Neg-raising: The View from Modals

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Roadmap

1. Neg-raising (e.g. *want*): due to a presupposition (not new);
2. Problem: the presupposition can fail to project;
3. To complicate things, 2 lesser known neg-raisers:
   - *should:* the projection looks obligatory. . . but is not in fact;
   - *supposed:* a part-time neg-raiser.
4. The triggering of the presupposition is pragmatically conditioned (contra Gajewski 2005, lexical presupposition).

- *Want* is a neg-raising predicate (*think*, *seem* are too):

(1) John does**n't** want to help.
Paraphrasable as: John wants **not** to help. NR
Paraphrasable as: John does**n't** have the desire to help.

- *Desire* is not:

(2) John does**n't** desire to help.
Not paraphrasable as: John desires **not** to help. no NR

Lack of neg-raising

(3) a. While so many people are addicted to the internet nowadays, my great-grandparents didn't want to spend all their spare time on the internet.

b. My great-grandparents wanted not to spend all their spare time on the internet.

(4) *Context:* At a job interview...

a. I don't want to make a lot of money, you know.

b. I want not to make a lot of money.

- Neg-raising is arguably due to a presupposition (Bartsch 1973, Heim 2000, Gajewski 2005).
- The behavior of this presupposition is atypical.

A semantic phenomenon

Universal quantification

- Assumption: Negative quantifiers made up of sentential negation and an existential quantifier.

LF: $\neg \ldots \exists \ldots$ want

(5) **No** one wants to help.
Paraphrasable as: **Everyone** wants **not** to help.
Not paraphrasable as: Someone wants **not** to help.

(6) John **never** wants to help.
Paraphrasable as: John **always** wants **not** to help.
Not paraphrasable as: Sometimes John wants **not** to help.

- Not predicted by negative transportation;
- Negation has to be syntactically higher than NRP.

A semantic phenomenon

- Best candidate: a presupposition (it projects universally).
- Specifically, a homogeneity (excluded middle) presupposition (Bartsch 1973, Heim 2000, Gajewski 2005).

(7) For any proposition P, and individual x,
$[\![\text{NRP}]\!](P)(x)$
(i) presupposes: every M(x)-world is a P-world or
no M(x)-world is a P-world
(ii) asserts: every M(x)-world is a P-world

Example

(8) John does**n't** want to help.

a. *Assertion:* It is not the case that John wants to help.

b. *Homogeneity presupposition:*
John wants to help or John wants not to help.

∴ John wants **not** to help.

Cyclicity

(9) I do**n't** think that John wants to help.
Paraphrasable as: I think that John wants **not** to help.

Cyclicity

- *Want* under *think:*

(10) [I don't think [John wants to help]$_\beta$]$_\alpha$

- *Assertion of* α*:* It is not the case that I think that John has a desire to help.
- *Homogeneity presupposition triggered by* think *in* α*:*
  I think that John has a desire to help or I think that John doesn't have a desire to help.
- *Homogeneity presupposition triggered by* want *in* β*:*
  John has a desire to help or John has a desire not to help.
- *Projection of the homogeneity presupposition triggered in* β*:*
  I think that John has a desire to help or John has a desire not to help.

(11) **I think that John has a desire <u>not</u> to help.**

A contrast captured by the presupposition approach:

want under *think* vs. *think* under *want*

Gajewski 2005

(12) Bill thinks he will sell his cello.
Presupposition: Bill thinks he has a cello.

(13) Bill wants to sell his cello.
Presupposition: Bill thinks he has a cello.
Doesn't presuppose: Bill wants to have a cello.

Cyclicity

- *Think* under *want:*

(14) [I don't want [John to think it's raining]$_\beta$]$_\alpha$

- *Assertion of α:* It is not the case that I want John to think it's raining.
- *Homogeneity presupposition triggered by* want *in α:*
  I want John to think it's raining or I want it not to be the case that John thinks it's raining.
- *Homogeneity presupposition triggered by* think *in β:*
  John thinks it's raining or John thinks it's not raining.
- *Projection of the homogeneity presupposition triggered in β:*
  I think that John thinks it's raining or John thinks it's not raining.

Doesn't mean:

(15) I want John to think it's **not** raining.

- Evidence for (non-)cyclicity from strong NPIs (Horn 1978, Gajewski 2005), which require an anti-additive environment (Zwarts 1998):

(16) a. I do**n't** think Bill wants Mary to leave **until** tomorrow.
b. #I do**n't** want Bill to think Mary left **until** yesterday.

- Assuming that *want* (and *think*) is a universal quantifier over worlds, its composition with a negation **above** it creates a merely DE environment in which the strong NPI *until* cannot survive.

Optionality of the projection (again!)

(17) She doesn't think that John wants to help.
Paraphrasable as: She thinks that John wants **not** to help.
Paraphrasable as: She thinks that it's **not** the case that John wants to help.
Paraphrasable as: It is **not** the case that she thinks that John wants to help.

Applications

Example

(18) No one wants to help.

a. *Paraphrasable as:* Everyone wants **not** to help. NR

b. (i) *Assertion:* It is not the case that there is an x such that x wants to help.

(ii) *Projection of the homogeneity presupposition:* **For every x,** either x wants to help or x wants not to help.

∴ Everyone wants **not** to help.

c. *Other paraphrase:* No one desires to help. no NR

Example

(19) Not everyone wants to help.

a. *Paraphrasable as:* There are some people who want **not** to help. NR

b. (i) *Assertion:* It is not the case that everyone wants to help.

(ii) *Projection of the homogeneity presupposition:* **For every x,** either x wants to help or x wants not to help.

∴ There is **some** x such that x wants **not** to help.

c. *Other paraphrase:* Not everyone desires to help. no NR

The wide scope existential reading is rightly predicted by the homogeneity presupposition approach

Summary

- A semantic/pragmatic phenomenon: **homogeneity** (excluded middle);
- A presupposition;
- **Problem:** this presupposition can fail to project (=NR not mandatory).

(20) a. While so many people are addicted to the internet nowadays, my great-grandparents didn't want to spend all their spare time on the internet.

b. I don't want to make a lot of money, you know.

Two cases of failure to project:

1. Local accommodation (Gajewski's (2005) solution)

(21) #The King of France is bald.
Presupposition: There exists a King of France.

(22) The King of France is not bald, because there is no King of France.
No projection.
Accommodation in (22): It is not the case that (there is a King of France and that he is bald), because there is no King of France.

- Doesn't seem to be it:

(23) a. #While there is a President of the US, the King of France is not bald.
b. #The King of France is not bald, you know!

Two cases of failure to project:

1. Local accommodation;
2. Non-triggering (?)

Part II: Should

- Cycliticy: deontic *should* is an NRP (Horn 1989):

(24) The doctor does**n't** think that John should jog.
Paraphrasable as: The doctor thinks that J. should **not** jog.

- But it is different from *want:* with a clausemate negation (in the absence of an intervener), *should* necessarily outscopes that negation...

(25) John should**n't** jog.
Not paraphrasable as: It is **not** the case that John should jog.

(26) While Mary has to jog, John shouldn't jog.

- ...but this has nothing to do with neg-raising!

Deontic should is a mobile PPI

- It is generated below negation (just like *can*), but raises covertly to escape out of the scope of an anti-additive expression, e.g. negation or *never.*
- Syntactic wide scope

(27) *Context:* The rules of this bowling game state that exactly one pin must remain standing, no matter which one...
Exactly one pin should**n't** be knocked down.
✓SHOULD>EXACTLY_ONE>NEG

- Can be **rescued** (no need to raise):

(28) There is **nothing** that he does that should**n't** be done over again. NEG>NEG>SHOULD

(29) It's **impossible** that he did**n't** understand something.

- But the effects of PPIhood can be neutralized...

1. PPIs can be shielded by universal quantifiers, e.g. *every* (which disrupt the licensing of NPIs).

   When a mobile PPI is shielded, it cannot raise (Homer 2009):

(30) a. Not everyone must$_{deon}$ jog. NOT>MUST; *MUST>NOT
     b. Not a single person must$_{deon}$ jog. *NOT>MUST; MUST>NOT

2. PPIs are not anti-licensed by superordinate negations:

(31) The doctor does**n't** think that John must$_{deon}$ jog.
NOT>MUST; *MUST>NOT

Let's give free rein to neg-raising (by neutralizing PPIhood):

1. Shielding:

(32) **Not** everyone should jog.
Paraphr.: There are some people who should **not** jog. NR
Paraphr.: **Not** every x is such that x should jog. no NR

2. Superordinate negation (cyclicity):

(33) The doctor does**n't** think that John should jog.
Paraphr.: The doctor thinks that John should **not** jog. NR
Paraphr.: The doctor thinks that it's **not** the case that John should jog. no NR

- Same apparent optionality as with *want!*

Compare:

(34) **Not** everyone wants to jog.
Paraphr.: There are some people who want **not** to jog. NR
Paraphr.: **Not** every x is such that x want to jog. no NR

(35) The doctor does**n't** think that John wants to jog.
Paraphr.: The doctor thinks that John wants **not** to jog. NR
Paraphr.: The doctor thinks that it's **not** the case that John wants to jog. no NR

Summary

	mobile PPI	NRP	wide scope over negation when there is an intervener	wide scope over negation when there is a superordinate negation
should	yes	yes	✓	✓
must	yes	no	*	*
want	(yes)	yes	✓	✓

Assessor dependence of should

- Modal evaluation with *should*$_{deon}$ is relative to an assessor, namely the speaker. It shifts to the subject of the embedding attitude verb when there is one.

(36) a. #Hermann should$_{deon}$ marry Zelda, but I don't have an opinion about this marriage.
b. Hermann should$_{deon}$ marry Zelda, but you don't have an opinion about this marriage.

(37) a. #Fred$_i$ thinks that Hermann should$_{deon}$ marry Zelda, but he$_i$ doesn't have an opinion about this marriage.
b. Fred thinks that Hermann should$_{deon}$ marry Zelda, but I don't have an opinion about this marriage.

- Parallel with epistemic modals, e.g. *might* (MacFarlane 2003, Moltmann 2005, Egan et al. 2005, Stephenson 2007).

(38) a. #The key might$_{epis}$ be in the drawer, but it's not.
b. #The key might$_{epis}$ be in the drawer, but I think it's not.
c. The key might$_{epis}$ be in the drawer, but you think it's not.

(39) a. #Fred$_i$ thinks that the key might$_{epis}$ be in the drawer, but he$_i$ thinks it's not.
b. Fred thinks that the key might$_{epis}$ be in the drawer, but I think it's not.

Deontic must

- If *must* is assessor dependent, its assessor is not the speaker nor the author of the local context (=the subject of the embedding attitude).

(40) Hermann must$_{deon}$ marry Zelda, but I/you don't have an opinion about this marriage.

(41) Fred$_i$ thinks that Hermann must$_{deon}$ marry Zelda, but he$_i$/I do(es)n't have an opinion about this marriage.

Summary

Deontic should is...

- A mobile PPI;
- An NRP: its presupposition also fails to project sometimes;
- Assessor dependent (author of the local context).

Part III: Supposed

Supposed is a mobile PPI

- In all dialects, *supposed*$_{deon}$ is a mobile PPI:
  1. With a clausemate negation, QR trumps neg-raising:

(42) a. John is **not** supposed$_{deon}$ to jog.
*NEG>SUPPOSED; SUPPOSED>NEG

b. **No** one is supposed$_{deon}$ to jog.
*NEG>∃>SUPPOSED; SUPPOSED>NEG>∃

(43) You're **never** supposed to jog.
*NEVER>SUPPOSED; SUPPOSED>NEVER
≠For every time t, you are required at t **not** to jog. no NR

Supposed is a mobile PPI

- In all dialects, *supposed*$_{deon}$ is a mobile PPI:
  2. Intermediate scope of an indefinite:

(44) *Context:* The rules of this bowling game state that exactly one pin must remain standing, no matter which one...
Exactly one pin is **not** supposed to be knocked down.
✓SUPPOSED>EXACTLY_ONE>NEG

Two dialects

- In Dialect A, *supposed*$_{deon}$ is a strict (mobile) PPI;
- In Dialect B, *supposed*$_{deon}$ is a (mobile) PPI <u>and</u> a part-time neg-raiser.

Dialect A

- A strict (mobile) PPI:

(45) I don't think that John is supposed to jog. [A]
Not paraphrasable as: I think that it is necessary that John does**n't** jog.

(46) Not everyone is supposed to jog. [A]
NEG>EVERY>SUPPOSED; *SUPPOSED>NEG>EVERY
Not paraphrasable as: There are some people who are such that it is necessary that they do**n't** jog.

(47) Not a single person is supposed to jog. [A & B]
*NEG>SUPPOSED; SUPPOSED>NEG

Dialect B

- A mobile PPI;
- A part-time neg-raiser:

(48) a. I don't think that you're supposed to win the lottery.[A&B]
Not paraphrasable as: I think that it is necessary that you do **not** win the lottery.

(49) a. I don't think that you're supposed to jog. [B only]
Paraphrasable as: I think that it is necessary that you do **not** jog.

b. I don't think that you're supposed to get a flu shot.[B only]
Paraphrasable as: I think that it is necessary that you do **not** get a flu shot.

Dialect B

- A mobile PPI;
- A part-time neg-raiser:

(50) a. Not everyone is supposed to win the lottery. [A & B]
Not paraphrasable as: There are some people for whom it is necessary that they do **not** win the lottery.

(51) a. Not everyone is supposed to jog. [B only]
Paraphrasable as: There are some people for whom it is necessary that they do **not** jog.

b. Not everyone is supposed to get a flu shot. [B only]
Paraphrasable as: There are some people for whom it is necessary that they do **not** get a flu shot.

Dialect B

A pragmatic condition

- For *supposed*$_{deon}$ to trigger NR in Dialect B, it must be assumed that someone in the context is **opinionated** about the complement of the modal;
- We can assume that the modal has an assessor argument;
- It is hard to imagine that someone is opinionated about who is a suitable lottery winner, not hard at all to imagine who is opinionated about jogging or getting a flu shot (e.g. a doctor).

Dialect B

- The assessor of *supposed* is neither the speaker/author of the local context nor the addressee:

(52) a. Hermann is supposed$_{deon}$ to marry Zelda, but I/you don't have an opinion about this marriage.
b. Fred$_i$ thinks that Hermann is supposed$_{deon}$ to marry Zelda, but he$_i$/I do(es)n't have an opinion about this marriage.

(53) *Context:* —A: Why do you take all those vitamins?...
a. —B: #My doctor thinks that I'm supposed to take vitamins. [A & B]
b. —B': My doctor thinks that I should take vitamins.

(54) *Context:* At a party at 2 a.m....
a. I'm supposed to go now.
b. I should go now.

(55) When $\neq \#$, Su(x,i,w) is a set of pairs of $D_i \times D_s$:
Su(x,i,w) = {<i',w'>: <i',w'> is compatible with what is right according to x in w at i}

(56) $[\![$ supposed $]\!]^{c,s} = \lambda p_{ist}.\lambda x_e.\lambda i_i.\lambda w_s.$ # iff (i) Su(x,i,w)=# or
(ii) for some<i',w'>∈Su(x,i,w), p(i')(w')=#;
1 iff ≠# and for each <i',w'>∈Su(x,i,w), p(i')(w')=1

(57) a. John is supposed to leave.
b. [$C_{1,2,3}$ w_3 i_2 PRO_{arb} supposed [λ_4 λ_5 w_5 i_4 John leave]]
c. $[\![$ (57b) $]\!]^{c,s}$ ≠#;
=1 iff for each <i',w'>∈Su($[\![PRO_{arb}]\!]$,c_t,c_w), John leaves in w' at i'.

New generalization: Only assessor dependent predicates are neg-raisers.

(58) [OPINION] think, believe, expect, suppose, imagine, reckon
[PERCEPTION] seem, appear, look like, sound like, feel like
[PROBABILITY] probable, likely, figure to
[INTENTION/VOLITION] want, intend, choose, plan
[JUDGMENT/OBLIGATION] ought, should, desirable, advise

Horn 1978

Dialect B

- The presupposition of *supposed* is: there is a subject who is opinionated about the complement of the modal;
- It only projects when it is assumed that there is a subject who is opinionated about the complement of the modal;
- In other words, it only projects. . . when it is satisfied;
- That is, given that local accommodation doesn't seem to be at play, it is only triggered when it triggering is safe.

- Is the presupposition of other NRPs pragmatically conditioned as well?

Difference between *supposed* in Dialect B and *should*

(59) a. Not everyone is supposed to be a millionaire. [Dialect B]
Unless appropriate context, not paraphrasable as: There is some x such that it is necessary that x is **not** a millionaire. no NR

b. Not everyone should be a millionaire. [Dialect A & B]
Paraphrasable as: There is some x such that it is necessary that x is **not** a millionaire. NR

- **Not the same** assessor;
- Default assumption: the **author** of the local context is taken to be opinionated (cf. scalar implicatures in the Gricean view, Russell 2006, Geurts 2009).

- This accounts for the contrast between *supposed* and the other NRPs, e.g. *want* and *should* (whose assessor is the author of the local context in which the complement of the predicate is evaluated);
- NR is favored with *want, should, think, seem, etc.* (the presupposition tends to project) because of the default assumption about authors of local contexts (which satisfies the presupposition);

supposed	need for supporting assumption
want, should, think, etc.	for free: assumption of opinionatedness of the anchor

- Lack of neg-raising still occurs when the pragmatic condition is not met, i.e. when the default assumption is lifted.

- Other presuppositions appear to be pragmatically conditioned (Schlenker 2006):

(60) George hasn't announced that dinner is ready.

a. Situation 1: George is the family butler, who is entirely reliable. The sentence is uttered by the mother to her ten-year old son, who is rushing to the dinner table.

b. Situation 2: George is a newly-hired employee at the information desk of a hotel. The sentence is uttered by his boss, who is thinking of firing him.

Maximize triggering?

- NPIs only available if the *because*-clause is assumed to be false (Homer 2007);
- If it assumed to be true, it is presupposed that it is true; this presupposition disrupts NPI licensing:

(61) Dogs don't hear because they have **anything** we don't. Like us, they have ears.

(62) *Dogs don't hear because they have **any** eyes. They hear because they have ears. Linebarger 1987

Conclusions

1. About modals:
   - some are PPIs, some have a dual nature (PPI & NR);
   - some root modals are assessor dependent.
2. About presuppositions: triggering can be heavily pragmatic.

Puzzles

- Assessor dependence is not sufficient (cf. *supposed* in Dialect A, epistemic *must* in American English vs. British English);
- Why these verbs?
- Relation between PPIhood and neg-raising?

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Non-triggering vs. local accommodation

- NPIs provide a test (Homer 2007).

(63) *Elle ne se rend pas compte qu' il a fait la moindre
she NEG SE gives NEG account that he has made any
faute, parce qu' il n' a fait aucune faute !
mistake because he NEG has made no mistake
Intended: *'She doesn't realize that he made any mistake, because he didn't make any mistake.'*

▶ Local accommodation: intervention.

Non-triggering vs. local accommodation

(64) Si elle se rendait compte qu' il a fait la moindre
if she SE gave account that he has made any
faute, elle serait fâché.
mistake she would-be mad
'If she realized that he made any mistake, she would be mad.'

- Non-triggering: no intervention.

Distinguishing epistemic and metaphysical modals

Homer in prep.

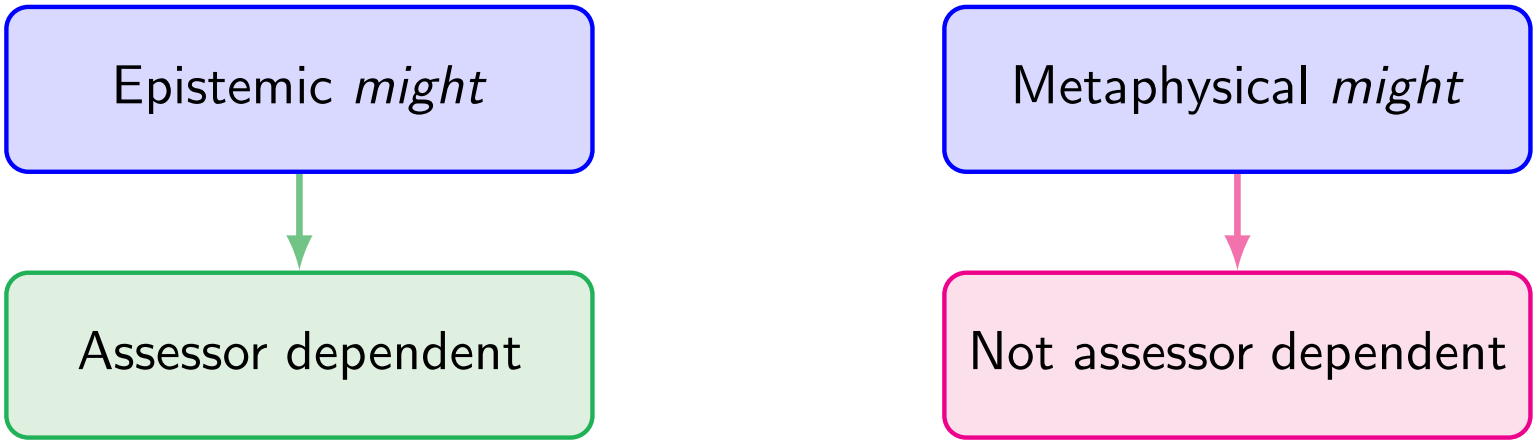
- We know that epistemic modals are assessor dependent;
- We now know that some deontic modals are too;
- But what about metaphysical modals (Condoravdi 2001)?

- The time of modal evaluation in (65) cannot be present ('it was possible then'):

(65) At that time, he might$_{met}$ still have won.

- But there need not be an evaluator, in fact there doesn't seem to be an assessor at all:

(66) At that time, solar radiations might$_{met}$ still have killed life on early Earth.



- We can exploit this difference between epistemic and metaphysical modals;
- *May* and *might* are ambiguous (epistemic/metaphysical);
- Epistemic modals are higher than Aspect (Homer 2009), therefore there is the same aspectual clash with non-stative verbs that there is in simple present sentences in English: when the tense of the clause is Present, only statives are fine:

(67) a. *John arrives/runs right now.
b. *John might$_{epis}$ arrive/run right now.

(68) a. John is at the station right now.
b. John might$_{epis}$ be at the station right now.

- But metaphysical modals are fine under Present: the eventuality in their complement is future, due to their modal base (and this is syntactically possible because they have the same kind of infinitival complement as *want* a.o.):

(69) a. John might$_{met/*epis}$ arrive/run tomorrow.
b. John might$_{met/*epis}$ be at the station tomorrow.

- Confirmation from the fact that the speaker is an assessor only when the eventuality in the complement is non-future (in (70b) and (70c), *be* and *have* are in the matrix, they are Present):

(70) a. Sure, an accident may$_{met/*epis}$ happen, but it won't.
b. #Sure, an accident may$_{*met/epis}$ be happening, but it isn't.
c. #Sure, an accident may$_{*met/epis}$ have happened, but it didn't.

Consequences

- There is no metaphysical *must*, otherwise (71b) would be good:

(71) a. John must$_{epis}$ be at the station right now.
b. *John must be at the station tomorrow.

- Metaphysical modals are below Aspect and they create biclausal structures, just like deontic modals and verbs like *want.*

French doit and devrait

- Deontic *doit* (like *must*) is not an NRP;
- It is a mobile PPI, which can stay below a clausemate negation (what I call its minimal domain in Homer 2010 doesn't include negation);
- It can take narrow or wide scope w.r.t. negation depending on the constituent upon which its licensing is checked:

(72) Jean ne doit **pas** faire de jogging. NEG>DEVOIR; DEVOIR>NEG

French doit and devrait

- The equivalent of *should*, *devrait*, is *devoir* augmented with a so-called conditional morphology (-rait);
- No ambiguity, *devrait* is a mobile PPI whose minimal domain encompasses the clausemate negation; and it is an NRP.

(73) Jean ne devrait **pas** faire de jogging.
*NEG>DEVRAIT;DEVRAIT>NEG