

Escape!

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Foreword: quantifiers and modals

	<i>Everything, something, anything...</i>	Modals
Quantificational Approach	Yes	Yes
<u>Polarity</u>		
NPIs	Yes	Yes
PPIs	Yes	?
Covert phrasal movement that affects scope	Yes	?
Head movement that affects scope	N.A.	?

My general questions:

- **Empirical** question: Scope of modals? It is complex and still little known.
- **Theoretical** question (1): How is scope computed?
- **Theoretical** question (2): What is the status of head movement?
- **Theoretical** question (3): Is there an interaction between polarity and other grammatical processes? (**Architecture**)

A quick look at the data (1)

- *Have to* takes narrow scope under a clausemate negation or negative quantifier:

(1) a. John doesn't **have to** jog.

NEG»HAVE_TO;*HAVE_TO»NEG

b. No one **has to** jog.

NEG»HAVE_TO;*HAVE_TO»NEG

A quick look at the data (2)

- *Can* takes narrow scope under a clausemate negation or negative quantifier:

- (2) a. John **can**_{deon}'t jog.
b. No one **can**_{deon} jog.

✓NEG>>CAN;*CAN>>NEG
✓NEG>>CAN;*CAN>>NEG

A quick look at the data (3)

- (3) a. John **must**_{deon} n't jog. ✓ MUST ≫ NEG; *NEG ≫ MUST
John **must**_{deon} n't jog, #but he's allowed to.
- b. No one **must**_{deon} jog. ✓ MUST ≫ NEG; *NEG ≫ MUST
No one **must**_{deon} jog, #but everyone is allowed to.

- ▶ *Must* takes **wide scope** over a clausemate negation or so-called subject negative quantifier.

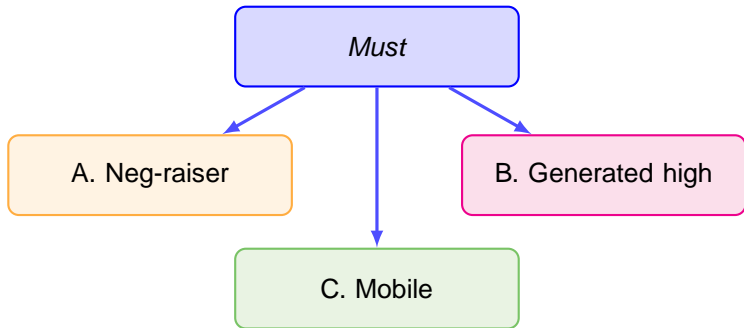
The wide scope of *must* over a clausemate negation or a clausemate so-called negative quantifier is a puzzle.

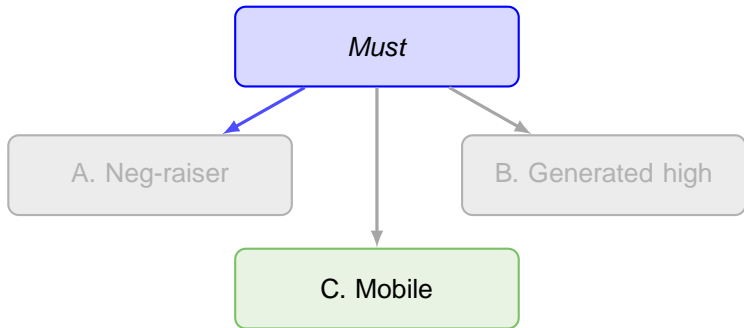
Must and *can* are modal 'auxiliaries', so what distinguishes them?

- ▶ **Hypothesis A.** Unlike *can*, *must* is a neg-raiser.
- ▶ **Hypothesis B.** Unlike *can*, *must* can be generated above negation.
- ▶ **Hypothesis C.** Unlike *can*, *must* can (sometimes has to) move.

Goal

I am going to show that there are **mobile PPIs** (*must* is one of them), which undergo a hitherto unknown movement, **escape**.





- 1 *Must* is a PPI and it moves;
- 2 This movement is not V-to-T, because there are other mobile PPIs which do not head-move to T;
- 3 Some PPIs which are phrases can undergo the same movement overtly.

Part 1: Movement of *must*

- 1 *Must*_{deon} is **not a neg-raiser**;
- 2 It cannot be generated above negation; it is generated below it;
- 3 When it takes wide scope, it moves to a **high syntactic position**; its wide scope is due to the same reasons that prevent **PPIs** from being interpreted under negation.
- 4 So it is a mobile PPI (Homer 2009, 2012b, Iatridou and Zeijlstra 2010, 2012).

Not neg-raising

Not neg-raising (1)

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

(4) John doesn't want to help.

Paraphrasable as: John wants **not** to help.

Paraphrasable as: John doesn't have the desire to help.

NR

Not neg-raising (1)

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

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NR

- *Desire* is not:

(5) John doesn't desire to help.

Not paraphrasable as: John desires **not** to help.

no NR

A semantic phenomenon

Effects not derivable by negative transportation

- 1 Assumption: Negative quantifiers made up of sentential negation and an existential quantifier: LF: $\neg \dots \exists \dots$

A semantic phenomenon

Effects not derivable by negative transportation

- 1 Assumption: Negative quantifiers made up of sentential negation and an existential quantifier: LF: $\neg \dots \exists \dots$

(6) **No** one wants to help.

Not paraphrasable as: Someone wants **not** to help.

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

NR

Negative quantifiers

- Evidence for analyzing them as made up of negation and an existential quantifier in its scope (Kratzer 1995, Sauerland 2000, Iatridou and Sichel 2008, a.o.):

Split scope is possible (7):

- (7) No doctor has to be present.
There is no doctor x such that x has to be present. (wide scope)
It is **not** required that **a** doctor be present. (split scope)

A semantic phenomenon

Effects not derivable by negative transportation

2 A negated existential modal above an NRP:

(8) I can't believe that it's raining.

Not paraphrasable as: I can believe that it is **not** raining.

Paraphrasable as:

It is **necessary** that I believe that it is **not** raining.

NR

A semantic phenomenon

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- Neg-raising is arguably due to a **homogeneity inference** (Bartsch 1973, Heim 2000, Gajewski 2005).

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NR

- Neg-raising is arguably due to a **homogeneity inference** (Bartsch 1973, Heim 2000, Gajewski 2005).

Negation has to be syntactically higher than NRP.

Example

- (9) John doesn't want to help.
- a. *Assertion*: It is not the case that John wants to help.
 - b. *Homogeneity inference*:
John wants to help or John wants not to help.
- ∴ John wants **not** to help.

Must behaves differently (1)

- Wide scope of neg-raisers is **optional**:

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

I don't want to make a lot of money, you know. ✓NEG≫WANT

- Wide scope is **not optional** with *must* (in the absence of rescuing or shielding, see below):

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

#You mustn't pay me a lot, you know. *NEG≫MUST

Must behaves differently (2)

- **Cyclicity** (narrowest scope of superordinate negation) with neg-raisers:

[not...NRP₁ [...NRP₂
NRP₁»NRP₂»**NEG**

- (12) She doesn't think that John wants to jog.
Paraphrasable as: She thinks that John wants **not** to jog.

- Cyclicity is not available with *must*:

- (13) She doesn't think that John **must**_{deon} jog.
Not paraphrasable as: She thinks that John **must**_{deon} **not** jog.

Must behaves differently (3)

- Wide scope existential quantification reading with neg-raisers:

(14) **Not everyone** wants to get a flu shot.

Paraphrasable as: There is some x such that x wants **not** to get a flu shot.

(15) —A: Not everyone wants to get a flu shot.

—B: Really? Please make a list of those who refuse to get a flu shot.

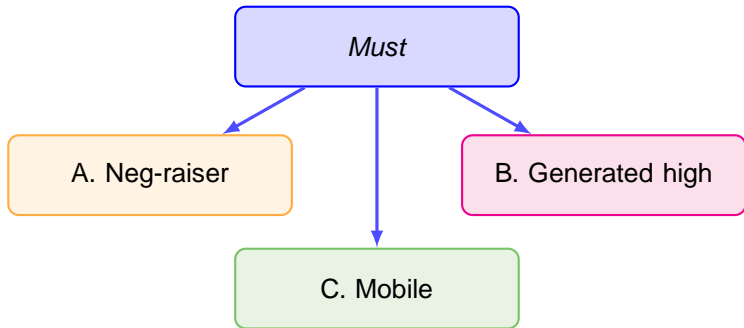
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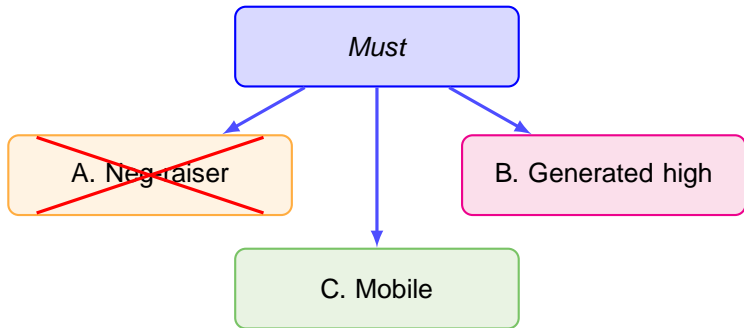
(16) **Not everyone must**_{deon} get a flu shot.

Not paraphrasable as: There is some x such that x must **not** get a flu shot.

(17) —A: Not everyone **must**_{deon} get a flu shot.

—B: #Really? Please make a list of those who are not allowed to get a flu shot.

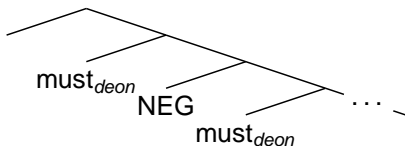




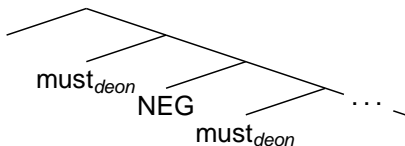
Mobile PPI

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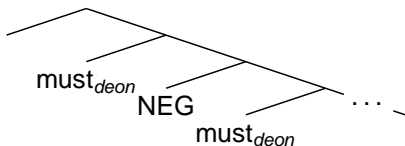


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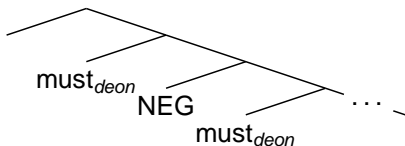
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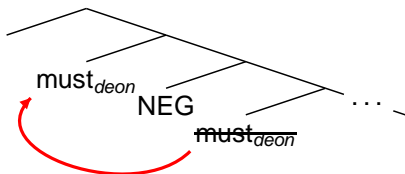
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- 4 All this shows (i.) that *must_{deon}* cannot be generated above negation, (ii.) that the high position is one to which it **moves** and (iii.) that it is **polarity** sensitive: it moves **out of a low position** where it is anti-licensed.

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High syntactic position of *must*_{deon} (1)

Pin test

(18) *Context: The rules of this bowling game state that exactly one pin must remain standing, no matter which one. . .*

Exactly one pin **must**_{deon}n't be knocked down.

✓ MUST ≫ EXACTLY_ONE ≫ NEG

- When *must* outscopes a clausemate negation, a subject quantifier can get sandwiched in between: this is evidence that *must* is syntactically higher than negation.

High syntactic position of *must*_{deon} (2)

Exactly one pin **must**_{deon}n't be knocked down.

✓MUST≫EXACTLY_ONE≫NEG

- 1 I used a contracted negation to ensure that negation is a **clausemate** of *must*.

(19) John could_{abil}n't jog.

*COULD≫NEG

a. [... not could [... John jog]]

b. Not available: [... could [... not John jog]]

(20) John could_{abil} not jog.

✓COULD≫NEG

a. [... not could [... John jog]]

b. [... could [... not John jog]]

High syntactic position of *must*_{deon} (3)

Exactly one pin **must**_{deon}n't be knocked down.

✓ MUST » EXACTLY_ONE » NEG

- 2 Then, *exactly one* is also a clausemate of *must*;
- 3 So when the modal takes wide scope over negation, it can also outscope a clausemate subject quantifier, which indicates that it is syntactically **high in its clause**.

N.B.: This is not something that **neg-raising** could give you. The closest you could get via neg-raising (if *must* were a neg-raiser) would be:

*'It must be the case that **not** exactly one pin is knocked down.'*

Two cases of low interpretation: shielding (2)

- Linebarger interveners on NPIs (Linebarger 1980):

(23) *Not everyone has **any** roses.

- **Strong scalar terms** cause intervention effects on NPIs (Chierchia 2004). Ex.: <**every**, most, some>, <**and**, or>;
- These scalar terms are the source of an inference which **breaks** the monotonicity of the environment under NEG:
- This inference is a (indirect) scalar implicature.

(24) a. It is **not** the case that **everybody** has roses.
b. *Scalar implicature*: Somebody has roses.

Two cases of low interpretation: shielding (3)

- The PPI *some* is, like *must*, not interpretable under a clausemate negation but it can be **shielded** by a Linebarger intervener:

(25) When Fred speaks French...

- a. ... Jean-Paul doesn't understand **something**. *NEG >> SOME
- b. ... no one understands **something**. *NEG >> SOME

(26) When Fred speaks French...

- a. ... not **everyone** understands **something**. ✓NEG >> SOME
- b. ... not a single person understands **something**. *NEG >> SOME

Two cases of low interpretation: rescuing (1)

2 One can also add **another** downward-monotonic expression:

(27) John is so unbelievably incompetent!

He does **nothing** that **must**_{deon} **n't** be done over again.

Paraphrasable as: Everything he does must be done over again.

✓NEG»NEG»MUST

Two cases of low interpretation: rescuing (2)

- A PPI can be **rescued**: take a sentence in which it is potentially anti-licensed, place it in the scope of another downward-monotonic expression, it becomes acceptable.

(28) When Fred speaks French. . .

. . . there is **no one** who doesn't understand **something**.

✓NEG>>NEG>>SOME

- I will propose a theory of this tomorrow.
- A PPI needs to be in **one** (eligible) constituent in which it is in a non negative environment (Homer 2012a);
- Rescuing is just a case of polarity reversal in a constituent with two negations that cancel each other out.

Must_{deon} is interpretable under NEG only if the environment there has the appropriate **monotonicity**, i.e. it is not negative (either through shielding or rescuing): this is a behavior typical of a **PPI**.

Argument

- *Must_{deon}* can be interpreted in two positions: either **higher or lower** than negation: therefore it is not necessarily generated above negation; ✓
- Furthermore the availability of the low position of interpretation depends directly on the **monotonicity** of the environment under NEG; ✓
- The high position is not freely available either: it too depends on the monotonicity of the environment under NEG;
- All this shows (i.) that *must_{deon}* cannot be generated above negation, (ii.) that the high position is one to which it moves and (iii.) that it is polarity sensitive: it moves out of a low position where it is anti-licensed.

High position not freely available

- Linebarger interveners **block** the wide scope of the modal:

(29) a. Not **everyone** **must**_{deon} jog.

✓NEG>>EVERY>>MUST; *MUST>>NEG

b. Not a single person **must**_{deon} jog.

*NEG>>A_SINGLE>>MUST; ✓MUST>>NEG

High position not freely available

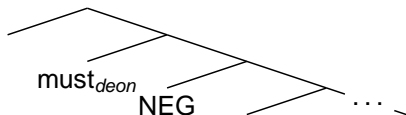
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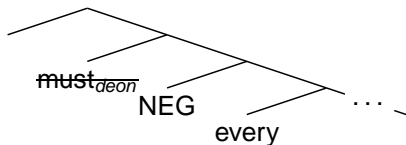
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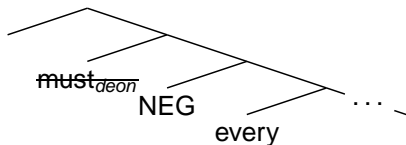
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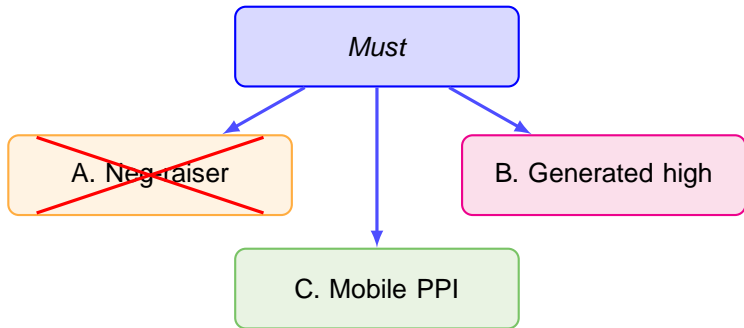
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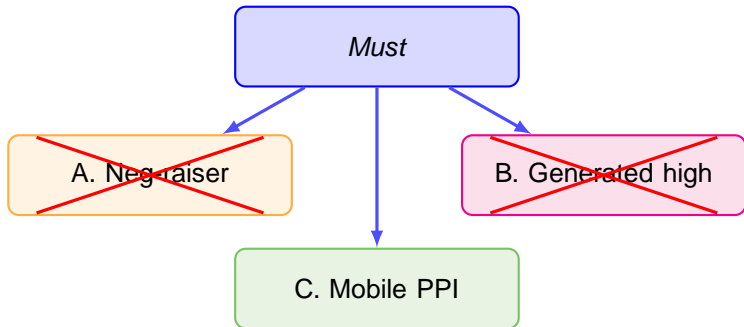
b. Not a single person **must**_{deon} jog.

*NEG≫A_SINGLE≫MUST; ✓MUST≫NEG



It is implausible that generating the modal in a high position depends on the monotonicity properties of the environment under negation. Therefore there cannot be a high base position of *must*_{deon}.





Argument

- *Must_{deon}* can be interpreted in two positions: either **higher or lower** than negation: therefore it is not necessarily generated above negation; ✓
- Furthermore the availability of the low position of interpretation depends directly on the **monotonicity** of the environment under NEG; ✓
- The high position is **not freely** available either: it too depends on the **monotonicity** of the environment under NEG; ✓
- All this shows (i.) that *must_{deon}* cannot be generated above negation, (ii.) that the high position is one to which it **moves** and (iii.) that it is **polarity** sensitive: it moves **out of a low position** where it is anti-licensed. ✓

Escape

1 This movement appears to be **clause-bound**:

- (30) You believe John must_{deon} **n't** be a liar. *MUST»BELIEVE»NEG
Not paraphrasable as: You must believe that John isn't a liar.

Escape

- 1 This movement appears to be **clause-bound**:

(30) You believe John must_{deon} **n't** be a liar. *MUST»BELIEVE»NEG
Not paraphrasable as: You must believe that John isn't a liar.

- 2 And it is a **last resort**: move *must*_{deon} for polarity reasons **only if you have to!** The intervention of *every* makes the environment non anti-additive:

(31) a. Not **everyone** must_{deon} leave. *MUST»NEG;NEG»MUST
Not paraphrasable as: It must be the case that not everyone leaves.
b. Not a single person must_{deon} leave.
MUST»NEG;*NEG»MUST

Summary

- *Must_{deon}* is generated below negation (evidence: rescuing, shielding); it is not generated above it but can be interpreted high when the environment in its base position makes it unacceptable;
- So *must_{deon}* **moves** past negation for the same reason that the PPI *some* is unacceptable in the immediate scope of negation.
- The anti-licensors are local anti-additive expressions.
- I call this movement **escape**, which is a **last resort**.

Summary

- $Must_{deon}$ is generated below negation (evidence: rescuing, shielding); it is not generated above it but can be interpreted high when the environment in its base position makes it unacceptable;
- So $must_{deon}$ **moves** past negation for the same reason that the PPI *some* is unacceptable in the immediate scope of negation.
- The anti-licensors are local anti-additive expressions.
- I call this movement **escape**, which is a **last resort**.

- What about *can*? Why can't it outscope a clausemate negation?
- Like *must*, it is generated below negation; but it is **not polarized**, therefore escape doesn't apply to it.

Escape

```
graph TD; A[Escape] --> B[Covert movement?]; A --> C[Overt movement?];
```

Covert movement?

Overt movement?

- This is a tough question, but a natural one: the only way it could be overt would be if:
 - *Must* moves via V-to-T;
 - There is **obligatory reconstruction of V-to-T up to crash** (Iatridou and Zeijlstra 2010, 2012).

Next step

I am now going to further argue that V-to-T is not involved (by Occam's razor):

There are other modals which undergo escape **but do not** undergo V-to-T: e.g. *seem*.

- 1 *Must* is a PPI and it moves;
- 2 This movement is not V-to-T, because there are other mobile PPIs which do not head-move to T;
- 3 Some PPIs which are phrases can undergo the same movement overtly.

Part 2: V-to-T is not involved

A syntax-semantics mismatch (Langendoen 1970, Homer 2011)

(32) John can't seem to lose weight.

Paraphrasable as: It seems that John can't lose weight.

Scopal relations under this reading: SEEM»NEG»CAN

(33) #John can seem to lose weight.

*SEEM»CAN

Properties of the scope reversal:

- 1 A certain trigger is needed, e.g. *not*;
- 2 *Seem* takes scope above both the reversal trigger and *can*.

Argument

- 1 The scope reversal is not idiomatic;
- 2 *Seem* is a neg-raiser but this property can't account for the scope reversal.
- 3 *Seem* is a mobile PPI.

Claim

The unusual properties of *seem* that manifest themselves in the presence of *can* are independent of it. *Can* just magnifies the effect.

Not an idiom

Showing that the reversal is not idiomatic

- The three elements, *can*, *seem* and the trigger, do not form **an idiom all together**;
- Yet one might want to say that *can seem* is an idiom, with the non-literal meaning SEEM \gg CAN, and this idiom is an NPI licensed by the scope reversal trigger;
- But in the scope inversion, *seem* **has to outscope the reversal trigger**: SEEM \gg E_{DM} \gg CAN;
- So it is not the case that a downward-monotonic expression combines compositionally with a *can seem* idiom (SEEM \gg CAN) in its scope: if there is an idiom here, it must be formed by the three elements together;
- But this is not an option: therefore *can't seem* is not an idiom.

Not an idiom (1)

Variability and predictability

- (34)
- a. No one can seem to reach the website.
 - b. Few can seem to fathom how he could be so popular.
 - c. At most five people can seem to understand this.
 - d. John can never seem to speak in full sentences.
 - e. I just bought this lens, and I can rarely seem to get a clear picture.
 - f. I can hardly ever seem to find any good CD of English choral music.
 - g. Only John can seem to stomach watching reruns of the 6th game of the 1986 Series.

- ▶ Subset of DM expressions.
- ▶▶ The three elements do not form an idiom.

Not an idiom (2)

- The scope reversal trigger can (and in fact must) take **intermediate** scope:

(35) I can rarely seem to get a clear picture. SEEM»RARELY»CAN
*RARELY»SEEM»CAN

Paraphrasable as:

(36) It seems that I rarely can get a clear picture. SEEM»RARELY»CAN

Not as:

(37) It seems upon rare occasions that I can get a clear picture.
RARELY»SEEM»CAN

- ▶ *Can seem* is **not an idiom**.

Neg-raising is not the cause

Seem is a neg-raiser

- **Cyclicity** test (cf. slide 25):

(38) I don't think that John wants to help me.

Paraphrasable as: I think that John wants **not** to help me.

- Only neg-raisers pass the test;
- *Seem* passes the test too, and **is thus a neg-raiser:**

(39) I don't think that John seems to understand the situation.

Paraphrasable as: I think that John seems **not** to understand the situation.

***Seem* is a neg-raising predicate (NRP).**

- ▶ But this does not suffice.

Neg-raising is not involved in ‘can’t seem’

- It is covert raising, not neg-raising, which explains the scope reversal SEEM \gg CAN.

(40) John can't seem to lose weight. (= (32))

- The neg-raised reading is not the one we want:

(41) It is necessary that it seems that John isn't losing weight.

In all worlds w' compatible with John's abilities in w^* , it seems in w' that John isn't losing weight.

- With a (non PPI) neg-raiser, *believe*:

(42) I can_{abil}'t believe that p.

= It is necessary that I believe that not p.

\neq I believe that I can't p.

Neg-raising

No scope reversal

Polarity sensitivity

Polarity sensitivity (1)

- If *seem* outscopes *can*, it also outscopes the reversal trigger: the motivation of reversal is indeed **polarity sensitivity**.

(43) *Context: John had been bragging that someday he would levitate; and one day he rose above ground at a party, to his friends' amazement. But Peter later demonstrated to everyone that John used a mechanical trick at that party...*

#John can no longer seem to levitate. SEEM»NEG»LONGER»CAN
*NEG»LONGER»SEEM»CAN

Paraphrasable as (only reading): John seems to have lost the ability (which he used to have) to levitate.

Not as: It no longer seems that John can levitate.

Polarity sensitivity (2): shielding

Shielding

(44) a. #Not **everyone** can **seem** to lose weight.

*SEEM»NEG»CAN

b. Not a single person can seem to lose weight.

SEEM»NEG»CAN

- ▶ The motivation of reversal is indeed **polarity sensitivity**.
- ▶ Wide scope impossible if not necessary: **a last resort**.
- ▶ Evidence for **escape**.

Properties of scope reversal:

- 1 A certain trigger is needed, e.g. *not*; ✓
- 2 *Seem* takes scope above both the reversal trigger and *can*. ✓

- *Seem* escapes;
- It cannot be via V-to-T; in fact, escape must be covert: by Occam's razor, I submit that *must* also escape covertly;
- One question remains: is it a head that moves?
Issue: Violation of the Head Movement Constraint.

Next step

I am now going to show that another PPI can undergo **overt escape**. Interestingly, this mobile PPI is not a head.

- 1 *Must* is a PPI and it moves;
- 2 This movement is not V-to-T, because there are other mobile PPIs which do not head-move to T;
- 3 Some PPIs which are phrases can undergo the same movement overtly.

Part 3: Overt escape: French *toujours*

Basics of French negation

- The position of negation is marked by **pas**:

(45) Jean est **pas** arrivé.
Jean is NEG arrived.

Based on Homer and Thommen 2013.

Two positions for the adverb *toujours* ‘still’

Two positions (1)

- (46) Jean est toujours_{still} caché.
Jean is TOUJOURS hidden
'Jean is still hiding.'

■ *Toujours*_{still} can appear **conditionally** under negation:

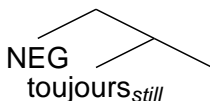
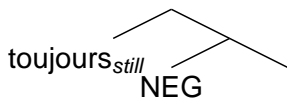
- (47) a. *Jean est **pas** toujours_{still} caché.
Jean is PAS TOUJOURS hidden
- b. Il est **impossible** que Jean soit **pas** toujours_{still} caché.
it is impossible that Jean is PAS TOUJOURS hidden
'It is impossible that Jean isn't still hiding.'

Rescuing: *toujours*_{still} is a PPI (at least in its low position).

Two positions (2)

- *Toujours_{still}* can also appear **higher** than negation:

- (48) a. Jean n' est toujours_{still} **pas** caché.
'Jean is still not hidden.'
b. *Jean n'est **pas** toujours_{still} caché.



- **Two distinct overt positions**, then;
- Is it **one and the same** object in both? Yes.

French n-words

- French n-words, e.g. *personne* ‘anyone’, *rien* ‘anything’, make the presence of a clausemate *pas* unnecessary:

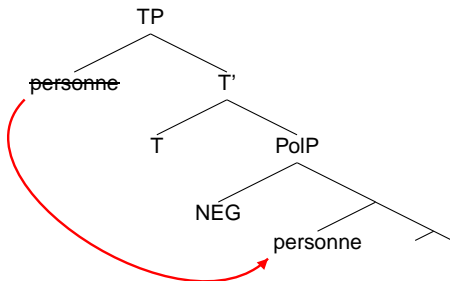
(49) *Personne est ∅ caché.*
anyone is NEG hidden.
‘No one is hiding.’

- But there is **a silent negation** (NEG) in the clause;
- N-words are existential quantifiers (and NPIs) (Homer and Thommen 2013);
- A subject n-word must **reconstruct** under negation.

French n-words

(50) *Personne est caché.*
anyone is hidden
'No one is hiding.'

(51)



Wide scope of *toujours*_{still} is lost under an n-word

- (52) a. Personne est toujours_{still} caché.
'No one is still hiding.'

NEG » ∃ » TOUJOURS;
*TOUJOURS » NEG » ∃

LF: NEG personne toujours_{still} caché
Not: ~~personne~~ toujours_{still} NEG personne caché

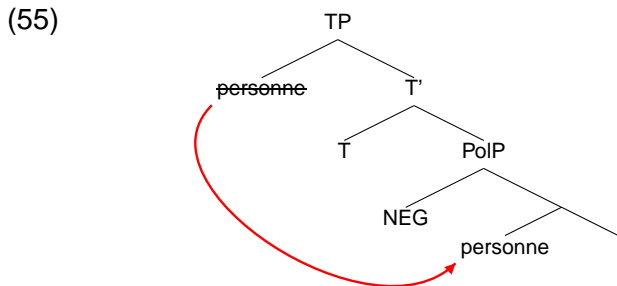
- Under reconstruction of the n-word, *toujours*_{still} is good in the low position and it **has to** be interpreted there (under NEG and the existential).
- Control with *souvent* 'often':

- (53) a. Jean n'est souvent **pas** là.
'Jean is often not here.'
b. Personne n'est souvent là.

Possible reading: 'It is often the case that no one is here.'

✓ SOUVENT » NEG » ∃

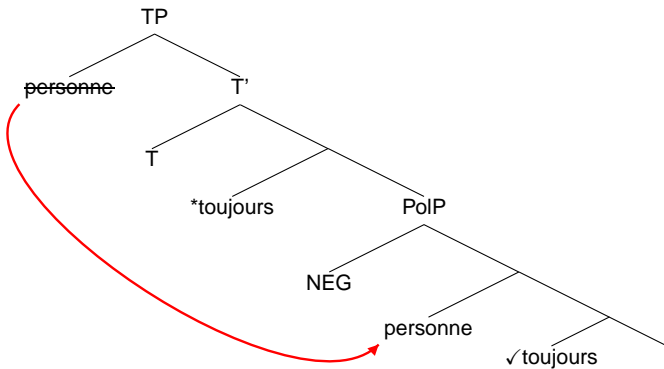
- (54) *Personne est ∅ caché.*
anyone is NEG hidden
'No one is hiding.'



A mobile PPI

- The high position is not freely available: it depends on the presence of a certain element under negation: therefore *toujours* is not generated high;
- The low position is occupied by a positively polarized *toujours*;
- When there is no intervener or rescuing, this PPI has to **move** to the high position (where it is visible **overtly**);
- When there is an intervener like the existential *personne*, the movement is **blocked** and *toujours* has to be interpreted under negation.
- Is it **escape** (a movement only motivated by polarity)?

(56)



Escape of *toujours*

- To show that *toujours_{still}* moves via escape, we need to show that its movement is not necessary hence impossible when its environment **does not anti-license** it;

Escape of *toujours*

- To show that *toujours_{still}* moves via escape, we need to show that its movement is not necessary hence impossible when its environment **does not anti-license** it;
- The environment created by negation is more strongly negative (**antimorphic**) than the environment created by an existential under a negation (**anti-additive**);
- We hypothesize that *toujours* (like *still*) is only vulnerable to antimorphism:

- (57) a. *John isn't still hiding.
b. No one is still hiding.

- When the existential quantifier n-word reconstructs under NEG and above *toujours_{still}*, it turns the environment into an **anti-additive** one; just because of that, *toujours_{still}* cannot **escape**.

Downward-monotonic

Anti-Additive

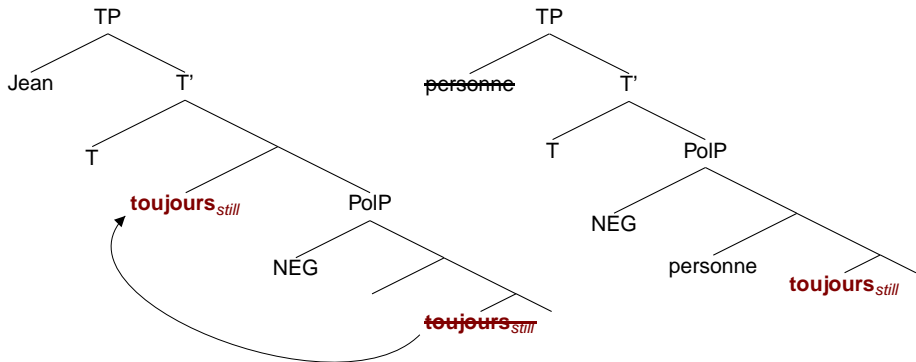
Antimorphic

not

no one

at most five

- *Toujours_{still}* is a **mobile PPI**. It escapes **overtly**.



Phrasal movement

- Evidence that the *toujours_{still}* that escapes is not a head: V-to-T is possible across it:

(58) Jean ne dort toujours pas.
'Jean is still not sleeping.'

- Therefore it is plausible that escape **does not move heads.**

- Evidence that **escape** of certain PPIs can be **overt**;
- Evidence that escape moves **phrases**.
- This opens up new questions about modals. Conjecture: there is a difference between the element that we see on the surface and call a modal (e.g. *must*) and what is *really* interpreted.
- The facts about *toujours* also raise questions of **architecture**: obviously they are not compatible with a conservative Y-model approach.

Conclusion

- There is a movement operation, probably distinct from QR (because it is a last resort) which is driven by polarity. It targets certain modal verbs and also certain phasal adverbs.
- It moves certain objects covertly and others overtly.
- This movement is not identical to V-to-T, and it is plausibly not a head movement at all.
- This raises the question of the nature of the object that moves when *must* takes wide scope over negation.

	<i>Everything, something, anything...</i>	Modals
Quantificational Approach	Yes	Yes
<u>Polarity</u>		
NPIs	Yes	Yes
PPIs	Yes	Yes
Covert phrasal movement that affects scope	Yes	Plausibly yes
Head movement that affects scope	N.A.	Plausibly no

Thank you!

Appendix

Intervention by strong scalar terms

Intervention by strong scalar terms

- According to Chierchia (2004), the interveners form a natural class: they are all **strong scalar terms**. Ex.: <**every**, most, some>, <**and**, or>.
- Scalar implicatures triggered by a DM function like *not* outscoping a strong scalar term disrupt NPI licensing.

- (59) a. It is **not** the case that **everybody** has roses.
b. *Scalar implicature*: Somebody has roses.

Intervention by strong scalar terms

- Grammar provides **two** meanings: plain and strong.
- The notion of meaning which is relevant for NPI licensing is the notion of **strong meaning**: the strong meaning of sentence ϕ noted $[[\phi]]^s$ is the **conjunction** of the **plain meaning** (truth conditions) of ϕ and its **implicatures**.

- Indirect implicatures triggered by a DM expression like *not* outscoping a strong scalar term disrupt NPI licensing.

Example

(60) *It is **not** the case that **everybody** has any roses.

(61) $\llbracket \text{blue roses} \rrbracket \subseteq \llbracket \text{roses} \rrbracket$

(62) a. It is not the case that everybody has **roses**.

Scalar Implicature: **Somebody has roses.**

b. It is not the case that everybody has **blue roses**.

Scalar Implicature: **Somebody has blue roses.**

(63) $\llbracket (62a) \rrbracket^s = \neg [\forall x \text{ some}_D'(\text{roses}')(\lambda y. x \text{ has } y)]$
 $\wedge \exists x \text{ some}_D'(\text{roses}')(\lambda y. x \text{ has } y)$

(64) $\llbracket (62b) \rrbracket^s = \neg [\forall x \text{ some}_D'(\text{blue roses}')(\lambda y. x \text{ has } y)]$
 $\wedge \exists x \text{ some}_D'(\text{blue roses}')(\lambda y. x \text{ has } y)$

$\llbracket (62a) \rrbracket^s \not\equiv \llbracket (62b) \rrbracket^s$

Rescuing and last resort

A twist: liberal character of the licensing procedure

- (65) John is so unbelievably incompetent!
He does **nothing** that **must**_{deon} **n't** be done over again.
Paraphrasable as: Everything he does must be done over again.
✓NEG»NEG»MUST

- Even in a **rescuing configuration**, *must* can still outscope NEG:

- (66) John is the most competent accountant I know, but this is a free country: so...
He does **nothing** that **must**_{deon} **n't** be done over again.
Paraphrasable as: There is nothing that he does that cannot be done over again.
✓NEG»MUST»NEG

This is not incompatible with last resort: the licensing procedure is **liberal**, i.e. it can use **various** constituents (Homer 2012a).

■ Reading #1:

nothing... John **not** must...

■ Reading #1:

nothing... John **not** must...

nothing... John **not** must...

nothing... John must **not** _____...

MUST ≫ NOT

■ Reading #1:

nothing... John not must...

nothing... John not must...

nothing... John must not _____...

MUST \gg NOT

■ Reading #2:

nothing... John not must...

NOT \gg MUST

- In (67), the liberal character of the licensing procedure cannot change the fact that the modal is in an environment in which it is **not anti-licensed**:

(67) Not **everyone must**_{deon} jog.

(=(29a))

✓NEG≫MUST; *MUST≫NEG

- So escape is **blocked** no matter how the licensing procedure applies.

More on the escape of *seem*

Constraint on extraction

(68) You don't believe that John must_{deon} be a liar.

*MUST»NEG»THINK

- The covert raising of *must* (*should* and *supposed*) is constrained: it appears to be **clause-bound**.
- *Seem* also cannot cross that clausal boundary:

(69) a. #You don't think John can seem to lose weight.

*SEEM»THINK»NEG»CAN

*THINK»NEG»SEEM»CAN

b. You think John can't seem to lose weight.

*SEEM»THINK»NEG»CAN

Constraint on extraction

- This **constraint** also explains away the following:

(70) #If Joe can seem to fix my closet, I'll hire him.

- Not a question of 'strength of the licenser': even the weakest NPI 'licenser', *viz. at most N*, triggers reversal, and so do Strawson-DM expressions, e.g. *only John*.
- No 'triggering' by the strongest 'licenser':

(71) #You don't think John can seem to lose weight. (69a)

The complement of *seem*

Constraint on aspect

- When the matrix tense on *seem* is present, the main embedded predicate must be stative, or else receive a non episodic reading:

(72) a. #John seems to lose weight.
b. John can lose weight.

(73) a. #John can seem to lose weight.
b. John can't seem to lose weight.

- We can predict the above pattern if we make the assumption that the constraint on aspect is a semantic one, which stems from the fact that the embedded is interpreted as an argument of *seem*;
- When *seem* moves past *can*, the embedded becomes, de facto, the argument of *can*.

Supposed to

Supposed to

- One can show that *supposed to* is a mobile PPI which undergoes **covert escape**.

1 High syntactic position (pin test):

(74) Exactly one pin isn't supposed to be knocked down.
SUPPOSED»EXACTLY_ONE»NEG

Supposed to

2 Rescuing:

- (75) If I hadn't been supposed to lead the discussion, I wouldn't have made the effort to read the book.

IF>>NEG>>SUPPOSED

3 Shielding and blocking:

- (76) Not everyone is supposed to be a millionaire.

NEG>>SUPPOSED;*SUPPOSED>>NEG

French negation

Negation is where *pas* is (1)

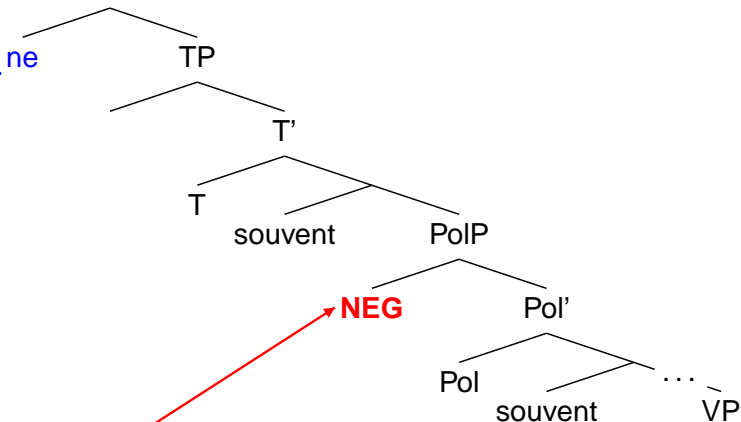
(77) Il (ne) m' a **souvent pas** répondu.
he NE to-me has often PAS answered
'He often did not answer me.'

OFTEN»NEG

(78) Il (ne) m'a **pas souvent** répondu.
'He did not often answer me.'

NEG»OFTEN

- The scope of *souvent* w.r.t. negation unambiguously depends on its position relative to *pas*; it **doesn't depend** on the relation with *ne*.



Sentential negation (only one PolP per clause), signaled by *ne*.

Negation is where *pas* is (2)

- *Ne* **signals** the presence of negation (in fact negation is **never** realized **overtly** in French):
- When *ne* appears in a given clause, there is a negation hosted by the Polarity Phrase immediately below *ne*.
- Consider a biclausal structure:

(79) Il peut [**ne** pas parler.
he can NE PAS speak
'He can abstain from speaking.'

CAN»NEG

(80) Il **ne** peut pas [parler.
'He cannot speak.'

NEG»CAN

Negativity

Antimorphic

Anti-Additive

Downward-monotonic

(i) $f(X) \vee f(Y) \Rightarrow f(X \wedge Y)$

(ii) $f(X \vee Y) \Rightarrow f(X) \wedge f(Y)$

(iii) $f(X) \wedge f(Y) \Rightarrow f(X \vee Y)$

(iv) $f(X \wedge Y) \Rightarrow f(X) \vee f(Y)$

Downward-monotonicity

- A function f of type $\langle \sigma, t \rangle$ is Downward-monotonic (DM) iff for all x, y of type σ such that $x \Rightarrow y$: $f(y) \Rightarrow f(x)$
- DM functions: *no, not, doubt, without, at most three, few, antecedents of conditionals, questions, restrictors of universal quantifiers...*
- **Weak NPIs**, e.g. *ever, any*, can be licensed by merely DM functions.

Anti-additivity

- **Strong NPIs**, e.g. punctual *until* and *a single* require 'more negative' functions.

■ A function f is Anti-additive (AA) iff $f(A \vee B) \iff f(A) \wedge f(B)$
Zwarts 1998

- Negation and negative quantifiers (*no one, nothing, never, etc.*) are not just DM, they are AA:

(81) No one smokes or drinks \iff No one smokes and no one drinks.

- *At most five* is strictly DM.

(82) a. **No one** left **until** Friday.

b.??**At most 5 people** left **until** Friday.

(83) a. **No one** understood **a single** thing.

b.??**At most 5 people** understood **a single** thing.

Antimorphism

- There are also items (e.g. *mals* in Dutch) that are sensitive to a logical property that only **negation**, among all 'negative' elements, has, namely antimorphism.

- A function f is Antimorphic iff f is Anti-additive and satisfies $f(A \wedge B) \Rightarrow f(A) \vee f(B)$

Zwarts 1998

- (84) John doesn't drink and smoke \Rightarrow John doesn't drink or doesn't smoke.

Not Too Strong!

A constraint on “covert” operations

- Mayr & Spector propose a Generalized Scope Economy Condition:

(85) *Not Too Strong!:* A Covert Scope Shifting Operation cannot apply if the meaning of the resulting scope is equivalent or stronger than (i.e. entails) the meaning of the surface scope.

(86) John didn't meet every guest.

* $\forall \gg \neg$

- This constraint is violated by **escape**.

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