On the ATB dependencies

• Goal of this class:
  Across-The-Board (ATB) movement and Coordination
  Coordinate Structure Constraint: movement vs. LF constraint
  Analyses of ATB constructions
  Problems of the previous accounts
  An alternative account: Right Node Raising (RNR) and ATB

1. Coordinate Structure Constraint

(1) a. *Which book did John like to read [\&P the article and _]?
b. *Which book did John like to read [\&P _ and the article]?
c. *Which book did John like to read [\&P _ and _]

(2) *Which car did [\&P John want to sell _, and Mary want to buy the bicycle]?

(1-2) tell us that nothing can come out of the coordinate structure: Ross (1967) generalizes it as Coordinate Structure Constraint (CSC).

(3) Coordinate Structure Constraint (as a movement constraint)
   In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

   (Ross 1967)

But consider the following:

(4) a. Who did [\&P you like _ but Mary hate _]?
b. What book does [\&P Mary think she should read _, but Bill think she should disregard_]?
c. Which car did [\&P John want to sell _, and Mary want to buy _]?

Ross notes some exceptions to the CSC:
   The extraction seems to be acceptable when an identical constituent from both conjuncts move out of the conjunct simultaneously: Across-The-Board (ATB) movement.

2. Challenges for the CSC
2.1 Multiple wh-movement

(5) *Which car, which car did John want to sell ti and Mary want to buy tj?

(6) *Kogo, kogo Jan lubi a ti Maria kocha tj?
   whom whom Jan likes and Maria loves
   ‘Whom does Jan like and Maria love?

   (Polish, Citko 2003: 3)
(5-6) indicate that extractions of an identical element do not always save the CSC violation.

### 2.2 Single-identity reading (“ATB” reading)

In most cases, ATB movement yields a single-identity reading:

(7) What did John sell t and Mary buy t?
   a. ‘What is x, such that John sold x, and Mary bought x.’
   b. ?*‘What are x and y, such that John sold x, and Mary bought y.’

If (7a) is the LF form for (7), it would constitute a violation of Bijection Principle.

(8) Bijection Principle
   An operator must bind one and only one variable.           (Koopman and Sportiche 1983)

Note: Weak Crossover effect is reduced to the violation of Bijection Principle.

(8’)
   a. *His$_{i}$ mother loves every son$_{i}$.
   b. Every son $\forall x$. x’s mother loves x

(8’’) *Who$_{i}$ does his$_{i}$ son admire t?

As shown in (9), a single operator binds two variables.

(9) What OP$_{x}$ did John sell $x$ and Mary buy $x$?

Could it be that one copy of the wh-phrase is deleted at PF as in (10)? Would there be more operators than we see?

(10) What What OP$_{x}$ OP$_{y}$ did John sell $x$ and Mary buy $y$?

(10) obeys Bijection Principle, since each operator would bind a different variable. However, ATB reading does not have to result. To get ATB interpretation, we would still need to assume that the operators must be co-indexed.

### 2.3 Extraction out of one conjunct

Movement could be derived from only one conjunct in some cases (Ross 1967, Goldsmith 1985, Lakoff 1986, Kehler 1996).

(11) How much can you drink and still stay sober?          (Kehler 1996)

(12) That’s the stuff that the guys in the Caucasus drink and live to be a hundred.  (Lakoff 1986)
Kehler (1996) argues that there seems to be certain discourse coherence in (12-13), which he categorize “cause-effect” relations.

(13) What did Harry buy, come home, and devour in thirty seconds? (Ross 1967)

2.4 Lack of LF ATB movement

Bošković and Franks (2000) point out ATB movement seems to be disallowed in covert syntax. Only overt movement seems to create ATB constructions.

(14) Every philosopher read some paper and every linguist reviewed some paper.

∗‘There is some paper that every philosopher read and every linguist reviewed.’

(14’) Every philosopher read <some paper> and every linguist reviewed some paper.

‘There is some paper that every philosopher read and every linguist reviewed’

(cf. Bachrach and Katzir 2006)

(14’) indicates that the existence of a single overt copy is crucial.

Citko (2003) supports Bošković and Franks’ generalization: only pair-reading is available in (15-16).

(15) Zhangsan xihuan shenme ren Lisi taoyan shenmo ren? (Chinese)
    Zhangsan like which person Lisi hate which person
    ‘Which person does Zhangsan like and which person does Lisi hate?’

(16) John-i enu salam-ul cohaka-ko Mary-ka enu salam-ul miweha-ni? (Korean)
    John which person like-and Mary which person hate-Q
    Which person does John like and which person does Mary hate?

ATB interpretation is not possible in (15-16), unable to create a single copy of the wh-phrase.

    John which person like-and Mary which person hate-Q
    Which person does John like and which person does Mary hate?

The ATB reading can be derived by ATB topicalization or ATB scrambling

(17) Shenmo ren Zhangsan xihuan Lisi taoyan? (Chinese)
    which person Zhangsan like Lisi hate
    ‘Which person does Zhangsan like and Lisi hate?’
To sum up, the examples above raise questions that the CSC should be treated as a movement constraint, and that ATB constructions, leaving an identical trace in each conjunct, are relevant to the CSC:

- First, if the CSC were based on movement, then it would be mysterious why (6) is not acceptable.
- Second, if ATB is an exception of the CSC, we need to know why the exception does not hold at LF (14-18) and how the CSC can sometimes be disobeyed (11-13).
- And finally, if ATB leaves a trace in each conjunct, how can a single-identity reading be?

In section 3, I will introduce an alternative account for the CSC, due to Ruys (1993) and Fox (2000). Then, in section 4, I will derive ATB constructions with a new analysis. In section 5, I will compare the new analysis with others, in particular, parasitic gap (Munn 2001) and parallel merge (Citko 2005) analyses.

3. The CSC as an LF constraint


(19) a. Some teacher likes every student. (∃>∀, ∀>∃)
   b. Some teacher likes every student but hates the president. (∃>∀, *∀>∃)

The second conjunct in (19b) disambiguates the scope of the first conjunct (Sag and Williams 1976, among others)

(20) Some student likes every teacher, and wants him to be the next dean. (∃>∀, ∀>∃)

(21) Fox (2000) argues that extraction out of the coordinate structure is possible if each conjunct obeys all the independent grammatical constraints (Multidimensional account)

(22) Some teacher likes every student but hates the president. (*∀>∃)
   a. Every student, some teacher likes t.
   b. *Every student, some teacher hates the president. (*Vacuous quantification)

(23) a. Every teacher, some student likes t.
   b. Every teacher, some student wants him to be the next dean.
ATB Wh-movement:

(24) What did John like and Mary hate?
   a. What did John like t?
   b. What did Mary hate t?

(25) *What did John like the cake, and Mary hate t?
   b. What did Mary hate t?

Revisit (6), repeated here in (26):

(26) *Kogo, kogo, Jan lubi a t, Maria kocha t?
      whom whom Jan likes and Maria loves
   a. *WH..WH.. Jan likes t (*Vacuous quantification)
   b. *WH..WH.. Maria loves t (*Vacuous quantification)

The multidimensional hypothesis of the CSC accounts for why (26) is ruled out.

To account for the rest of the questions raised at the end of section 2, I will propose a new analysis of ATB construction.

Before so doing, let us briefly talk about the previous accounts: Sideward Movement (Hornstein and Nunes 2002), Parasitic Gap (Munn 1993) and Parallel Merge (Citko 2005):

4. RNR-based account of ATB construction

- RNR is an ellipsis phenomenon, licensed by an ellipsis feature (Ha 2007).
- The underlying structure of ATB construction is RNR.
- The RNR target in the second conjunct cyclically moves out of the coordinate structure.

4.1 Similarity between RNR and ATB

There seems to be similarity between ATB and RNR: there must be contrastive focus prior to the target (cf. distinctness constraint, Citko 2006).

(27) a. JOHN LIKED <the opera>, but MARY HATED the opera.
    b. *John liked <the opera>, and Mary liked the opera.

(28) a. What did John LIKE t, but Mary HATE t?
    b. ??What did John like t, and Mary like t?
4.2 RNR is ellipsis

4.2.1 Vehicle Change

(29) a. Mary loves John, and he thinks Sally does <love John>, too.
   b. Josh didn’t vote for himself, but Mary did <vote for himself>.

(Fiengo and May 1994:220)

(30) Vehicle Change (simplified version, F&M 1994)
As long as indices remain constant, proper names and their pronominal correlates must have the same reference.

(31) a. Mary loves John, and he thinks Sally does <love him>, too
   b. Josh didn’t vote for himself, but Mary did <vote for him>.

RNR:

(32) a. Mary heard that John SUBMITTED <the article about himself> for the magazine, but Sue said that Bill actually WROTE the article about John for the magazine.
   b. John COULDN’T <nominate himself>, so I nominated him.

• Some/any alternation (Klima 1964)

(33) Mary didn’t read any article, but John did.
   a. *Mary didn’t read any article, but John did read any article.
   b. Mary didn’t read any article, but John did read some article.

(34) John read, but he hasn’t understood any of my books.  (Kayne 1994)
   a. *John read any of my books, but he hasn’t understood any of my books.
   b. John read some of my books, but he hasn’t understood any of my books.

(35) * John hasn’t understood, but he has read any of my books.
   a. *John hasn’t understood any of my books, but he has read any of my books.
   b. *John hasn’t understood some of my books, but he has read any of my books.

4.2.2 Lack of Morphological Identity


(36) a. Bill met Prof. Smith yesterday, and I will <meet Prof. Smith> this afternoon.
   b. Jane was here, and I will <be here>, too.
   c. *Jane was here, and I will <be here>, too.

RNR shows the same patterns (Bošković 1997, 2004).
(37) a. John WILL sleep in her house, and Peter already HAS slept in her house.
   b. John MUST have been hassled by the police, and Peter COULD have been hassled by the police.
   c. ?*John MUST have been hassled by the police, and Peter COULD have been hassled by the police.

(Bošković 1997: (8), (11))

4.2.3 Sloppy Identity

Sloppy identity in VP ellipsis (Sag 1976, Williams 1977, Reinhart 1983):

(38) John likes his father, but Bill doesn’t like his father.
   a. John likes John’s father, but Bill doesn’t like Bill’s father. (Sloppy reading)
   b. John likes John’s father, but Bill doesn’t like John’s father. (Strict reading)

RNR also allows sloppy identity.

(39) John like his father, but Bill HATES his father.
   a. John likes John’s father, but Bill hates Bill’s father. (Sloppy reading)
   b. John likes Bill’s father, but Bill hates Bill’s father. (Strict reading)

4.3 Ellipsis feature for RNR (à la Merchant 2001)

- $E_{\text{RNR}}$ enters the derivation with contrastively focused constituent in the first conjunct
- $E_{\text{RNR}}$ needs to satisfy syntactic, semantic, and phonological licensing conditions in (44).

(40) [$&P \text{John MADE}_i [E_{\text{RNR}}] \text{the spaghetti, and BILL ATE the spaghetti.}$]

When C is merged to &P, $E_{\text{RNR}}$ is checked by the focus feature in (41):

(41) [$CP C_{[\text{focus}]} [\&P \text{John MADE}_i [E_{\text{RNR}}] <\text{the spaghetti}>, \text{and BILL ATE the spaghetti.}$]

Why not (42)?

(42) *JOHN MADE$_i [E_{\text{RNR}}] \text{the spaghetti, and BILL ATE}_i [E_{\text{RNR}}] <\text{the spaghetti}>

(43) [$CP C_{[\text{focus}]} [\&P \text{John MADE}_i [E_{\text{RNR}}] <\text{the spaghetti}>, \text{and BILL ATE}_i [E_{\text{RNR}}] \text{the spaghetti.}$]

*(Closeness, Chomsky 1995)*
Formalization:

\[(44) \text{E}_{\text{RNR}}\]

a. Syntax of E\(_{\text{RNR}}\)

\[
\text{CP} \quad \text{C}_{\text{[focus]}} \quad \&\text{P} \quad \text{TP} \quad \text{TP}
\]

Mary VP John BOUGHT the car

V DP the car

SOLD_{[\text{E}_{\text{RNR}}]}\\

b. Phonology of E\(_{\text{RNR}}\)

\[\text{XP(s)} \rightarrow \emptyset/\text{E}_{\text{RNR}} \quad ____ \quad \text{TP}_1.\]

c. Semantics of E\(_{\text{RNR}}\): e-GIVEN must be observed in RNR.

i) Mary sold the car \(\rightarrow\) F-clo (E) = \(\exists x. \exists R. x \text{R-ed the car}\)

ii) John bought the car \(\rightarrow\) F-clo (A) = \(\exists x. \exists R. x \text{R-ed the car}\)

4.4 \text{E}_{\text{RNR}} \text{ and successive cyclic wh-movement}

\[(45) \text{C}_{\text{[focus]}} \quad [\&\text{P} [\text{TP}_1 \text{JOHN LIKED}_{[\text{E}_{\text{RNR}}]} \text{what}] \quad \text{and} \quad [\text{TP}_2 \text{MARY HATED what}]\]

- The E\(_{\text{RNR}}\) feature enters the derivation with the contrastively focused verb LIKED in the first conjunct, and it is subject to be checked by the focus feature of the C head.
- To satisfy the semantic licensing condition for E\(_{\text{RNR}}\), the conjuncts need to mutually entail each other, modulo \(\exists\)-type shifting (e-GIVEN, Merchant 2001).
- If the semantic licensing condition is satisfied, E\(_{\text{RNR}}\) instructs not to pronounce the complement of E\(_{\text{RNR}}\) in (46).

\[(46) \text{C}_{\text{[focus]}} \quad [\&\text{P} [\text{TP}_1 \text{JOHN LIKED}_{[\text{E}_{\text{RNR}}]} <\text{what}>] \quad \text{and} \quad [\text{TP}_2 \text{MARY HATED what}]\]

After RNR is constructed, the wh-word in the second conjunct undergoes successive-cyclic wh-movement to SpecCP as in (47). I will refer to this as the ellipsis account of ATB wh-movement.

\[(47) [\text{CP} \text{What did}^{+Q,+wh} [\&\text{P} [\text{TP}_1 \text{John LIKE}] \text{and} \quad [\text{TP}_2 \text{Mary [vP {t’ HATE }]}]]]\]

Notice that (47) would have been ruled out by the violation of the CSC, if we suppose that the CSC is a movement constraint. However, (47) satisfies the multidimensional account of the CSC.
4.5 Consequences

4.5.1 The pair-list answers ("non-ATB reading")

Munn (1999) argues that sometimes a pair-list answer is possible.

(48) a. Where did Mary vacation and Bill decide to live?
   b. Mary vacationed in Paris and Bill decided to live in Toronto.

(Munn 1999: 421)

(49) Where did Mary VACATION₁<where> and Bill t’ decide to t’ LIVE t?

Under the multidimensional analysis of the CSC, we divide the conjuncts into two subcomponents.

(50) a. Where did Mary vacation <where>?
   b. Mary vacationed in Paris

Reconstruction

(51) a. Where did Bill decide to where?
   b. Bill decided to live in Toronto.

The answer to (49) is therefore independent to the answer to the second conjunct. Non-ATB interpretation results from this possibility with the combination of (50b) and (51b): Mary vacationed in Paris and Bill decided to live in Toronto.

For ATB-reading:

The elided copy of the wh-phrase in the first conjunct serves as a bound variable in (52).

(52) a. Where λ8 did Mary vacation g(8)?
   b. Mary vacationed g(8).

The variable is bound by the wh-phrase of the second conjunct since the moved wh-copy has been derived out of the second conjunct. If the answer to the wh-phrase of the second conjunct is in Toronto, g(8) in the first conjunct would also be bound by in Toronto.

(53) a. Where λ8 did Mary vacation g(8) and Bill decide to live g(8)?
   b. In Toronto λx. Mary vacationed x, and Bill decided to live x.

(54) Q: Whose car does John LIKE, but Bill HATE?
    A: His (own) car.

(55) Q: Whose car does John, LIKE whose car, but Bill, HATE t?
    A: His라도 (own) car [CP C[Ε] [John LIKES <whose car>, but Bill HATES t]].
The pronoun can serve as a bound variable, so that it can be bound by the subject of its own clause. This allows each pronoun to be realized with different identities as in (56b). Thus, functional answer results. If the pronoun is a referential, the strict identity answer results, as in (56c).

(56) a. Whose car [John LIKES \(<\text{whose car}\>\), but Bill HATES whose car].
   b. Functional answer: John, LIKES his car, but Bill, HATES his car.
   c. Strict identity: John likes Bill’s car, but Bill hates Bill’s car.

4.5.2 Movement out of the second conjunct

Selectional properties: think vs wonder

(57) a. *Bill thought who went to Prof. William’s talk last night.
   b. Who did Bill think went to Prof. Williams’ talk last night?

(58) a. John wondered who went to Prof. Williams’ talk last night.
   b. *Who did John wonder went to Prof. William’s talk last night?

Given the differences between (57-58), we can see why (59a) is ruled out and (59b) is good under the ellipsis account.

(59) a. *Who did JOHN THINK, but BILL WONDER went to Prof. Williams’ talk last night?
   b. Who did JOHN WONDER, but BILL THINK went to Prof. Williams’ talk last night?

(60) Who did JOHN THINK \(_{\text{[ERNR]}}\) \(<\text{who … last night}>\), but BILL t’ WONDER t went …last night?

(61) Who did JOHN WONDER \(_{\text{[ERNR]}}\) \(<\text{who … last night}>\), but BILL t’ THINK t went …last night?

Binding

(62) Which picture of himself did JOHN SAY <that Chris would disregard which picture of himself>, and BILL HOPE that Chris would disregard t?

The reflexive can be bound by the proper names, John, Chris, and Bill, predicted when the movement is derived from the second conjunct in the successive cyclic way.

(63) Which picture of himself did JOHN SAY <[which picture of himself] Chris would disregard [which picture of himself]>, and BILL HOPE [which picture of himself] that Chris would disregard [which picture of himself]?
**Strong Crossover effects**

(64) a. *Who\textsubscript{i} did Mary love \textit{<who\textsubscript{i}>} in college, but he\textsubscript{i} disapprove of t\textsubscript{i}?  
    b. *Who\textsubscript{i} did he\textsubscript{i} love \textit{<who\textsubscript{i}>} most in the show, but she not like t\textsubscript{i} at all?

(65) a. *... and who\textsubscript{i} λx but x disapprove of x?  
    b. *Who\textsubscript{i} λx did x love x most in the show, and ...

**Islands**

(66) a. *Which man did John interview and wonder who to ask which job to give to t?  
    b. *Which man did John interview and read the book you gave to t?  
    c. *Which man did John interview and meet the man in the office near t?  

(Munn 2001: 371)

(67) *Which man did John interview \textit{<which man>} and read the book you gave to t?  \(=66b\)

- But see (68):

(68) Which book\textsubscript{i} did [John meet the man who wrote], and [Mary meet the man who published] t\textsubscript{i}?  

(Examples from Bachrach and Katzir 2006)

(69) Which book\textsubscript{i} did [John meet the man who wrote \textit{<which book>}, and [Mary meet the man who published t\textsubscript{i}]

The ellipsis account predicts (68) to be ungrammatical as (66). I will discuss Bachrach and Katzir (2006) in section 5.2.

5. **Report from the battlefield**

- Parasitic Gap (Munn 1993, 2001): Source conjunct for movement
- Parallel Merge (Citko 2005, 2006): Number of copies at interpretation

5.1 **ATB gaps are parasitic gaps**

(70) Which article did Mary like and Bill hate?

The following examples indicate that the overt movement is derived out of the first conjunct.

**Weak Crossover**

(71) a. Who did you gossip about t, despite his mother’s having vouched for e?
   b. Which man did you visit t just before his boss fired e?
   c. *Who did his mother gossip about t, despite your having vouched for e?
   d. *Which man did his boss fire t just after you visited e?

(72) a. Who did you gossip about t but his mother vouch for e?
   b. Which man did you hire t and his boss fire e?
   c. *Who did his mother gossip about t but you vouch for e?
   d. *Which man did his boss fire t and you hire e?  

**Principle C**

(73) a. *Which picture of John did he like and Mary dislike?
   b. Which picture of John did Mary like and he dislike?  

N.B: Munn also provides examples of such an asymmetry in resumptive pronouns in Hebrew, and Binding effects.

**Problems:**

- Construction dependent?  

(74) a. *The student who Mary likes but he dislikes works on Right Node Raising.
   b. *The student who he likes but Mary dislikes works on Right Node Raising.

(75) a. *President Bush, every democrat criticizes, but he admires.
   b. *President Bush, he admires, but every democrat criticizes.
• Distance effects (cf. WCO (72))

(76) a. *Which employee, did Mary think that his, boss would fire next week?
    b. *Which man, did Mary say to her friends that his, boss would fire next week?
    c. *Which man, did his, boss think that Mary would love very much?
    d. * Which man, did his, boss tell Bill that Mary would love so much?

• Strong crossover

(77) a. *Whose report did we criticize after he submitted?
    b. *Whose report did we criticize and he never replied to?
    c. *Whose paper did he file after we reviewed?
    d. *Whose paper did he file but we not review?

Note: Postal (1993) catalogues where parasitic gaps and ATB gaps differ.

5.2 Parallel Merge

Citko’s Parallel Merge account (2003, 2005): First, the wh-constituent is merged to both conjuncts in a parallel fashion (78).

(78)

Then, the single occurrence of the shared wh-phrase is remerged to SpecCP in (79).

(79)

Another variant of Parallel Merge account is proposed by Bachrach and Katzir (2006).
RNR is not spelled-out until the coordinate structure is completed. When C is merged with the coordinate structure, the shared constituent would be spelled out in the next spell-out domain (80): delayed spell-out hypothesis.
• Island violation inside the spell-out domain is ignored.

(80) Which book, did \([TP_1]\) John meet the man who wrote \(t_i\), and \([TP_2]\) Mary meet the woman who published \(t_i\)?

Thus, they predict and claim that ATB constructions are insensitive to island violations.

**Challenges for the PM accounts:**

• Forced Parallel Merge:

(81) \(^{\ast}Kogo_1\) \(kogo_1\) Jan lubi a \(t_i\) Maria kocha \(t_i\)?
whom whom Jan likes and Maria loves
‘Who does Jan like and Maria love?’

(82) \(Kogo_1\) Jan lubi a \(t_i\) Maria kocha \(t_i\)?
whom Jan likes and Maria loves
‘Who does Jan like and Maria love?’

(Citko 2003: 3)

(Citko 2003)
Although the MD account captures the grammaticality of (82), it does not account for the ungrammaticality of (81). To explain why (81) is not an available option, it is necessary to understand what makes the computational system force parallel merge in (82) during the numeration.

- **Non-ATB interpretation**: A single copy of the wh-phrase always forces ATB interpretation.

(83) a. Where did Mary vacation and Bill decide to live?
   b. Mary vacationed in Paris and Bill decided to live in Toronto.

   (Munn 1999: 421)

- **Sloppy identity**: The pronoun inside the ATB wh-phrase can have a sloppy identity interpretation in (84) (Höhle 1991, Jacobson 1999, Nissenbaum 2000).

(84) Which of his parents does every American love best, and every German love least?

If there is a single copy of wh-phrase, the pronoun inside needs to be simultaneously bound by the subject of each conjunct (cf. RNR (85)).

(85) John likes, but Bill HATES his father.

- **ATB Left Branch Extraction (LBE):**

In Polish, LBE is possible as shown in (86)

(86) **Którego** Kowalski polecił studenta?

   *Which student did Kowalski recommend?*

But, ATB LBE seems to be unavailable as shown in (87)

(87) a. *Którego* Kowalski polecił studenta i firma zatrudniła studenta?

   Which Kowalski recommended student and company employed student

   b. Którego studenta Kowalski polecił i firma zatrudniła t?

   Which student Kowalski recommended and company employed

   ‘Which student did Kowalski recommend and the company hire?'

However, Citko argues that (87a) violates distinctness constraint. (88), which observes the distinctness constraint – the NP remnant is distinct, is acceptable.

(88) Ile Maria napisała książek a Jan przeczytał artykułów?

   ‘How many books did Maria write and how many articles did Jan read?'  

   (Citko 2006: 229)
However, the distinctness constraint is not strong enough to distinguish unacceptable (89a) from acceptable (89b). Compare (89a) with (89b), where the whole DP is missing in the first conjunct. The same reason that has been used for the unacceptability of (89a) should be applied to (89b) as well, on the grounds that (89b) still violates the distinctness constraint.

(89) a. *Ile$_i$ Maria przeczytała t$_i$ książek a Jan odłożył t$_i$ książek?  (Polish)  
   how-many Maria read t book and Jan filed t books  
   ‘How many books did Maria read and Jan file?’  
   (Citko 2006: 235)  

   b. ?[DP Ile t$_i$]$_j$ Maria przeczytała t$_j$ a Jan odłożył t$_j$ książek?  
   how-many Maria read and Jan filed books  
   ‘How many books did Maria read and how many books did Jan file?’  
   (Citko 2006: 238)  

Note that the ellipsis analysis predicts (89a) to be ruled out and (89b) to be acceptable. (89a) goes wrong due to the unelided RNR target: the NP remnant book in the first conjunct. (89b) is acceptable since the RNR target is elided, as illustrated in (90).

(90) ?Ile Maria przeczytała [E$_{RNR}$] <Ile książek> a Jan odłożył t$_j$ książek?  
   • Island insensitivity:

(91) Which book$_i$ did [John meet the man who wrote], and [Mary meet the man who published] t$_i$?  
   (Examples from Bachrach and Katzir 2006)  

If we switch the D-linked wh-phrases into non-D-linked ones, the sentences are considerably degraded (92-93).

(92) *What$_i$ (the hell) did [John meet the man who wrote], and [Mary meet the man who published] t$_i$?  

(93) a. ?*What did John wonder which professor wrote <what>, and Mary ask which students read t?  
   b. ?*What did Mary turn off the computer after she read <what>, and Bill go to school after he reviewed t?  
   c. ?*What did John spread the rumor that Mary bought <what> for her parents, and they hear of the rumor that Mary got t from her students?  

It is possible that the main verb in the first conjunct bears E$_{RNR}$ and licenses the deletion of the embedded clause in (94a), and the ATB construction looks like (94b).

(94) a. John THOUGHT$_{[E_{RNR}}$ <Mary loved Tom>, and Bill KNEW Mary loved Tom.  
   b. Who did John THINK$_{[E_{RNR}}$ <Mary loved who>, and Bill know Mary loved t?
The deletion of the embedded clause does not save the grammaticality even when the islands have been deleted in the first conjunct (95a-c). This is due to the island violations, still incurred in the second conjunct (cf. (91)).

(95) a. *What did John wonder <which guests gave him what> and Mary ask which guests gave him t?
   b. *What did Mary run <after John hit what>, but Bill call animal controls after John hit t?
   c. *Who did John spread <the rumor that Chris will get married to who soon>, and Bill hear of the rumor that Chris will get married to t soon?

Bachrach and Katzir (2006) predict (95a-c) to be acceptable, contrary to fact – the only difference between the ungrammatical sentences in (95) and the grammatical sentence in (91) is the size of the shared material. See (96) for the comparison.

(96) a. Which book_i did [John meet the man who wrote], and [Mary meet the man who published] t_i?
   b. *Which book, has John just met <the man who wrote which book>, and Mary known the man who published t_i for 10 years?

Independent assumption: Superiority effect

(97) a. *What did who take a picture of, and who buy an article of?
   b. *What did who buy, and who eat?

6. Subject ATB constructions

- The wh-phrase is merged beyond the coordinate structure.
- Only ATB reading is available for subject ATB construction (98)

(98) Q: Who liked candies but hated marshmallows?
   A: My son
   A: *My son liked candies but my daughter hated marshmallows.

\[
\begin{array}{c}
\text{vP} \\
\text{Who} & \text{v'} \\
\text{v} & \text{VP} \\
\text{VP} & \text{VP} \\
\text{liked candies} & \text{hated marshmallows}
\end{array}
\]

(99) [vP Some girl [&P [vP kicked every doll] and [vP hugged every cat.]])

(∃∀, ∀∃∀∃)
(100) \[ \&P \[vP Some girl kicked every doll\] and \[vP some girl hugged every cat.\]\]
a. \[vP Every doll \[vP some girl kicked t]\]
b. \[vP Every cat \[vP some girl hugged t]\]

Questions left open:

(101) A sincere guard is standing in front of every church and sitting at the side of every mosque.

\[(\exists \forall, \forall \exists)\]
a. 1\textsuperscript{st} conjunct: A sincere guard [every church [a sincere guard standing in front of]]
b. 2\textsuperscript{nd} conjunct: A sincere guard [every mosque [a sincere guard sitting at the side of]]

(Fox 2000)

7. Conclusion

• Following Ha (2006, 2007), RNR is an ellipsis phenomenon and licensed by a variant of Merchant-style ellipsis features (i.e. \(E_{rnr}\))
• The ATB and RNR constructions share the same property that contrastive focus must be assigned on the pre-ATB constituent in situ and the pre-RNR element, respectively.
• The similarity leads us to suppose that the underlying structure of ATB construction is RNR.
• I propose an ellipsis account for the ATB construction: Once RNR is constructed, the target in the second conjunct undergoes successive-cyclic movement.
• This would constitute a CSC violation in the traditional sense. So, I adopt Fox’s (2000) multidimensional account of the CSC, where the conjuncts are divided into subcomponents. And the CSC is obeyed when each conjunct independently obeys all the grammatical constraints.
• I compared the ellipsis account with previous accounts – e.g. parasitic gap, parallel merge – where the predictions seem to be opposite. I argue that the ellipsis account is better captures the empirical facts.
• For subject ATB construction, I supposed that the wh-phrase is merged beyond the coordinate structure.
References


