Williams 2003: Ch. 3 & 5

LING 252 · Ethan Poole · 20 January 2022

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1 Recap: Representation Theory

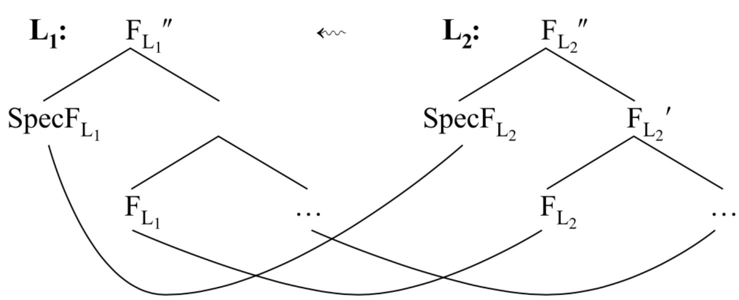
- ***Distinct levels***
  Syntax is divided into distinct levels, each of which defines a set of structures and is governed by its own set of internal rules:

  1. TS: Theta Structure
  2. CS: Case Structure
  3. SS: Surface Structure
  4. QS: Quantification/Topic Structure
  5. FS: Focus Structure
  6. AS: Accent Structure

- ***Mapping between levels is maximally isomorphic***
  - These representations homomorphically map onto each other according to the overarching principle of SHAPE CONSERVATION:

    (1)
    $$\begin{array}{ccccc} \text{TS} & & \text{QS} & & \text{FS} \\ \upharpoonleft & & \upharpoonleft & & \upharpoonleft \\ \text{CS} & \leftsquigarrow & \text{SS} & \leftsquigarrow & \text{AS} \end{array}$$
    $\leftsquigarrow$ = governed by isomorphy

  - The mapping between levels is optimally *isomorphic*. Thus, mappings that preserve linear and hierarchical relations are favored:

    (2) 

- ***When nonisomorphic mappings are tolerated***
  1. A nonisomorphic mapping is necessary to have an isomorphic mapping elsewhere (thereby privileging the latter):

     (3) **English Heavy NP Shift**
     $[_{\text{CS}}$ V **NP** PP $]$ $\leftsquigarrow$! $[_{\text{SS}}$ V PP **NP** $]$ $\leftsquigarrow$ $[_{\text{FS/AS}}$ V PP **NP** $]$

  2. No other structure would be a better representation, e.g. *beautiful dancer*.

- ***Crosslinguistic variation***
  1. Languages can vary within each level. For example, FS differs between English and Hungarian:

     (4) a. **English**
     $[_{\text{FS}}$ … Focus $]$ ⇒ Focus is rightmost

     b. **Hungarian**
     $[_{\text{FS}}$ Topic Topic … Focus $[$ V … $]$ $]$ ⇒ Focus in the left periphery

2. Languages can vary w.r.t the weights placed on representational faithfulness between different levels. For example, English and German differ in what SS should better represent:

(5) a. **German**
SS $\rightsquigarrow$ QS > SS $\rightsquigarrow$ CS ⇒ Scrambling (often) disambiguates scope

b. **English**
SS $\rightsquigarrow$ CS > SS $\rightsquigarrow$ QS ⇒ Scope ambiguities abound

⁎ ***Discussion questions (from last week)***

1. How does RT compare with a more standard Minimalist theory? With OT?
2. *(Based on Boram's question.)* Williams claims that semantics is noncompositional under RT? What exactly does that mean? Is it problematic? To what degree are there already levels of meaning in our standard theory?
3. Williams has replaced movement governed by minimality with holistic mapping between levels governed by shape conservation. What do we gain with such a shift? What do we lose?
4. *(Based on Joe's question.)* The details about CS are not terribly elaborate. What kinds of properties might CS have across languages? Are there any patterns that might prove problematic for having CS so early in the derivation?
5. How many levels does RT need? How does this compare to our standard Cinque/Pollock-style clause structure?

2 The representation relation

- ***Homomorphism***

  – Williams claims that the representation relation that holds between levels is HOMOMORPHISM. Thus, it preserves structure, but is not reversible.[1]

(6) **Graph homomorphism**
Let $A = \langle V_A, E_A \rangle$ and $B = \langle V_B, E_B \rangle$ be graphs. A and B are HOMOMORPHIC if:

a. **Every vertex in A is mapped to a vertex in B**
There is a function $h : V_A \to V_B$ such that for each $v \in V_A$, $h(v) \in V_B$.

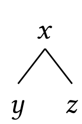
b. **Every edge in A has a corresponding edge in B**
$(v_1, v_2) \in E_A \to (h(v_1), h(v_2)) \in E_B$

  – If A and B are homomorphic, then h is a HOMOMORPHISM.

  – If h is a bijection, then A and B are also ISOMORPHIC and h is an ISOMORPHISM.[2]

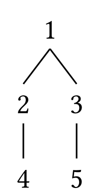
- ***Example***
A and B are not isomorphic (e.g. they differ in the number of vertices), but they are homomorphic:

(7) a. A =



b. $A = \big\langle \{x, y, z\}, \{(x, y), (x, z)\} \big\rangle$

(8) a. B =



b. $B = \big\langle \{1, 2, 3, 4, 5\}, \{(1, 2), (1, 3), (2, 4), (3, 5)\} \big\rangle$

[1] Williams claims that homomorphism is "reversible, but the reverse is not defined for the full range". This phrasing is unclear, but a homomorphism is definitely *not* reversible, unless it is an isomorphism.

[2] Let $f : A \to B$ be a function.
Injection: $\forall a, a' \in A$, $f(a) = f(a') \to a = a'$ ('at most 1')
Surjection: $\forall b \in B, \exists a \in A, f(a) = b$ ('at least 1')
Bijection: both injective and surjective

(9) $h : \mathrm{V_A} \to \mathrm{V_B}$
$h = \{(x,1),(y,2),(z,3)\}$

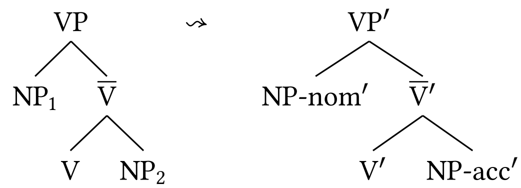
a. $(x,y) \in \mathrm{E_A} \implies (h(x),h(y)), (1,2) \in \mathrm{E_B}$ ✓

b. $(x,z) \in \mathrm{E_A} \implies (h(x),h(z)), (1,3) \in \mathrm{E_B}$ ✓

c. Therefore, h is a homomorphism from A to B.

❶ ***Problem: Correspondence across levels***

– Both h and g are homomorphisms from the left tree (TS) into the right tree (CS), but clearly we want to block ⇝ from being satisfied by g:

(10) 

(11) a. $h = \{(\mathrm{VP},\mathrm{VP}'),(\mathrm{NP_1},\text{NP-nom}'),(\overline{\mathrm{V}},\overline{\mathrm{V}}'),\mathbf{(V,V')},\mathbf{(NP_2,NP\text{-}acc')}\}$

b. $g = \{(\mathrm{VP},\mathrm{VP}'),(\mathrm{NP_1},\text{NP-nom}'),(\overline{\mathrm{V}},\overline{\mathrm{V}}'),\mathbf{(V,NP\text{-}acc')},\mathbf{(NP_2,V')}\}$

⇒ In other words, we want to match (at least) lexical information across levels.

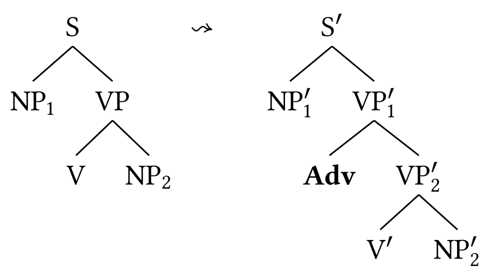
– Such correspondences must be stipulated. For Williams, this information is encoded in the lexicon.

– **Analogue:** The lexical translation function of the translation base in Montague Grammar, which maps the syntactic atoms to the semantic atoms.[3]

[3] Montague (1970)

❷ ***Problem: Splicing in material***

– Williams considers the following a valid representation:

(12) 

– There is a trivial homomorphism between these two trees, but this is not the homomorphism that we want (see above).

– If $\mathrm{NP_1}$ is matched with NP'_1 and V with V′, then the two trees are not homomorphic under standard graph-theoretic definitions.

⇒ **Solution:** The relevant relations preserved by the homomorphism are not edges, but something else ....

❸ ***Big problem: Beautiful dancer***

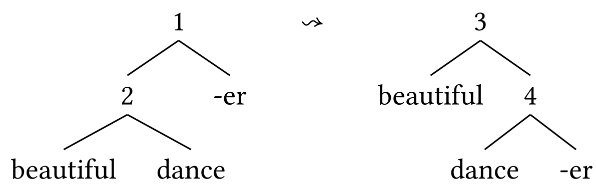
- Recall one of the main arguments for the role of shape conservation in the grammar: the ambiguity of *a beautiful dancer*:

(13) a. **“Low” structure**
[beautiful [dance **-er**]]

b. **“High” structure**
[[beautiful dance] **-er**]

- Williams’ analysis of this ambiguity is that *beautiful dancer* can represent the nonisomorphic semantic structure because no other structure can do so better:

(14)



⇒ However, assuming that the lexical items must match, these trees are not homomorphic, and I see no solution to this.[4]

[4] They are perhaps homomorphic if the relevant relation is linear adjacency, but this does not seem like a good direction.

⁕ ***Takeaways***

- The representation relation is not homomorphism.
- Moreover: If it were homomorphism, determining the ‘best’ homomorphism is still nontrivial.
- Therefore, RT needs some other notion of shape conservation, though what that notion is is unclear.
- Luckily, this issue is orthogonal to RT’s theory of embedding.

3 Level Embedding Conjecture

- ***Traditional approach to embedding***
All embedding happens at TS:

(15)
$$\begin{tikzcd} TS & CS \arrow[l, squiggly] \arrow[l, bend left] & SS \arrow[l, squiggly] \arrow[ll, bend left] & FS \arrow[l, squiggly] \arrow[lll, bend left] \end{tikzcd}$$

⁕ ***Level Embedding Conjecture (LEC)***

(16) Level Embedding Conjecture
Each clause type is embedded at the level at which it is defined.

[Williams 2003:3]

(17)
$$\begin{tikzcd} TS \arrow[loop below] & CS \arrow[l, squiggly] \arrow[loop below] & SS \arrow[l, squiggly] \arrow[loop below] & FS \arrow[l, squiggly] \arrow[loop below] \end{tikzcd}$$

- Implicit in the LEC is that once a clause has been embedded, it does not keep growing. For example, if a CS is embedded in a CS, the embedded CS does not itself grow to a SS, only the matrix CS does so.

⇒ The LEC is mostly equivalent to the XP-in-XP Condition, but there are some important differences, which are discussed below.

3.1 Types of embedding

- ***TS embedding***
  Because it is the lowest level of embedding, TS embedding exhibits the strongest clause-union effects.

(18) TS: CS:
$\{V_1$ theme$\}$ + ⇜ $[V_{\text{Case assigner}}$ NP NP$]$
$\{V_2$ theme$\}$ +
$\{V_3$ theme, goal$\}$ =
$\{V_1\ V_2\ V_3$ theme goal$\}$

(19) **Serial verb constructions (a = Dagaare, b = 'Hoan)**
a. o da mOng la saao de bing bare ko ma
3SG PAST stir FACTIVE food take put leave give me
(Bodomo 1998, (32))
b. ma a- q||hu |'o djo ki kx'u na
1SG PROG pour put.in water PART pot in
'I am pouring water into a pot.'

(20) **'Tight' causative constructions (French)**
Jean a fait + Pierre manger la pomme →
Jean a fait manger la pomme à Pierre.
Jean made eat the apple.ACC to Pierre.DAT
'Jean made Pierre eat the apple.'

- ***CS embedding***
  Embedding at CS does not interact with thematic roles, but may exhibit case interrelatedness between two clauses:

(21) **ECM / AcI**
CS: [John believes] +
[himself to have won the race$_{acc}$] =
John believes himself$_{acc}$ to have won the race$_{acc}$

- ***SS embedding***
  Embedding at SS is ordinary *that*-clause embedding, where case and thematic roles are never shared across the clause boundary:

(22) CS: SS:
I think ⇜ I think +
he is sick ⇜ he is sick = I think that he is sick

- ***Aside: Wh-movement at SS***
  In RT, *wh*-movement occurs *within* SS, and so is an intralevel operation:

(23) $[_{SS}$ Björk ate what $]$ ⇝ $[_{SS}$ what Björk ate $]$

- ***FS/AS embedding***
  - Embedding at FS involves embedding clauses where it would be reasonable to attribute a focus structure to that clause, e.g. non-bridge verbs.

– Given that *wh*-movement happens at SS, complements embedded at FS are islands to *wh*-movement:

(24)

SS (*wh* movement):	⇜	FS (too late for *wh* movement):
[John exclaimed] + [he saw who]		John exclaimed [he saw who]

– There are languages that reportedly prohibit all long *wh*-movement. Such behavior can be modelled in terms of all finite-clause embedding taking place at FS in these languages.

3.2 Countercyclic derivations

⁎ ***Consequence of the LEC***
Under the LEC, embedding can take place "out of order".

- For example, when a *that*-clause is embedded inside an ECM infinitive, the ECM infinitive will be embedded in its matrix clause *before* the *that*-clause is embedded in the ECM infinitive:

(25) He believes [$_{\text{ECM}}$ him to have said [that he was leaving]].

(26)

CS:		SS:
[he was leaving]	⇜	[that he was leaving] +
[he believes] +		
[him to have said] =		
[he believes [him to have said]]	⇜	[he believes [him to have said]] =
		[he believes [him to have said that he was leaving]]

- "It is important to emphasize that the LEC ensures an orderly assemblage of multi-clause structure, just as much as the incremental application of Merge in minimalist practice; it simply gives a different order." (Williams 2003:71)

3.3 Generalized Ban on Improper Movement

- ***Hyperraising***

(27) **Ban on Hyperraising**
A-movement may not leave a finite clause.

(28) a. **Who** does it seem [$_{\text{CP}}$ ___ ate the natto]?
$\bar{\text{A}}$-mvt

b. ***Björk** seems [$_{\text{CP}}$ ___ ate the natto].
A-mvt

- ***Ban on Improper Movement (BOIM)***
The traditional analysis of the Ban on Hyperraising involves a conspiracy of two separate constraints:

1. Movement out of a finite clause must proceed through the intermediate [Spec, CP] position.[5]

[5] Chomsky (1973, 1977, 1981, 1986)

2. A ban on "improper movement": A-movement may not proceed from an $\overline{\text{A}}$-position, in particular [Spec, CP].[6]

(29) ***Björk** seems [$_{\text{CP}}$ ___ [___ ate the natto].

⁕ ***Generalizing the BOIM***
Williams argues that the BOIM should be generalized—essentially generalizing the A/$\overline{\text{A}}$-distinction—in a way that should be familiar (from Week 1):

(30) **Generalized Ban on Improper Movement (GBOIM)**
Given a Pollock/Cinque-style clausal structure $X_1 > \cdots > X_n$ (where X_i takes X_{i+1}P as its complement), a movement operation that spans a matrix and an embedded clause cannot move an element from X_j in the embedded clause to X_i in the matrix, where $i < j$.

- Note: There is a technical issue with this formulation. The last part, $i < j$ needs to be changed to either $i > j$ or $X_i \prec X_j$.

- ***Alternative formulation***
  - The formulation of the GBOIM in (30) does not represent the full generality of what Williams' analysis actually derives.
  - Because it is defined in terms of launching and landing sites, (30) allows movement *across* projections higher in *fseq*:

    (31) [$_{\text{TP}}$ **XP** . . . [$_{\text{CP}}$ C [$_{\text{TP}}$ ___ . . .]]]

  - The following formulation addresses this issue:

    (32) **Generalized Ban on Improper Movement (GBOIM)**
    Movement to [Spec, XP] cannot proceed from [Spec, YP] or across YP, where Y is higher than X in *fseq*. [formulation from Poole to appear]

⇒ ***The Williams Cycle***
The GBOIM is just a subcase of the Williams Cycle:

(33) **Williams Cycle**
Within the current XP, a syntactic operation may not target an element across YP, where Y is higher than X in the functional sequence.
[formulation from Poole to appear]

- ***Example: Ban on Hyperraising***

(34) a. CP does not block movement to [Spec, CP] because $\text{C} \not> \text{C}$
$\rightsquigarrow$ $\overline{\text{A}}$-movement possible

b. CP blocks movement to [Spec, TP] because $\text{C} > \text{T}$
$\rightsquigarrow$ A-movement not possible

[6] Chomsky (1973, 1981); May (1979)

- ***Example: German embedded V2***[7]

  - Embedded V2 clauses are transparent for *wh*-movement that lands in a higher V2 clause, but disallow *wh*-movement out of them that lands inside a higher V-final clause:

(35) a. ***Wh*-movement into V2 clause**
[$_{V2}$ **Wen**$_1$ meinst du [$_{V2}$ hat sie __$_1$ getroffen]]?
who think you has she met
'Who do you think that she met?'

b. ***Wh*-movement into V-final clause**
*(Ich weiß nicht) [$_{V\text{-final}}$ **wen**$_1$ du meinst [$_{V2}$ hat sie __$_1$
I know not who you think has she
getroffen]]?
met
Intended: '(I don't know) who you think that she met'

  - Analysis in terms of the WC:

(36) a. V2 clause = ForceP

b. V-final clause = CP

c. Force > C

⇒ Force > C in *fseq* → ForceP blocks movement to [Spec, CP]

⁕ ***Deriving the GBOIM***

  - The LEC and the XP-in-XP Condition derive the GBOIM in the same way: embedding happens too late for certain movements to happen.
  - Assumptions:
    - Extension Condition (or some formulation of the strict cycle)
    - Functional material, e.g. T and C, is introduced at designated levels.

⇒ Landing sites projected by functional material at a given level will be inaccessible at later levels given the strict cycle.

- ***Example: SS embedding***

  - At SS, by assumption, CP structure is introduced.
  - Given the LEC, an SS can only be embedded in an SS. Thus, in SS embedding, both the matrix and embedded clauses will have CP structure.
  - When *wh*-movement applies in SS then, the strict cycle requires that it move the *wh*-element to the periphery of SS, i.e. to [Spec, CP].
  - For improper movement to take place, the matrix clause would have to have peripheral positions lower than the highest position in the embedded clause, which is precisely what the LEC blocks.

3.4 Exceptions to the GBOIM

❶ ***ECM / AcI***

  - In ECM infinitives, it is commonly assumed that the embedded subject moves from inside the embedded TP to a *v*P-internal position in the matrix clause:[8]

[7] Haider (1984)

[8] Postal (1974)

(37) Alex believes [$_{v\mathrm{P}}$ **Taylor** (with all her heart) [$_{\mathrm{TP}}$ ___ to be guilty]].

⇒ According to the GBOIM, TP should be a barrier for such movement because T > v in *fseq*.

– **Solution:** The apparent raising-to-object is actually a mismapping between TS and CS:

(38) TS: Alex believes [**Taylor** to be guilty] ⇜! CS: Alex believes **Taylor** [to be guilty]

– **Problem:** Because the ECM infinitive has functional material presumably not present at TS, it is embedded *after* TS and therefore the raising-to-object cannot be attributed to a mismatch between TS and CS.[9]

[9] See the handout from Week 1 for some other solutions.

❷ ***Tough*-construction**

– There are two competing analyses of the *tough*-construction in the literature:

(39) **Long-movement analysis**[10]
[$_{\mathrm{TP}}$ **Björk** is tough [$_{\mathrm{CP}}$ ___ PRO$_{\text{ARB}}$ to please ___]]

(40) **Base-generation analysis**[11]
[$_{\mathrm{TP}}$ **Björk** is tough [$_{\mathrm{CP}}$ Op PRO$_{\text{ARB}}$ to please ___]]

[10] E.g. Rosenbaum (1967); Postal (1971); Postal and Ross (1971); Hicks (2009); Hartman (2011, 2012a,b); Longenbaugh (2015, 2016, 2017)

[11] E.g. Ross (1967); Akmajian (1972); Lasnik and Fiengo (1974); Chomsky (1977, 1981); Williams (1983); Rezac (2006); Fleisher (2015); Keine and Poole (2017); Salzmann (2017)

– We know that there is an $\overline{\mathrm{A}}$-movement step in the embedding clause:[12]

[12] Chomsky (1977, 1982)

(41) a. **Embedded clause forms a *wh*-island**
*[What sonatas]$_2$ is this violin easy [Op$_1$ to play ___$_2$ on ___$_1$]?

b. **Cannot cross a *wh*-island**
*Alex is difficult [Op$_1$ to imagine Mary [$_{\text{ISLAND}}$ wondering whether she would hire ___$_1$]].

c. **Subject to Complex-NP Constraint**
*Alex is easy [Op$_1$ to describe to Mary [$_{\text{ISLAND}}$ a plan to assassinate ___$_1$]].

d. **Licenses parasitic gaps**
Those files should be easy [Op$_1$ to discard ___$_1$ [without reading *pg*]].

– Therefore, the question is how the embedded $\overline{\mathrm{A}}$-position is related to the matrix subject position.

⇒ The GBOIM is incompatible with a long-movement analysis because such an analysis involves a canonical improper-movement configuration.

– In my opinion, this is unproblematic. The recent literature on the *tough*-construction has independently converged on the base-generation analysis.

❸ ***French L-tous construction***

- The quantifier *tous* can modify an embedded object, suggesting that it has moved from there:

(42) a. Marie a toutes$_i$ voulu [les manger t$_i$].
Marie has all wanted them to-eat
'Marie wanted to eat them all.'

b. Il a tous$_i$ fallu [qu'ils parlent].
it has all needed that they speak
'It was necessary that they all speak.'

c. Il a tous$_i$ fallu [que Louis les lise t$_i$].
it has all needed that Louis them read
'It was necessary that Louis read them all.'

- **Problem:** Such movement would violate the LEC because *tous* seems to have moved out of an embedded clause that is *fseq*-bigger than the phrase to which it has attached.
- **Solution:** The embedded clause is smaller than a full CP, despite the presence of the complementizer *que*.
- **Solution:** The Extension Condition is made more abstract: Movement within a level can only be to positions that are uniquely made available at that level, but those positions need not be peripheral.

3.5 Comparisons

- ***Small-clause theories***
  - The LEC rests on allowing the embedding of structures smaller than CP, i.e. generalized "small" clauses.
  - There is a substantial body of work developing small-clause theories, in particular for infinitival clauses. The general logic is that the smaller the clause, the more clause-union effects.[13]

  ⇒ What the LEC adds is that *smaller* means *earlier*, which has repercussion for locality, i.e. the GBOIM.

∗ ***XP-in-XP Condition***
  - **Similarities:** They both derive the strong WC and require the same kind of "out of order" derivations.
  - **Difference:** The XP-in-XP Condition is stated directly in terms of *fseq*, whereas the LEC is stated in terms of RT's levels, which are only *indirectly* related to functional structure. Crucially, there is not (necessarily) a correspondence between RT's levels and *fseq*.[14]
  - **Difference:** The XP-in-XP Condition is agnostic about shape conservation.
  - **Difference:** The LEC does not allow short movement of clauses within *v*P.[15]
  - **Difference:** The LEC does not enforce successive cyclicity. In a sentence with a CP embedded inside a CP embedded inside a CP, all of the embedding happens at the same time, and then *wh*-movement from the lowermost clause proceeds in one fell swoop:[16]

[13] E.g. Wurmbrand (2001)

[14] Hashmita's question (below) gets at this difference in a much more direct way.

[15] Moulton (2015); Bruening (2018), though see Williams (2003:104–107).

[16] Williams (2011:ch. 7)

(43) [$_{SS}$ Björk believes] + [$_{SS}$ that Kate said] + [$_{SS}$ that Alex ate what] =
[$_{SS}$ Björk believes that Kate said that Alex ate what]
$\leftsquigarrow$ [$_{SS}$ what Björk believes that Kate said that Alex ate]

⇒ Of course, if you fix these issues with the LEC, you arrive at the XP-in-XP Condition, so I don't see the XP-in-XP Condition as in competition with the LEC, but rather as a continuation of it.

4 Scrambling and reconstruction

- ***The traditional A/$\overline{\text{A}}$-distinction***
  Movement is either A-movement or $\overline{\text{A}}$-movement. Thus, movement has either all and only the properties of A-movement or all and only the properties of $\overline{\text{A}}$-movement.

⇒ ***Generalizing the A/$\overline{\text{A}}$-distinction***

- In deriving the GBOIM via the LEC, RT already generalizes the A/$\overline{\text{A}}$-distinction w.r.t. locality.
- Williams argues that RT also generalizes the A/$\overline{\text{A}}$-distinction w.r.t. reconstruction, which he demonstrates by investigating scrambling.

⁎ ***Reconstruction is relative***
A movement M reconstructs with respect to a relation R if R is established before M.

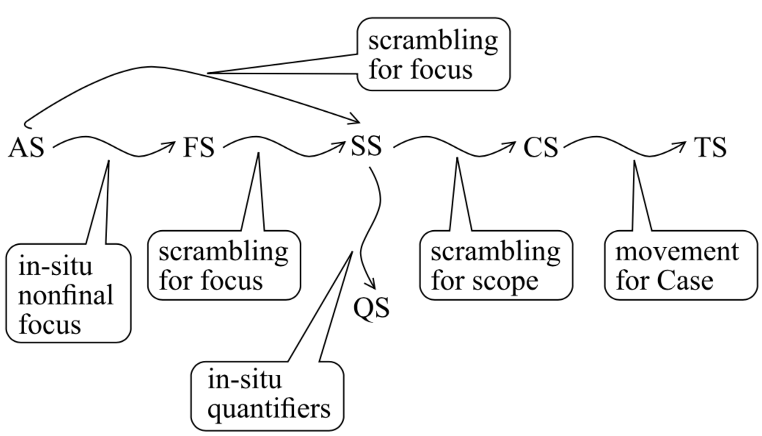
- ***Example: English wh-movement***
  English *wh*-movement reconstructs for binding. Under RT, this 'reconstruction' is because binding relations are established earlier than SS, where *wh*-movement happens:

(44) PS: John likes himself $\xrightarrow{\text{(BT)}}$ John$_i$ likes himself$_i$

SS: John likes himself $\xrightarrow{wh}$ himself John likes t

⁎ ***Fine-grained movement typology***
If we assume that movement can happen within any level and between any levels, then we have a very fine-grained typology of movement types:

(45)



- ***Example: Hindi scrambling***[17]
  - ***Short scrambling***
    In Hindi, short scrambling can extend scope and does not exhibit WCO effects (in other words, it can feed binding):

(46) **Extends scope**

a. *kisii* *vipakshii* *netaa-ne* **har** **samasyaa** khadii kii hai
some opposition politician-ERG every problem standing did AUX
'Some opposition politician caused every problem.' $\exists \gg \forall$; $^*\forall \gg \exists$

b. **har** **samasyaa**$_1$ *kisii* *vipakshii* *netaa-ne* ___$_1$ khadii kii hai
every problem some opposition politician-ERG standing did AUX
'Every problem, some opposition politician caused.' $\forall \gg \exists$

(47) **No WCO effects**
har **laṛke-ko**$_1$ [**uskii**$_1$ bahin-ne] ___$_1$ dekhaa
every boy-ACC his sister-ERG saw
'For every boy x, x's sister saw x.'

  - ***Long scrambling***
    On the other hand, long scrambling cannot extend scope (for most speakers) and does exhibit WCO effects (i.e. cannot feed binding):

(48) **Cannot extend scope**
har **kitaab**$_1$ Ram-ne *kisii* *laṛkii-se* kahaa [$_{CP}$ ki Mina-ne kal ___$_1$ bec dii]
every book Ram-ERG some girl-INSTR told that Mina-ERG yesterday sell give
'Every book, Ram told some girl that Mina sold yesterday.'
$\exists \gg \forall$; $^*\forall \gg \exists$

(49) **WCO effects**
har **laṛke-ko**$_1$ [**uskii**$_{2/*1}$ bahin-ne] socaa [$_{CP}$ ki Ram-ne ___$_1$ dekhaa]
every boy-ACC his sister-ERG thought that Ram-ERG saw
'His$_2$ sister thought that Ram saw every boy$_1$.' (*bound reading impossible*)

⇒ ***Analysis in RT***

* Local scrambling happens before SS (or PS), so that scope and binding are determined *after* it has occurred.
* Long scrambling happens after SS, so that scope and binding are determined *before* it has occurred.

[17] Data are from Keine and Poole (2018) or Bhatia and Poole (2016).

– ***Problem: Local scrambling can reconstruct for scope***

(50) a. *sab* **tiin ciizẽ** khariidẽge
everyone three things will.buy
'Everyone will buy three things.' $\forall \gg 3$

b. **tiin ciizẽ**$_1$ *sab* ___$_1$ khariidẽge
three things everyone will.buy
'Everyone will buy three things.' $3 \gg \forall$; $\forall \gg 3$

– ***Problem: Scrambling does not affect subject-oriented anaphors***
The anaphor *apnaa* retains its subject orientation under scrambling. Thus, word order permutations do not affect the binding possibilities in the following:

(51) a. {raam-ne$_1$ / har laṛke-ne$_1$} [**apnii**$_{1/*2}$ kitaab] paṛh-ii
Ram-ERG every boy-ERG ANA.GEN book read-PFV
'Ram$_1$ / Every boy$_1$ read his$_{1/*2}$ book'

b. {raam-ne$_1$ / har laṛke-ne$_1$} anu-ko$_2$ [**apnii**$_{1/\%2/*3}$ kitaab] dii
Ram-ERG every boy-ERG Anu-DAT ANA.GEN book give.PFV
'Ram$_1$ / Every boy$_1$ gave Anu$_2$ his$_{1/\%2/*3}$ book'

- ***Predictions***

❶ There cannot be a type of scrambling that spans tensed clauses yet interacts with BT nonreconstructively.

⇒ But long scrambling generally does not induce Condition C connectivity, even though it reconstructs for Condition A.[18]

[18] Keine and Poole (2018)

❷ There cannot be a type of scrambling that leads to new Case assignments yet interacts with BT reconstructively.

⇒ What about psych predicates?

(52) [The picture of **herself**$_1$] frightens **her**$_1$.

5 Discussion questions

1. Williams claims that under RT, embedding can happen at any level. Is this actually true? He does not discuss embedding at QS.

2. *(Based on Hashmita's question.)* Why does RT need a notion of size at all? Isn't the extrinsically-ordered sequence of levels enough?

3. *(Based on János's question.)* Williams discusses embedding of clauses within clauses, i.e. embedding of a verbal extended projection within a verbal extended projection. What about embedding of NPs?

4. *(Based on János's question.)* If lexical information is distributed across levels, what do lexical entries look like? Is this a generalized version of DM's view of the lexicon (i.e. syntactic atoms and separate vocabulary items)?

5. *(Based on Boram's question.)* The semantic levels of RT never represent each other directly. What would it look like if they did?

6. *(Based on Boram's question.)* How does RT's theory of reconstruction compare to the standard copy-theoretic approach to reconstruction?

7. *(Based on Boram's question.)* How might copular clauses work in RT and the LEC?

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