposition Islands**

(27) *How was it a surprise that John behaved?

- **Intervention by adverbs** (cf. de Swart 1992)

(28) *Combien as-tu **beaucoup/souvent/peu/rarement** consulté de livres?
how many have you **a lot/often/a little/ rarely** consulted of books

(29) *Combien Marie a-t-elle **vite** mangé de gateaux?
How many Marie has-she **fast** ate of cakes

Extraposition Islands

Belong to the same class of interveners as factives: (cf. Honcoop 1998):

- When the extraposition stands with a factive inference →island effects:

(30) It was a surprise that John behaved politely
presupposes: (the speaker believes that) John behaved politely

(31) *How was it a surprise that John behaved?

- When there is no factive inference→ no island effect:

(32) It is dangerous for youngsters to drink wine at the party.
→**does *not* presuppose** that youngsters drink wine at the party.

(33) How much wine is it dangerous to drink at a party?

(*example due to Postal, cited in Szabolcsi (2006)*)

Contextual effects, “quasi presuppositions”

The presence or absence of this inference **correlates** with the island creating behavior of the intervener.

- ***Adverbial interveners***: trigger a factive-like inference in some contexts. (Linebarger (1981), Simons (2001) and Schlenker (2006))

(34) Bill ran fast
→Inference: Bill ran

Its projection properties are much like that of real presuppositions:

(35) None of these ten boys ran **fast**
Inference: all of these ten boys ran
(36) None of these ten boys solved the exercise **twice**.
Inference: all of these ten boys solved the exercise

- **But**:

(37) None of these ten boys searched the bags **carefully**
???→everyone searched the bags

A correlation with island creating potential

Grammaticality seems to **correlate** with the strength of quasi-presuppositions:

- **Split constructions**: Some adverbs are robust interveners [cf. de Swart (1992)]

(38) *Combien as-tu **beaucoup/souvent/peu/rarement** consulté de livres?
how many have you **a lot/often/a little/ rarely** consulted of books

(39) *Combien Marie a-t-elle **vite** mangé de gateaux?
How many Marie has-she **fast** ate of cakes

<u>But not all adverbs are interveners </u>(cf. Obenauer 1984):

(40) ?Combien le douanier a-t-il **soigneusement** fouillé de valises
How-many the customs-officer has-he **carefully** searched the suitcases?

- **Non-split constructions**: similar effects, but somewhat weaker:

(41) ???How much milk did John spill on his shirt **often**?

(42) ?How much milk did John spill on his shirt **carefully**?

Part 2. Extending the Account to Wh-Islands

- Dayal (1996) has proposed that a question presupposes that it has a most informative true answer.

(43) ***Maximal Informativity Hypothesis (MIH)***
A question presupposes that it has a maximally informative true answer

- Fox and Hackl (2007): *Negative degree islands* arise because they violate Dayal's condition, and hence are a presupposition failure.

- I argue that some examples of *wh-islands* violate the MIH as well, hence result in a presupposition failure.

- If there is no maximal answer, the statement for any answer that it is the complete answer would amount to a **contradiction**.

Wh-Islands and question embedding predicates

■ ***Wonder class* predicates**

(44) a. ?Who does Mary **wonder** whether to invite?
b. *How is Mary **wondering** whether to behave?
c. *How tall is the magician **wondering** whether to be?

(45) a. ?Which problem do you **wonder** how to solve?
b. *How do you **wonder** which problem to solve?
c. *How tall do you **wonder** who should be?

■ ***Know*-class predicates**

(46) a. Who does Mary **know** whether we should invite?
b. *How does Mary **know** whether to behave?
c. *How tall does Mary **know** whether she should be?

(47) a. ?Which problem do you **know** how to solve?
b. *How do you **know** which problem to solve?
c. *How tall do you **know** who should be?

Know

- Let's assume that

(48) **know** (w) (x, Q_H(w)) is true iff
$\forall p \in Q_H(w)$, x knows whether p is true in w

where, using a Hintikka-style semantics for attitude verbs

(49) 'x *knows whether p is true in w* ' is true in w iff
for $\forall w' \in Dox_x(w)$,
if p(w)=1, p in w'
and
if p(w)=0, $\neg$p in w'
,where $Dox_x(w) = \{w' \in W$: x's beliefs in w are satisfied in w'$\}$

Questions about individuals

(50) a. **Who does Mary know whether she should invite?**

….assuming that the domain of individuals in the discourse is {Bill, John, Fred}:

b. { that Mary knows whether she should invite Bill ,
that Mary knows whether she should invite John,
that Mary knows whether she should invite Fred }

- Given the lexical meaning of *know* and the discussion above, we might represent the set of propositions that (50)b describes as (51):

(51) $\{\forall w' \in Dox_M(w)$, (if *invB* in w, *invB in w'*) $\wedge$ (if $\neg$*invB in w*, $\neg$*invB in w'*),
$\forall w' \in Dox_M(w)$, (if *invJ* in w, *invJ in w'*) $\wedge$ (if $\neg$*invJ in w*, $\neg$*invJ* in w'),
$\forall w' \in Dox_M(w)$, (if *invF in w*, *invF in w'*) $\wedge$ (if $\neg$*invF* in w, $\neg$*invF in w'*)$\}$

,where *invX* in w is a notational shorthand for *Mary should invite X in w*

Questions about individuals

- A complete answer to Q is the assertion of a proposition in Q together with the negation of all the remaining alternatives in Q.

- Let's imagine that we assert *Mary knows whether she should invite Bill* as an answer

(52) $\forall w' \in Dox_M(w)$, if *invB in w*, *invB in w'* $\wedge$ if $\neg$*invB* in w, $\neg$*invB in w'*

and

$\exists w' \in Dox_M(w)$, (*invJ* in w $\wedge$ $\neg$*invJ in w'*) $\vee$ ($\neg$*invJ* in w $\wedge$ *invJ* in w'),

and

$\exists w' \in Dox_M(w)$,(*invF in w*, $\wedge$ $\neg$*invF in w'*) $\vee$ ($\neg$*invF in w* $\wedge$ *invF in w'*)

- Questions about individuals: no problem arises with complete answers: the meaning expressed above is a coherent one.

Wh-islands with questions about degrees

- **Background assumption**: Degree questions range over intervals
  (cf. Schwarzschild and Wilkinson 2002, Heim 2006, Abrusan and Spector 2011)

(53) $[\![$How tall is John?$]\!]^{w}$ = ‘For what interval I, John’s height is in I?’

(54) $[\![$John is I-tall$]\!]$=1 iff John’s height $\in$ I ; *where I is an interval*

- **Given this:**

(55) *How tall does Mary know whether she should be?

Informally,

(56) {that Mary knows whether her height should be in I_1,
that Mary knows whether her height should be in I_2 ,
that Mary knows whether her height should be in I_3 ,
etc, for all intervals in D_I }

Know

- This set might be described more precisely as follows:

(57) $\{\forall w' \in Dox_M(w)$, [if $I_1(w)=1$, $I_1(w')=1$] $\wedge$ [if $\neg I_1(w)=1$, $\neg I_1(w')=1$]
$\forall w' \in Dox_M(w)$, [if $I_2(w)=1$, $I_2(w')=1$] $\wedge$ [if $\neg I_2(w)=1$, $\neg I_2(w')=1$]
$\forall w' \in Dox_M(w)$, [if $I_3(w)=1$, $I_3(w')=1$] $\wedge$ [if $\neg I_3(w)=1$, $\neg I_3(w')=1$] $\}$
,where I_n (w) is a notational shorthand for *Mary's height should be in* I_n *in w*.

- Imagine now that we were to state *Mary knows whether her height should be in* I_1 as a complete answer.

- Now let's take 3 intervals:

(58) |__**1**__________________|_____¬1______________________|

|_____**2**_____|__¬2_________________________________|

|______¬3_________________________|_____**3**__________|

Know

- Asserting that *Mary knows whether her height should be in I_1* as a complete answer would amount to asserting the conjunction that she knows whether her height should be in I_1 and that she does not know whether her height should be in I_2 or I_3:

(59) $\forall w' \in Dox_M(w)$, [if $I_1(w)=1$, $I_1(w')=1$] $\wedge$ [if $\neg I_1(w)=1$, $\neg I_1(w')=1$]

and

$\exists w' \in Dox_M(w)$, $(I_2(w)=1 \wedge I_2(w')\neq 1) \vee (\neg I_2(w)=1 \wedge \neg I_2(w')\neq 1)$

and

$\exists w' \in Dox_M(w)$, $(I_3(w)=1 \wedge I_3(w')\neq 1) \vee (\neg I_3(w)=1 \wedge \neg I_3(w')\neq 1)$

- However, the problem is that the meaning expressed by the tentative complete answer above is not coherent.

Know

- Suppose first that Mary's height should be in I_1:

(60) |__**1**__________**d$_M$**______|_____¬1______________________|

|_____**2**_____|__**¬2**___________________________________|

|______**¬3**_________________________|_____3__________|

(61) $$\underline{\mathbf{\forall w' \in Dox_M(w),\ [if\ I_1(w)=1,\ I_1(w')=1]}} \wedge [\text{ if } \neg I_1(w)=1, \neg I_1(w')=1]$$

$$\mathbf{\exists w' \in Dox_M(w),\ (I_2(\mathit{w})=1 \wedge I_2(w') \neq 1) \vee (\neg I_2(w)=1 \wedge \neg I_2(w') \neq 1)}$$

$$\mathbf{\exists w' \in Dox_M(w)}, (I_3(w)=1 \wedge I_3(w') \neq 1) \vee \underline{\mathbf{(\neg I_3(w)=1 \wedge \neg I_3(w') \neq 1)}}$$

- The complete answer states that Mary does not know that her height should be in $\neg I_3$, i.e. the complement of interval I_3. It follows that for any interval in $\neg I_3$, Mary does not know that her height should be in it. Interval I_1 is contained in interval $\neg I_3$.

- But now we have derived that the complete answer states a contradiction: this is because it states that Mary knows that her height should be in I_1 **and** that she does not know that her height should be in $\neg I_3$, which is a contradiction.

Know

- Suppose now that Mary's height has to be in the complement of interval I_1:

(62) |__1___________________|______**¬1**_____**d_M**__________________|

|_____2_______|__**¬2**______________________________________|

|_______**¬3**____________________________|______**3**____________|

(63) $\forall w' \in \mathbf{Dox}_M(w)$, $[\text{if } I_1(w)=1, I_1(w')=1] \wedge \mathbf{[\,if\ \neg I_1(w)=1, \neg I_1(w')=1]}$

$\exists w' \in \mathbf{Dox}_M(w)$, $(I_2(w)=1 \wedge I_2(w')\neq 1) \vee \mathbf{(\neg I_2(w)=1 \wedge \neg I_2(w')\neq 1)}$

$\exists w' \in \mathbf{Dox}_M(w)$, $\mathbf{(I_3(w)=1 \wedge I_3(w')\neq 1) \vee (\neg I_3(w)=1 \wedge \neg I_3(w')\neq 1)}$

- The complete answer states that Mary does not know that her height is in $\neg I_2$, i.e. the complement of interval I_2. From this it follows, that for any interval in $\neg I_2$, Mary does not know that her height is in it. Interval $\neg I_1$ is in interval $\neg I_2$.
- But now we have derived that the complete answer states a contradiction: this is because it states that Mary knows that her height is in I_1 **and** that she does not know that her height is in $\neg I_3$, which is a contradiction.

Know

- We might illustrate the contradiction that arises with the following:

(64) #Mary knows whether her height is btw 0 and 5 or between 5 and 10

But

She does not know whether her height is btw 0 and 3 or between 3 and 10

And

She does not know whether her height is btw 0 and 7 or between 7 and 10

Extensions to

■ Wonder-class predicates

(65) *How tall does Mary *wonder* whether she should be?

■ Embedded *wh*-constituent questions

(66) a. ?Which problem does Mary know how to solve?

b. ***How tall does Mary know who should be?***

(67) {that Mary knows (for which x$\in$ {A,B,C}, x's height is in I_1)
that Mary knows (for which x$\in$ {A,B,C}, x's height is in I_2)
that Mary knows (for which x$\in$ {A,B,C}, x's height is in I_3) }

{that M.knows_ whether A's height $\in I_1$	&	that M knows whether B's height $\in I_1$	&	*that M knows whether C's height $\in I_1$,*
that M. ¬know whether A's height $\in I_2$	&	that M. ¬ know whether B's height $\in I_2$	&	*that M ¬know whether C's height $\in I_2$*
that M ¬know whether A's height $\in I_3$	&	that M ¬ know whether B's height $\in I_3$	&	*that M ¬know whether C's height $\in I_3$*

Interim Summary

- **Presuppositional, (Negative) and Wh-Islands are unacceptable because they lead to a contradiction.**
  - PRESUPPOSITIONAL ISLANDS:
    A contradiction arises at the level of presuppositions.
  - (NEGATIVE ISLANDS) AND WH-ISLANDS :
    The statement for any answer that it is the complete answer would express a contradiction.

- **BUT: why would contradiction (or tautology) lead to ungrammaticality?** Cf.

(68) #This table is red and not red
(69) #Every woman is a woman
(70) #It is not raining and John knows that it is raining

- These sentences might be semantically anomalous, but **not** ungrammatical

Part 3. Triviality and ungrammaticality

- Barwise and Cooper (1981): Existential Sentences

(71) There are some curious boys
(72) *There is **every** curious boy

- ♦ Proposed explanation: (72) is a tautology
- ♦ Assume that *there* denotes the individuals in the universe (D_e). Then [[every]]([[curious boy]])(D_e)=1, whatever the denotation of *curious boys* is in the model.

- von Fintel (1993) Exceptive constructions:

(73) Every boy but John smokes
(74) ***Some** boy but John smokes

- ♦ Proposed explanation: (74) is a contradiction
- ♦ Assume that the complement of *but* is the least you have to take out of the restrictor to make the statement true. (74) would entail then that no boy smokes and that someone other than John smokes.

- **Further examples:** Dowty (1979), Lahiri (1998), Guerzoni (2003), Chierchia (2005), Fox and Hackl (2007), Gajewski (2008), etc.

L-triviality

- **Gajewski (2002)**: There is a formally definable subset of trivial sentences (L-trivial sentences) whose members are systematically ungrammatical.

- To define L-triviality, we need a stronger sense of logical truth than usual:

♦ Standard notion of logical truth: Replace **uniformly** every non-logical word by a variable of the appropriate type. Logical truth is defined as satisfaction for all assignments.

Example: *it is raining or it is not raining* → p or not p

♦ L-triviality: a stronger notion of logical truth: replace every **occurrence** of a non-logical word by a distinct variable. Logical truth is defined as satisfaction for all assignments.

Example: *it is raining or it is not raining* → p or not q

L-triviality

- **Examples**:

(75) *There is every curious boy

a. Logical skeleton: [There [is [every P_1]

b. Interpretation: [[every]] ($I(P_1)$) (D_e)

→once we remove the identity of the non-logical expressions, we can still deduce the triviality

(76) #Every woman is a woman

a. Logical skeleton: [Every [P_1 [is P_2]

b. Interpretation: [[every]] ($I(P_1)$) ($I(P_2)$)

→once we remove the identity of the non-logical expressions, we cannot deduce the triviality any more

- **Gajewski (2002):**
  A sentence is ungrammatical if its logical form contains an L-trivial constituent sentence

L-triviality and Islands

(77) ***How do you regret that John behaved?**

a. Logical skeleton of the question: $\{NP_1\ V_2\ \ NP_3\ V_5\ \alpha_1 \mid \alpha \in D_{manners}\}$

b. Logical skeleton of the **presupposition of the question**

NP_3 is $V_5\ \alpha_1$ [and NP_3 is $V_5\ \alpha_2$ and [NP_3 is $V_5\ \alpha_3$…etc…

- the presupposition is contradictory independently of the value of the variables…

… provided we keep the variables in the alternative answers the same except the one corresponding to the question word

…and that V_2 is presuppositional

What is the relationship btw. logic and grammar?

- **I started with** arguing that certain allegedly syntactic constraints of natural language interpretation should be thought of as showing an interpretive problem

- **Now: Interpretive *problems***, on the other hand, **are crucially** constrained by logical properties, in that logical—vs—non-logical items play a different role. Moreover, this can be read off from the logical (syntactic) skeleton.

- There is a deeper notion of contradiction, based on logical words.

- Further, it seems we might need a distinction that is even more subtle

Some questions for further research

- **Why the special provisos?**
  - What allows us to keep the variables in the alternatives other than the one corresponding to the question words fixed?
    - In fact a similar issue arises in the domain of focus interpretation (cf. also Fox and Hackl 2007)
  - Why do presuppositions enjoy a special status?

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APPENDIX 1: How many questions: scope ambiguity

- An existential noun phrase such as *n-many books* can be understood as having scope over *want* or with a reconstructed scope under the attitude verb (Rullmann (1995), Cresti (1995), Fox (2000), Romero (1998)):

(78) How many books do you want to buy?

a. **Wide scope reading**:
‘For what interval I, there is a set of (particular) books X, $|X| \in I$, such that you **want** to buy X’

$$[[(78)]]^{w} = \lambda p.\ \exists I \in D_I\ [p = \lambda w'.\exists X\ [book(X)(w')\ \&\ |X| \in I\ \&\ \mathbf{want}\ (\lambda w''.\ buy\ (you)(X)(w''))(w')]]$$

b. **Narrow scope (reconstructed) reading**:
‘for what interval I, you **want** there to be a set of books X , $|X| \in I$, such that you buy X’
(i.e. What amount of books do you want to buy?)

$$[[(78)]]^{w} = \lambda p.\ \exists I \in D_I\ [p = \lambda w'.\ \mathbf{want}\ (\lambda w''.\ \exists X\ [book(X)(w'')\ \&\ |X| \in I\ \&\ buy\ (you)(X)(w'')])\ (w')$$

How many questions and presuppositional islands

- **The two readings behave differently**: (cf. Longobardi 1987, Rizzi 1990, Cresti 1995, Rullmann 1995)

(79) How many books do you regret that you bought?

a. **Wide scope reading**:
'For what interval I, there is a set of (particular) books X , $|X| \in I$, such that you regret that you bought X'
$\lambda p.\ \exists\ I \in D_I\ [p = \lambda w'.\mathbf{\exists X}\ [book(X)(w')\ \&\ \ |X| \in I\ \ \&\ \mathbf{regret}\ \ (\ \lambda w''.\ buy\ (you)(X)(w''))(w')]]$

b. **#Narrow scope (reconstructed) reading**:
'For what interval I, you regret that the number of books that you bought is in I'
$\lambda p.\ \exists\ I \in D_I\ [p = \lambda w'.\ \mathbf{regret}\ (\lambda w''.\ \mathbf{\exists X}\ [book(X)(w'')\ \&\ \ |X| \in I\ \ \&\ buy\ (you)(X)(w'')])\ (w')$

- **Explanation**:

Presupposition of the wide scope reading:
$\forall X \in D_{books}.\ you\ Believe\ (\lambda w'.\ bought\ (you)(X)(w'))(w)$
'you believe you bought all the books in the domain'

Presupposition of the narrow scope reading:
$\#\forall I \in D_I:\ \ you\ Believe\ (\lambda w'.\exists X\ [book(X)(w')\ \&\ \ |X| \in I\ \&\ buy\ (you)(X)(w')])(w)$
#'For every interval, you believe that the number of books you bought is in that interval'

APPENDIX 2: Manner questions in wh-islands

- At first sight, it looks as if the account could work here too:

(80) | *politely* | *¬politely* |

| *¬impolitely* | *impolitely* |

(81) a. *How do you know whether to behave at the party?
b. {that you know whether to behave politely,
that you know whether to behave impolitely}

- **However,** elsewhere (Abrusán 2007) I have argued that the domain of manners contains contraries, and *not* contradictories:

(82) | *politely* | *¬politely* |

| *¬impolitely* | *impolitely* |

- **A complete** answer to a manner question below, e.g. *You know whether to behave politely,* will **not** be a contradiction

... but it might still be a violation of **Maximize presupposition**[2]:

[2] Thanks to E. Chemla (pc.) for this suggestion.

APPENDIX 2: Manner questions in wh-islands

(83) *How do you know whether to behave?

- A complete answer such as …

(84) You know whether you should behave politely. (vacuous presupposition: $p \vee \neg p$)

...Will be predicted to be equivalent to:

(85) You know that you should not behave politely (presupposition: $\neg p$)

- Maximize Presupposition! might rule out (84).

- We can then derive that every complete answer to the question above, is a violation of the principle of Maximize Presupposition.

- Then, we can say that for any question, if we are in a position to know in advance that every complete answer to it will be ruled out, then the question is infelicitous.

Manner questions

- **I**n the case of *wonder* however, the alternative is independently bad….

(86) *How do you know **whether** to solve the problem?

a. I know whether you should solve this problem fast

b. I know that you should solve this problem fast

(87) ***How do you wonder whether to solve the problem?***

a. I wonder whether you should solve this problem fast

b. #I wonder that you should solve this problem fast

Which is independently bad…(e.g. Guerzoni, etc)

- ***wonder***-type verbs: express a mental questioning act, and therefore incompatible with declarative complements,

- **or** a complement that is contextually equivalent to a declarative complement.

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