The Chain-Based Approach to Pronominal Antecedence

Alex Drummond, University of Durham

Harvard, February 17 2012

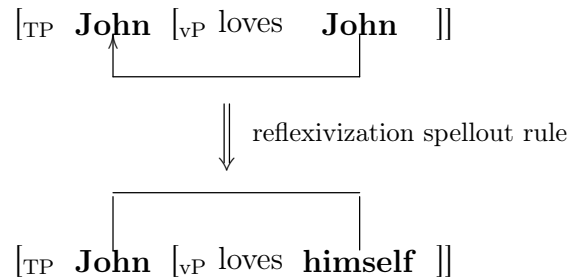# 1   Overview

This talk will:

- Introduce the chain-based approach to antecedence relations (Lees and Klima, 1963; Lidz and Idsardi, 1998; Hornstein, 2001; Kayne, 2002; Zwart, 2002).

- Show how it accounts for basic binding phenomena in English (Conditions A, B and C).

- Propose solutions to some well-known problems for chain-based approaches. In particular, the problem of regulating the interaction between the syntax and the interpretative interfaces.

- Show that the chain-based approach may help to account for uninterpreted ϕ-features on pronouns.

- Briefly outline an approach to crossover phenomena inspired by Reinhart (2006).

- Discuss a very weak crossover effect triggered by A-movement.

- Consider some implications of sloppy readings in copy pronoun/reflexive languages.

- Argue for a *dependency-centric* view of antecedence dependencies and other syntactic dependencies.

2   The Chain-Based Approach

- The chain-based approach to antecedence relations takes these to be derived via movement through multiple thematic positions:
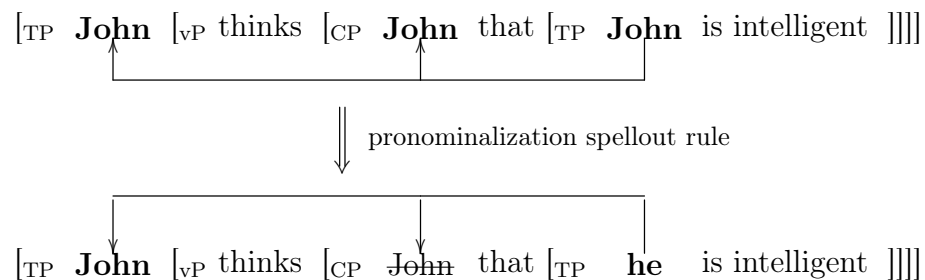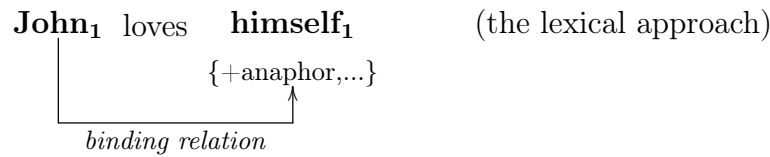
  (1)

  Reflexivization:

  [$_{TP}$ **John** [$_{vP}$ loves   **John**   ]]

  ⇓ reflexivization spellout rule

  [$_{TP}$ **John** [$_{vP}$ loves **himself**]]

  (2)

  Pronominalization:

  [$_{TP}$ **John** [$_{vP}$ thinks [$_{CP}$ **John** that [$_{TP}$ **John** is intelligent]]]]

  ⇓ pronominalization spellout rule

  [$_{TP}$ **John** [$_{vP}$ thinks [$_{CP}$ ~~John~~ that [$_{TP}$ **he**   is intelligent]]]]

- The chain-based approach crucially depends on relaxing two standard constraints on movement:

  - The ban on movement into a θ-position.

  - The ban on "improper" A-A′-A movement (for pronominalization, Drummond, Kush, and Hornstein 2011).

- The chain-based approach contrasts with the **lexical approach** of GB theory and much recent work (e.g. Reuland 2011). This approach takes pronouns and anaphors to be lexical items with certain special properties (e.g. ϕ-deficiency, a +anaphor feature specification) which require a link to be established with an antecedent:

  (3)

John$_1$ loves   **himself$_1$**   (the lexical approach)

{+anaphor,...}

binding relation

- There is a growing body of evidence favoring the chain-based approach. Most of this derives from the prediction that it should be possible for lower copies in the chain to be pronounced.

  (4)   **Copy reflexives** (San Lucas Quiaviní Zapotec example from Lee 2003)
           R-yu'làààà'z Gye'eihlly Gye'eihlly.
           HAB-like   Mike   Mike.
           'Mike likes himself.'

  (5)   **Copy pronouns** (Vietnamese example from Lasnik 1989)
           John tin   John sẽ   thăńg.
           John thinks John will win.
           'John$_1$ thinks that he$_1$ will win.'

  (6)   **Backwards binding** (Nuu-chah-nulth; Davis, Waldie, and Wojdak 2007)
        a. *wawaaʔiš **Christine** ʔin   čatšiƛẃiťashuk   sapnii ʔaḿiiƛik.*
            say-3.IND Christine   COMP push-PERF-ASP-3.SUB bread tomorrow-FUT.
            'Christine$_1$ said that she$_1$'s gonna knead bread tomorrow.'
        b. *wawaaʔiš ʔin   čatšiƛẃiťashuk   **Christine** sapnii ʔaḿiiƛik.*
            say-3.IND COMP push-PERF-ASP-3.SUB Christine   bread tomorrow-FUT.
            'Christine$_1$ said that she$_1$'s gonna knead bread tomorrow.'
            (Lit: 'She$_1$ said that Christine$_1$'s gonna knead bread tomorrow.')

- A problem for the chain-based approach is the existence of antecedence relations which violate well-established constraints on movement. In particular, pronominal antecedence can violate:

  (7)   **Island constraints:**
        a. Every boy$_1$ knows a person who likes him$_1$.
        b. * Who$_1$ does John know a person who likes t_1?

  (8)   **C-command:**
        a. Every boy$_1$'s mother loves him$_1$.
        b. A person who knows John$_1$ loves him$_1$.
        c. If a farmer owns a donkey$_1$, he beats it$_1$.

  (9)   **Prohibition on split antecedence:**
        a. * Who$_1$ do you wonder who$_2$ $t_{\{1,2\}}$ met yesterday?
            (For which x do you wonder: for which y did x and y meet yesterday?)

b.   John$_1$ said that Bill$_2$ pays the bills for their$_{\{1,2\}}$ house.

c.   Every boy$_1$ who met a girl$_1$ asked if they$_{\{1,2\}}$ could dance.[1]

- I will deal with these problems as follows:

  – Following Ross (1967), I distinguish "chopping" from "deletion" rules. Pronominalization and reflexivization spellout rules are "chopping" rules, and not subject to island constraints.

  – I assume that interpretative relations established at the interface are available in addition to chain-based pronominalization and reflexivization. Thus, (8) and (9) do not require movement in violation of the c-command constraint or the prohibition on split antecedence.

  – To stop the interpretative interfaces going haywire, and generating unwanted interpretations, I propose a variant of Reinhart's (2006) "No Sneaking" constraint.

- The conclusion will be that the chain-based approach to syntactic dependencies, as applied to binding theory, shows significant promise.

3   Conditions A, B and C

3.1   Condition A

- A reflexive pronoun can only be derived via spellout of an A-chain.

- A-chains must be local; hence, reflexives must have local antecedents.

- As Zwart (2002) observes, the main problem for this sort of hypothesis has historically been the availability of anaphoric binding into DP:

  (10)   John$_1$ likes [$_{\text{DP}}$ pictures of himself$_1$].

  Ordinary instances of A-movement cannot escape DP:

  (11)   a.   [$_{\text{DP}}$ Pictures of John]$_1$ seem t_1 to be on display.

         b.   * John$_1$ seems [$_{\text{DP}}$ pictures (of) t_1] to be on display.

- Zwart points out that this is no longer such a serious problem for the chain-based approach, since a number of authors have argued that these DP reflexives are "logophoric" or "exempt" anaphors, and hence more accurately analyzed as a kind of pronoun (Zribi-Hertz, 1989; Reuland and Koster, 1991; Pollard and Sag, 1992).
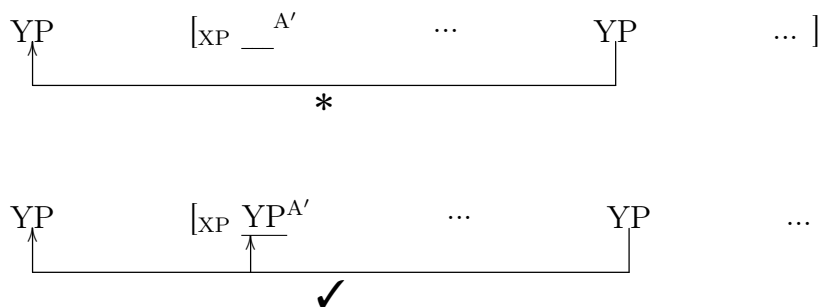
---

[1] Lasnik (1976).

3.2   Condition B

- The pronominalization spellout rule can only apply to chains which span an A' position.

- Therefore, an A'-position must intervene between a pronoun and its (syntactic) antecedent.

- This is why pronouns cannot have local antecedents.

- Pronouns and reflexives are (in English at least) typically in complementary distribution:

    (12)   a. $John_1$ loves himself/*him_1.
           b. $John_1$ expects $himself_1$/*him_1 to like Mary.
           c. $John_1$ told Mary about $himself_1$/*him_1.

    (13)   a. $John_1$ thinks that he_1/*$himself_1$ is intelligent.
           b. $John_1$ said that Mary likes him_1/*$himself_1$.
           c. $John_1$ expects Mary to like him_1/*$himself_1$.

- The complementary distribution of pronouns and reflexives is forced because:

    – For any given pair of thematic positions, there either is an intervening A'-position or there isn't.

    – If there isn't, then any chain linking the two positions will not span an A'-position, and hence will be pronounced via reflexivization rather than pronominalization.

    – If there is, then any chain linking the two thematic positions must go via the intermediate A' position, due to the principle in (14). Hence, the chain will be pronounced via pronominalization.

(14)   **Maximize use of intervening A' positions:**
       Do not skip any intervening A' positions when moving.

$$YP \qquad [_{XP} \underline{\quad}^{A'} \qquad \cdots \qquad YP \qquad \cdots \;]$$

*

$$YP \qquad [_{XP} \; YP^{A'} \qquad \cdots \qquad YP \qquad \cdots \;]$$

✓

3.3   Where are the A' positions?

Finite clauses provide an A'-position in [Spec,CP]:

(15)   [John] thinks [$_{CP}$ [John] that [$_{TP}$ [John] is intelligent]].
         ⇒ "John thinks that he is intelligent."

Infinitival complements may host an A′ position on their left edge – (16a). Or it may be that [Spec,vP] is the relevant A′ position in these instances – (16b):

(16)   **Possible derivation 1:**
     a.   [John] expects [$_T$ **[John]** [$_{TP}$ Mary to like [John]]]
          ⇒ "John expects Mary to like him."
              Possible derivation 2:
     b.   [John] expects [$_{TP}$ Mary to [$_{vP}$ **[John]** [$_{vP}$ like [John]]]]
          ⇒ "John expects Mary to like him."

3.4   Optional A′ positions and complementary

- Some heads may come in two varieties: one which hosts an A′ specifier and one which does not.

- The existence of these heads may lead to a breakdown in the complementarity between pronouns and reflexives.

- Two candidate heads are C and P.

'C' as an optional A′ host

We might expect to find both anaphoric and pronominal binding relations between α and β in the following configuration:

(17)   [$_{TP}$ α ... [$_{CP}$ ... [$_{TP}$ β]]]

In English, this prediction is difficult to test owing to the Anaphor Agreement Effect. Since β cannot be a reflexive due to the AAE, only the option of pronominal binding can be exploited. However, in languages permitting subject anaphors such as Chinese, we do find that pronouns and reflexives are not in complementary distribution in subject positions:[2]

          Chinese:
(18)   *Zhangsan$_1$ shuo ta-ziji$_1$/ta$_1$ hui lai.*
         Zhangsan   say   he-self/he   will come.

'P' as an optional A′ host

Pronoun/reflexive complementarity breaks down in (19) (Chomsky, 1965):

---

[2] Though the facts become more complex when quantificational antecedents are considered. (18)st is taken from Haddad (2007), who notes that *ta-ziji* is always locally bound.

(19) $John_1$ saw a snake near him_1/$himself_1$.

The reflexive in this case does not appear to be a logophor. For example, in contrast to a *picture* DP logophor, it does not permit extrasentential antecedents:

(20)   a.   The $boys_1$ were frightened. Near $them_1$/*$themselves_1$ they saw a snake.
       b.   The $boys_1$ were frightened. Near the recently-sculpted statues of $them_1$/ ?$themselves_1$ they saw a snake.

If the reflexive in (19) is not a logophor, it might be hypothesized that the relevant prepositional phrases have specifiers which can be used as intermediate A′-positions.

3.5   Condition C

From the present perspective, Condition C violations are just failures of the pronominalization spellout rule to apply. The derivation in (21a) can only be spelled out as (21b), not as (21c):

(21)   a.   [John] thinks [$_{cP}$ [John] that [$_{TP}$ [John] is intelligent]].
       b. $\Rightarrow$ John thinks that he is intelligent.
       c. $\not\Rightarrow$ He thinks that John is intelligent.

> Why can't we use interpretative processes at the interface to obviate Condition C? We'll address that question in §4.

3.6   The absence of island effects

- We have seen that pronouns can be bound across islands:

  (22)   Every boy_1 knows a person who likes him_1.

- Movement itself is not subject to island constraints. Rather, it is the **Default Chain Spellout Rule** which is subject to island constraints:

  (23)   **Default Chain Spellout Rule:** Spell out the copy whose valued features are a superset of those of all other copies in the chain.[3]

- Language-specific spellout rules are not subject to island constraints; hence, pronominalization is not. (This is similar to Ross's (1967) distinction between deletion and "chopping" rules.)

---

[3] This condition is inspired by the Copy Deletion Determinism condition of Hornstein (2001).

⇒ **Why can't the Default Chain Spellout Rule apply in cases of pronominalization?**

- Moving through multiple θ/Case positions causes the previous θ/Case values of a copy to be overwritten.

- Thus, $\theta \to$ Case$\to \theta \to$ Case movements look like (24a), not (24b):

  (24) a. ✓ $\alpha\{\text{Nom},\theta_2\}$ ... $\alpha\{\theta_2,\text{Acc}\}$ ... $\alpha\{\text{Acc},\theta_1\}$ ... $\alpha\{\theta_1\}$
      b. ✗ $\alpha\{\text{Nom},\theta_2,\text{Acc},\theta_1\}$ ... $\alpha\{\theta_2,\text{Acc},\theta_1\}$ ... $\alpha\{\text{Acc},\theta_1\}$ ... $\alpha\{\theta_1\}$

⇒ This implies that the Default Chain Spellout Rule can't apply in cases such as (25), which instantiate the abstract schema in (24a):

  (25) a. $[_{\text{TP}} [\text{John}]_{\{\mathbf{Nom},\boldsymbol{\theta_2}\}} [_{\text{vP}} [\text{John}]_{\{\mathbf{Acc},\boldsymbol{\theta_2}\}} [_{\text{AgrOP}} [\text{John}]_{\{\mathbf{Acc},\boldsymbol{\theta_1}\}}$ likes $[\text{John}]_{\{\boldsymbol{\theta_1}\}}]]]$.
      ⇒ "John likes himself"
      b. $[\text{John}]_{\{\mathbf{Nom},\boldsymbol{\theta_2}\}} [_{\text{vP}} [\text{John}]_{\{\mathbf{Nom},\boldsymbol{\theta_2}\}}$ thinks
      $[_{\text{CP}} [\text{John}]_{\{\mathbf{Nom},\boldsymbol{\theta_1}\}}$ that $[_{\text{TP}} [\text{John}]_{\{\mathbf{Nom},\boldsymbol{\theta_1}\}}$ is $[_{\text{AP}} [\text{John}]_{\{\boldsymbol{\theta_1}\}}$ intelligent$]]]]$.
      ⇒ "John thinks that he is intelligent."

- This is why language-specific spellout rules apply in these cases.

- We also explain why anaphoric binding, in contrast to obligatory control, is not constrained by Minimality:

  (26) a. John$_1$ persuaded Bill$_2$ [PRO$_{*1/2}$ to leave].
      b. John$_1$ told Bill$_2$ about himself$_{1/2}$.

3.7   Strong/weak pronouns and the lexical approach

- On the whole, base-generated pronouns are strong/tonic pronouns and derived pronouns are weak/clitic pronouns.

- The general principle seems to be that pronominalization chains are spelled out using the *weakest available* form. For example, Spanish has roughly three classes of pronoun:

  - Null subject pronouns.

  - Overt object/indirect object clitic pronouns.

  - Overt tonic pronouns (these can be subjects, doubles of object clitics, or complements of prepositions).

Traditionally, it is often said that the null and clitic pronouns are "weak," and compatible with bound readings, whereas the tonic pronouns are strong, and incompatible with bound readings.[4] However, as Montalbetti (1984) observed, the tonic pronouns can be used to encode bound readings when no weaker form is available:[5]

(27)   **Spanish**

Null subject pronoun is available, tonic pronoun cannot be used:

a.   *Cada chico$_1$ dijo que* pro$_1$/*el$_1$ *era inteligente.*
Every boy   said that (he)   was intelligent

Clitic pronoun is available, tonic pronoun cannot be used:

b.   *Cada chico$_1$ dijo que María le$_1$ habló (* a el$_1$).*
Every boy   said that Maria to-him-CL spoke   to him-TONIC

Clitic pronoun is not available, tonic pronoun may be used:

c.   *Cada chico$_1$ dijo que María habló con el$_1$.*
Every boy   said that Maria spoke with him

- In languages where null pronouns have a wider distribution, pronominaliazation chains will almost always be spelled out with a null pronoun. Overt pronouns will therefore not be used to express bound readings under c-command. They may however have E-type and other covarying readings (Kurafuji, 1998; Watanabe, 1993; Nishigauchi, 1990):[6]

(28)   **Japanese:**

a.   * *daremo-ga$_1$ [Kare-ga$_1$ attamaga ii   to]   omotteiru.*
everyone-NOM he-NOM   be-smart COMP think.

'Everyone thinks he is smart.'

b.   [$_{Rel}$ *Ronbun$_1$-o yon-da*]   *dono gakusee-mo   sore$_1$ hihanshi-ta.*
paper-ACC read-PAST which student-every it-ACC criticize-PAST.

'Every student that read a paper criticized it.'

- Similarly, building on observations of Wiltschko (1998), Patel-Grosz and Grosz (2009) note that German demonstrative pronouns disallow binding under c-command but permit E-type interpretations. They also point out that strong pronouns in Kutchi Gujarati behave similarly:

(29)   **German:**

a.   [*Jeder Mann*]$_1$ *behauptet, dass er$_1$ / *der$_1$ intelligent ist.*
Every man   claims   that he / that.one intelligent is.

---

[4] Although they do often permit covarying readings outside of c-command configurations, as in Donkey anaphora.

[5] Montalbetti stated an "Overt Pronoun Constraint": "Overt pronouns cannot link to formal variables if the alternation overt/empty obtains" (p. 94). I think that this is essentially correct, except that the principle needs to be generalized to a continuum of phonological strength/weakness, rather than a binary overt/covert distinction.

[6] Example (28b) is from Kurafuji (1998, 136); Example (28a) is from Aoun and Hornstein (1991).

'Every man claims that he is intelligent.'

Kutchi:

b.   [*Batha manas*]₁ *kidhu ke   pro   / *i   hosiyar   che.*
     Every man   says   that 3.sg.nom / 3.sg.nom intelligent is.
     (Kutchi)

'Every man said that he was intelligent.'

(30)   **German:**

a.   *Jede   Linguistin, die einen Esel   hat, liebt den.*
     Every linguist   who a   donkey has loves it.
     'Every linguist who owns a donkey loves that donkey.'

Kutchi:

b.   *Ji manas jena passe pathni che, gare   aave, tho pro   ene*
     If man   who poss wife   is   home comes then 3.sg.nom 3.sg.acc
     bak bharave.
     hug makes

'If any man who has a wife comes home, he hugs her.'

- The same pattern is found for English epithets:

(31)   a.   * Every donkey₁ thinks that the poor animal₁ is treated badly.
       b.   Every farmer who owns a donkey₁ beats the poor animal₁.

⇒ Pronouns in and of themselves have no special interpretative properties. The most important division among pronouns and other expressions is that between things which can be the spellout of the tail of a chain and things which cannot. This groups various kinds of strong pronoun together with epithets and demonstratives.

⇒ When it comes to different reflexive/pronoun forms, everything is relative. There are no weak or strong pronouns, only weak*er* or strong*er* pronouns.

⇒ For these reasons, the distinction between weak and strong pronouns cannot be analyzed in terms of lexically distinct classes of pronoun.

4   The Output Constraint

- Some pronouns are base-generated, and are not spellouts of copies in chains.

- Base-generated pronouns can be linked to antecedents via interpretative processes at the interface.[7]

---

[7]I am fairly neutral w.r.t. the question of how pronouns are interpreted at the interfaces. Something along the lines of Elbourne (2005) would fit in quite nicely with the present framework. The claim would be that *almost* all pronouns are definite descriptions, except perhaps when they are the spellouts of lower copies.

- This is why coreference and binding relations may be established in configurations which are clearly inaccessible to chain formation:

  (32) a.   Every boy$_1$'s mother loves him$_1$.
        b.   A person who knows John$_1$ loves him$_1$.
        c.   If a farmer owns a donkey$_1$, he beats it$_1$.

- But interpretative processes at the interface are not subject to syntactic constraints. So why can't we use these processes to get around Condition B and Condition C?

  (33) a.   *John* likes *him*.
              ['John' and 'him' are linked by a relation of coreference at the interface.]
        b.   *He* thinks that *John* is intelligent.
              ['He' and 'John' are linked by a relation of coreference at the interface.]

- Reinhart (1983) and Reinhart (2006) attempted to address this problem in the context of a rather different theory of anaphora.

4.1   No Sneaking (Reinhart, 2006)

- Reinhart (2006) proposed a principle which I will call **No Sneaking**.[8]

- The basic idea behind No Sneaking is that interpretative processes at the interface cannot be used to "sneak in" interpretations which are ruled out by syntactic constraints (such as Condition B).

- I will now present a modified form of No Sneaking in the form of the **Output Constraint**:

  (34)   **Output Constraint:**
          For a derivation D, if there is an interpretative dependency established at the interface between A and B, and if A and B are in a configuration such that they *could* have been linked via a chain, then:

          (i) The phonological output of D must be identical to that which would obtain if A and B were linked via a chain (either by replacing B with a copy of A or vice versa).

          (ii) The formal output of D must be identical to that which would obtain if A and B were linked via a chain.

- We'll only need a very naive notion of "phonological output." For example, we'll need to recognize that "He thinks that John is intelligent" isn't phonologically identical to "John thinks that he is intelligent."

---

[8] Reinhart herself called the principle Rule I, but this is somewhat confusing, since it differs greatly from the original Rule I of Grodzinsky and Reinhart (1993).
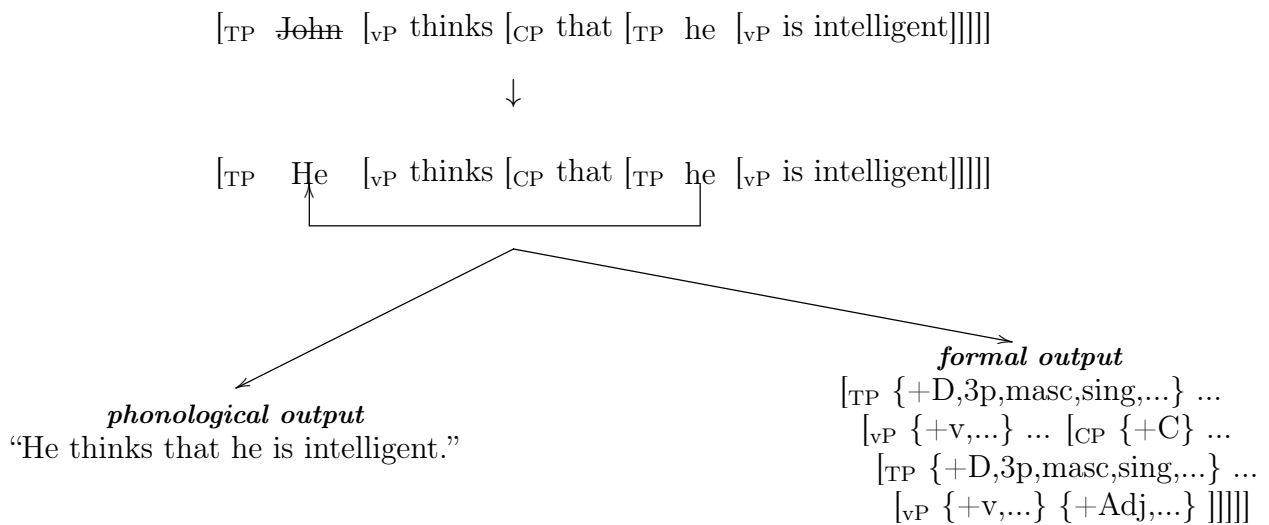
- The "formal output" of a derivation is the final tree structure which it derives, which all features except formal features stripped away.

⇒ In the next few subsections, only condition (i) of the Output Constraint will be relevant, since (ii) will always be satisfied. But we'll see how (ii) comes into play in §8.

4.2   The Output Constraint and Condition C
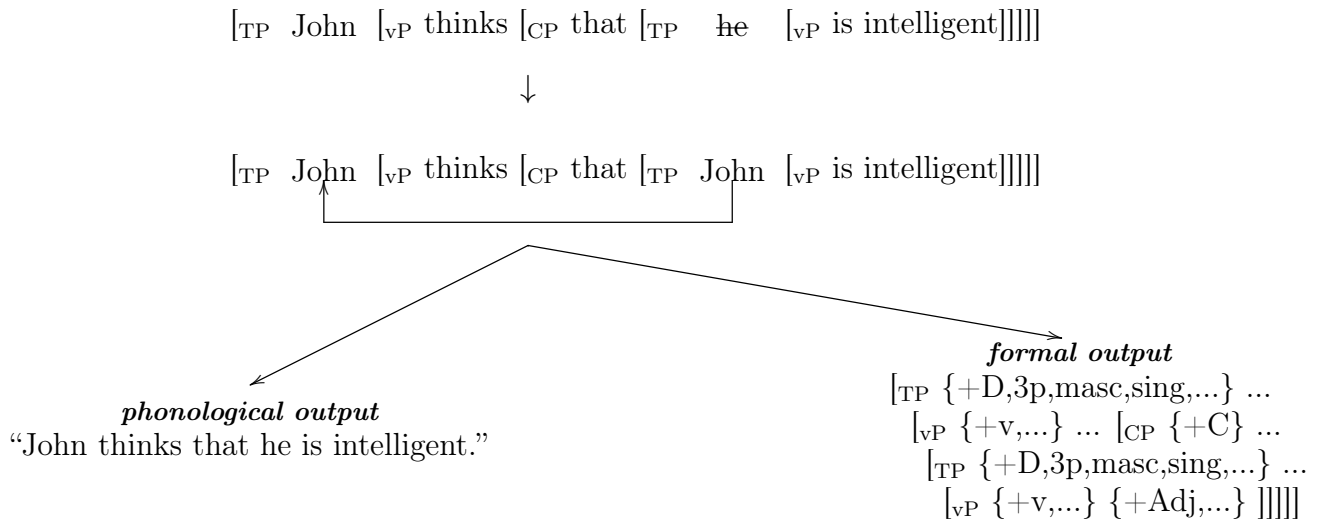
(35)   a.   * *He* thinks that *John* is intelligent.   [coreference established at interface]

   b.   **Formal output:**
         $[_{TP}$ {+D,3p,masc,sing,...} ... $[_{vP}$ {+v,...} ...
              $[_{CP}$ {+C} ... $[_{TP}$ {+D,3p,masc,sing,...} ... $[_{vP}$ {+v,...} {+Adj,...}]]]]]]

   c.   **Phonological output:**
         "He thinks that John is intelligent."

Comparison derivation 1: replace *John* with a copy of *he*

$[_{TP}$ ~~John~~ $[_{vP}$ thinks $[_{CP}$ that $[_{TP}$ he $[_{vP}$ is intelligent]]]]]

↓

$[_{TP}$ He $[_{vP}$ thinks $[_{CP}$ that $[_{TP}$ he $[_{vP}$ is intelligent]]]]]

formal output
$[_{TP}$ {+D,3p,masc,sing,...} ...
   $[_{vP}$ {+v,...} ... $[_{CP}$ {+C} ...
      $[_{TP}$ {+D,3p,masc,sing,...} ...
         $[_{vP}$ {+v,...} {+Adj,...}]]]]]

phonological output
"He thinks that he is intelligent."

$\Rightarrow$ Formal output is identical to (35b)

$\Rightarrow$ But phonological output differs from (35c)

$\Rightarrow$ For this comparison derivation, the Output Constraint is violated.

Comparison derivation 2: replace *he* with a copy of *John*

$[_{TP}$ John $[_{vP}$ thinks $[_{CP}$ that $[_{TP}$ ~~he~~ $[_{vP}$ is intelligent$]]]]]$

$\downarrow$

$[_{TP}$ John $[_{vP}$ thinks $[_{CP}$ that $[_{TP}$ John $[_{vP}$ is intelligent$]]]]]$

formal output
$[_{TP}$ {+D,3p,masc,sing,...} ...
$[_{vP}$ {+v,...} ... $[_{CP}$ {+C} ...
$[_{TP}$ {+D,3p,masc,sing,...} ...
$[_{vP}$ {+v,...} {+Adj,...} $]]]]]$

phonological output
"John thinks that he is intelligent."

$\Rightarrow$ Formal output is identical to (38b)

$\Rightarrow$ But phonological output differs from (38c)

$\Rightarrow$ For this comparison derivation, the Output Constraint is violated.

Evaluation

The Output Constraint is violated for all comparison derivations for (35a). Thus, (35a) violates the Output Constraint.

- By way of comparison, consider (36):

  (36)   *John* thinks that *he* is intelligent.

  We can choose as a comparison derivation the derivation in which *he* is replaced by a copy of *John* (and an additional copy is added corresponding to intermediate movement via [Spec,CP]):

  (37)   [John] thinks $[_{CP}$ [John] that $[_{TP}$ [John] is intelligent]].

  $\Rightarrow$"John thinks that he is intelligent" *(phonological output)*
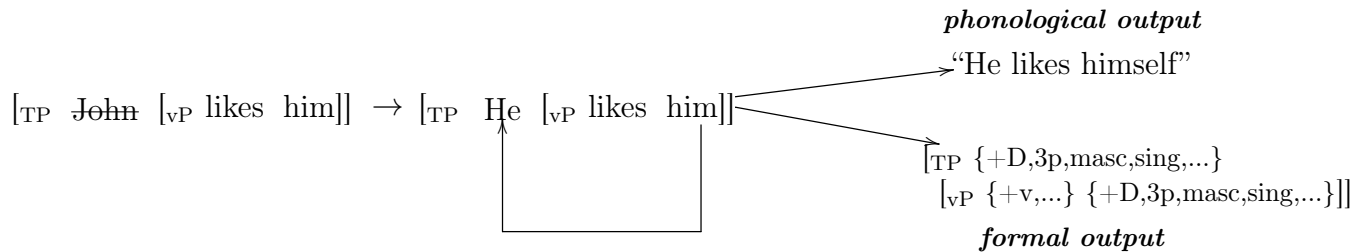
  $\Rightarrow [$ {+D,3p,masc,sing,...} ... {+D,3p,masc,sing,...}$]$ *(formal output)*[9]

---

[9] The intermediate copy does not appear in the formal output because it has been deleted by the pronominalization spellout rule.

13

4.3   The Output Constraint and Condition B

(38)   a.   * *John* likes *him*.   [coreference established at interface]

   b.   Formal output:
         [$_{TP}$ {+D,3p,masc,sing,...} ... {+v,...} ... {+D,3p,masc,sing,...}]

   c.   Phonological output:
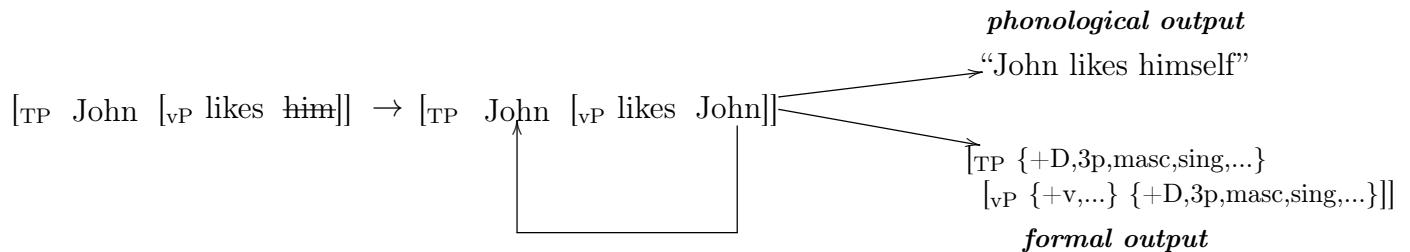   "John likes him."

Comparison derivation 1: replace *John* with a copy of *him*

phonological output

"He likes himself"

[$_{TP}$ ~~John~~ [$_{vP}$ likes him]] → [$_{TP}$ He [$_{vP}$ likes him]]

[$_{TP}$ {+D,3p,masc,sing,...}
[$_{vP}$ {+v,...} {+D,3p,masc,sing,...}]]

formal output

   ⇒ Formal output is identical to (38b)

   ⇒ But phonological output differs from (38c)

Comparison derivation 2: replace *him* with a copy of *John*

phonological output

"John likes himself"

[$_{TP}$ John [$_{vP}$ likes ~~him~~]] → [$_{TP}$ John [$_{vP}$ likes John]]

[$_{TP}$ {+D,3p,masc,sing,...}
[$_{vP}$ {+v,...} {+D,3p,masc,sing,...}]]

formal output

   ⇒ Formal output is identical to (38b)

   ⇒ But phonological output differs from (38c)

Evaluation

The Output Constraint is violated for all comparison derivations for (38). Thus, (38) violates the Output Constraint.

5   Epithets

- Epithets are r-expressions as far a syntactic pronominalization is concerned, since they cannot be the output of a pronominalization transformation. But at the interpretative

interface, they have more in common with (base-generated) pronouns, since they are small definite descriptions which may be linked to an antecedent. Thus, in configurations where a chain could not be formed, and the Output Constraint does not apply, epithets should revert to pronoun-like behavior.

- One possible instance of this effect relates to binding of epithets by non-subject antecedents. Within the chain-based framework, the Merge over Move constraint (as interpreted by Hornstein 2001) make it difficult to move to non-subject positions.

- Hornstein (2001). Hornstein exploits Merge over Move to rule out illicit cases of object-oriented control such as (39):

(39)   * [$_{TP}$ [$_{TP}$ John$_1$ kissed Mary$_2$] [$_{PP}$ without PRO$_2$ blushing]].

To see how Merge over Move blocks (39), consider the point in its derivation where *Mary* moves sideward from the adjunct to the object position:

(40)   *Workspace 1:*
              [$_{PP}$ without t_2 blushing]
          Workspace 2:
              [$_{v'}$ kissed Mary$_2$]

At this point, the DP *John* (or at least, the material for constructing it) remains in the numeration. Thus, Merge over Move requires that *John* be merged as the object of *kiss* instead of *Mary*. Subsequently, *Mary* moves sideward into [Spec,vP] to pick up the unassigned theta role, and then raises to [Spec,TP] to get Case. The Merge-over-Move-compliant derivation therefore yields subject-oriented control:

(41)   [$_{TP}$ [$_{TP}$ Mary$_1$ kissed John$_2$] [$_{PP}$ without t_1 blushing]].

- Epithets can often be bound by c-commanding non-subject antecedents:

(42)   a.   * [The President]$_1$ told [the Vice President]$_2$ that [the experienced politician]$_1$ would have to resign.
        b.   [The President]$_1$ told [the Vice President]$_2$ that [the experienced politician]$_2$ would have to resign.

The crucial point in the derivation of (42) is the one following merger of the clausal argument with the lower V. At this point, the second internal argument must be merged. There are two options: move DP out of the clause to fill this position (via [Spec,CP]), or merge the other DP remaining in the numeration. Merge over Move prefers the second alternative.

(43)   V$_2$ [V$_1$ [$_{CP}$ that DP would have to resign]]

In (42b), therefore, it is not possible to form a chain between the positions of *the experienced politicans* and *the Vice President*, and so the Output Constraint does not apply.

6   The problem of uninterpreted ϕ-features

- A number of authors have recently noted that the ϕ-features of bound pronouns and reflexives sometimes fail to make an interpretative contribution (Kratzer, 2009; Reuland, 2010). In particular, they do not always restrict the domain of the bound variable:

  (44)   a.   Only John loves himself.
         b.   ✗ John is the only member of
                   $\{x : \mathrm{masc}(x) \mid x \text{ loves } x\}$
         c.   ✓ John is the only member of
                   $\{x \mid x \text{ loves } x\}$

  (45)   a.   Only John loves his mother.
         b.   ✗ John is the only member of
                   $\{x : \mathrm{masc}(x) \mid x \text{ loves } x\text{'s mother}\}$
         c.   ✓ John is the only member of
                   $\{x \mid x \text{ loves } x\text{'s mother}\}$

  (46)   a.   John loves himself and Mary does too.
         b.   ✗ John loves himself and Mary $\lambda x : \mathrm{masc}(x)[x \text{ loves } x\text{'s mother }]$.
         c.   ✓ John loves himself and Mary $\lambda x : [x \text{ loves } x\text{'s mother }]$.

- There are also examples involving "fake indexicals":

  (47)   a.   Only I love my mother.
         b.   ✓ I love my mother, but no-one else loves **my** mother.
                 (ϕ-features contribute)
         c.   ✓ I love my mother, but no-one else loves **their** mothers.
                 (ϕ-features do not contribute)

- If bound pronouns/reflexives are lexical items, this raises an issue relating to Chomsky's (1995, 219) principle of Full Interpretation:

  (48)   **Full Interpretation:** An LF representation must consist entirely of "legitimate objects" that can receive an interpretation (perhaps as gibberish).

  The ϕ-features on bound pronouns must be part of the LF representation if bound pronouns are lexical items in their own right, but these ϕ-features are not interpreted. Under the chain-based approach this is expected, since the ϕ-features on the pronoun are just copies of the ϕ-features on the antecedent, and hence cannot make an independent interpretative contribution.

- Kratzer (2009) and Reuland (2010) attempt to maintain the position that bound pronouns are lexical items by assuming that they are not specified for ϕ-features in their lexical entries – they are "minimal pronouns". Minimal pronouns acquire their ϕ-features in the course of the derivation via Agree. This resolves the issue relating to Full Interpretation, but raises two rather difficult questions:

  (i) If a "minimal pronoun" has neither ϕ-features, nor any referential content, it seems to contribute nothing more than an index. But the property of being an index is inherently relational: the only significant properties of an index are (a) its position in a given representation and (b) whether or not it is identical to other indices *in the same representation*. Thus, it is not obviously coherent to conceive of an index as a lexical item.

  (ii) Why do "minimal pronouns" have to acquire ϕ-features from their antecedents (rather than from some other item)? It is presumably not an interpretative requirement that they do so, since their (eventual) ϕ-features make no interpretative contribution. But nor can it be a morphological requirement, since any ϕ-feature bearing element is a fine source of ϕ-features from a purely morphological point of view, whether or not it is the pronoun's antecedent.

⇒ Under the chain-based approach, uninterpreted ϕ-features on bound pronouns are not as surprising as they are under the lexical approach.
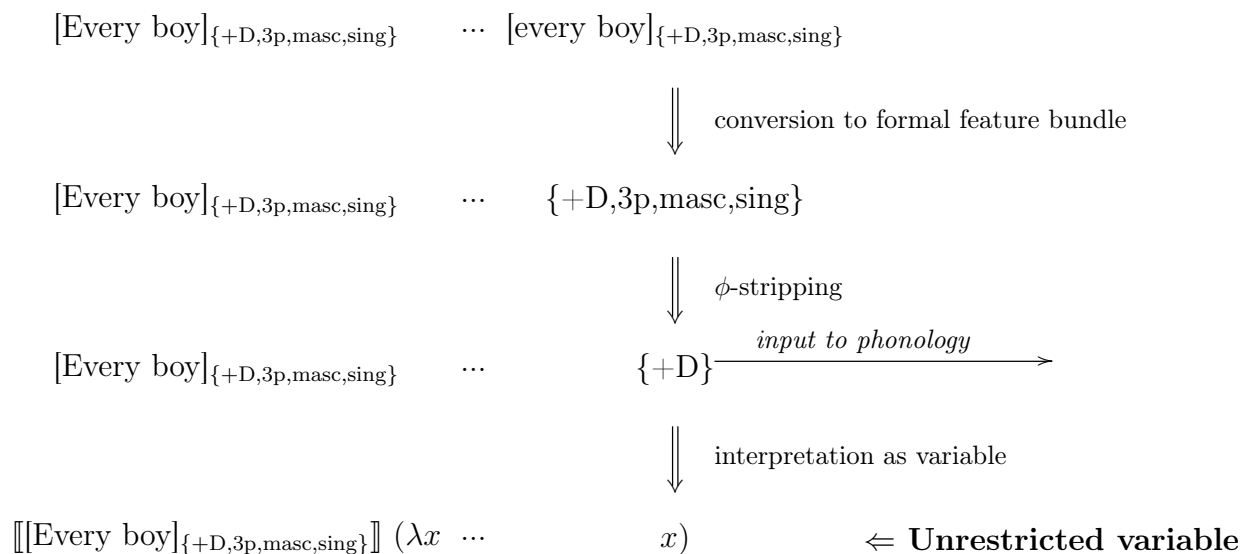
⇒ But we still need an account of how and when ϕ-features disappear in the interpretation.
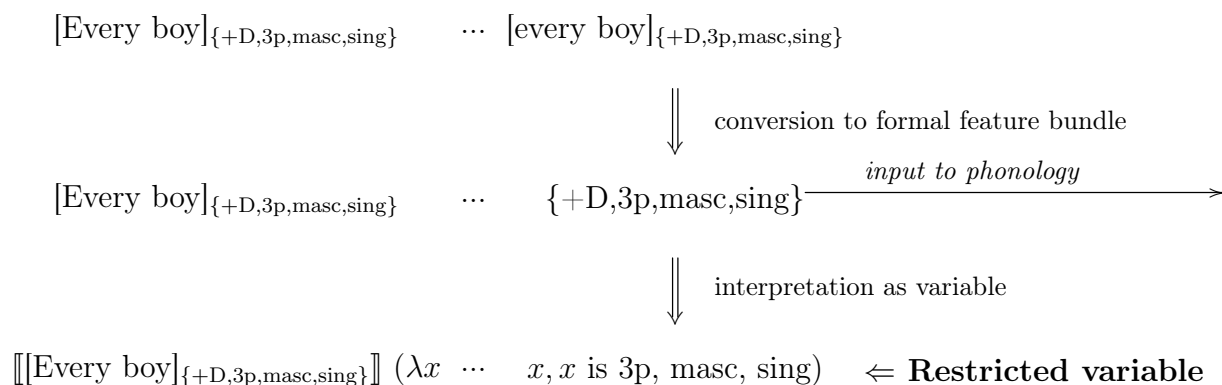
7 ϕ-stripping

- Pronominalization chains undergo a process of "ϕ-stripping," which has the result that the ϕ-features on the lower copy make no contribution to the interpretation.

- Base-generated pronouns do not undergo ϕ-stripping. So for example, reading (47b) of (47a) can be obtained using a base-generated pronoun, and reading (47c) using a pronominalization chain.

- ϕ-stripping applies to the maximal extent possible – we will see shortly that it is constrained by a recoverability constraint.

- If ϕ-stripping fails to apply maximally, then remaining ϕ-features are interpreted as restrictors on the variable.[10]

---

[10] I will not make any specific proposals regarding the interpretation of lower copies, but the suggestion of Fox (2000) that they can be interpreted as definite descriptions would provide a natural way of introducing restrictors.

7.1 ϕ-stripping applying fully to a quantifier-variable chain.

[Every boy]$_{\{+D,3p,masc,sing\}}$ $\cdots$ [every boy]$_{\{+D,3p,masc,sing\}}$

$\Downarrow$ conversion to formal feature bundle

[Every boy]$_{\{+D,3p,masc,sing\}}$ $\cdots$ $\{+D,3p,masc,sing\}$

$\Downarrow$ ϕ-stripping

[Every boy]$_{\{+D,3p,masc,sing\}}$ $\cdots$ $\{+D\}$ $\xrightarrow{\textit{input to phonology}}$

$\Downarrow$ interpretation as variable

$[\![$[Every boy]$_{\{+D,3p,masc,sing\}}]\!]$ $(\lambda x$ $\cdots$ $x)$ $\Leftarrow$ **Unrestricted variable**

7.2 ϕ-stripping failing to apply to a quantifier-variable chain

[Every boy]$_{\{+D,3p,masc,sing\}}$ $\cdots$ [every boy]$_{\{+D,3p,masc,sing\}}$

$\Downarrow$ conversion to formal feature bundle

[Every boy]$_{\{+D,3p,masc,sing\}}$ $\cdots$ $\{+D,3p,masc,sing\}$ $\xrightarrow{\textit{input to phonology}}$

$\Downarrow$ interpretation as variable

$[\![$[Every boy]$_{\{+D,3p,masc,sing\}}]\!]$ $(\lambda x$ $\cdots$ x, x is 3p, masc, sing) $\Leftarrow$ **Restricted variable**

7.3 ϕ-stripping and blocking effects

How can a ϕ-stripped copy be pronounced as a pronoun in a language such as English, where pronouns have overt ϕ-features which must match those of the antecedent?

The deleted ϕ-features must be recovered from elsewhere in order for the spellout rules to operate.

(49)   **Phonological recoverability of ϕ-features:** If α is a copy which has no ϕ-features, and there is no spellout rule which can pronounce α without access to a ϕ-specification, then recover the necessary ϕ-features from the checking domain[11] of the chain to which α belongs.

---

[11] For concreteness, take the checking domain of a chain $\alpha_1, \ldots, \alpha_n$ to be $\{\beta \mid \exists i \; [\text{Spec-Head}(\alpha_i, \beta) \vee \text{Head-Comp}(\alpha_i, \beta)]\}$.

(50)   **Formal recoverability of ϕ-features:** A ϕ-feature on a copy α may be deleted only if it can be erased by a matching feature on a head/phrase in the checking domain of the chain to which α belongs.

7.3.1   English fake indexicals under VP ellipsis

(51)   a.   I wash my car every day, but John doesn't.
       b.   ✓I wash my car every day, but John doesn't wash his car every day.
       c.   ✓I wash my car every day, but John doesn't wash my car every day.

(52)   a.   I said that my arm hurt, but Mary didn't.
       b.   ✓I said that my arm hurt, but Mary didn't say that my arm hurt.
       c.   ✓I said that my arm hurt, but Mary didn't say that her arm hurt.

(53)   a.   I said that you hurt my arm, but Mary didn't.
       b.   ✓I said that you hurt my arm, but Mary didn't say that you hurt my arm.
       c.   ✗I said that you hurt my arm, but Mary didn't say that you hurt her arm.

7.3.2   Chinese long-distance reflexives

- Chinese has a long-distance reflexive *ziji*.

- The spellout rules of Chinese are such that *ziji* can be used to spell out A′-position-spanning chains as well as A-chains.

- *Ziji* can only be the spellout of a chain, never the spellout of a base-generated pronoun.

Examples of blocking effects with *ziji*:[12]

(54)   a.   **3_1 ... 3 ... 3_1:**
              Lisi$_1$ zhidao Zhangsan$_1$ chang piping   ziji$_{1/2}$.
              Lisi know   Zhangsan often criticize him/himself

              'Lisi knows that Zhangsan often criticizes him/himself.'

       b.   *** 3_1 ... $1/2$ ... 3_1:**
              Zhangsan$_1$ danxin wo$_2$/ni$_2$ hui piping   ziji$_{*1/2}$.
              Zhangsan worry I/you   will criticize self

              'Zhangsan is worried that I/you will criticize myself/yourself/*him.'

       c.   **Sing$_1$ ... Pl ... Sing$_1$:**
              Lisi$_1$ zhidao tamen$_2$ chang piping   ziji$_{1/2}$.
              Lisi know they   often criticize self

---

[12] Examples taken from Kennedy and Lidz (2001). There is some dialectal variation in blocking effects, as **?** observe.

'Lisi knows that they often criticize themselves/him.'

d.   *** Pl$_1$ ... Sing ... Pl$_1$:**
tamen$_1$ zhidao Lisi$_2$ chang piping   ziji$_{*1/2}$.
they   know Lisi often criticize self.
'They know that Lisi often criticizes himself/*them.'

8   Crossover phenomena

- If we set aside dependencies established at the interpretative interface, there is a simple explanation for WCO effects. There are two cases to consider, exemplified in (55a) and (55b). In the case of (55a), all three positions could be spelled out via a chain, but the result would be pronounced as a parasitic gap construction (56a). In (55b), it is simply impossible to link all three positions via a chain, so the intended interpretation cannot be encoded (56b).

  (55)   a.   ? Who$_1$ would a picture of him$_1$ frighten t_1?
         b.   ? Who$_1$ would the woman who married him$_1$ hate t_1?
  (56)   a.   Who$_1$ would a picture of t_1 frighten t_1?
         b.   * Who$_1$ would the woman who married t_1 hate t_1?

- But of course, we must explain why WCO effects still obtain given the availability of interface dependencies.

- As in the case of Condition B and C effects, the key will be the Output Constraint.

- Suppose that in an example such as (57), we attempt to link *who* to *his* via an I-dependency:

  (57)   Who$_1$ does his$_1$ mother love t_1?

  Consider condition (ii) of keeping up appearances. This imposes the requirement that if a chain were to be formed between the position of *his* and *who* in (57), as illustrated in (58), then it must be possible to derive a representation with the same formal-featural content as the actual representation in (57).

  (58)   [Who] does [who](se) ...

- The key here is the ϕ-specification of *his*. Since *his* does not in fact form a chain with *who*, it will not be targetted by ϕ-stripping, and so it will have a full ϕ-specification. If a chain were to be formed between the position of *his* and *who*, the lower copy **would** undergo ϕ-stripping.

- Thus, condition (ii) of the Output Constraint is not met.

8.1   Absence of WCO with A-movement

- Why is there no WCO effect in (59)?

  (59) $Everyone_1$ seems to his_1 mother t_1 to be intelligent.

- I assume that ϕ-stripping applies only optionally to A-chains with quantificational antecedents.

- We do, however, expect to find a crossover effect of a certain kind for A-movement. It is not possible to *actually* form a chain between the position of *everyone* and the position of *his*. Thus, it will not be possible to derive a structure in which ϕ-stripping has applied and the ϕ-features of *his* are uninterpreted. This predicts, apparently correctly, that A-movement should in fact derive crossover effects of the kind illustrated in (60a):

  (60)   a.   I seem to my friends to be intelligent and John does too.
         b.   ✓ I seem to my friends to be intelligent and John seems to my friends to be intelligent.
         c.   ✗ I seem to my friends to be intelligent and John seems to John's friends to be intelligent.

- This would otherwise be a somewhat puzzling fact, since *I* and *my* appear to be in a very local configuration in (60a). As we have seen, it is usually possible for the ϕ-features of the lower pronoun to remain uninterpreted in such configurations. Compare (61):

  (61)   a.   I seem (to everyone) to take care of my friends, and John does too.
         b.   ✓ I seem to take care of my friends and John seems to take care of my friends.
         c.   ✓ I seem to take care of my friends and John seems to take care of John's friends.

8.2   The strong/weak distinction

- Why is (62a) worse than (62b)?

  (62)   a.   * Who_1 does he_1 think t_1 is intelligent?
         b.   ? Who_1 does [his_1 mother] think t_1 is intelligent?

- We have seen that in (62b), the I-dependency between *who* and *his* is blocked by the Output Constraint. The I-dependency between *he* and *who* in (62a) is illicit for the same reason. But there is an additional illicit I-dependency in (62a): that between *he* and the lower copy of the *wh*-phrase. This violates both conditions (i) and (ii) of the Output Constraint.

(63) a.

Who does he think *t* is intelligent? *(two violations)*

  *   *

b.

Who does his mother think *t* is intelligent? *(one violation)*

  *

- A classic puzzle for the traditional Condition-C-based account of weak crossover is: why should *wh*-trace behave like an r-expression given that it appears to be interpreted as a variable?

- One effect of the Output Constraint is to group together things which have the property of "not being a possible output of pronominalization." This is what *wh*-trace has in common with an r-expression such as *John*.

- I.e., that is why we see a common pattern in (64a/b):

(64) a.   * **He₁** thinks that **John₁** is intelligent.
      b.   * Who₁ does **he₁** think **t₁** is intelligent?

What *he* and *t* have in common is that they are not possible pronunciations of the lower copy in a chain formed between the pair of bolded positions.

9   Is coreference (sometimes) a syntactic dependency?

- So far, I have been tacitly following Reinhart (1983) and much subsequent work in assuming that only binding dependencies are syntactically encoded (that is, in the terms of the present framework, encoded using chains).

- But there are good reasons to think that chains can also encode "coreference" dependencies.

9.1   Strong pronouns with c-commanding antecedents

- Strong pronouns can take c-commanding antecedents if (and only if) the antecedent is referential.

- For example, Montalbetti (1984) notes that the strong subject pronoun in Spanish may be bound by a c-commanding antecedent only if the antecedent is referential:

  (65)   a.   *Cada$_1$ chico cree   que* pro$_1$/*el$_1$ *es inteligente.*
               Every boy   believes that (he)/he   is intelligent

         b.   Juan cree que pro/el es inteligente.
               John believes that (he)/he is intelligent.

- If (65b) is not to be a violation of the Output Constraint, then there must be a way of forming a chain between the position of *Juan* and *el* such that pronominalization outputs the strong pronoun.

- I will follow Lasnik and Stowell (1991) in assuming that chains can be interpreted either as quantifier-variable structures or referentially (under a broad construal of "referential").

- When chains are interpreted referentially, ϕ-stripping is unnecessary:

  (66)

$$[\text{John}]_{\{+D,3p,masc,sing\}} \quad \cdots \quad [\text{John}]_{\{+D,3p,masc,sing\}}$$

$$\Big\Downarrow \quad \text{interpretation}$$

$$[\![[\text{John}]_{\{+D,3p,masc,sing\}}]\!] \quad \cdots \quad [\![[\text{John}]_{\{+D,3p,masc,sing\}}]\!]$$

$\Rightarrow$ It seems that only referential chains can be spelled out using a strong pronoun, in cases where a weaker form is also available. Why?

$\Rightarrow$ ϕ-stripping is the key. After ϕ-stripping has applied, the lower copy in a quantifier-variable chain is denuded of ϕ-features.

$\Rightarrow$ In a language where pronouns have agreement morphology, this means that the stripped ϕ-features will have to be recovered from elsewhere in order for the spellout rule to apply (more on recovery shortly).

$\Rightarrow$ Since recovery is an expensive operation, it must be minimized:

  (67)   **Minimize pronunciation of recovered ϕ-features:** Minimize the pronunciation of recovered ϕ-features. (Not pronouncing them is better than pronouncing them, and pronouncing them with a weak form is better than pronouncing them with a strong form.)

$\Rightarrow$ Given (67) a chain to which ϕ-stripping has applied must be pronominalized using the weakest available form.

$\Rightarrow$ In contrast, a referential chain may be pronominalized using any form. (Discourse/pragmatic/prosodic considerations will then determine the choice between a strong/weak form in any given case.)

9.2   Sloppy readings in copy reflexive/pronoun languages

- Languages with copy pronominalization and backwards pronominalization seem never to permit copy/backward pronominalization for quantificational antecedents:

  (68)   **Backwards pronominalization:**
      a.   ✓ Pronoun_1 ... Referential-DP_1.
      b.   * Pronoun_1 ... Quantifier_1.

  (69)   **Copy pronominalization:**
      a.   ✓ Referential-DP_1 ... Referential-DP_1.
      b.   * Quantifier_1 ... Quantifier_1.

- This is expected on the present approach, since the process of ϕ-stripping, which must apply to Quantifier-Variable chains, removes virtually all of the lower copy. There is therefore no copy left to pronounce.

- Yet in at least some of these languages (e.g. Nuu-chah-nulth, Davis, Waldie, and Wojdak 2007), sloppy readings of various kinds are possible.

- Sloppy readings under ellipsis are also robustly attested for copy reflexive languages.

- This suggests that referential chains may be able to satisfy the parallelism requirement on VP ellipsis in structures such as (70):

  (70)   [John] [$_{vP}$ thinks [$_{CP}$ [John] that [$_{TP}$ [John] is intelligent]]] and
            [Bill] does [$_{vP}$ think [$_{CP}$ [Bill] that [$_{TP}$ [Bill] is intelligent]]] too.

            $\Rightarrow$ "John thinks that he is intelligent and Bill does too."

- On standard assumptions regarding sloppy readings, we would be forced to assume that the sloppy reading derived from a bound interpretation in the first conjunct. But then if a bound interpretation is available, it is hard to explain why (68b) and (69b) are impossible.

10   Conclusion

- When we focus on *dependencies* rather than on *dependent items*, antecedence phenomena seem much more uniform than they do from the point of view of the lexical approach.

- Parametric variation may not be an appropriate model for variation in binding properties. Relatively superficial differences relating to "externalization" may suffice to account for variation in its broad outlines.

- Syntax hates redundancy:

  – We could do pretty well without any syntactic pronominalization, since the interpretative interfaces can always step in to establish the necessary interpretative dependencies.

  – But it seems that the syntax just can't bear to see features going to waste. One can only use a non-chain dependency if it's just as "efficient" in terms of minimizing duplicated features as a chain would have been.

- When it comes to different reflexive/pronoun forms, everything is relative. There are no weak or strong pronouns, only weak*er* or strong*er* pronouns.

- Contra Lasnik (1976), we have to deny the existence of accidental coreference except in cases involving truly deictic pronouns. (Otherwise, there will be coreference dependencies which are not visible to the Output Constraint.)

Appendix A: Island-inducing reflexives in Kannada

Lidz and Drummond (in preparation) argue that although LDRs appear not to be sensitive to syntactic islands, they nonetheless *create* islands for other A′ movements in some languages. The data in this appendix come from Kannada.

Kannada, like Chinese, is a *wh*-in-situ language. Also like Chinese, adjunct but not argument *wh* is subject to island effects:

(71)   a.   *Hari [Rashmi pustaka-vannu ood-id-aLu   anta] heeL-id-a.*
            Hari Rashmi book-ACC   read-PST-3SF that say-PST-3SM

            'Hari said that Rashmi read book.'

       b.   *Hari [Rashmi een-annu ood-id-aLu   anta] heeL-id-a.*
            Hari Rashmi what-ACC read-PST-3SM that say-PST-3SM

            'What did Hari say that Rashmi read?'

       c.   *Hari [Rashmi pustaka-vannu yaake ood-id-aLu   anta] heeL-id-a.*
            Hari Rashmi book-ACC   why   read-PST-3SF that say-PST-3SM

            'Why did Hari say that Rashmi read the book?'

(72)   a.   *Hari [een-annu ood-id-a   ]   vidyaarthi-yannu]*
            Hari what-ACC read-PST-RP student-ACC look.for-PROG-be-3SM
            huduk-utt-idd-aane.

            'What is Hari is looking for the student who read?'

       b.   *Hari [yaar   ood-id-a   ]   pustaka-vannu]*
            Hari who-NOM read-PST-RP book-ACC look.for-PROG-BE-3SM
            huduk-utt-idd-aane

            'Who is Hari looking for the book that read?'

The LDR we are concerned here with here is *tannu*. In addition to *tannu*, Kannada has an ordinary pronominal (*awanu*), which has more-or-less the same binding properties as English pronominals, and a complex anaphor (*tannu-taane*), which is always locally bound.

(73)   a.   ? What$_1$ did you ask **why** John bought t_1?
            (No ECP violation)

       b.   * Why$_1$ did you ask **what** John bought t_1?
            (ECP violation)

The crucial data showing the interaction between LDRs and *wh*-movement in Kannada involves an ambiguity between matrix and embedded readings of *why*. This ambiguity is illustrated in (74), where *why* can be interpreted either as a matrix or embedded question (holding constant its interpretation as the reason for the embedded event):

(74) *jay-ige amrit vidyaarthi-annu yaake hoogaL-id-aaLe (anta) gnapaka   ban-tu.*
      jay-DAT amrit student-ACC   why   praise-PST-3SF (that) rememberance come.PST-3SN
      'Why did jay remember that amrit praised the student?'
                (matrix question about reason for praising)
      'Jay remembered why amrit praised the student.'
                (embedded question)

When there is no *wh*-phrase, both the simplex reflexive (*tannu*) and the ordinary pronominal (*awanu*) may be bound across the embedded clause boundary:

(75) a.   *jay-ige [amrit **tann-annu** ooD-aLu   anta] gnapaka   ban-tu*
           Jay-DAT Amrit self-ACC   praise.PST-3SF that remembrance come.PST-3SN
           'Jay remembered that Amrit praised him.'
      b.   *jay-ige [amrit **avan-annu** ooD-aLu   anta] gnapaka   ban-tu*
           Jay-DAT Amrit he-ACC   praise.PST-3SF that remembrance come.PST-3SN
           'Jay remembered that Amrit praised him.'

In contrast, when the embedded clause contains *why*, binding of *tannu* across the embedded clause boundary is possible only under the embedded question reading:

(76) *jay-ige [amrit **tann-annu yaake** ooD-aLu   anta] gnapaka   ban-tu*
      Jay-DAT Amrit self-ACC   why   praise.PST-3SF that remembrance come.PST-3SN
      'Jay remembered why Amrit praised him.'
      * 'Why did Jay remember that Amrit praised him.'

References

Aoun, J., and N. Hornstein. 1991. Bound and referential pronouns. In *Logical structure and linguistic structure: Cross-linguistic perspectives*, ed. C.-T. J. Huang and R. May, 1–23. Springer.

Chomsky, N. 1965. *Aspects of the theory of syntax*. Cambridge, Massachusetts: M.I.T. Press.

Chomsky, N. 1995. *The minimalist program*. Cambridge, Massachusetts: MIT Press.

Davis, H., R. Waldie, and R. Wojdak. 2007. Condition C effects in Nuu-chah-nulth. *Canadian Journal of Linguistics* 52:185–222.

Drummond, A., D. Kush, and N. Hornstein. 2011. Minimalist construal: Two approaches to A and B. In *The Oxford handbook of linguistic minimalism*, ed. C. Boeckx, 396–426. Oxford: Oxford University Press.

Elbourne, P. D. 2005. *Situations and individuals*. MIT Press.

Fox, D. 2000. *Economy and semantic interpretation*. Cambridge, Massachusetts: MIT Press.

Grodzinsky, Y., and T. Reinhart. 1993. The innateness of binding and coreference. *Linguistic Inquiry* 24:69–102.

Haddad, Y. A. 2007. Subject anaphors: Exempt or non-exempt? *Linguistic Inquiry* 38:363–372.

Hornstein, N. 2001. *Move! A minimalist theory of construal*. Oxford: Blackwell.

Kayne, R. S. 2002. Pronouns and their antecedents. In *Derivation and explanation in the minimalist program*, 133–166. Blackwell.

Kennedy, C., and J. Lidz. 2001. A (covert) long distance anaphor in English. In *Proceedings of the 20th West Coast Conference in Formal Linguistics*, ed. K. Megerdoomian and L. A. Bar-el, 318–331. Somerville, Massachusetts: Cascadilla Press.

Kratzer, A. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40:187–237.

Kurafuji, T. 1998. Dynamic binding and the E-type strategy: Evidence from Japanese. In *Proceedings of SALT VIII*, ed. D. Strolovitch and A. Lawson, 129–144. Ithaca, NY: CLC Publications.

Lasnik, H. 1976. Remarks on coreference. *Linguistic Analysis* 2:1–22.

Lasnik, H. 1989. On the necessity of binding conditions. In *Essays on anaphora*, ed. H. Lasnik, 149–167. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Lasnik, H., and T. Stowell. 1991. Weakest crossover. *Linguistic Inquiry* 22:687–720.

Lee, E. 2003. Differences between two alleged perfects in Korean. *Journal of East Asian Linguistics* 12:1–17.

Lees, R. B., and E. S. Klima. 1963. Rules for english pronominalization. *Language* 39:17–28.

Lidz, J., and A. Drummond. in preparation. Island-introducing reflexives in Kannada.

Lidz, J., and W. Idsardi. 1998. Chains and phono-logical form. *U. Penn Working Papers in Linguistics* 5:109–125.

Montalbetti, M. 1984. After binding. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge.

Nishigauchi, T. 1990. *Quantification in the theory of grammar*, volume 37. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Patel-Grosz, P., and P. Grosz. 2009. On the typology of donkeys: Two types of anaphora resolution. In *Proceedings of Sinn und Bedeutung 14*, 339–355.

Pollard, C., and I. A. Sag. 1992. Anaphors in English and the scope of binding theory. *Linguistic Inquiry* 23:261–304.

Reinhart, T. 1983. Coreference and bound anaphora: A restatement of the anaphora questions. *Linguistics and Philosophy* 6:47–88.

Reinhart, T. 2006. *Interface strategies*. MIT Press.

Reuland, E. 2010. Minimal vs. not so minimal pronouns. In *The linguistics enterprise: From knowledge of language to knowledge of linguistics*, ed. M. Everaert, T. Lentz, H. de Mulder, Ø. Nilsen, and A. Zondervan, 257–281. John Benjamins.

Reuland, E. 2011. *Anaphora and language design*. MIT Press.

Reuland, E., and J. Koster. 1991. *Long-distance anaphora*. Cambridge: Cambridge University Press.

Ross, J. 1967. Constraints on variables in syntax. Doctoral Dissertation, MIT.

Watanabe, S. 1993. A note on so-called "donkey sentences" in Japanese: A preliminary study. In *Japanese/korean linguistics volume 2*, ed. H. Hoji, 299–315. Stanford: CSLI.

Wiltschko, M. 1998. On the syntax and semantics of (relative) pronouns and determiners. *The Journal of Comparative Germanic Linguistics* 2:143–181.

Zribi-Hertz, A. 1989. Anaphor binding and narrative point of view: English reflexive pronouns in sentence and discourse. *Language* 65:695–727.

Zwart, J.-W. 2002. Issues relating to a derivational theory of binding. In *Derivation and explanation in the minimalist program*, ed. S. D. Epstein and T. D. Seely, 269–304. Malden, Massachusetts: Blackwell Publishing.