Against Across-The-Board Movement[*]

Niina Ning Zhang
National Chung Cheng University

This paper argues against Across-The-Board movement. Conceptually, the stipulation of a forking chain is ad hoc, and incompatible to our well-recognized feature checking operations. Computationally, no multiple extraction operations from sub-constituents to the same damain are possible. The impossibility is accounted for if we realize that multiple movement chains need to form a cluster and that movement obeys the cyclicity condition. The combination of the two considerations rules out ATB movement. I found that if two elements undergo the same type of movement, the launching site of one element must c-command the launching site of the other element. Empirically, there is evidence to show that the extracted element of ATB constructions is originated in the first conjunct only.

Key words: extraction, ATB construction, major constituent movement, sub-Constituent Movement

1. Introduction

The assumed Across-The-Board (ATB) movement refers to the operations of Move "which move a constituent out of all the conjuncts of a coordinate structure" (Ross 1967: 107). It can be illustrated by the following English and Chinese data:[1]

(1) a. Who$_i$ did you say that Carrie likes e$_i$ and Sarah hates e$_i$?

---

[1] See Qu (1994), Li (1998, 2000), and Zhang (2002) for arguments for a movement approach to topicalization in Chinese (contra Xu & Langendoen 1985, among others), and see Tang (1990) and Li (1998: 242) for the claim that multiple topicalization is possible in Chinese. Li presents the following (i) as an example of multiple topicalization (She put a question mark on the acceptability of (i). In my dialect, both (i) and (ii) are perfect):

(i) Cong zhejia yinhang, weile Zhangsan, wo zhidao ta yiding   bu gan qu jie   qian.
     from this   bank   for Zhangsan I   know he certainly not dare go borrow money
     'From this bank, for Zhangsan, I know he certainly does not dare to go to borrow money.'
                                                                                  (not episodic)
(i) Cong zhejia yinhang, weile Zhangsan, ta gangcai   jie-le   yidabi qian.
     from this   bank   for   Zhangsan he just.now borrow-PRF big.sum money
     'From this bank, for Zhangsan, he borrowed a big sum of money just now.' (episodic)

b. [Zhe zhi mao]$_i$, Lao Li zuotian diu-le   e$_i$, Lao Ye jintian zhaodao-le e$_i$.
this CL cat   Lao Li yesterday lose-PRF   Lao Ye today   find-PRF
'This cat, Lao Li lost yesterday and Lao Ye found today.'

One property of the construction is that the elements associated with the multiple gaps can always be co-referential, however, they do not occur overtly one after another, either in identical forms, as in (2), or in a XP-pronoun sequence, as in (3).

(2) a. *Who who did you say that Carrie likes e and Sarah hates e?
   b. *[Zhe zhi mao], zhe zhi mao, Lao Li zuotian diu-le e, Lao Ye jintian zhaodao-le e.
(3) a. *Who him did you say that Carrie likes e and Sarah hates e?
   b. *[Zhe zhi mao], ta, Lao Li zuotian diu-le e, Lao Ye jintian zhaodao-le e.

The impossibility of the multiple overt head links of the relevant chains is not related to any language-specific constraint that rules out movement of multiple elements. As we know, English does not allow movement of multiple wh-elements. However, Chinese and Japanese do allow topicalization of multiple elements and certain Slavic languages do allow movement of multiple wh-elements. None of these languages can have the constructions in (2) and (3).

Thus, in the ATB construction, the unique extracted element has been assumed to related to the multiple gaps in the coordinate construction simultaneously. Such movement chains are called "forking chains," and are assumed to occur in coordinate constructions only.

The goal of this paper is to advocate George's (1980) claim that the ATB movement does not exist at all (see also Munn 1992, 1993, Franks 1992, Bošković and Franks. 2000, B&F, henceforth among others), and to argue that the extracted element in the ATB construction originates in the first conjunct only.

My argumentation has two major parts. First, I argue against all types of multiple subconstituent movement, including the forking chain in ATB constructions. I will make a more general claim: although fronting of multiple major constituents is possible cross-linguistically, movement of multiple sub-constituents to the checking domain of the same probe is impossible (the term "major constituent" is borrowed from Hankamer 1973. Subjects, objects, and adverbials of verbal projections are major constituents, whereas any elements contained in them are not). The constraint is independent of coordinate constructions, and is not covered by CED or any other constraints in the literature. I will show that the combination of the Extension Condition and Grewendorf (2001) and Sabel's (2001) cluster-formation theory of

movement of multiple elements (contra Pesetsky 2000 and Bošković 2002) can account for the constraint.

Second, I will show that the extracted element of ATB constructions is related to the gap in the first conjunct only.

The steps of my argumentation against the ATB movement are the following. The assumed ATB movement shares few properties with the extraction of common factors in arithmetic, and thus Williams' (1977, 1987) simultaneous factorization approach to the construction cannot be right. If extraction of a single element out of multiple positions is impossible, the alleged ATB movement might be understood as movement of multiple elements, and the assumed forking chain movement is a multiple extraction operation, i.e., movement of multiple sub-constituents to the same checking domain. However, nowhere else is movement of multiple sub-constituents allowed. I first examine movement of distinct elements out of conjuncts in multiple wh-movement and multiple topicalization languages. Then I check multiple sub-constituent movement in non-coordinate constructions.

I then account for the impossibility of multiple sub-constituent movement to the same domain by Grewendorf-Sabel's cluster-formation theory of multiple α movement: there is no way for multiple sub-constituents to form a cluster, while obeying the Extension Condition. I then make two predictions with respect to the combination of Major Constituent Movement (MCM) and Sub-Constituent Movement (SCM). The first prediction is that SCM starting from a low position can co-occur with a MCM starting from a high position. The second one is that MCM starting from a low position cannot co-occur with a SCM starting from a high position. Both predictions are born out.

Moreover, there is evidence to show that the extracted element of ATB constructions is related to the gap in the first conjunct only. Therefore, the so-called ATB movement is conceptually and empirically problematic.

The conclusion of this paper is that the assumed ATB forking chains do not exist.

The organization of the paper is the following. I present the conceptual problems of ATB movement in section 2. Then I present two facts in sections 3 and 4 respectively. One is that there is no parallel extraction of wh-phrases out of conjuncts in multiple wh movement languages and no parallel extraction of topics out of conjuncts in multiple topicalization languages. The other fact is that extraction of multiple subconstituents in non-coordinate constructions is impossible, either. In section 5 I account for the constraint by both the Extension Condition and the Cluster Hypothesis. In section 6, I present the fact that the extracted element of ATB constructions is originated in the first conjunct only. Finally, section 7 is a summary.

2. Conceptual problems of the ATB movement

In this section I examine the possible conceptual background of the assumed ATB movement. I will show that such a movement is problematic in its analogy to the extraction of common factors in arithmetic, in its landing sites, and in the formal feature licensing.

2.1 The problems of the analogy to the extraction of common factors

In Williams (1977, 1978), Ross's ATB movement is analyzed as an operation that looks similar to the extraction of common factors (ECF) in arithmetic. The operation is called "simultaneous factorization". In (4a), the common factor 7 is extracted in the right side of the equation. Similarly, one might think that the two occurrences of *who* in (4b) are extracted in order to derive (4c).[2]

(4) a. $(7 \times 2) + (3 \times 7) = 7 \times (2 + 3)$

　　b. Caruso was a tenor [[who sang like an angel] and [audiences adored who]] =>

　　c. Caruso was a tenor who [t sang like an angel] and [audiences adored t].

However, there are fundamental differences between the ECF and ATB constructions. In syntactic computations, each syntactic object is a bundle of formal features. When one syntactic object is merged with another one, the formal features interact each other (selection, checking). No such interaction occurs in numerals. I spell out four differences below.

2.1.1 The problem of the qualification of a traveler

First, ECF always allows exhaustive extraction of one "conjunct," whereas ATB constructions do not:

(5) a. $(3 \times 7) + (7 \times 1) = 7 \times (3 + 1)$

　　b. $(7 \times 1) + (3 \times 7) = 7 \times (1 + 3)$

---

[2] Woolford (1987: 166) claims that in ATB constructions, subject gaps cannot co-occur with any other kind of gap. This generalization is too strong. Williams (1978: 34 (18)) discusses sentences like *I know the man who John likes and we hope to win*, where the object gap in the first conjunct co-occurs with the subject gap in the second conjunct. Anderson (1983) also presents many acceptable ATB data where a subject gap co-occurs with another gap. Our (4c) is one of such data.

(6) a. *I wonder who you saw [[a picture of __] and __].

   b. *I wonder who you saw [__ and [a picture of __]].

(Gazdar et al 1985: 178)

In Zhang (2004), it is argued that the CC constraint exhibited in (6) is related to the lexical-syntactic properties of the conjunction *and*. It is claimed that the conjunction does not allow its complement to be null. Thus (6a) is ill-formed. It is also concluded that the first conjunct cannot move because the categorial features of its head have been transferred to the conjunction *and*. Thus, (6b) is also ill-formed. The special lexical-syntactic properties of conjunctions make the syntax of coordination very different from arithmetic, where the symbol + has no linguistic properties.

2.1.2 The problem of the occurrence of a travel

Second, ECF is always and universally optional. The arithmetic form of (7), to which no ECF is applied, is well-formed. However, the extraction in ATB constructions is obligatory, even in wh in situ languages (3).

(7) $(3 \times 7) + (7 \times 1) = 28$

(8) a. Who$_i$ did you say that Carrie likes t$_i$ and Sarah hates t$_i$?

   b. *Did you say that Carrie likes <u>who</u> and Sarah hates <u>who</u>?

2.1.3 The problem of the availability of a returning trip

Third, "reconstruction" in ECF must be always possible, whereas reconstruction in ATB constructions is not always possible, as noted by Haik (1985) (see Moltmann 1992: 126 and Munn 1992: 9, 1993):

(9) a. $7 \times (2 + 3) = (7 \times 2) + (3 \times 7)$

   b. Which picture of <u>himself</u> did John paint and Mary buy?   Not =>
      did John paint which picture of himself and Mary buy which picture of
      himself

The assumed reconstructed form in (9b) is ill-formed, since it violates Principle A of Binding, in the second conjunct. The bound pronoun *himself* there has no appropriate antecedent in the binding domain. I will say more about the issue in 6.2.

2.1.4 The problem of the travel distance

Fourth, ECF must be local, whereas the assumed ATB movement can be a long-distance one. In (10b), the underlined part can intervene between the extracted element and the coordinate complex. However, the underlined number, 5, in (10a) cannot intervene between the extracted factor 7 and the rest of the arithmetic form.

(10) a. $\underline{5} + ((7 \times 2) + (3 \times 7)) \neq 7 \times (\underline{5} + (2 + 3))$
    b. Who$_i$ <u>did you say that</u> [[Carrie likes t$_i$] and [Sarah hates t$_i$]]?

Summarizing, the existence of the formal features of linguistic elements and the interactions among them make the structure-building of linguistic constructions different from the computation of arithmetic. For instance, numbers do not check any formal features before they are extracted from certain domain. The derivation of ATB constructions is thus different from ECF.

The above four problems show that ATB constructions cannot be derived by any operation that is analogous to ECF.

ATB movement is defined as "move a constituent out of all the conjuncts of a coordinate structure" (Ross 1967). Although it is not clear what this means, it is generally recognized that there is a sense of uniqueness in ATB constructions. The exact notion of this "uniqueness" is not clear. Let us see the following three choices:

(11) a. a single application of movement
    b. a single element undergoes movement
    c. the representation of the movement is a single (thus not analytic) forking chain (or path)

(11a) and (11b) exist independent of ATB constructions. Neither (11a) nor (11b) can reach (11c). Their combination cannot either. But it seems that (11c) is the intended "uniqueness" of the assumed ATB movement. Syntactically, there is no way for a unique element to be base-generated at two positions simultaneously, satisfying formal requirements of two verbs at the same time. Nor is it possible for a unique element to launch a movement simultaneously at two syntactic positions.

If the operation to derive ATB constructions is not simultaneous factorization, a question arises: why must the extracted elements be identical? If the gap in each conjunct is related to one extracted element, and the multiple extracted elements happen to be identical in their forms, the assumed ATB movement faces a problem of

the landing site for the multiple extracted elements respectively. This is the topic of next subsection.

2.2 A paradox of the landing site

The mechanism of the assumed ATB movement is that two elements, each of which has its own set of formal features, move into a single position. If Move is Remerge, the so-called ATB movement means that two elements, without grouping themselves together into a single constituent beforehand, merge with a third element and the result of this merger is still binary-branching. The representation of the movement chain is that two tail links are related to a single head link, as in (12). How is this single-head-multiple-tail chain ever possible in the normal way of structure-building?

(12)

γ

γ

$[...\alpha...]$ & $[...\beta...]$

?
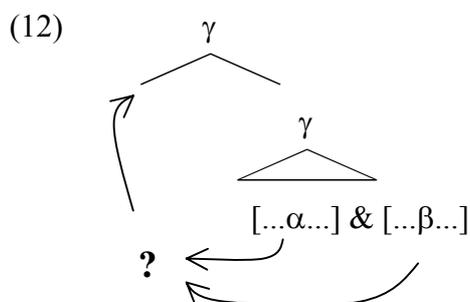
B&F (p. 123 fn. 24) note that "it might be difficult to instantiate movement to the same position formally." Before B&F, Moltmann (1992: 121) already cast doubt upon the theoretical viability of ATB movement, claiming: "There is no way that two NP nodes ... would   move to SPEC (CP) by substitution – given the standard assumption that there is a single SPEC(CP) node." Zoerner (1995: 80), however, does not think Moltmann's claim necessarily undermines the standard theory. Citing May (1985: 83-87), he claims that two elements can occupy [Spec, CP] through adjunction rather than substitution. Specifically, he means that one extracted element adjoins to the other extracted element **after** the latter moves to SpecCP. There might be, of course, other possibilities. One might assume that one extracted element adjoins to the other extracted element **before** the latter moves to SpecCP (see the cluster hypothesis in Grewendorf 2001 and Sabel 2001). Alternatively, one might assume that two extracted elements take different Specs of the same C **respectively** (see Pesetsky's 2000 treatment of multiple wh-fronting). Finally, one might assume that two extracted elements take Specs of different functional heads **respectively** (see Bošković's 2002 treatment of multiple wh-fronting). However, if any of these choices were available

for distributive extraction from conjuncts, we would expect that two distinct wh-elements to be extractable from two conjuncts, respectively, at least in the multiple wh-fronting languages. However, this is never the case (more data parallel to (13) will be presented in 3):

(13) *Kogo   chto   ty   videl i   el?
      who.ACC   what.ACC   you.nom   saw and ate
      'Who what did you see and eat?

<div align="right">(Russian, Kasai 2002)</div>

In (13), *kogo* 'who' is extracted from the first conjunct and *chto* 'what' is extracted from the second conjunct. The multiple extraction operations are impossible.

Considering the fact that none of these four choices is available, the assumed ATB movement faces such a paradox: an element must move out of each conjunct, however, the multiple extracted elements can neither land at a single position nor land at different positions external to the coordinate complex. Where should they move to? In the rest of this paper, I will argue that there is no ATB movement at all.

2.3 The issue of formal feature "sharing" in the assumed ATB chains

The forking chains of the assumed ATB A-movement are ad hoc in that a single head link has two tail links, each of which, according to our well-established syntactic theories, has its own set of formal features, including case and theta-features. In (14), for instance, *John* is related to two base-positions simultaneously, and each base-position is a theta position.

(14) I consider John [t intelligent] and [likely t to get the job]

In other words, in the ATB movement approach, a single argument, *John* here, is theta-licensed twice: by *intelligent* in the first conjunct and by *to get the job* in the second conjunct.

The problem is mentioned but ignored by a "we will not pursue" attitude in Burton & Grimshaw (1992: 306 fn.1). These two authors relate the issue to serial verb constructions (SVCs). They seem to suggest that the same problem exists in SVCs. However, in SVCs, the apparent argument-sharing does not exist, since it has been argued that the second verb in the construction is either related to a PRO (Collins 2002) or a null operator (Law and Veenstra 1992). Crucially, the assumed ATB movement is movement, and thus the gap created by the movement is a trace rather

than a PRO or null operator. In Campell (1996), V1 of a SVC assigns a θ-role to the VP headed by V2, and thus there is no single chain that is related to two separate θ-positions at the same time, either. In Hornstein (1999), PRO-control does have multiple thematic relations involved. However, each link of the assumed movement chain has only one thematic relation with one verb, thus the two links of the chain have two thematic relations with two different verbs, respectively. Crucially, the two chains are consecutive rather than simultaneous.

We thus see that conceptually, the assumed ATB movement does not share the basic properties with regular movement. In section 3 through section 5, I present how the assumed ATB movement is computationally problematic.

3.   No forking extraction of elements out of conjuncts to the same domain

Parallel extraction of elements from conjuncts to the same domain creates a forking chain. In this section, I show that representations containing such a chain are always unacceptable, even in languages that allow multiple fronting of wh-phrases and topics.

First of all, it is impossible to extract identical items from both conjuncts and let both extracted elements PF visible. As background information, (15a) shows that Chinese allows multiple topicalization. In this sentence, *Lao Wang* is a topicalized indirect object, and *lipin* 'gift' is a topicalized direct object. Moreover, (15b) shows that Chinese also allow adjacent reoccurrence of co-referential names. In this sentence, the object of the first sentence *Yuanyang* is adjacent and co-referential with the subject of the second sentence *Yuanyang*.

    (15) a. <u>Lao Wang</u>, <u>lipin</u>, wo song-guo san ci.
          Lao Wang gift   I   send-EXP three time
          'Lao Wang, gift, I sent three times.
       b. Baoyu xihan <u>Yuanyang</u>,   <u>Yuanyang</u> que   bu   xihuan Baoyu.
          Baoyu like   Yuanyang   Yuanyang however not   like   Baoyu
          'Baoyu likes Yangyang, however the latter does not like the former.'

Although the constructions in (15) are fine, multiple extraction operations of identical elements from conjuncts are not possible. This is shown in (16). (16b) cannot be derived the from the two instances of topicalization from the two conjuncts respectively.

(16) a.   Baoyu xihan Yuanyang, Daiyu ye   xihuan Yuanyang.

      Baoyu like   Yuanyang Daiyu also   like   Yuanyang

      'Baoyu likes Yangyang, Daiyu also likes Yangyang.'

    b.   *<u>Yuanyang</u>, <u>Yuanyang</u>, Baoyu xihuan, Daiyu ye   xihuan.

      Yuanyang   Yuanyang Baoyu like   Daiyu also like

One might find some way to rule (16b) out (see B&F p. 123). In the following, I will consider only multiple extraction operations of distinct elements from conjuncts. I will show (17) is impossible, either from the perspective of the landing site (3.1), or from the perspective of the launching sites (3.2).

(17)   * $\alpha\beta$ [[... t_α ...] & [... t_β ...]]

3.1 No multiple head links in the same domain allow their tail links in conjuncts

In this subsection, I present the fact that no multiple extraction operations of wh-phrases or topics from conjuncts to the same domain are possible. Specifically, I show that even the landing site for the cluster $\alpha\beta$ in (17) is available in a language, the launching sites of α and β cannot be in two conjuncts respectively.

3.1.1 Wh-movement

Multiple fronting of wh-phrases is possible in languages such as Russian, Bulgarian, Serbo-Croatian, and Polish. For instance, both the subject and the object undergo wh-movement in (18). However, multiple extraction of distinct wh-phrases from conjuncts is consistently impossible.[3]

- Russian

(18) a.   Kto kogo   ljubit?

      who whom loves

      'Who loves whom?'

    b.   Kto kogo   ty   xoces   ctoby   pobil?

      who whom   you   want   that.SBJUNCTIVE   beat

      'Who do you want to beat whom?'

---

[3] Unless specified, all of the data of Slavic languages in this paper were collected from Koyka Stoyanova and Milena Künast (Bulgarian), Ljudmilla Geist, Natalia Gagarina, and Arthur Stepanov (Russian), Ewa Trutkowski, (Polish), and Zeljko Bošković (Serbo-Croatian). Andreas Haida helped me a lot in contacting most of them. Chris Wilder helped me with the English data. I am very grateful to all of them

(19) a. *Kakogo   mal'chika kakuju   devochku ty   xochesh' poxvalit' i
which.ACC boy.ACC which.ACC girl.ACC   you   want   to-praise and
kritikovat'?
to-criticize

b. *Kogo   chto   ty   videl i   kupil?
whom what   you   saw and   bought

- Bulgarian
(20) a. Koj kogo   e vidjal?   (Rudin 1988)
who whom is seen
'Who saw whom?'

b. Kakvo kak napravi Ivan?   (Grewendorf 2001: 89)
what   how did   Ivan
'How did Ivan what?'

(21) a. *Koe momche$_i$ koe   momiche$_j$ (ti) iskash da pohvalish   t$_i$ i
which boy   which   girl   sbj want   to praise   and
kritikuvash t$_j$?[4]
criticize

b. *Kogo$_i$ kakvo$_j$ (ti) vidja t$_i$ i   kupi t$_j$?
whom what   sbj saw   and   bought

- Serbo-Croatian
(22) a. *Koga   shta   zhelish i   kupujesh.
whom what (you)   want   and   buy
'Whom what do you want and buy?'

b. *Koga   sta   on vidi   i   jede?   (Kasai 2002)
whom what   he sees   and   eats
'Whom what does he see and eat?'

- Polish:
(23) a. *Którego chłopaka którą   dziewczynę ty   chcesz chwalić i
which   boy   which girl   you want   praise and
skrytykować?
criticize
'Which boy$_i$ which girl$_j$ do you want to praise t$_i$ and criticize t$_j$?'

---

[4] In this group of examples, the word *ti* is the subject-expression that is normally dropped in corresponding grammatical sentences.

   b.   *Kogo   co   ty   widziałeś i   kupiłeś?
        Whom   what   you   saw   and   bought
        'Whom what did you see and buy?'

In data like the following, the two extracted wh-phrases are different only in their morphological case:

(24) *Kogo$_i$ komu$_j$ Jan lubi t$_i$ a   Maria se   przyglada t$_j$?
     who.ACC   who.DAT   Jan likes   and   Maria REFL   looks.at
     'Who does Jan like and Mary looks at?'

                                                                        (Citko 2003)

3.1.2 Topicalization

As I said before, Chinese allows multiple topicalization. However, multiple topicalization launching from two conjuncts is impossible. In the following three groups of data, the a-sentences are in the canonical word order. In (25b), only the direct object, *yasui-qian* 'new.year.gift-money', is topicalized. In (25c), both the indirect object and the direct object are topicalized. In (25d), the direct object of the first conjunct *Mimi* and the direct object of the second conjunct, *yasui-qian*, are both extracted. The sentence is not acceptable. Moreover, (25e) is identical to (25d) except that the fronted topics are ordered differently. The other two groups of data show the same point: multiple topicalization launching from conjuncts is consistently not acceptable, regardless of the order of the fronted topics.

(25) a. Wo yijing   gei-guo   Mimi yasui-qian   le.
        I   already give-EXP   Mimi new.year.gift-money   PRT
        'I have already given Mimi a sum of new-year-gift money.'
     b. Yasui-qian,   wo   yijing   gei-guo   Mimi le.
        new.year.gift-money I   already give-EXP   Mimi PRT
        'New-year-gift moneyI have already given Mimi.'
     c. Mimi, yasui-qian,   wo   yijing gei-guo   le.[5]
        Mimi   new.year.gift-money I   already give-EXP PRT
        'Mimi, new-year-gift money, I have already given.'

---

[5] The order of the multiple topics is fixed:
  (i) *Yasui-qian,   Mimi, wo   yijing   gei-guo   le.
       new.year.gift-money Mimi   I   already   give-EXP PRT

d. *Mimi$_i$, yasui-qian$_j$, wo yijing kuajiang-le t$_i$ erqie gei-guo

   Mimi new.year.gift-money I already praise-PRT and give-EXP

   (ta) t$_j$ le.

   (her) PRT

e. *Yasui-qian$_j$, Mimi$_i$, wo yijing kuajiang-le t$_i$ erqie gei-guo

   new.year.gift-money Mimi I already praise-PRT and give-EXP

   (ta) t$_j$ le.

   (her) PRT

(26) a. Akiu zuotian dasao-le bangongshi erqie anzhuang-le

   Akiu yesterday clean-PRF office and install-PRF

   kongtiao.

   air-conditioner

   'Akiu cleaned the office and installed an air-conditioner yesterday.'

b. *bangongshi, kongtiao, Akiu zuotian dasao-le erqie anzhuang-le.

   office air-conditioner Akiu yesterday clean-PRF and install-PRF

c. * kongtiao, bangongshi, Akiu zuotian dasao-le erqie anzhuang-le.

   air-conditioner office Akiu yesterday clean-PRF and install-PRF

(27) a. Akiu gangcai piping-le Baoyu, kuajiang-le Daiyu.

   Akiu just.now criticize-PRF Baoyu praise-PRF Daiyu

   'Akiu critized Baoyu and praised Daiyu just now.'

b. *Baoyu, Daiyu, Akiu gangcai piping-le, kuaijiang-le.

   Baoyu Daiyu Akiu just.now criticize-PRF praise-PRF

c. *Daiyu, Baoyu, Akiu gangcai piping-le, kuaijiang-le.

   Daiyu Baoyu Akiu just.now criticize-PRF praise-PRF

If multiple landing sites for wh phrases and topics are available respectively in the Slavic languages and Chinese, one may wonder why the above instances of multiple extraction from conjuncts are impossible. The ungrammaticality here does not come from the landing site.

3.2 No multiple tail links in conjuncts allow their head links in the same domain

In last subsection, I presented the fact that no multiple extraction operations of wh-phrases or topics from conjuncts to the same domain are possible. In this subsection, I present the same fact from a different perspective. Specifically, I show that even the launching sites for α and β in (17) are available, the landing sites of the two elements cannot be in the same domain as in (17).

Typical constructions of multiple tail links distributed in conjuncts are IDCs, which have been introduced in section 4. An English example of IDC is (28a), and a Chinese example of IDC is (28b).

(28) a. [[Which nurse]$_i$ and [which hostess]$_j$]$_k$ did Fred date t$_i$ and Bob marry t$_j$, respectively?
    b. [Baoyu xihuan he   de]   he   [Daiyu xihuan chi de]   [jiu
       Baoyu like   drink MOD and Daiyu like   eat MOD wine
       he   qiaokeli]   dou zai zheli
       and   chocolate all at   here
       'The wine and chocolate that Baoyu likes to drink and Daiyu likes to eat
       are all here.'

Crucially, the two extracted elements from the two clausal conjuncts do not land in the same checking domain of the matrix clause directly. Instead, they undergo sideward movement and form a coordinate complex in another working site, before the complex is integrated into the matrix clause.

If IDCs can provided available launching sites for multiple extraction from conjuncts, one may wonder why the instances of multiple extraction from conjuncts in data like (19) are impossible. The ungrammaticality here does not come from the launching site.

These two subsections show that neither the landing sites alone nor the launching sties alone decide the unacceptability of the data like (19).

One crucial difference between the generally recognized multiple wh-movement or multiple topicalization and the multiple extraction of elements from conjuncts such as (19) is that the movement of the former is Major Constituent Movement (MCM) with respect to the probe, whereas the movement of the latter is Sub-Constituent Movement (SCM) with respect to the probe. In other words, the probe of the latter movement is not local, at least to the traveler in the second conjunct.

On the other hand, one crucial difference between IDCs and data like (19) is that the multiple extraction operations of the former do not land at the same C-domain of the same clause, whereas that of the latter do.

It seems that the combination of the two factors: multiple SCM and the same landing site domain decides the unacceptability of the data like (19). In next section, I examine whether this is also true of non-coordinate constructions.

4. No forking extraction out of non-coordinate constructions to the same domain

I present another fact in this section: in non-coordinate constructions, movement of multiple sub-constituents to the same checking domain is impossible. This fact patterns with the constraint presented in the last section: no extraction of multiple sub-constituents to the same checking domain is possible, regardless of whether the affected constituents are conjuncts or other type of constituents.

SCM of multiple elements to the same domain is banned not only in coordinate constructions, but also in all other places.

(29) a. SCM of both α and β from conjuncts   b. SCM of both α and β from other constituents

    * $\alpha\beta$ [[... t_α ...] & [... t_β ...]]   * $\alpha\beta$ [[... t_α ...] … [... t_β ...]]

This general constraint is shown in the unacceptable Russian example of multiple SCM of wh-phrases in (30), and the unacceptable Chinese examples of multiple SCM of topics in (31).[6]

(30) a. Kakuju$_i$ Ivan poslal Marii [t_i knigu].   (single SCM from the DO)
    what   Ivan sent Mary   book
    'What book did Ivan send to Mary?'

  b. ? Kakomu$_i$ Ivan poslal [t_i drugu] knigu.   (single SCM from the IO)
    which   Ivan sent   friend   book
    'Which friend did Ivan send a book to?'

  c. *Kakomu$_i$ kakuju$_j$ Ivan poslal [t_i drugu] [t_j knigu] (SCM from the DO & IO)
    which   what   Ivan sent   friend   book

---

[6] Multiple SCM data like the following (i-a) and (ii-a) are independently ruled out. *Čej* 'whose' in (i-a) and *chij* 'whose' in (ii-a) cannot be extracted from subjects (CED, Huang 1982), or more precisely, raised subjects (Takahashi 1994, Stepanov 2001, Sabel 2002).

  (i) a.   *Čej [o   čem] [t drug] napisal knigu?   (Russian)
         whose about what   friend wrote   book
         'Whose friend wrote a book about what?'
    b.   [Čej   drug] napisal (knigu)?
         whose friend wrote   book
         'Whose friend wrote (a book)?'
  (ii) a. *Chij   napisal [t prjatel] kniga?   (Polish)
         whose wrote   friend book
         'Whose friend wrote a book?'
    b.   Czyjego widziales brata?   (Borsley 1983: 340 (8))
         whose   (you) saw brother
         'Whose brother did you see?'

(30b) is an example of single SCM. It is marginal, according to my informant. However, its contrast to (30c) is clear. The latter is intolerable.

The following Chinese data also show the contrast clearly:[7]

(31) a. jiang-jin$_j$,   shizhang gei tiaoshui-yundongyuan banfa-le   henduo t_j.
         award-money mayor   to dive-athlete   bestow-PRF much
         'Award-money, the mayor bestowed the diving athletes a lot of.'

     b. tiaoshui-yundongyuan$_i$, shizhang zhi   gei [wu ge t_i] banfa-le
         dive-athlete   mayor   only   to five CL   bestow-PRF
         jiang-jin.
         award-money
         'The diving athletes, the mayor bestowed award-money to only five of
         them.'

---

[7] I adopt an extraction approach to the split nominals in the Chinese data like (31a/b). Tang (1996: 460 fn. 14) presents the following data in (i) to show that such splitting exhibits the adjunct and Complex NP island effects:
(i)   a. *[Wode gongsi]$_i$, ta   zai [san   ge t_i] gongzuo.   (adjunct island)
           my   company he   at   three CL   work
      b. *Pengyou$_i$, ta wei [liang ge t_i] jie   qian.   (adjunct island)
           friend   he for   two CL   borrow money
      c. *Nuer$_i$,   ta bu   renshi [sheng-le yi ge t_i]   de   na   ge   ren.   (Complex NP island)
           daughter he not know   give.birth.to-PRF   one   that CL   person
Second, like regular topicalization, a long-distance splitting is possible (Pan & Hu 2000: 9):
(ii)   Shu$_i$, wo zhidao [Bi'er yiwei [Mali xihuan [zhe ben t_i]]].
         book I   know   Bill think Mary like   this CL
         'I know Bill thinks that Mary like this book.'
Third, no place-holder is allowed at the gap position of the splitting, suggesting that the position is a trace position.
Fourth, unlike in German, the split construction in Chinese does not have the inverted splits:
(iii) a. <u>Autos</u> besitzt er (nur) <u>schnelle</u>.   (Fanselow & Cavar 2002: (14))
           cars   owns   he only fast
           'As for cars, he owns only fast ones.'
       b. <u>Schnelle</u> besitzt er (nur) <u>Autos</u>.
(iv)   a. <u>Jiang-jin</u>$_j$,   Shizhang gei tiaoshui-yundongyuan banfa-le   [<u>henduo</u> t_j].
           award-money mayor   to dive-athlete   bestow-PRF   many
           'Award-money, the mayor bestowed the diving athletes a lot of.'
       b. *<u>Henduo</u>$_j$, Shizhang gei tiaoshui-yundongyuan banfa-le   [t_j <u>jiang-jin</u>].
           many   mayor   to dive-athlete   bestow-PRF   award-money
Fifth, unlike in German, the split construction in Chinese never allows any repetition of the relevant phonetic material. In (v), the preposition *in* 'in' appears in both parts.
(v) <u>In Schlössern</u> habe ich noch <u>in keinen</u> gewohnt.   (cf. *in keinen Schlössern* 'in no castles')
     in castles   have I   yet   in no   lived
     'I have not yet lived in any castles.'
Base on the above contrasts, I claim that the distributed deletion analysis of the German splits (Fanselow & Cavar 2002) does not apply to the Chinese splits.

c. *tiaoshui-yundongyuan$_i$, jiang-jin$_j$,   shizhang gei [wu ge t$_i$]
    dive-athlete   award-money mayor   to   five CL
    banfa-le   henduo t$_j$.
    bestow-PRF much

d. *jiang-jin$_j$,   tiaoshui-yundongyuan$_i$, shizhang gei [wu ge t$_i$] banfa-le
    award-money dive-athlete   mayor   to five CL bestow-PRF
    henduo t$_j$.
    much

(32) a. haizi$_i$ ma, wo gei Xiao Li jia   de   t$_i$ mai-le henduo wanju;
        child TOP I   for Xiao Li home MOD   buy-PRF many   toy
        lao-ren$_j$ ma,
        old-person TOP
        wo zhi   gei Xiao Wang   jia   de   t$_j$ mai-le   liang bao   chaye.
        I   only for Xiao Wang   home MOD buy-PRF   two   package tea
        'Children, I bought many toys for Xiao Li's, and old people, I bought two
        packages of tea for Xiao Wang's.'

    b. wanju$_i$, wo gei Xiao Li jia   de   haizi mai-le   henduo t$_i$.
        toy   I   for Xiao Li home   MOD child buy-PRF   many
        'Toys, I bought many for Xiao Li's children.'

    c. *haizi, wanju, wo gei   Xiao Li   jia   de   t mai-le   henduo t.
        child   toy I   for   Xiao Li   home MOD   buy-prf   many

    d. *wanju, haizi, wo gei Xiao Li jia   de   t mai-le   henduo t.
        toy   child I   for Xiao Li home   MOD   buy-PRF   many

(33) a. Xuesheng, Baoyu zhi   gei yi-nianji de   ji-le   guanyu   Lundun
        pupil   Baoyu only to one-grade MOD mail-PRF about   London
        de lüyou-shouce.
         MOD travel-brochure
        'Pupils, Baoyu mailed travel-brochures only to those of Grade-One.'

    b. Lüyou-shouce, Baoyu zhi   gei yi-nianji   de   xuesheng ji-le
        travel-brochure Baoyu only   to one-grade MOD pupil   mail-PRF
        guanyu
        about
        Lundun de.
        London MOD
        'Travel brochures, Baoyu mailed only those about London to the pupils
        of Grade-One.'

    c. *Xuesheng, lüyou-shouce,   Baoyu zhi   gei yi-nianji   de ji-le
      pupil   travel-brochure Baoyu only to   one-grade MOD mail-PRF
      guanyu   Lundun de.
      about   London MOD

    d. *Lüyou-shouce,   xuesheng, Baoyu zhi   gei yi-nianji   de   ji-le
      travel-brochure   pupil   Baoyu only   to one-grade MOD mail-PRF
      guanyu   Lundun de.
      about   London MOD

Topicalization occurs in all of the above Chinese sentences. In (31a), the complete direct object is *henduo jiangjin* 'much award-money,' and only part of it, namely, *jiangjin* 'award-money,' is topicalized. In (31b), the complete indirect object is *wu gen tiaoshui-yungdongyuan* 'five diving athletes,' and only the part of it, namely, *yungdongyuan* 'athlete,' is topicalized. In both sentences, single SCM occurs, and the sentences are acceptable. In (31c), both part of the direct object and part of the indirect object are fronted, and the sentence is not acceptable. If we order the fronted elements differently, the acceptability is the same, as shown in (31d). The data in (32) and (33) show the same point.

Note that in our current syntactic theories, nothing rules out the multiple SCM. First, as shown in (31a) and (31b), single SCM is fine. The problem comes from the combination of the two instances of SCM. Second, multiple A-bar movement is allowed in these languages. Third, each SCM starts from a complement, rather than an adjunct. Thus, no adjunct island constraint is violated.

If the mechanism of the assumed ATB movement is independently available, multiple SCM to the same domain should be seen at least in the languages where multiple MCM is possible, contrary to the fact.

On the other hand, multiple SCM to different domains is possible. In the following (34a), the two instances of SCM target the CP-domains of different clauses, respectively.

(34) a.   John found the saucer [which$_j$ Mary put the cup [which$_i$ I poured the tea into t$_i$]   on t$_j$].

    b.   John found the saucer [[on which]$_j$ Mary put the cup [[into which]$_i$ I poured the   tea t$_i$] t$_j$].   (Sag 2000: 2)

In such data, the multiple SCM chains do not interact each other. The landing site of one *which*-chain is the CP-domain related to the verb *put*, and the CP is a RC of the nominal *saucer*. The landing site of the other *which*-chain is the CP-domain

related to the verb *pour*, and the CP is a RC the nominal *cup*. In such data, there are multiple SCM chains, but the chains are not forking chains.

Based on the reported facts above, I now make the following generalization:

(35) No multiple operations of SCM to the same domain are allowed.

The above discussion suggests that it is the special interaction of the chains that makes multiple SCM to the same domain impossible. In the next section, I will show that the interaction happens in cluster-formation, the existence of which has been independently argued for.[8]

5.   No compatibility between cyclicity and cluster-formation in ATB extractions

In this section I explain why our computation system does not produce any multiple SCM construction. I first of all list three independently argued hypotheses in 5.1, and then present my analysis of the question in the rest of the section.

5.1 Theoretical background
5.1.1 The Cyclicity Condition

The first adopted hypothesis for my analysis is that no movement may target a sub-constituent (i.e., constituent that is a component of a major constituent). This is the well-established cyclicity condition or Extension Condition. In other words, if an instance of movement occurs in the local site, the landing site of a movement must c-command the launching site:

(36)

---
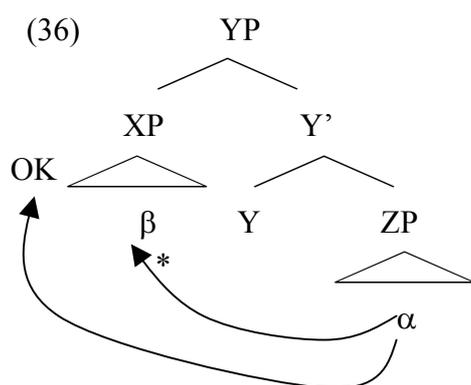
[8] Recently, Johnson (2002) claims that "a two complement construction requires, ... that one of the complements become an island. This can't (easily) be tested in English with multiple wh-movement – but it can with focus projection and wh-movement interacting." Putting the details of his argumentation aside, one can see that his observation that one of two complements must be an island is covered by our generalization that multiple SCM to the same domain is impossible.

The remerger of α with XP in (36) might also violate the strict Extension Condition in the sense of Chomsky (1993: 23, 37). However, the landing site is the left-edge position of a phase, which is special (Chomsky 2000). See also Grewendorf (2001: 98 fn. 21) for an explanation why this is not a problem. I thus assume that Specifiers can be targeted.

5.1.2 The Cluster Hypothesis

The second adopted hypothesis for my analysis is that if multiple elements land at the same domain, they need to form a cluster and it is the cluster that reaches the final destination (Grewendorf 2001, Sabel 2001).

(37) Cluster Hypothesis (Sabel 2001: 533):
　　　A feature F that is attracted by K attracts a feature of the same type F.

In combination with Chomsky's (1995) Attract F, this Cluster Hypothesis rules out any movement of F that skips over a c-commanding element with the same type F.

(38) a.　Attract F
　　　　　K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K.
　　　b.　Closeness
　　　　　β is closer to K than α if β c-commands α.

The implementation of this Cluster Hypothesis is shown in (39) (Sabel 2001: 533):

(39)
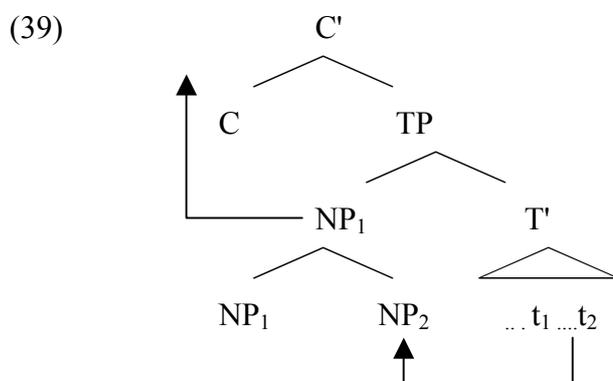
Grewendorf and Sabel claim that if two elements need to move to CP, and one c-commands the other, neither of them may move there alone. The impossibility for

the lower element to skip the higher one follows the Relativized Minimality. The impossibility for the higher element to move alone can be accounted for as follows. If the higher one moves alone to the checking domain of C, the the lower one that also needs to move will not be able to land in the checking domain of C, since the uninterpretable feature of C has been removed by the first comer, the higher one. Since this second element needs to move and cannot move, the derivation crashes.

Grewendorf claims that the cluster formation is universal, and it can be covert in languages such as German. Sabel (1998, 2001, 2003) argues for the Cluster Hypothesis, not only in overt multiple wh movement, but also in covert multiple wh movement in Japanese, and overt multiple head movement.[9]

If all types of multiple movement constructions need the cluster formation, it is natural to ask what happens in ATB constructions, where each conjunct contains an element that needs to move. The Cluster Hypothesis rules out any possibility that a single element moves directly to the surface position, in the presence of another potential traveler. Thus, the multiple extracted elements must form a cluster.

5.1.3 The Multiple Spell-out Hypothesis

The third adopted hypothesis four analysis is Nunes & Uriagereka's (2000) Multiple Spell-out Hypothesis. The adopted Cyclicity Condition does not apply to sideward movement. However, if α in (36) undergo a sideward movement, adjoining to β; then: the cluster $[\alpha\beta]$ cannot move to a certain position that c-commands YP. This is because no element can be extracted after the containing element has been spelled-out and become inaccessible to the computational system (see Nunes & Uriagereka 2000). In (36), suppose the following derivation steps are involved: first, α adjoins to β by sideward movement; second, XP is constructed, which contains $[\alpha\beta]$ but is not headed by either of them;   then XP is integrated into YP. By this time, the cluster $[\alpha\beta]$ cannot move out of XP any more.

5.2 The conflict between the cyclicity and cluster-formation in the multiple SCM

In this subsection, I account for the computational defect of multiple SCM to the same domain. In multiple SCM constructions, where the extracted elements are base-generated inside different constituents, in order for the two elements to form a

---

[9] Bruening (2001) argues that QR obeys Superiority. The effect might be accounted for by the covert cluster-formation hypothesis. Specifically, among two quantifiers, if the lower one has to adjoin the higher one, and the cluster that is headed by the higher one undergoes QR, only the higher one takes the wide scope. This is because the lower one is not the projecting one in the cluster and has no chance to asymmetrically c-command the higher one.

cluster, one element has to move targeting a sub-constituent of the constituent that hosts the other element. Then, in a forward movement mode, the movement violates the cyclicity condition. The violation of the cyclicity to satisfy the cluster-formation requirement causes the crash of the derivation. Alternatively, in a sideward movement mode, as described in III of last subsection, the second step of the movement is too late to be implemented. Thus, such constructions doom to unacceptability.

(40) $*\alpha\beta$ [[... t_α ...] … [... t_β ...]] or: $*\beta\alpha$ [[... t_α ...] … [... t_β ...]] (multiple SCM)

I have presented the SCM data of coordinate construction and non-coordinate construction in sections 2 and 3, respectively. Neither type is acceptable.

5.3 Predictions: Elopement is legal whereas Abduction is not

The above analysis allows us to make two predictions. Abduction is illegal, and Elopement is legal.

5.3.1 Abduction is illegal

Since no movement can target a sub-constituent of the same tree, and multiple movement operations need to form a cluster, my analysis predicts that in multiple movement operations, the one starting at the higher position can never be a SCM, regardless of whether the one starting at the lower position is SCM or not. In other words, in addition to multiple SCM constructions, there is another type of illegal constructions: the movement starting at the higher position is an SCM whereas the movement starting at the lower position is a MCM. I call this type of construction Abduction construction. The mode of the multiple movement is illustrated as follows:

(41) $*\alpha\beta$ [[... t_α ...]... t_β ...] or: $*\beta\alpha$ [[... t_α ...]... t_β ...] (Abduction)

Let us test this predication in multiple wh-movement and multiple topicalization languages. Consider the following Chinese data:

(42) a.   *Tiaoshui-yundongyuan$_i$, [henduo jiang-jin]$_j$ Shizhang gei [wu ge t$_i$]

             dive-athlete   much award-money mayor   to five CL

             banfa-le t$_j$.

             bestow-PRF

             'The mayor bestowed to [five <u>diving-athletes_{topic}</u>] <u>a lot of award-money_{topic}</u>].'

      b.   *[Henduo jiang-jin]$_j$,   tiaoshui-yundongyuan$_i$, Shizhang gei [wu ge t$_i$]

             much   award-money dive-athlete   mayor   to   five CL

             banfa-le t$_j$.

             bestow-PRF

In these data, the preverbal *gei*-PP introduces the goal, and c-commands the post-verbal theme DP in the base-positions. In (42a), for instance, before the topicalization, *tiaoshui-yundongyuan* 'dive-athlete' is inside the DP that starts with *wu* 'five.', and the PP that hosts the DP c-commands the theme DP *henduo jiang-jin* 'much award money.'

Now consider the following Russian ditransitive data:[10]

(43) a.   *Kakomu$_i$ chto$_j$ Ivan poslal [t$_i$ drugu] t$_j$.

            which   what Ivan sent   friend

            'Which friend did Ivan send what to?'

      b.   *Chto$_j$ kakomu$_i$ Ivan poslal [t$_i$ drugu] t$_j$.

            what which   Ivan sent   friend

            'Which friend did Ivan send what to?'

I adopt Barss & Lasnik's (1986, see also Marantz 1993, among others) claim that the goal DP c-commands the theme DP in the ditransitive construction. In the above data, *kakomu drugu* 'which friend' c-commands *chto* 'what' before the extraction. The latter cannot target part of the former to form a cluster and then the cluster moves to the checking domain of C, regardless of the surface order of the two extracted elements.

None of these examples of Abduction is acceptable. My prediction is born out.

---

[10] Abduction data like the following are independently ruled out. Either *Kogo* 'whose' can never move alone (see footnote xx), or nothing can be extracted from subjects (CED, Huang 1982), or more precisely, or raised subjects (Takahashi 1994, Stepanov 2001, Sabel 2002).

  (i) *{Kogo/Čej}   čto   drug napisal?   (Russian)

      whose/whose what friend wrote ?

     'Whose friend wrote a book about what?'

5.3.2 Elopement is legal

Since movement targeting a major constituent can satisfy the cyclicity condition, my analysis also predicts that the following combination of movement chains is fine: the one starting at the higher position is an MCM, whereas the one starting at the lower position is an SCM. In other words, in addition to the regular multiple MCM constructions, there is another possible type of multiple movement: the movement starting at the higher position is an MCM whereas the movement starting at the lower position is an SCM. I call this type of construction Elopement construction. This is the reverse pattern of the Abduction construction. The mode of the multiple movement is illustrated as follows:

(44) ok: $\alpha\beta$ [... t_α ... [... t_β ...]] or: $\beta\alpha$ [.. t_α ... [... t_β ...]]
   (Elopement)

Let us test this predication in multiple wh-movement and multiple topicalization languages. Consider the following data. In (45a), *o čem* 'about what' is extracted from the direct object. It adjoins to the whole subject, *kto* 'who.' In (45b), the same fragment of the object is extracted. It adjoins to the whole indirect object *komu* 'whom'. In these two cases, the cyclicity condition is satisfied, in forming a cluster with the upper traveler. The Bulgarian example in (46) is similar to the Russian example in (45a). Similarly, in the Chinese multiple topicalization data in (47), the element extracted from the direct object moves, targeting the whole indirect object. In this case, the cyclicity condition is satisfied, in forming a cluster with the upper traveler. (48a) and (48b) are Japanese multiple topicalization data. In (48a), the NP *kuruma* 'car' inside the object targets the whole subject *Peter*, and the whole cluster undergoes the topicalization. In (48b), the NP *isu* 'chair' inside the object, which is a coordinate complex, targets the whole subject *Peter*, and the whole cluster undergoes the topicalization.

(45) a. Ty pomniš, [kto [o čem]$_j$ napisal [knigu t$_j$]]? (Russian)
   you remember who about what have-written book
   'Who do you remember has written a book about what?'
   b. Ty znaeš, komu$_i$ [o čom]$_j$ Ivan dal t$_i$ [knigu t$_j$]?
   you know.IMPF whom about what Ivan give.IMPF book
   'Whom do you know about what Ivan gave a book to?'

(46)   Koj$_i$ [za   kakvo]$_j$ napisa t$_i$ [kniga t$_j$]?   (Bulgarian)
        who about what   write   book   t?
        'Who wrote a book about what?'

(47) a.   Na ge xiaohai$_i$, xiangyan, Akiu dao   gei-le t$_i$ [henduo t$_j$]   (Chinese)
           that CL child   cigarette   Akiu rather give-PRF many
           'That child, cigarettes, Akiu gave many.'

     b.   Mimi$_i$, zhitengyao$_j$, wo yijing gei-le t$_i$ [san pian t$_j$] le.
           Mimi, pain-killer   I   already give-PRF three CL   PRT
           'Mimi, pain-killer, I have already given three.'

(48) a.   Peter-wa kuruma-wa itsumo akai-no-o   kat-teiru yo. (Japanese)[11]
           Peter-TOP car-TOP   always red-MOD-ACC buy-PRES PRT
           'As for cars, Peter always buys red ones.'

     b.   isu-wa   Peter-wa kinoo   rampu-to kurashikkuno-no-o kat-ta.
           chair-TOP Peter-TOP yesterday lamp-and classical-MOD-ACC buy-PST
           'Peter bought a lamp and a classical chair yesterday.'

All of these examples of Elopement are acceptable. My prediction is born out.

One might speculate that if the Elopement type of movement is possible, data like the following should be fine, contrary to the fact:

(49) *I wonder who you saw [__ and [a picture of __]]. (Gazdar et al 1985: 178)

As we know, such data show the effects of both parts of Coordinate Structure Constraint (Ross 1967). The first part of this constraint, namely, no conjunct may move, cannot be violated in the *and*-coordinate complexes (Grosu 1973). Thus, the unacceptability is not related to the Extension Condition and the Cluster Hypothesis.

## 5.4 Summary: four types of chain combinations

I have studied four possible combinations of MCM and SCM. They are listed below:

---

[11] These Japanese data are used in Fanselow & Cavar (2002: (38), (39)) to show that the multiple topicalization is not derived by movement, since CSC is violated in (48b). As argued in Chapter 4, 5, and 6 of Zhang (2004), CSC is not a constraint on syntactic operations. Thus CSC cannot be used as a diagnosis for movement in our view. (48b) can be regarded as an object comitative construction. I argued in Chapter 6 of Zhang (2004), extraction from single conjuncts in comitative constructions is licensed.

(50)   *higher launching site*   *lower launching site*   *example*

    a.   MCM   +   MCM   (multiple MCM)   (18), (25c)

    b.   MCM   +   SCM   (Elopement)   (45)~(47)

    c.   *SCM   +   MCM   (Abduction)   (42), (43)

    d.   *SCM   +   SCM   (multiple SCM)   (19), (31c), a.o.

(51)   a.   [.... x........ y...]   (cluster-formation, the first step of multiple MCM (50a))

    b. $[x,y] [......t_{[x,y]}..... t_y.....]$ (cluster movement, the second step of multiple MCM (50a))

(52)   a.   [...... x.....[.. y...]...]   (cluster-formation, the first step of Elopement (50b))

    b. $[x,y] [......t_{[x,y]}.....[... t_y..]...]$ (cluster movement, the second step of Elopement (50b))
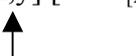
(53)   a.   [... [... x...] ... y...]   (cluster-formation fails in Abduction (50c))
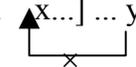
    b.   [... [...x...] ... [... y...]...]   (cluster-formation fails in multiple SCM (50d))
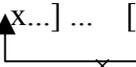
My account for the above acceptability pattern is predicted from the three hypotheses listed in 5.1, namely, the Cyclicity Condition, the Cluster Hypothesis, and the Multiple Spell-out Hypothesis. The account covers the generalization made in (35) before. It also accounts for Johnson's (2002) observation that if there are two complements, no speaker can extract elements from both of them (see our footnote on p. 141), since what he wants to rule out is exactly an instance of multiple SCM.

I have shown that multiple SCM to the same domain is not only theoretically problematic, since it violates the cyclicity in the cluster-formation, but also empirically unacceptable, in both coordinate and non-coordinate constructions.

In the above four sections, I argued against the forking extraction chains in the ATB construction.

6.   The singularity of the launching site of the extracted elements

One empirical problem of the so-called ATB movement is that the overt extracted element of an ATB construction is related to the gap in the first conjunct only. I list three indications of this fact. They all have been reported in the literature.

6.1 No Weak Crossover effect in non-initial conjuncts

ATB constructions do not show Weak Crossover (WCO) effects in non-initial conjuncts, indicating that there is no uniformed wh-movement chain running through all of the conjuncts (Munn 2001: 374). In (54a) and (54b), *his* in the second conjunct does not make the sentence unacceptable, whereas in (54c) and (54d), *his* in the first conjunct indeed makes the hosting sentence unacceptable.

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

According to Lasnik & Stowell (1991), wh-movement shows WCO effects, although certain other types of A'-dependencies do not show the effects, for instance, *tough*-constructions, topicalization, cleft, and parasitic gaps. The contrast in (54) suggests that the wh-movement starts in the first conjunct only, since only the first conjunct exhibits WCO effects.

Munn also reports that WCO is absent not only in the second conjunct, but also in all non-initial conjuncts:

(55) a.   Which man$_i$ did you hire t$_i$, his$_i$ boss fire e$_i$, and his$_i$ sister vouch for e$_i$?
    b.   Which man$_i$ did you hire t$_i$, Bill fire e$_i$, and his$_i$ sister vouch for e$_i$?
    c.   *Which man$_i$ did his$_i$ boss hire t$_i$, you fire e$_i$, and his$_i$ sister recommend e$_i$?

Such data show that the wh-movement chain starts only in the first conjunct.

The following data tell us that topicalization shows no WCO effect in either English (56a) or Chinese (56b):[12]

(56) a.   This book, I expect <u>its</u> author to buy. (Lasnik & Stowell 1991: (20c))

---

[12] For more data like (56b), see Qu (1994: 41 fn.).

    b.   Zhe ben shu, wo tingshuo <u>tade</u> zuozhe qinzi   zai shudian-li

           this CL   book I   hear   its   author personally at bookshop-in

           mai.

           sell

           'This book, I heard that its author sold in the bookshop personally.'

Topicalization does not show the contrast between first conjuncts and other conjuncts, with respect to WCO, as expected:

(57) a.   Zhe ben shu, wo kanjian Lao Wang mai-le,   erqie <u>tade</u> zuozhe ye

           this CL   book I   see   Lao Wang buy-PRF and   its   author also

           mai-le.

           buy-PRF

           'This book, I saw that Lao Wang bought and its author also bought.'

    b.   Zhe ben shu, wo kanjian <u>tade</u> zuozhe mai-le, erqie Lao Wang ye

           this CL   book I   see   its   author buy-PRF and Lao Wang also

           mai-le.

           buy-PRF

           'This book, I saw that its author bought and Lao Wang also bought.'

The WCO patterns exhibited in ATB constructions indicate that the possible launching sites of the A-bar movement are in the first conjunct only.

6.2 No reconstruction of reflexives into non-initial conjuncts

Extracted reflexives in ATB constructions cannot be reconstructed into the non-initial conjunct either semantically or morphologically. Citing Haik (1985), Moltmann (1992: 126) claims that (58) could mean 'John likes himself and Bill hates himself' if the reflexive is reconstructed into the second conjunct, but most speakers can interpret (58) only as 'John likes himself and Bill hates John'.

(58) Himself, John likes t and Bill hates t.

Munn's (1992: 9-13) following examples illustrate the same fact:

(59) a.   Which picture of {himself/*herself} did John paint and Mary buy?

    b.   Which pictures of himself$_{*i/j}$ did John$_j$ buy and Bill$_i$ paint?

In (59a), the extracted element, *which picture of himself*, cannot originate in the second conjunct. If the derivation of this sentence contained the following representation at any step, it should have crashed immediately after this step, and thus, no more derivation, including the assumed ATB movement, would be possible.

(60) *Mary bought which picture of himself

The above data tell us that the wh-phrase can only be base-generated in the first conjunct, where the anaphor *himself* is licensed by the c-commanding and local *John*.

Similarly, in the following Chinese data, the extracted reflexive cannot be bound by the subject of the non-initial conjunct:

(61) a.   Ta-ziji, Baoyu xinshang, Daiyu taoyan.   (not episodic)
           3SG-self Baoyu admire   Daiyu dislike
           'Himself$_{i/*j}$, Baoyu$_i$ admires and Daiyu$_j$ dislike.'
     b.   Nian mingzi de   shihou, ta-ziji,   Baoyu wang-le,   Daiyu
           read name   MOD time   3 SG-self Baoyu forget-PRF Daiyu
           que   ji-zhe.   (episodic)
           however remember-PRG
           'When reading   names, himself$_{i/*j}$, Baoyu$_i$ forgot but Daiyu$_j$
           remembered.'

The reflexive *ta-ziji* '3SG-self' in both sentences is bound by *Baoyu* only, which is the subject of the first (or external) conjunct. No reconstruction of the reflexive to the second conjunct is ever possible.

6.3 No reconstruction of Principle C effects into non-initial conjuncts

Extracted nominals in ATB constructions do not show reconstruction of Principle C effects into non-initial conjuncts. The following data appear in Citko (2003):

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

In (62a), the co-referential relation between the subject *he* in the first conjunct with *John* in the extracted nominal makes the intended meaning impossible. The reconstruction of Principle C effect indicates the existence of a movement chain

launching from the first conjunct. In (62b), however, the co-referential relation between the subject *he* in the second conjunct with *John* in the extracted nominal does not make the intended meaning impossible. The absence of the reconstruction of Principle C effect suggests that there is no movement chain launching from the second conjunct.

In this section, we have listed three facts which show that the overt extracted elements of ATB constructions are related to the gap in the first conjuncts only. These facts imply that the empirical foundation of the assumed ATB movement is problematic.

7. Summary

I have shown that forking chains of the alleged ATB movement is conceptually, computationally, and empirically problematic. Conceptually, the stipulation of a forking chain, which has one head link and multiple tail links, is ad hoc, and incompatible to our well-recognized feature checking operations.

Computationally, I have shown that no multiple extraction operations from sub-constituents are possible. The impossibility has been accounted for if we realize that multiple movement chains need to form a cluster and that movement obeys the cyclicity condition. The combination of the two considerations rules out any type of multiple SCM, including the ATB movement. Thus, in ATB constructions, the extracted elements originate in first conjuncts only. I found that if two elements undergo the same type of movement, the launching site of one element must c-command the launching site of the other element. In other words, not only multiple SCM is impossible, but also a subconstituent cannot move together with a major constituent if the host of the launching site of the former c-commands that of the latter (e.g. if an indirect object c-commands a direct object, part of the former cannot move together with the latter).

Moreover, I have summarized the evidence that the extracted element of ATB constructions is originated in the first conjunct only. Thus, ATB movement is also empirically problematic.

I conclude that there is no special operation in the computation of coordinate constructions. Every movement chain has only one tail (launching site), and the assumed forking chains of the ATB construction do not exist.

The nature of this paper is negative: to argue against the forking chain movement. My own analysis of ATB constructions is argued for in Chapter 8 of Zhang (2004).

References

Anderson, C. 1983. Generating coordinate structures with asymmetrical gaps. *CLS* 19:3-14.

Bošković, Željko and Steven Franks. 2000. Across-the-Board Movement and LF. *Syntax* 3:107-28.

Bošković, Željko. 2002. A-movement and the EPP. *Syntax* 5:167-218.

Bošković, Željko. 2002. On Multiple Wh-Fronting. *Linguistic Inquiry* 33:351-83.

Bruening, Benjamin. 2001. QR Obeys Superiority: Frozen Scope and ACD. *Linguistic Inquiry* 32:233-73.

Campbell, Richard. 1996. Serial Verbs and Shared Arguments. *The Linguistic review*, 13.2:83-118.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. by K. Hale and S. Keyser, 1-52. MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89-155. Cambridge, Mass.: MIT Press.

Citko, Barbara. 2003. ATB wh-questions and the nature of Merge. *The Proceedings of NELS 33,* edited by Makoto Kadowaki and Shigeto Kawahara, GLSA Publications, Umass, Amherst.

Collins, Christopher. 2002. Eliminating Labels. *Derivation and Explanation in the Minimalist Program*, ed. by S. Epstein and D. Seely, 42-64. Blackwell.

Fanselow, Gisbert and Damir Cavar. 2002. Distributed Deletion. *Theoretical Approaches to Universals*, ed. by A. Alexiadou, 65-108. John Benjamins.

Franks, Steven. 1992. A prominence constraint on null operator constructions. *Lingua* 87:35-54.

Gazdar, Gerald., Ewan Klein, Geoffrey Pullum, and Ivan Sag. 1985. *Generalized phrase structure grammar*. Basil Blackwell. Oxford.

George, Leland. 1980. *Analogical generalization in natural language syntax*. Ph. D. dissertation, MIT, Cambridge, MA.

Grewendorf, Günther. 2001. Multiple Wh-Fronting. *Linguistic Inquiry* 32:87-122.

Grimshaw, Jane. 1981. Form, function, and the language acquisition device. *The Logical Problem of Language Acquisition*, ed. by CL Baker and John McCarthy. Cambridge, MA: MIT Press.

Hankamer, Jorge. 1973. Unacceptable Ambiguity. *Linguistic Inquiry* 4:17-68.

Hornstein, Norbert. 1999. Movement and Control. *Linguistic Inquiry* 30:69-96.

Huang, Cheng-teh James. 1982. *Logical Relations in Chinese & Theory of Grammar*. Doctoral dissertation, MIT, Cambridge, MA.

Johnson, Kyle. 2002. Towards an etiology of adjunct islands. Talk given in University of Potsdam, July 10, 2002.

Kasai, Hironobu. 2002. Parallelism and Coordination. To appear in *Language and Linguistics*.

Lasnik, Howard and Tim Stowell. 1991. Weakest crossover. *Linguistic Inquiry* 22:687-720.

Law, Paul & Tonjes Veenstr. 1992. On the Structure of Serial Verb Constructions. *Linguistic Analysis* 22:185-217.

Li, Yen-hui Audrey. 1998. Minimalism and Optionality. *The Tsing Hua Journal of Chinese Studies* 28.3:221-54.

Li, Yen-hui Audrey. 2000. Topic Structure and Minimal Effort. *ZAS Papers in Linguistics* 20:1-20.

May, Robert. 1985. *Logical Form: Its structure and derivation*. Cambridge MA: MIT Press.

Moltmann, Friederike. 1992. *Coordination and Comparatives*. Ph. D. dissertation, MIT.

Munn, Alan. 1992. A null operator analysis of ATB gaps. *The Linguistic Review* 9:1-26.

Munn, Alan. 1993. *Topics in the syntax and semantics of coordinate structures*. Doctoral dissertation, University of Maryland, College Park.

Munn, Alan. 2001. Explaining parasitic gap restrictions. *Parasitic gaps*, ed. by P. Cullicover and P. Postal, 369-392. Cambridge, Mass.: MIT Press.

Nunes, Jairo and Juan Uriagereka. 2000. Cyclicity and extraction domain. *Syntax* 3.1:20-43.

Pesetsky, David. 2000. *Phrasal movement and its kin*. Cambridge, Mass.: MIT Press.

Qu, Yanfeng. 1994. *Object noun phrase dislocation in Mandarin Chinese*. Ph. D. dissertation. UBC.

Ross, John Robert. 1967. *Constraints on variables in syntax*. Ph.D. dissertation, MIT, Cambridge, Mass.

Rudin, Catherine. 1988. On multiple questions and multiple wh-fronting. *Natural Language and Linguistic Theory* 6:445-501.

Sabel, Joachim. 1998. *Principles and parameters of wh-movement*. Habilitationsschrift: University of Frankfurt.

Sabel, Joachim. 2001. Deriving Multiple Head and Phrasal Movement: The Cluster Hypothesis. *Linguistic Inquiry* 32:532-47.

Sabel, Joachim. 2002. A Minimalist Analysis of Syntactic Islands. To appear in *Linguistic Review*.

Sabel, Joachim. 2003. Amalgamation in syntax and LF. Talk given in ZAS-Berlin, April 28, 2003.

Sag, Ivan. 2000. Another Argument Against Wh-Trace. http://ling.ucsc.edu/Jorge/sag.html.

Stepanov, Arthur. 2001. Late adjunction and minimalist phrase structure. *Syntax* 4:94-125.

Takahashi, Daiko. 1994. *Minimality of movement*. Ph. D. dissertation, Universtiy of Connecticut, Storrs.

Tang, Chih-chen Jane. 1990. *Chinese Phrase Structure and the Extended X'-Theory*. Ph.D. dissertation. Cornell University.

Tang, Chih-chen Jane. 1996. *Ta mai-le bi shizhi* and Chinese Phrase Structure. *Chung Yang Yen Chiu Yuan Li Shih Yu Yen Yen Chiu So Chi K'an /The Bulletin of the Institute of History and Philology Academia Sinica* 67.3:445-502.

Williams, Edwin S. 1977. Across-The-Board application of rules. *Linguistic Inquiry* 8:419-23.

Williams, Edwin S. 1978. Across-The-Board rule application. *Linguistic Inquiry* 9, 31-43.

Woolford, Ellen. 1987. An ECP account of constraints on Across-The-Board extraction. *Linguistic Inquiry* 18:166-71.

Xu, Liejing & T. Langendoen. 1985. Topic structure in Chinese. *Language* 61:1-27.

Zhang, Niina Ning. 2002. Island Effects and Episodic Eventualities in Chinese Topicalization. *Linguistics by Heart: in honor of Horst-Dieter Gasde*, ed. by D. Hole, P. Law, and N. Zhang. ZAS-Berlin.

Zhang, Niina Ning. 2004. The minimal syntax of coordination. Manuscript, National Chung Cheng University.

Zoerner, Cyril Edward. 1995. *Coordination: The Syntax of andP*. Ph. D. Dissertation, University of California, Irvine.

Institute of Linguistics
National Chung Cheng Univeristy
Chia-Yi, TAIWAN
Lngnz@ccu.edu.tw

對橫越式位移的懷疑

張寧

中正大學語言學研究所

　　本文反駁橫越式位移的假說。從理念上講，該假說提出的分叉式位移軌道很武斷，而且與公認的句法特徵刪減的操作原理相左。從句法操作上講，在同一領域內對下位成分進行多項位式提取是不可能的。不可能的原因是多項位式位移首先需要諸項目合爲一體；其次需要遵守循序漸進的流程。這兩個要求自然而然地排除了橫越式位移的可能性。我們發現，如果兩個成分要作同類型的位移，其中一個的起點必須成分統治另一個的起點。從實證角度上看，有論據表明橫越式句型的成分提取僅起始於第一個並列項而已。

關鍵詞：提取、橫越式句型、上位成分位移、下位成分位移