

Binding & (Re)construction

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→ Develop a derivational analysis of the interaction between reconstruction and binding in order to account for a very intricate set of data involving resumption, apposition and cyclicity.

→ Based on a case study of Reconstruction facts in Breton.

Proposals:

→ Syntactic derivation and semantic derivation proceed in parallel in a GG framework (for similar related proposals, see Barsz (2002), Demirdache (2003) or Platzack (2001)).

Consequence: not only does syntax feed semantic operations, but the semantic calculus can itself trigger syntactic operations as well.

→ Top-down theory: -top-down semantic derivation (as proposed in Schlenker (2003))
-top-down syntactic derivation (see Phillips (1996) or Richards (1999)).

Consequence: reconstruction is construction.

→ Binding theory: standard structural conditions on the distribution of indices¹.

-Positive Conditions as requirements: condition A and BVA

-Negative Conditions as filters: condition B and condition C

I. Paradoxical Facts in Reconstruction

II.1. Reconstruction via the copy theory of movement

Reconstruction: the interaction between movement and interpretation, in particular binding conditions.

(1) * [Which photograph₁ of John₂]₁ did he₂ give ___₁ to Mary?

→ Covaluation between *John* and *he* impossible. However, condition C is not violated.

Reconstruction effects follow from **the copy theory of movement** (see Lebeaux (1990), Chomsky (1995) Sauerland (1998), Fox (2000)):

(2) *[[which photograph₁ of John₂] [did he₂ give [which photograph₁ of John₂] to Mary]]

→ The copy triggers a condition C violation in (1), and would further allow condition A or BVA to be satisfied in the appropriate configuration

¹ -Condition B: a pronoun must be A-free in its local domain.

-Condition C: an R-expression must be A-free.

-Condition A: a reflexive must be A-bound in its local domain.

-Structural condition on bound variable anaphora (BVA): a pronoun or an anaphor α can be interpreted as a variable bound by β iff α is A-bound by β .

II.2. Binding, Reconstruction & Resumption

➤ Resumptive strategy (in Breton) does not involve movement.

➤ Standard arguments: the lack of island effects in (3) and weak crossover effects in (4):

-Island Effects:

(3) *An den₁ [a anavez [NP an dud₂ [o deus ___₂ gwelet ___₁]]]
the man prt² you-know the people prt-have seen
"the man₁ that you know the people₂ who₂ saw"

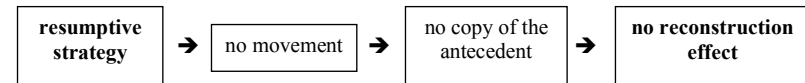
(4) An den₁ [a anavez [NP an dud₂ [o deus ___₂ gwelet **anezhañ**₁]]]
the man prt you-know the people prt-have seen him
"the man₁ that you know the people₂ who₂ saw him₁"

-Weak Crossover Effects:

(5) *Pep den₁ [a gare e₁ vamm ___₁]
every man prt loved his mother
"Every man₁ that his₁ mother loved"

(6) Pep den₁ [a lares [CP e kare e₁ vamm **anezhañ**₁]]
every man prt you-say prt loved his mother him
"Every man₁ that you say that his₁ mother loved him₁"

Predictions concerning the interaction of Reconstruction & Resumption:



Reconstruction facts with respect to Resumption: predictions only partially confirmed

(7) a. Pep poltred₁ Yann₂ [a lares [CP en deus pro₂ en₁ gwelet]]
every picture Yann prt you-say prt-has he it seen
"Every picture₁ of Yann₂ that you say that he₂ has seen"

→ Condition C satisfied (covaluation possible)

Prediction: ☺

b. poltred₁ diout hec'h-unan₂ [a zo Mari₂ lorc'h enni gant-añ₁]
picture about herself prt is Mary proud with-it
"the picture₁ of herself₂ that Mary₂ is proud of"

→ Condition A satisfied (binding of the anaphor possible)

Prediction: ☹

c. Poltred₁ e₂ verc'h [a lares [CP e wel pep tad₂ **anezh-añ**₁]]
picture his daughter prt you-say prt sees every father it
"the picture₁ of his₂ daughter that you say that every father₂ is looking at"

→ Bound Variable reading possible

Prediction: ☹

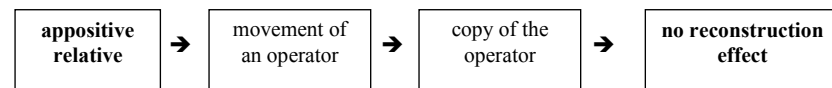
² This particle in Breton (*a* or *e* most of the time) is called "rannig". It occurs in subordinate and matrix clauses, and is traditionally analyzed as a complementizer.

Paradox: With Resumption, why do reconstruction effects appear with condition A and BVA, positive binding conditions [be it in Breton or in Lebanese Arabic (see Aoun, Choueiri & Hornstein (2001)), but **not** with condition C, a negative condition³ [in Breton and in Arabic (see Malkawi (2004))].

II.3. Binding, Reconstruction & Apposition

- *Restrictive Relative*: head raising (or promotion) analysis based on movement of the antecedent itself (see Vergnaud (1974), Kayne (1994) and Bianchi (1995)).
- *Appositive Relative*: analysis based on the movement of a lexical (relative pronoun) or null operator.

Predictions concerning the interaction of Reconstruction and Apposition:



Reconstruction facts with respect to Apposition: predictions only partially confirmed

- (8) a. **Poltred₁-mañ Yann₂**, Ø₁ en deus *pro*₂ roet Ø₁ da Vari, a zo bet drailhet.
 picture-this Yann prt-has he given to Mary prt is been torn
 "This picture of Yann₂, which he₂ gave to Mary, has been torn."
 ➔ *Condition C satisfied (covaluation possible)* Prediction: ☺
- b. **Poltred-mañ diouti hec'h-unan₂**, he deus roet Mari₂ da Yann, a zo bet drailhet.
 picture-this about herself prt-has given Mary to Yann prt is been torn
 "This picture of herself₂, which Mary₂ gave to Yann, has been torn."
 ➔ *Condition A satisfied (binding of the anaphor possible)* Prediction: ☹

Paradox: In Appositives in Breton as well as Italian (see Bianchi (1995)), why do reconstruction effects appear with condition A, a positive condition⁴, but **not** with condition C, a negative condition.

³ The insertion of a resumptive pronoun is crucial to obviate condition C, as shown in (i) below: the absence of resumption yields a condition C (reconstruction) effect in Breton:

- (i) ***pep poltred₁ Yann₂** en deus *pro*₂ roet ___₁ da Vari
 "every picture of Yann, that he₁ has given to Mary"

⁴ BVA, another positive binding condition, does not behave like condition A, as Reconstruction in (ii) is impossible. However, this result is independently expected as it follows from the semantic incompatibility between variable binding of *his* which yields a distributed reading of the antecedent and the fact that an appositive relative requires a specific antecedent. See (iii) for confirmation that reconstruction is not at stake:

- (ii) ***Poltred-mañ e₂ verc'h**, Ø₁ a gare pep tad₂ Ø₁, a zo bet drailhet.
 picture-this his daughter prt loved every father prt is been torn
 "This picture of his₂ daughter, which every father₂ liked, has been torn."
- (iii) *Sellout a ra pep tad₁ ouzh poltred-mañ e₁ verc'h, am eus choazet.
 watch prt does every father against picture-this his daughter prt-I have chosen
 "Every father, is looking for this picture of her, daughter, which I have chosen."

➤ Empirical coverage of the copy theory of movement:

		Negative condition: Condition C	Positive Conditions: Condition A or BVA
Movement strategy	restrictive	☺	☺
	appositive	☺	☹
Resumptive strategy		☺	☹

II.4. Binding, Reconstruction & Cyclicity

- Reconstruction as a major argument for Cyclicity.

From Fox (2000):

- (9) a. Which book that he₁ asked Mrs Brown₂ for did every student₁ get from her₂?
 ➔ *Covaluation (index 2) and Bound Variable reading (index 1) possible*
- b. *Which book that he₁ asked Mrs Brown₂ for did she₂ give every student₁?
 ➔ *Covaluation (index 2) and Bound Variable reading (index 1) impossible*

The pattern in (9) suggests multiple intermediate sites for reconstruction, even within the IP domain, as argued in Fox (2000):

- (10) [Which book that he₁ asked Mrs Brown₂ for]₃ did every student₁ ___₃ get from her₁ *₃ ?

Problem: Unmotivated features need to be stipulated in any site where reconstruction is possible, even within the IP domain, in order to account for cyclicity effects in a minimalist framework.

III. The proposal

- The interpretation procedure (i.e. the semantic calculus) does not proceed after, but rather **throughout** or in parallel to the syntactic derivation (contrary to traditional view in standard T-model of the grammar in GG).
- Top-down derivations: -semantic interpretation (Schlenker (2003))
 -syntactic building of the tree (Phillips (1996))

III.1. Semantic Interpretation

- Each sentence is evaluated under an assignment function *g*. The assignment function relates integers from IN to individuals (type *e*).
- Indices of referential expressions feed the assignment function:

(11) a. His₁ mother thinks John₁ is stupid.

b. [His₁]^[1→x] → [His₁ mother₂]^[1→x's mother] → [His₁ mother₂ thinks John₁]^[1→John's mother]

III.2. Binding Theory

➤ An anaphoric pronoun is ambiguous between a bound variable reading and a covaluation reading:

(12) Noa₁ thinks he₁ loves Minia.

Noa λx [x thinks x loves Minia] → bound variable

Noa λx [x thinks he loves Minia] → covaluation he=Noa Reinhart (1997)

➤ Syntactic constraints on the distribution of indices:

-Condition A: A reflexive must be A-bound in its local domain.

-Condition B: A pronoun must be A-free in its local domain.

-Condition C: An R-expression must be A-free.

-Structural condition on BVA: A pronoun or an anaphor α can be interpreted as a variable bound by β iff α is A-bound by β .

(13) a. John₁ loves himself₁.

<p><i>semantic derivation</i> (steps 1-3):</p> <p>step 1: [John₁]^[1→John]</p> <p>step 2: [loves]^[1→John] (John)</p> <p>step 3: [loves himself₁]^[1→John] (John)</p> <p>→ condition A is satisfied</p> <p>step 4: =1 iff John λx [x loves x]</p>	<p><i>syntactic derivation</i> (steps 1, 2 and 3):</p> <p>1: DP △ John₁</p> <p>2: IP DP I' △ John₁ I° VP John₂ V' V° loves</p> <p>3: IP DP I' △ John₁ I° VP John₂ V' V° loves DP △ himself₁</p>
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IV. The account

➤ Adapting Richards' proposal for two kinds of movement for displaced constituents:

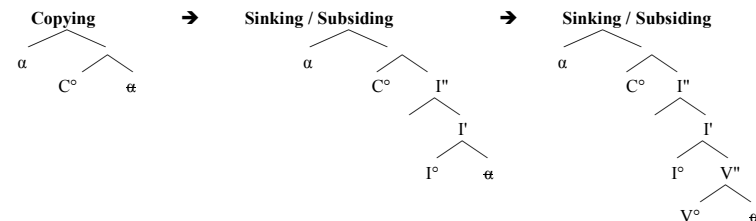
- "θ-motion", where a copy ϵ of a displaced element α is created only when the thematic (original) site is reached in the syntactic derivation in order to check that θ-role:

(14) *[which photograph₁ of John₂] did he₂ give [photograph₁ of John₂] to Mary?

<p><i>semantic derivation</i> (steps 1-2):</p> <p>step 1: [which photograph₁ of John₂]^[1→photo John]</p> <p>step 2: [which ... he₂ give]^[1→photo John]</p>	<p><i>syntactic derivation</i> (steps 1, 2 and 3):</p> <p>1: DP which photograph₁ of John₂</p> <p>2: CP DP ... VP which photograph₁ of John₂ he₂ V' V° give</p> <p>3: CP DP ... VP which photograph₁ of John₂ he₂ V' V° give DP which photograph₁ of John₂</p>
<p>→ The need to check the θ-role of <i>give</i> triggers "θ-motion".</p> <p>→ The copy triggers a condition C violation.</p>	

- "Subsiding" (analogue of Richards' "Sinking"), triggered to satisfy a positive binding condition, condition A or BVA (to license a bound variable reading for a pronoun or an anaphor):

(15) "Sinking"/"Subsiding": movement where a copy ϵ of a displaced element α is created as soon as α is inserted in the syntactic derivation, the copy lowering down the tree as material is merged in-between.



(16) Merge new material as down in the tree as possible.

(17) [which photograph₁ of him₂] did every man₂ give to Mary?

<p><u>semantic derivation</u> (step 1):</p> <p>step 1:</p> <p>[which photograph₁ of him₂]^{1,2,photo}</p>	<p><u>syntactic derivation</u> (steps 1, 2 and 3):</p> <p>1:</p> <p>2:</p> <p>3:</p>
<p>→ "Subsiding" triggered to satisfy BVA (to license a bound variable reading for the pronoun)</p>	

➤ Properties & Predictions about Reconstruction

	"θ-motion"	"Subsiding"
Properties	triggered by an unsaturated verb	triggered to bind a variable
	does not have to be cyclic	is cyclic by definition
	subject to locality constraints	subject to the strong island constraint ⁵
Predictions	reconstruction effect in the θ-position only, with respect to any binding condition	reconstruction effect in intermediate sites with respect to BVA and Condition A

IV.1. Reconstruction & Resumption

➤ θ-roles can also be checked via resumption (a resumptive pronoun fills the θ-position).

(18) **a. Pep poltred₁ Yann₂** [a lares [_{CP} en deus *pro*₂ en₁ gwelet]]
 every picture Yann *prt* you-say *prt*-has he it seen
 "Every picture₁ of Yann₂ that you say that he₂ has seen"

➔ No positive binding condition to satisfy, except the need for the verb *gwelet* to check its θ-role ➔ insertion of a resumptive pronoun to check the θ-role of *gwelet* ("seen")⁶ ➔ no movement in the derivation ➔ no copy ➔ condition C satisfied (covaluation possible).

⁵ Due to space considerations, we do not justify this property of "Subsiding", which appears to be confirmed by data in Lebanese Arabic (see *Aoun, Choueiri & Hornstein (2001)*).
⁶ Notice that resumptive strategy and movement strategy alternate freely in certain languages (e.g. in Hebrew) but not in Breton where both strategies are complementary. This issue will not be discussed here.

b. poltred₁ diouti hec'h-unan₂ [a zo Mari₂ lore'h enni gant-**añ**₁]
 picture about herself *prt* is Mary proud with-it
 "the picture₁ of herself₂ that Mary₂ is proud of"

<p><u>semantic derivation</u> (step 1):</p> <p>step 1:</p> <p>[poltred₁ diouti hec'h unan₂]^{1,2,picture}</p>	<p><u>syntactic derivation</u> (steps 1, 2 and 3):</p> <p>1:</p> <p>2:</p> <p>3:</p>
<p>➔ "Subsiding" triggered to license the bound variable reading for the anaphor (condition A). ➔ merging of the DP <i>Mari</i>: the positive requirement on <i>hec'h unan</i> (condition A) is satisfied. ➔ resumption inserted in the relativized site to check the θ-role of the predicate.</p>	

c. Poltred₁ e₂ verc'h [a lares [_{CP} e wel pep tad₂ **anezh-añ**₁]]
 picture his daughter *prt* you-say *prt* sees every father it
 "the picture₁ of his₂ daughter that you say that every father₂ is looking at"

➔ "Subsiding" of *poltred e verc'h* ("picture of his daughter") triggered to license a bound variable reading of the pronoun *e₂* ("his") ➔ Merging of the QP *pep tad₂* ("every father"): the structural configuration satisfies BVA ➔ Insertion of the resumptive pronoun *anezhañ* in the relativized site to check the θ-role of the verb *wel* ("sees").

IV.2. Reconstruction & Apposition

➤ In appositive structures, movement to check the θ-role of a predicate will create a copy of the lexical (relative pronoun) or null operator in the relativized site.

(19) **a. Poltred₁-mañ Yann₂**, Ø₁ en deus *pro*₂ roet Ø₁ da Vari, a zo bet drailhet.
 picture-this Yann *prt*-has he given to Mary *prt* is been torn
 "This picture of Yann₂, which he₂ gave to Mary, has been torn."

No trigger for "Subsiding" ➔ Merging of the verb *roet* ("given") ➔ "θ-motion" triggered to check its θ-role ➔ Insertion of a copy of the null operator ➔ No condition C violation.

b. Poltred-mañ diouti hec'h-unan₂, he deus roet Mari₂ da Yann, a zo bet drailhet.
 picture-this about herself *prt*-has given Mary to Yann *prt* is been torn
 "This picture of herself₂, which Mary₂ gave to Yann, has been torn."

→ "Subsiding" triggered to license a bound variable reading for the anaphor (condition A) → Merging of the DP *Mari*: the structural configuration satisfies condition A.

IV.3. Reconstruction & Cyclicity

➢ The multiple intermediate sites for reconstruction follow from "Subsiding".

(20) a. Which book₁ that he₂ asked Mrs Brown₃ for did every student₂ get from her₃?

<p><u>semantic derivation</u> (step 1):</p> <p>step 1:</p> <p style="text-align: right;">1 → book 2 → x 3 → Bresnan</p> <p>[which book₁ that he₂ asked Mrs Brown₃ for]</p>	<p><u>syntactic derivation</u> (steps 2 and 3):</p> <p>2:</p> <pre> CP / \ DP C' / \ \ DP C° DP / \ \ [which book₁ that he₂ asked Mrs Brown₃ for] did [which book₂ that he₂ asked Mrs Brown₂ for] </pre> <p>3:</p> <pre> CP / \ DP C' / \ \ DP C° IP / \ \ [which picture₁ that he₂ asked Mrs Brown₃ for] did every student₂ DP / \ [which picture₁ that he₂ asked Mrs Brown₂ for] </pre>
<p>→ "Subsiding" triggered to license a bound variable reading for the pronoun <i>he</i>.</p> <p>→ Merging of the QP <i>every student</i>: the positive requirement on <i>he</i> (BVA) is satisfied without any condition C violation between <i>she</i>₃ and <i>Mrs Brown</i>₃ (as <i>she</i>₃ not entered in the derivation yet).</p>	

d. *Which of the books₁ that he₂ asked Mrs Brown₃ for did she₃ give every student₂?

→ "Subsiding" of the displaced constituent triggered to license a bound variable reading for the pronoun *he* → Merging of the QP *every student* → The positive requirement on *he* (BVA) cannot be satisfied without inducing a condition C violation between *she*₃ (already inserted in the derivation) and *Mrs Brown*₃.

V. A potential problem, perspectives & further arguments:

V.1. Problematic data in Italian

➢ Contrast observed and left unexplained in Bianchi (1995):

-Apposition and condition A in Italian:

(21) ? **Questi aspetti della propria_i personalità**, che Gianni_i, non riesce ad accettare ___j,
 these aspects-of-his own personality which Gianni not able to accept
 sono emersi nel corso dell'analisi.
 were emerged in-the course-of-the analysis

"These aspects of his_i own personality, which Gianni_i was unable to accept, emerged from the psychoanalysis."

→ Co-indexing between *propria* and *Gianni* is possible.

(22) * L'analista_k ha scoperto **questi aspetti della propria_i personalità**, che Gianni_i,
 the psychoanalyst has discovered these aspects-of-his own personality which Gianni
 non riesce ancora ad accettare ___j.
 not able still to accept
 *"The psychoanalyst_k discovered these aspects of his_i own personality, which
 Gianni_i is still unable to accept."

→ Co-indexing between *propria* and *Gianni* is not an option anymore when another potential antecedent appears in the matrix clause.

A possible solution to the contrast:

→ Highly reminiscent of what Pollard & Sag (1992) and Reinhart & Reuland (1993) called intervention effects for exempt anaphors.

V.2. Intervention effects in English:

➢ Anaphors within DP are not true anaphors, but either exempt anaphors (Pollard & Sag (1992) or Reinhart & Reuland (1993)) or intensifiers (Bergeton (to appear)):

(23) John₁ likes jokes about himself₁/him₁ Reinhart & Reuland (1993)

→ Non-complementarity distribution between the pronoun and the anaphor⁷ → *himself* is not a true anaphor⁸.

➢ Anaphors within DP are subject to intervention effects (P&S (1992), R&R (1993) and Büring (to appear)):

(24) a. John₁ wonders who₂ saw this picture of himself₂.
 b. *John₁ wonders who₂ saw this picture of himself₁.

→ Co-indexing between *John* and *himself* is not blocked by condition A, but by intervention effects on exempt anaphors (or intensifiers) → intervention effect of *who* over *John* as *who* is a closer antecedent for the exempt anaphor than *John* is.

⁷ If conditions A and B apply within the same local domain, how is it possible to satisfy both these conditions? We could argue (adapting Bergeton (to appear)) that *x-self* forms are intensifiers linked to a variable (a pronoun or \emptyset , a null reflexive).

- (i) a. John₁ likes jokes about [him₁] himself. → not subject to condition A
- b. John₁ loves \emptyset ₁ himself. → subject to condition A

But in this case, we would have to assume that the local domain in English is not the minimal clause (Bergeton (to appear)), but rather the syntactic co-argument domain.

⁸ We can no longer assume that condition A is a trigger for "Subsiding" when the anaphor is embedded within a DP. Licensing BVA would now be the trigger for "Subsiding".

- ➔ The generalization that exempt anaphors show intervention effects will clearly support a top-down approach.

V.3. Intervention effects in Welsh

- Resumption in Welsh also exhibits unexpected patterns of reconstruction with resumption:

-Resumption and condition A in Welsh⁹:

(25) Fe'm hysbyswyd am [y clecs_k amdani ei hun_{2i/*j}] _k [y cred Mair_i;
Pri-me was-reported the gossips about herself that believes Mary
 fod Nadia_j wedi eu_k clywed yn y cyfarfod]
 be Nadia *Perf Cl* hear at the party

"They reported to me the gossips about herself_{2i/*j} that Mary_i thinks that Nadia_j heard at the party."

- ➔ The exempt anaphor *ei hun* can only be co-indexed with *Mair*, but not with *Nadia*. This pattern can be analyzed as an intervention effect of *Mair* over *Nadia*

- ➔ BUT ONLY a top-down derivation will entail that *Mair* is the closest antecedent for the anaphor; a bottom-up account would incorrectly predict *Nadia* to be the closest antecedent¹⁰.

Conclusion

To account for Reconstruction, we propose the following:

- Syntactic derivation and semantic derivation proceed in parallel.
 -top-down syntactic derivation
 -top-down semantic procedure
- Structural Binding Conditions: positive requirements and filters
- *Two kinds of movement:*
 -"*θ*-motion" triggered by an unsaturated verb
 -"*Subsiding*" triggered only to satisfy a positive binding condition of the grammar.

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⁹ Thanks to Alain Rouveret for the data.

¹⁰ The same reasoning applies to the contrast with appositives in Italian (see (21) and (22)).

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