How to neutralize a finite clause boundary:
Phase theory and the grammar of bound pronouns

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1 Overview

Goals of this talk:

- **Empirical:** Bring together data on an under-documented phenomenon: a bound pronoun in the subject position of a finite complement clause renders the clause boundary transparent to processes ordinarily limited to monoclausal, control, and raising configurations.

- **Theoretical:** Propose an analysis that has repercussions for two areas of grammar:

    - **Phase Theory**: We argue for a "convergence-based" view.

    - **Bound pronouns**: We argue for a version of Kratzer's (2009) "dual route" analysis.

Outline:

- *Section 2:* Core facts
- *Section 3:* Core analysis
- *Section 4:* Some remaining issues
- *Section 5:* Concluding remarks

2 Core facts

Clause boundaries in raising and control configurations are transparent to processes that cannot ordinarily span a finite clause boundary:

(1)   GAPPING

     a.   Joe reads books and Tim ⟨reads⟩ articles.   MONOCLAUSAL
     b. Joe_1 seems t_1 to read books and Tim_2 ⟨seems t_2 to read⟩ articles.   RAISING
     c. Joe_1 claims PRO_1 to read books and Tim_2 ⟨claims PRO_2 to read⟩ articles.   CONTROL
     d.   *Joe claims that Bill reads books and Tim ⟨claims that Bill reads⟩ articles.   FINITE COMP

(1d) is to be distinguished from the following surface-string-identical and grammatical parse:

(2)   Joe claims that [Bill reads books and Tim ⟨reads⟩ articles].

Two properties distinguish the patterning in (1) from typical cases of "restructuring" like Romance clitic climbing:

- Blind to choice of embedding verb (Grano In press): *seem*/*claim* in (1c)/(1d) can be replaced by any other raising/control verb without affecting grammaticality.

- **The "bound subject" effect**: Finite clauses can be rendered transparent by making the subject of the embedded clause a bound pronoun (Lasnik 2006):

(3)   Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨~~claims that he$_2$ reads~~⟩ articles.

Non-subject bound pronouns do not induce transparency:

(4)   *Joe$_1$ claims that Bill gave **him**$_1$ books and Tim$_2$ ⟨~~claims that Bill gave him$_2$~~⟩ articles.

Similar judgment profiles obtain for a wide range of "quasi-clause-bound" processes:

(5)   **Pseudogapping** (Postal 1974):
       Joe$_1$ claims that **he**$_1$ reads books but he doesn't ⟨~~claim that he reads~~⟩ articles.

(6)   **Inverse scope** (Hornstein 1994; Kennedy 1997; Kayne 1998; Wurmbrand 2011):
       Some professor$_1$ claims that **he**$_1$ reads every journal. ($\forall > \exists$)

(7)   **Antecedent-contained deletion** (Hornstein 1994; Kennedy 1997):
       Joe$_1$ claims that **he**$_1$ reads every journal Tim$_2$ does ⟨~~claim that he$_2$ reads~~⟩.

(8)   **Comparative deletion** (Lechner 2001):
       More people$_1$ claim that **they**$_1$ read books than ⟨~~claim that they read~~⟩ articles.

(9)   **Multiple sluicing** (Merchant 2001; Lasnik 2014):
       Someone$_1$ claims that **he**$_1$'s worried about something, but I don't know who ⟨~~claims that he's worried~~⟩ about what.

(10) *Other potentially relevant phenomena:* extraposition/heavy NP shift (Postal 1974), multiple questions (Postal 1974), tough movement (Postal 1974), reciprocal binding (Higginbotham 1981), "family of question" readings (May 1985; Sloan 1991; Lasnik 2006), *squat*-NPI licensing (Lasnik 2002), double negation (Postal 1974), intermediate scope (Kratzer 1998).

Note: We suspect that the bound pronoun effect is actually gradient, roughly as follows:

(11) a.   Joe$_1$ claims **PRO**$_1$ to read books and Tim ⟨~~claims PRO to read~~⟩ articles.
      b.   ?Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨~~claims that he$_2$ reads~~⟩ articles.
      c.   *Joe claims that **Bill** reads books and Tim ⟨~~claims that Bill reads~~⟩ articles.

The analysis we sketch treats (11a) and (11b) as both grammatical.

3 Core analysis

3.1 Phase Theory

We focus first on the contrast between (12a)/(12b):

(12) a.   *Joe claims that **Bill** reads books and Tim ⟨~~claims that Bill reads~~⟩ articles.
      b.   Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨~~claims that he$_2$ reads~~⟩ articles.

A first approximation of an analysis:

(13) a. **Phase-based locality:** Gapping (and other similar processes) are phase-bound.
b. **Convergence-based phasehood:** Phases are constituents with no unvalued features. (Cf. Felser 2004. A version of this is entertained also by Chomsky 2000:107 but rejected on conceptual grounds).
c. **Valuation-based binding:** Bound pronouns enter the derivation with features that are not valued until the antecedent is merged in.

This analysis captures the contrast between (14a)/(14b)...

(14) a. *Joe claims that **Bill** reads books and Tim ⟨~~claims [$_{\text{PHASE}}$ that Bill reads~~⟩ articles].
b. Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨~~claims [$_{\text{NON-PHASE}}$ that he$_2$ reads~~⟩ articles].

...but not the contrast between (15a)/(15b):

(15) a. Joe$_1$ claims that **he**$_1$ **reads books** and Tim$_2$ ⟨~~claims [$_{\text{NON-PHASE}}$ that he$_2$ reads~~⟩ articles].
b. *Joe$_1$ claims that **Bill gave him**$_1$ **books** and Tim$_2$ ⟨~~claims [$_{\text{NON-PHASE}}$ that Bill gave him$_Z$~~⟩ articles].

Solution we will offer: Preserve **phase-based locality** and **convergence-based phasehood** but refine **valuation-based binding** so that the **subject** bound pronoun in (15a) has unvalued features but the **object** bound pronoun in (15b) does not (at the relevant stage of the derivation).

3.2 The grammar of bound pronouns

3.2.1 Kratzer's (2009) minimal pronouns

The puzzle of "fake indexicals": How to get the semantics to ignore ϕ-features on *my* in (16)?

(16) Only *I* finished *my* homework.
(relevant reading: For all x such that $x \neq$ speaker, x did not finish x's homework.)

Kratzer's (2009) approach:

(17) a. Bound pronouns can enter the derivation as ϕ-defective "minimal pronouns".
b. Minimal pronouns are bound by verbal functional heads C and v (rather than DP antecedents).
c. A minimal pronoun obtains its ϕ-features in the PF component of the grammar via feature transmission from the functional head that hosts its binder.
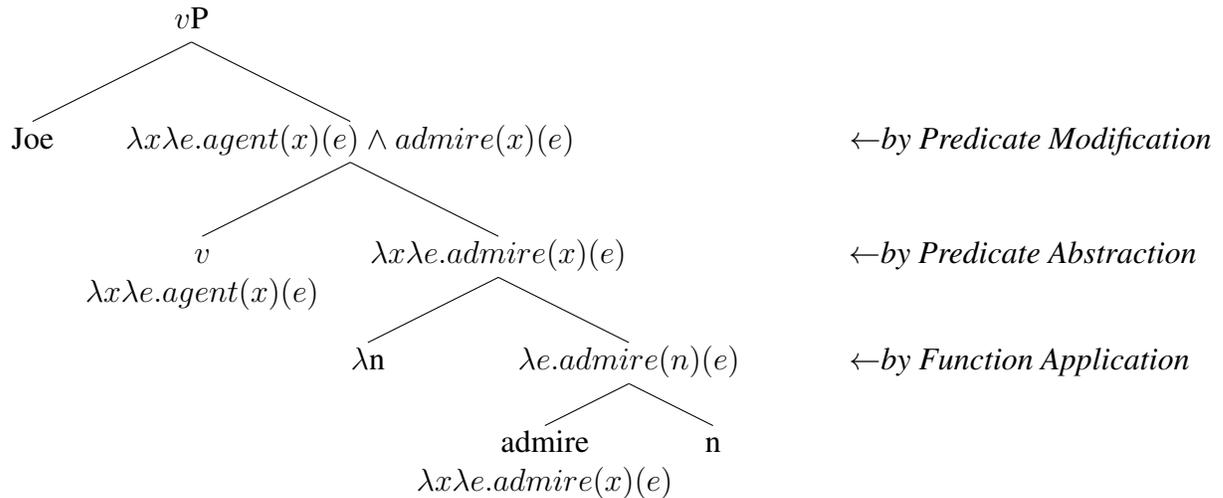
Binding/Feature transmission by v (following Kratzer 2009:194):

(18)   Joe admires himself.

(19)   **Syntax:**
   a. $[_{VP}$ admires $[_{DP}$ ϕ:__]]
   b. $[_{vP}$ Joe[ϕ:3sg.m] v[ϕ:3sg.m] $[_{VP}$ admires $[_{DP}$ **himself**[ϕ:3sg.m]]]]

(20)   **Semantics:**

vP

Joe $\lambda x\lambda e.agent(x)(e) \wedge admire(x)(e)$ ←*by Predicate Modification*

v $\lambda x\lambda e.admire(x)(e)$ ←*by Predicate Abstraction*
$\lambda x\lambda e.agent(x)(e)$

λn $\lambda e.admire(n)(e)$ ←*by Function Application*

admire   n
$\lambda x\lambda e.admire(x)(e)$

Binding/Feature transmission by C:

- PRO   Kratzer 2009; cf. Chierchia 1990

- relative pronouns   Kratzer 2009; cf. Hendrick 1988

- **bound pronominal subjects of finite complement clauses**   ← our suggestion

3.3 Bound subjects

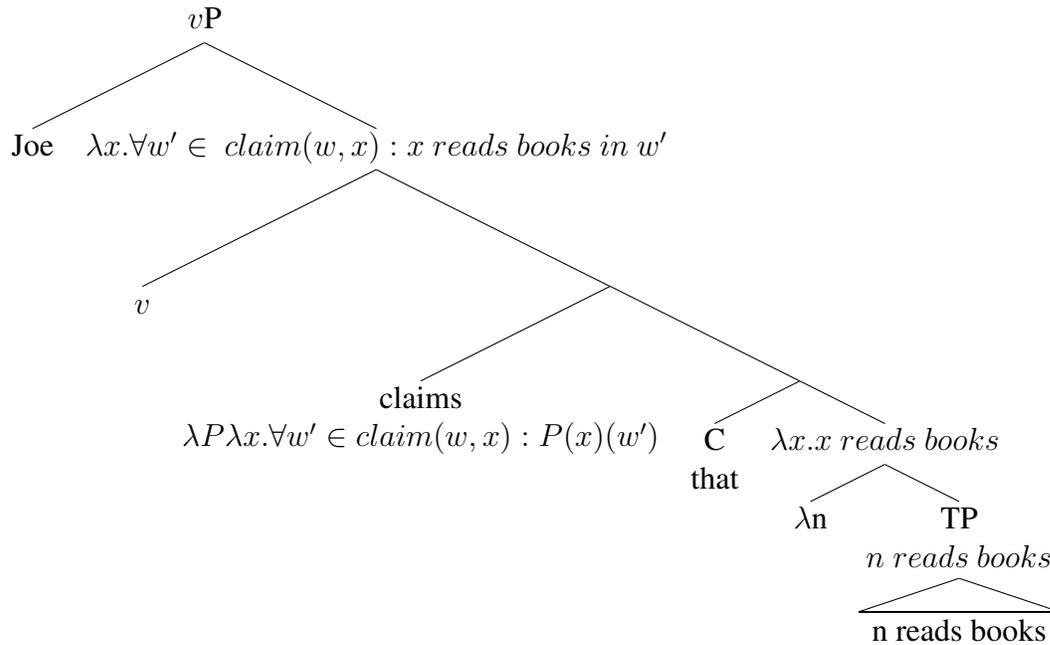(21)   Joe$_1$ claims that he$_1$ reads books.

(22)   **Syntax:**
   a. $[_{TP}$ $[_{DP}$ ϕ:__] $[_{vP}$ reads books]]
   b.   Joe[ϕ:3sg.m] v[ϕ:3sg.m] claims $[_{CP}$ that[ϕ:3sg.m]$[_{TP}$ $[_{DP}$ **he**[ϕ:3sg.m]] $[_{vP}$ reads books]]]

Crucial point: The complement clause in (22b) is in the same phase as its embedding verb, thereby allowing cross-clausal gapping, etc., as in (23).

(23)   Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨~~claims that he$_2$ reads~~⟩ articles.

Semantics: The CP denotes a property, and composes with the matrix predicate in a way familiar from the literature on the semantics of control (Chierchia 1984, 1990; Dowty 1985; Stephenson 2010; Pearson 2013):

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(24)

vP

Joe $\quad \lambda x.\forall w' \in claim(w, x) : x\ reads\ books\ in\ w'$

v

claims
$\lambda P \lambda x.\forall w' \in claim(w, x) : P(x)(w')$ $\quad$ C $\quad \lambda x.x\ reads\ books$
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ that

$\lambda n \quad\quad$ TP
$\quad\quad\quad$ $n\ reads\ books$

n reads books

A consequence: *claim* has to have two denotations (25), one of which can be defined in terms of the other (26) (cf. Grano 2014).

(25)   a. $[\![claim]\!] = \lambda p_{\langle st \rangle} \lambda x.\forall w' \in claim(w, x) : p(w')$
         b. $[\![claim']\!] = \lambda P_{\langle e,st \rangle} \lambda x.\forall w' \in claim(w, x) : P(x)(w')$

(26) $[\![claim']\!] = \lambda P_{\langle e,st \rangle} \lambda x.[\![claim]\!](P(x))(x)$

If controlled complements are property-denoting, then independent motivation for this kind of alternation comes from the fact that some predicates have both control and non-control uses.

3.3.1 Bound non-subjects

Why can't *him* in (27) enter the derivation as a minimal pronoun, thereby (erroneously) allowing gapping like in (28)?

(27)   Joe$_1$ claims that Bill gave him$_1$ books.

(28)   *Joe$_1$ claims that Bill gave **him**$_1$ books and Tim$_2$ ⟨~~claims that Bill gave him$_2$~~⟩ articles.

Proposal: C and v intervene for each other (*contra* Kratzer 2009).

Consequence: (27) cannot be derived from (29).

(29)   Joe[ϕ:3sg.m] v[ϕ:3sg.m] claims [$_{CP}$ that[ϕ:3sg.m] [$_{TP}$ Bill [$_{vP}$ gave [$_{DP}$ ϕ:_] books]]]

                                      X

                               Blocked!

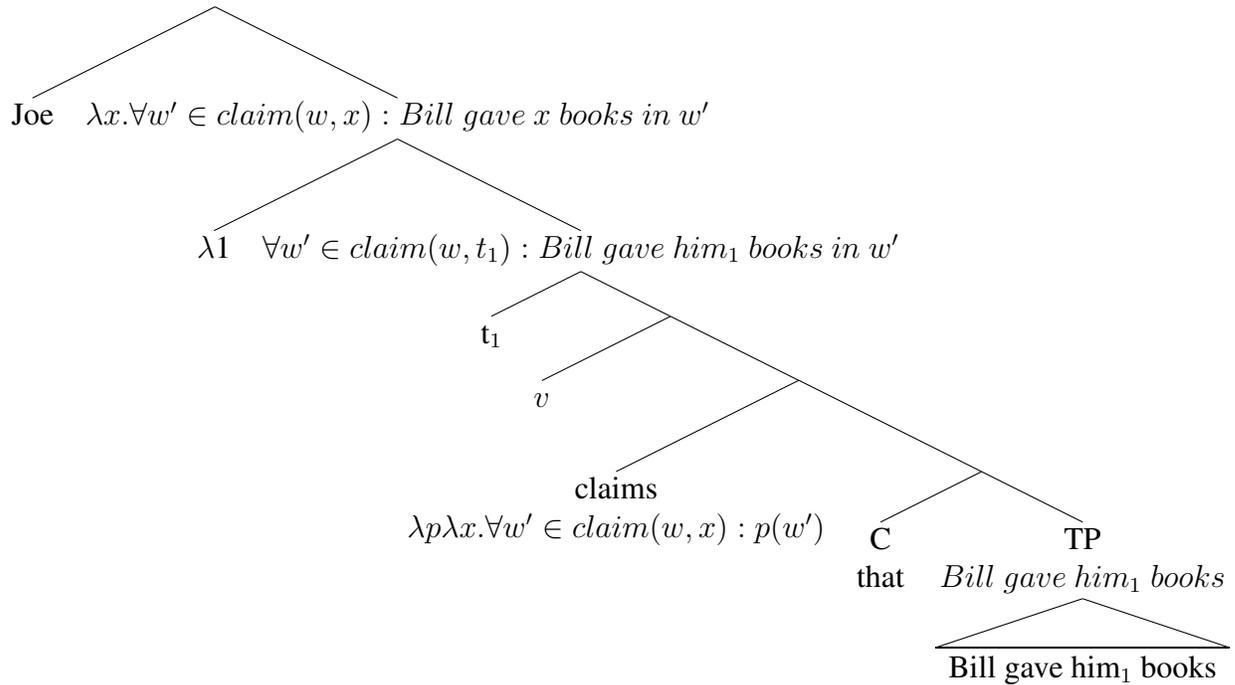A minimal pronoun inside vP can be bound only by v, which results in a reflexive:

(30)   Joe claims that [$_{CP}$ . . . Bill[ϕ:3sg.m] v[ϕ:3sg.m] gave **himself**[ϕ:3sg.m] books]]]

Instead, (27) must be derived from a structure in which the pronoun is ϕ-complete from the beginning of the derivation and gets bound à la Heim and Kratzer 1998, Büring 2005, or Cable 2005, or else is not really bound (the D-type/E-type approach). Here we illustrate the Heim and Kratzer approach.

(31)   **Syntax:**

   a. $[_{TP} [_{DP}$ Bill$] [_{vP}$ gave him books$]]$
   b. $[_{CP}$ that $[_{TP} [_{DP}$ Bill$] [_{vP}$ gave him books$]]]$
   c.   Joe v claims $[_{CP}$ that $[_{TP} [_{DP}$ Bill$] [_{vP}$ gave him books$]]]$

(32)   **Semantics:**

Joe $\lambda x. \forall w' \in claim(w, x) : Bill\ gave\ x\ books\ in\ w'$

$\lambda 1$ $\forall w' \in claim(w, t_1) : Bill\ gave\ him_1\ books\ in\ w'$

t_1

v

claims
$\lambda p \lambda x. \forall w' \in claim(w, x) : p(w')$ C   TP
that   *Bill gave him$_1$ books*

Bill gave him$_1$ books

Bound pronoun is ϕ-complete throughout.
   $\rightarrow$ CP has no unvalued features.
      $\rightarrow$ CP is a phase.
         $\rightarrow$ Cross-clausal gapping, etc., ruled out.

4 Some remaining issues

The "entire subject" effect: Subject-internal bound possessors do not induce transparency (33), even though v does not intervene (34).

(33)   *Joe$_1$ claims that **his$_1$ son** reads books and Tim$_2$ ⟨claims that his$_2$ son reads⟩ articles.

(34)   Joe[ϕ:3sg.m] v[ϕ:3sg.m] claims $[_{CP}$ that[ϕ:3sg.m]$[_{TP} [_{DP}$ **his**[ϕ:3sg.m] **son**$] [_{vP}$ reads books$]]]$

Object relative clauses: For Kratzer (2009), relative pronouns are minimal pronouns bound by C. Object relative clauses therefore appear to be a problem for our C/v intervention proposal:

(35)   This is the linguist $[_{CP}$ who C Joe v admires __].

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Both of these issues can be resolved with one additional proposal:

(36)   **Proposal:** In order for a minimal pronoun to receive features from C, the pronoun must have undergone movement first. (Possibly, this follows from a more general principle that θ-positions cannot be feature checking/valuation positions.)

(36) explains the contrast in (37): *he* in (37a) has moved from [Spec,vP] to [Spec,TP], but *his* in (37b) has not moved.

(37)   a.   Joe$_1$ claims that **he**$_1$ reads books and Tim$_2$ ⟨claims that he$_2$ reads⟩ articles.
         b.   *Joe$_1$ claims that **his**$_1$ **son** reads books and Tim$_2$ ⟨claims that his$_2$ son reads⟩ articles.

(36) also accommodates object relative clauses: Feature transmission from C to the relative pronoun waits until the pronoun has moved to [Spec,CP], at which point v does not intervene:

(38)   This is the linguist [$_{CP}$ who C Joe v admires __].

5 Concluding remarks

Central conclusion: The transparency effects induced by bound pronominal subjects of finite complement clauses provide novel evidence for (a) the convergence-based view of phasehood and (b) the view that some but not all bound pronouns enter the derivation unvalued.

Some questions for further investigation:

- Does the availability of transparency correlate with obligatory *de se*?

  (39)   Joe claims to have read *Pride & Prejudice*.   ✓ *de se*/*de re*

  (40)   Joe$_1$ claims that he$_1$ read *Pride & Prejudice*.   ✓ *de se*/✓ *de re*

  (41)   Joe$_1$ claims that he$_1$ read *Pride & Prejudice* and Bill$_2$ ⟨claims that he$_2$ read⟩ *Sense & Sensibility*.   PREDICTION: ✓ *de se*/*de re*

- Do matrix objects block transparency?

  (42)   ?Joe$_1$ told Sam that he$_1$ reads books and Bill$_2$ ⟨told Sam that he$_2$ reads⟩ articles.

- Since they are obligatorily bound, minimal pronouns are DEPENDENT VARIABLES in the sense of Giannakidou (2009); do other phenomena involving referential dependency give rise to similar kinds of transparency effects (e.g., subjunctives, on the view that they involve temporal dependency (Giannakidou 2011))?

- How to account for gradient judgments?

- The account predicts that object shift (to above v) and subject-internal bound possessor movement should induce transparency; is this accurate?

- If relative pronouns are minimal pronouns, they should induce transparency as well; is this accurate?

- How do ϕ-features get onto C? (Cf. Landau 2013.)

- How should the Phase Impenetrability Condition be formulated on a convergence-based view of phasehood?

- Can C/v intervention and the movement prerequisite on C-binding be reduced to a single condition?

- Are there analogous phenomena in languages other than English?

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