Semantic effects of head movement in Negative Auxiliary Inversion constructions*

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Heads are generally not thought to be quantifiers:

- obligatorily reconstruct (e.g. verb movement in French)

More recently, evidence that head movement has semantic effects:

- Head movement of negation can license NPI subjects (Roberts, 2010; Szabolcsi, 2010)
- Heads behave like generalized quantifiers:
  - Mark scope overtly (Iatridou & Zeijlstra, to appear; Lechner, 2006, 2007; Matushansky, 2006; Szabolcsi, 2010)
    - Interpreted in the position in which they surface
  - Mark scope overtly and reconstruct (Lechner, 2006, 2007; Roberts, 2010; Szabolcsi, 2010)
    - Interpreted in the position in which they surface and interpreted in a position lower than where they surface[1], giving rise to ambiguity
  - Undergo QR (Iatridou & Zeijlstra, to appear; Szabolcsi, 2010)
    - Interpreted in a position higher than where they surface
- This paper:
  - Provides further evidence that head movement has semantic effects
  - Head movement of negation has the following effects
    - Licenses NPI and n-word subjects
    - Quantificational, undergoes QR
  - Evidence comes from Negative Auxiliary Inversion, a phenomenon present in some varieties of North American English

Roadmap:

- Negative Auxiliary Inversion (NAI) and its properties
- Syntax of NAI constructions
- Licensing NPI and n-word subjects

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[1] In some cases, the varying interpretations depend on different structural configurations (Bhatt & Keine, 2013; Iatridou & Zeijlstra, to appear).

1 Negative Auxiliary Inversion

(1) Didn't everybody go to the party. (WTE; Foreman, 1999)[2]
'Not everybody went to the party.'

- Declarative, receives the falling intonation of a declarative
- Clause-initial negated auxiliary or modal, followed by a non-specific subject

The corresponding non-inverted construction is often also possible:

(2) Everybody didn't go to the party. (WTE; Foreman, 1999)

- Foreman (1999, 2001) observes that for West Texas English, sentences exhibiting negative auxiliary inversion are unambiguous; negation always has wide scope over the subject.[3]
- The non-inverted counterpart is attested to be ambiguous

(3) a. Didn't everybody go to the party. [¬ » ∀, *∀ » ¬]
b. Everybody didn't go to the party. [∀ » ¬, ¬ » ∀]

1.1 Subject restriction

✓ Quantificational subjects, as we've seen in (1)

✗ Specific or referential subjects[4]

(4) a. *Didn't Jack go to the party. (WTE)
b. *Wouldn't I do that. (WTE; Foreman, 1999)
c. *Didn't the teachers go to the party. (WTE; Foreman, 1999)

✗ Some non-specific subjects are ruled out:

(5) a. *Didn't some people come. (WTE)
b. *Didn't few people live there then. (WTE)

Possible subjects ✓	everybody all the NP five NP more than three NP a NP many NP any NP no NP
Impossible subjects ✗	Jack (proper names) you (pronouns) the NP their NP some NP few NP

Figure 1: The subject distribution for negative auxiliary inversion in WTE

[2]With each documented example, I cite the variety of English it is associated with and the original source of the example. In the case in which no source is provided, the examples are from original fieldwork. Abbreviations: AAE – African American English, AppE – Appalachian English, SE – Standard English, WTE – West Texas English.

[3]It is not known to this author whether these interpretation facts hold for negative auxiliary inversion constructions in other varieties. Further research needs to be done.

[4]Specific or referential subjects appear to be possible in certain emphatic contexts. See Horn (2013) for more information.

Empirical observations concerning the interpretation of negative inversion and their non-inverted counterparts:

		Interpretation	
	Subject	Noninv. constr.	NAI
Possible subjects ✓	everybody	ambiguous	¬ high
	all the NP	ambiguous	¬ high
	five NP	ambiguous[a]	¬ high
	many NP	ambiguous	¬ high
	more than 3 NP	ambiguous[b]	¬ high
	a NP	ambiguous[c]	¬ high
Impossible subjects ✗	Jack	unambiguous	*
	you	unambiguous	*
	the NP	unambiguous	*
	their NP	unambiguous	*
	some NP	unamb. (¬ low)	*
	few NP	unamb. (¬ high)	*

[a]Speakers report that the interpretation in which negation scopes over the numeral *five* receives an idiomatic interpretation.

[b]Judgment pair due to (Foreman, 2001).

[c]The determiner *a* can be specific. Ambiguity is present only when *a* has a non-specific reading.

Figure 2: The interpretation of subjects with available counterparts

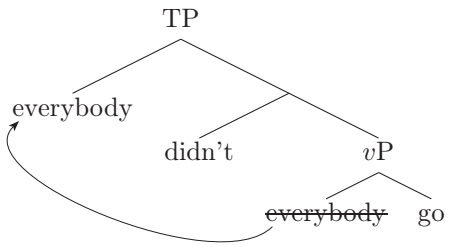
- **Correlation** of negative auxiliary inversion with presence of ambiguity in non-inverted counterparts:
  - the types of subjects that give rise to ambiguity in a non-inverted sentence are the types of subjects that are possible in negative auxiliary inversion
  - the types of subjects that do not give rise to ambiguity in a non-inverted sentence are incompatible with negative auxiliary inversion
- Observe that negation always has **wide scope** in negative auxiliary inversion constructions

2 Syntax of Negative Auxiliary Inversion

The sentence containing NAI and its non-inverted counterpart are related

Non-inverted counterpart:

(6)



- Movement of the subject to canonical position
- Negation in usual position

Negative auxiliary inversion construction:

- I adopt an analysis which involves a further movement of the negated auxiliary to a higher project, following Foreman (1999, 2001) for West Texas English and Labov, Cohen, Robins, and Lewis (1968), Labov (1972), Martin (1993), and Green (2008, 2011, in press) for African American English)[5]
- I adopt an analysis along the lines of Bobaljik and Wurmbrand's (2012) framework to account for negative auxiliary inversion constructions[6]

[5]Alternate analyses provided in the literature for these constructions involve non-movement of the negated auxiliary and the subject not raising as high (Labov et al., 1968, Labov, 1972, Martin, 1992, 1993, Sells, Rickford, & Wasow, 1996, Parrott, 2000, and White-Sustaíta, 2010 for African American English). For arguments against these analyses for negative auxiliary inversion constructions, see Foreman (1999, 2001).

[6]I diverge from Bobaljik and Wurmbrand in assuming that the EPP is a syntactic constraint.

2.1 Introduction to framework and intuition

- Given a syntax which contains two scope-bearing elements, ∀ and ¬, the grammar will generate the theoretically possible scope and linear order combinations

  (7) Four LF/PF pairs represent relations between scope and precedence

	LF	PF
1	∀ » ¬	*every* » *didn't*
2	∀ » ¬	*didn't* » *every*
3	¬ » ∀	*didn't* » *every*
4	¬ » ∀	*every* » *didn't*

- For each LF, economy conditions apply to determine the best way to linearize it
- Transparency between semantic scope and linear order is preferred (ScoT constraint). This is why the grammar can generate (8) and (9) which have surface scope interpretation.

  (8) Everybody didn't go to the party. [∀ » ¬]

  (9) Didn't everybody go to the party. [¬ » ∀]

- Another LF/PF pair is possible despite the fact that it is not scope transparent. Recall that (3) is ambiguous.

  (10) Everybody didn't go to the party. [¬ » ∀]

  – Scope transparency is a soft constraint, can be violated by an LF/PF pair and still survive

  – When the constraint is violated, the availability of the pair is due to interaction with another constraint

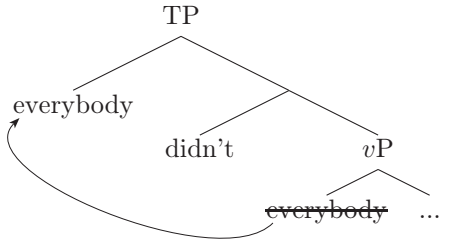
  – Proposed constraint:

  (11) *SubjFirst*
  Subject appears first linearly

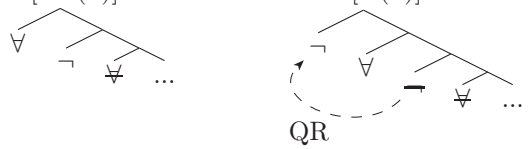
2.2 Accounting for the subject restriction

2.2.1 ✓Quantificational subjects

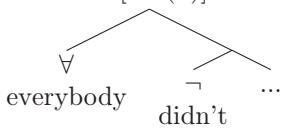
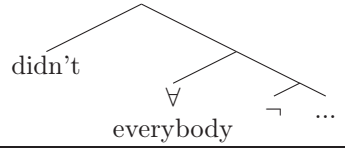
(12) Syntax:



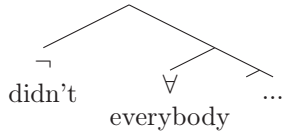
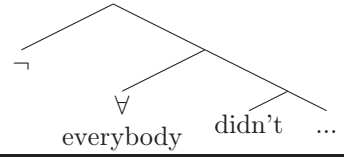
(13) LF1: $\forall x[\neg P(x)]$ LF2: $\neg\forall x[P(x)]$



(14) LF1: [∀ » ¬]

	✓?	LF/PF	ScoT	SubjFirst
(a)	✓	$\forall x[\neg P(x)]$ 	✓	✓
(b)	*	$\forall x[\neg P(x)]$ 	*	*

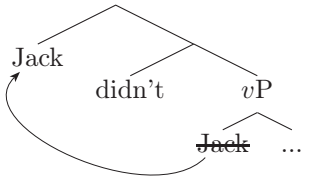
(15) LF2: [¬ » ∀]

	✓?	LF/PF	ScoT	SubjFirst
(a)	✓		✓	*
(b)	☑		*	✓

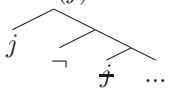
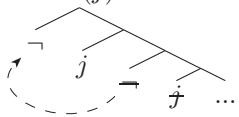
2.2.2 ✗Specific or referential subjects

(16) a. * Didn't Jack go to the party. (WTE)
b. Jack didn't go to the party. (WTE)

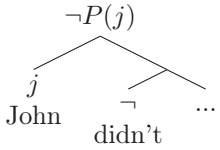
(17) Syntax:



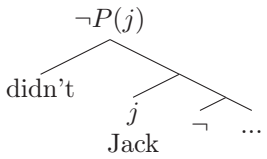
- no ambiguity, only one LF:

(18) LF:  *LF′: 

- only one LF/PF pair generated:

(19) LF/PF: 

- no LF/PF pair in which negation is spelled out before this subject:

(20) *LF/PF′: 

- Not possible to say 'Didn't Jack go to the party.'

2.3 Accounting for lack of 'positive' auxiliary inversion

(21) a. * Will everybody go to the party. (WTE)
b. Won't everybody go to the party. (WTE)

- No ambiguity, only one LF/PF pair

2.4 Accounting for problematic non-specific subjects

Recall that certain quantificational subjects are not possible in NAI constructions

2.4.1 Some

(22) a. * Didn't some people come. (WTE)
b. Some people didn't come. (WTE)

Because it is existential, we expect the same distribution as with other quantifiers:

(23) Expected distribution:

a. Didn't some people come. [¬ » ∃, *∃ » ¬]

b. Some people didn't come. [∃ » ¬, ¬ » ∃]

(24) Attested distribution:

a. * Didn't some people come.

b. Some people didn't come. [∃ » ¬, *¬ » ∃]

- *Some*, being a PPI, cannot be in the immediate scope of negation (Szabolcsi as cited in Iatridou & Zeijlstra, to appear)
- Unexpected results are due to more general problem with LFs in which *some* is in the scope of negation

(25) John didn't see some man. [∃ » ¬, *¬ » ∃]

- As a PPI, *some* needs to escape the scope of negation
- LF formation is still subject to known constraints (Bobaljik & Wurmbrand, 2012)

2.4.2 Few

(26) a. * Didn't few people sleep. (WTE)

b. Few people didn't sleep. (WTE)

Because it is quantificational, we expect the same distribution as with other quantifiers:

(27) Expected distribution:

a. Didn't few people come. [¬ » *few*, **few* » ¬]

b. Few people didn't come. [*few* » ¬, ¬ » *few*]

(28) Attested distribution:

a. * Didn't few people come.

b. Few people didn't come. [**few* » ¬, ¬ » *few*]

'It's not the case that few people slept.'

Missing: 'Few people are such that they didn't sleep'

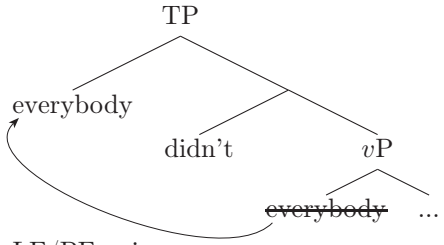
- *Few* resists specific interpretations (Beghelli & Stowell, 1997)
- Missing LF is due to more general problem with LFs containing *few*
- Problem:
  - For the LF that *is* possible, [¬ » *few*], we expect both of its LF/PF pairs to be possible given our contraints
  - Need another constraint to rule out 'Didn't few...'

2.5 Strength of analysis

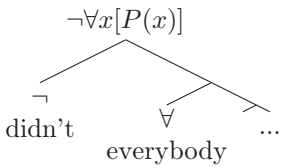
2.5.1 Simple syntax

- Able to derive the LF/PF pair from the non-inverted counterpart

(29) Syntax:

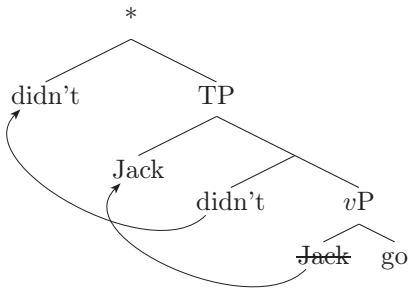


(30) LF/PF pair:



- No need to motivate the movement syntactically
- Strength because with non-quantificational subjects, we would have needed an independent way to rule out the movement syntactically

(31) Syntax:



Summary:

		Interpretation		
	Subject	Noninv. constr.	NAI	Analysis
Possible subjects ✓	everybody	ambiguous	¬ high	Overt QR
	all the NP	ambiguous	¬ high	
	five NP	ambiguous	¬ high	
	many NP	ambiguous	¬ high	
	more than 3 NP	ambiguous	¬ high	
	a NP	ambiguous	¬ high	
Impossible subjects ✗	Jack	unambiguous	*	No QR
	you	unambiguous	*	
	the NP	unambiguous	*	
	their NP	unambiguous	*	
	some NP	unamb. (¬ low)	*	Idiosyn.
	few NP	unamb. (¬ high)	*	

Figure 3: Overview of the analyses of negative auxiliary inversion

- Negation shows properties of being a quantifier:
  - undergoes **overt QR** to give us negative auxiliary inversion constructions
  - undergoes **covert QR** to give us inverse scope in 'Everybody didn't...'

3 Licensing NPI and n-word subjects

- Need another mechanism to license NPI and n-word subjects

3.1 ✓NPI subjects

(32) a. Didn't anybody go to the party.
'Nobody went to the party.' (WTE)

b. * Anybody didn't go to the party.
'Nobody went to the party.' (WTE)

- Unlike the non-specific subjects discussed earlier, their non-inverted counterparts are not possible
- Another case of negation licensing needed in Roberts (2010) for licensing NPI subjects in yes-no questions:

(33) a. Which one of them does**n't** anybody like? (McCloskey, 1996)

b. * Which one of them does anybody like? (McCloskey, 1996)

- Movement argued to occur by Roberts (2010):

(34) ... doesn't anybody ~~doesn't~~ like... (Roberts, 2010)

- Extended to NAI constructions:

(35) Didn't anybody ~~didn't~~ go...

- Movement similar to T-to-C movement
- However, cannot be as high as C because NAI constructions can be embedded with an overt complementizer:

(36) I hope that won't anybody hit us. (AppE; Feagin, 1979)

- Movement to the same projection needed in negative concord constructions

3.2 ✓N-word subjects

(37) a. Didn't nobody go to the party.
'Nobody went to the party.' (WTE)

b. * Nobody didn't go to the party.
'Nobody went to the party.' (WTE)

- Non-inverted counterparts are not possible under a negative concord interpretation
- Can be embedded with an overt complementizer:

(38) She loves the fact (that) don't nobody like her. (WTE; Foreman, 1999)

- Extend Alonso Ovalle and Guerzoni's (2004) analysis for negative concord to WTE:
  - N-words are non-negative existential quantifiers, equivalent to non-negative existential quantifiers at truth-conditional level
  - Licensed by a null operator, in a position above TP but below CP
- Proposal:
  - In negative auxiliary inversion constructions, the position which houses the null operator can be licensed by overt head movement of the negative auxiliary

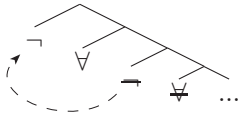
Summary:

- Negation raises to a position which has been independently argued for in the literature to account for both types of subjects
- Both NPI and n-word subjects are licensed by **overt head movement** of negation

4 Semantics of negation

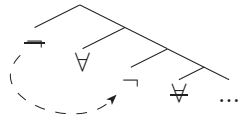
- In order for negation to be interpreted in its moved position at LF, it must be a quantifier

(39) $\neg\forall x[P(x)]$ (=(13))



- Otherwise, it would reconstruct

(40) $\forall x[\neg P(x)]$



- Negation is an existential quantifier that binds event variables (Krifka, 1989)

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