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Morphology:
Head movement

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Verb Doubling in Mandarin Chinese

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(1) Two focus constructions in Mandarin Chinese with **nominal phrase** being focalized:

    a. Cleft sentence

        Zhé-běn shū, shì [$_F$tā] kàn, bú shì wǒ kàn.
        this-CL book COP he read NEG COP I read

        '(As for) this book, it is he who is going to read it, not me.'

    b. lián. . . dōu sentence

        Tā lián [$_F$zhé-běn shū] dōu kàn-wán-le.
        he LIAN this-CL book DOU read-finish/PERF

        'He finished reading even this book.'

(2) Two focus constructions in Mandarin Chinese with **verbs** being focalized:

    a. Verb doubling cleft

        Chī, wǒ shī [$_F$**chī**-guò] le, búguò. . .
        eat I COP eat-EXP PERF but

        'As for eating, I have (indeed) eaten, but...'

    b. Verb doubling lián. . . dōu

        lián [$_F$**kàn**] tā dōu bú **kàn**
        LIAN look he DOU not look

        'As for looking, he didn't even look.'

(3) The two main claims of the paper:

    a. There is **no syntactic difference** between verb doubling clefts and verb doubling *lián. . . dōu* sentences and their non-verbal counterparts.

    b. The two verbs in the verb doubling constructions are links of one and the same A-bar movement chain, which has pecularity of allowing **Spell-Out of more than one link**.

(4) Two possible analysises:

    a. Remnant Movement

    b. Long-distance A-bar movement of the verbal head

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1. The internal syntax of verb doubling clefts

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1.1 Basic properties of clefts

(5) Structure of clefts (Cheng 2008):

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shì [$_{SC}$ [$_{SUBJECT}$ XP] [$_{PRED}$ *pro*]]

[*pro*]$_i$ shì [$_{SC}$ [$_{SUBJECT}$ XP] t$_i$]

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    a. *Shì* is the copula verb, which takes a small clause (SC) with *pro* predicate.

    b. *pro* predicate undergoes predicate raising to the left of the copula verb.

(6) The focus/topic distinction in the cleft constructions:

    a. The **focus** is the constituent appearing to the immediate **right** of *shì* (7.a).

    b. The **topic** is sub-constituent of SC subject appearing to the **left** of *shì* (7.a).

    c. The distribution of topic and focus in verb doubling clefts coincides with the distribution in regular clefts (7.b).

    d. There could be **nothing between** *shì* **and topic constituent** (7.c,d) except adverbs such as *yídìng* 'certainly' (7.e), and *tiāntiān* 'every day'.

(7) Examples:

    a. Regular cleft:

        [$_T$Zhāngsān] shì   [$_F$zuó]   kàndào Wáng xiǎojiě (bú shì   qiàntān).
        Zhangsan   COP yesterday see   Wang Ms.   (not COP day.before.yestarday)

        'It is yesterday that Zhangsan saw Ms. Wang (and not the day before yesterday).'

    b. Verb doubling cleft:

        [$_T$**Chī**], [$_T$wǒ] shī   [$_F$**chī**-guò], búguò...
        eat   I   COP eat-EXP   but

        'As for eating, I have (indeed) eaten, but...'

    c. Verb doubling cleft with intervening material:

        *[$_T$**Chī**], ta shī   xiǎnrán [$_F$**chī**-guò], búguò...
        eat   he COP obviously eat-EXP   but

    d. Verb doubling cleft with intervening material:

        *[$_T$**Chī**], shī   wǒ [$_F$**chī**-guò], búguò...
        eat   COP I   eat-EXP   but

    e. Verb doubling cleft with intervening material:

        Chī, wǒ shī   yídìng   huì **chī**, ...
        eat, I   COP certainly will eat

        'As for eating, I will certainly eat; but...'

(8) Observations & Conclusions:

    a. The focalized constituent in **7.b** is interpreted as a verum focus (not as contrastive focus), that is, as affirming the truth of the proposition.

    b. The contrast between **7.c,d and 7.e** shows, that the elements positioned above the vP cannot function as subject of the SC.

    c. All of these requires the **event argument located in v** and not the lexical verb to be focalized.

    d. That is why **the subject of SC** must be a **vP** in the case of verum focus.

1.2 Movement effects in verb doubling clefts

(9) Locality constraints:

    a. Finite clause boundaries may intervene between the surface and the thematic position of the focused constituent (10.a).

    b. If the standard island boundaries intervene between the verbs, the sentence becomes ungrammatical (10.b).

    c. Therefore, the dependency between the two verbs is mediated by an A-bar chain.

(10) Examples

a. The intervening material between the verbs:

Kàn, wǒ xiāngxìn tā shī [$_F$ **kàn**-guò], búguò...
see I believe he COP see-EXP but

'As for seeing, I believe he has indeed seen it, but...'

b. The intervening **island boundaries** between the verbs:

****Chī**, tā shī yǐjīng **chī**-le yǐhòu, wǒ cái huídào jiā, búguò...
eat he COP already eat-PERF after I then return home but

Intended: 'As for eating, I returned home after he has indeed already eaten, but...'

(11) Lexical identity

a. It is not possible to use the lower constituent to futher specify the upper one (12).

b. Lexical identity effect follows directly from the copy theory of movement (13.a).

c. Multiple chain links are spelled out (13.b).

(12) Example

****Zhǔ-cài**, wǒ shī [$_F$ kǎo-guò] jī.
cook-meal I COP roast-EXP chicken

Intended: 'As for cookinga meal, I have indeed roasted chicken.'

(13) Illustrations

a.
[$_{CP}$ Verb$_i$ [XP pro$_{PRED}$ shì [$_{SC}$ [$_{vP}$ ... Verb$_i$ ...] t$_{PRED}$]]]

b.
[$_T$ **Chī**$_i$] wǒ pro$_{PRED}$ shì [$_{SC}$ [$_F$ **chī**$_i$-guò] [t_{PRED}]] le

(14) Conclusion:

a. A verbal constituent undergoes A-bar movement **out of the focus position and into a topic position**,

b. and the resulting chain is exceptional in that more than one chain link is spelled out.

1.2 Movement assymetries in verb doubling and regular cleft

(15) Violation and modification:

a. The analysis violates the following principle:

b. A-bar could not be extracted out of the post-copular subject in inverse predication constructions.

c. Solution (Cheng 2008): the topicalized constituents are base-generated in their surface position.

[$_T$Zhāngsān] shì [$_F$zuó] kàndào Wáng xiǎojiě (bú shì qiàntān).
Zhangsan COP yesterday see Wang Ms. (not COP day.before.yestarday)

'It is yesterday that Zhangsan saw Ms. Wang (and not the day before yesterday).'

d. and the topic binds pro in the SC subject

e. Zhāngsān$_i$ pro$_{PRED}$ shì [$_{sc}$[pro$_i$ zuó kàndào Wáng xiǎojiě] [t$_{PRED}$]].

(16) Observations:

    a. According to the verb doubling such modification cannot be applied, otherwise we would expect island insensitivity, contrary to the (10.b).

    b. A wh-phrase can take scope out of the SC since it yields matrix question intepretation.

        Zhāngsān shì   [$_{SC}$[pro$_i$ mǎi-le   **shénme** shū] pro$_{PRED}$]?
        Zhangsan COP   buy-PERF what   book

        Which book is it that Zhangsan bought?'

    c. Therefore, the wh-phrases undergo movement at LF, that is why the extraction out of the SC subject is indeed possible.

    d. **Solution:** the left periphery of the subject SC is occupied. When a subject does not appear as a matrix topic, it has also been fronted.

    e. Zhāngsān shì [$_{SC}$ [$_{CP}$ [pro$_i$ mǎi -le   **shénme shū**] pro$_{PRED}$]] ?

    f. *shì [$_{SC}$ [$_{CP}$ Zhāngsān [t$_i$ mǎi -le   **shénme**]] pro$_{PRED}$]]?

(17) Applied to the verb doubling

    a. If the verb undergoes fronting, it first has to move to the left periphery of the vP.

    b. In order to take a scope in the matrix, wh-phrase needs to move to the same position.

    c. The copy of the verb blocks the movement of the wh-phrase to LF.

        *mǎi, tā shì   mǎi-le   **shénme** shū búguò
        buy   he COP buy-PERF what   book but

        Intended: As for buying, what is it that he indeed bought? but. . .'

(18) Conlusions:

    a. Both regular and verb doubling clefts have an identical syntactic structure and an identical distribution of topics and foci.

    b. Because the verb doubling cleft is interpreted as verum focus, the subject of SC is vP.

    c. The verb doubling cleft represents the A-bar movement chain and all of its links are spelled out.

    d. The extraction out of the SC subject is unproblematic: the left peripheries of CP and of vP are available in the regular cleft and in the verb doubling cleft, respectively.

2. The internal syntax of verbal lián. . . dōu sentences

2.1 Basic properties of lián. . . dōu sentences

(19) The properties shared by both regular and verb doubling *lián. . . dōu* sentences:

    a. *dōu* is maximality operator, which is adjoined to vP

    b. *lián* is focus particle, provides us with the additivity

    c. The focused constituent appears immediately to the right of *lián* and preceedes *dōu* (20).

    d. The presence of *lián* is optional (20.b,c,d).

    e. The [*lián* FOCUS] sequence can be positioned either before or after the subject of the clause (20).

(20) Examples

    a. *lián...dōu* sentences

        Tā lián [_Fzhé-běn shū] dōu ká-wán-le.

        he LIAN this-CL   book DOU read-finish-PERF

        'He finished reading even this book.'

    b. *lián...dōu* sentences

        (Lián) [_Fzhé-běn shū], tā   dōu ká-wán-le.

        LIAN this-CL   he   book DOU read-finish-PERF

        'He finished reading even this book.'

    c. verb doubling *lián...dōu* sentences

        Tā (lián) [_F **kán**] dōu méi   **kán**

        he LIAN look   DOU not.have look

        'He didn't even look.'

    d. verb doubling *lián...dōu* sentences

        (Lián) [_F **kán**], tā dōu méi   **kán**

        LIAN look,   he DOU not.have look

        'He didn't even look.'

(21) Initial vs internal [*lián* FOCUS] in both constructions:

    a. The initial (pre-subject) position of [*lián* FOCUS] allows both a resumptive pronoun and the topic marker *a* to be in the sentence; it is a subtype of topic (22.a,b).

    b. [*lián* FOCUS] in internal position is incompatible with either a resumptive pronoun and the topic marker; it is a simple focus (22.c,d).

    c. Shyu 1995: internal *lián* focalization is clause bound, that is more A-movement, while the initial *lián* focalization involves A-bar movement.

(22) Examples

    a. Initial [*lián* FOCUS]

        (Lián) Zhāngsān (a), wǒ zuótān   dōu kànjiàn (tā) le.

        LIAN Zhangsan TOP I   yesterday DOU see   him SFP

        'Even Zhangsan, I have seen (him) yesterday.'

    b. Initial [*lián* FOCUS]

        (Lián) [_F **kán**] (a)   tā dōu méi   **kán**

        LIAN look   TOP he DOU not.have look

        'He didn't even look.'

    c. Internal [*lián* FOCUS]

        Wǒ zuótān (lián) Zhāngsān (*a) dōu kànjiàn (*tā) le.

        I   yesterday LIAN Zhangsan TOP DOU see   him SFP

        'I saw even Zhangsan Yestarday.'

    d. Internal [*lián* FOCUS]

        Tā (lián) [_F **kán**] (*a) dōu méi   **kán**

        he LIAN look   TOP DOU not.have look

        'He didn't even look.'

(23) Conclusions:

    a. Both versions of *lián...dōu* sentences have the same underlying syntax.

    b. The doubling effect is epiphenomenal.

2.2 Movement effects in verb doubling lián. . . dōu sentences

(24) Locality constraints:

    a. Finite clause boundaries may intervene between the surface and the thematic position of the focused constituent (25.a).

    b. If the standard island boundaries intervene between the verbs, the sentence becomes ungrammatical (25.b).

    c. Therefore, the dependency between the two verbs is mediated by an A-bar chain.

(25) Examples

    a. The intervening material between the verbs:

    (Lián) [$_F$ **kán**] wǒ xiāngxìn [tā dōu méi **kán**].
    LIAN look   I   believe   he DOU not.have look

    'I believe that he didn't even look.'

    b. Island boundaries:

    *(Lián) [$_F$ **kán**] wǒ zhīdào [tā wèishěnme dōu méi **kán**].
    LIAN   look   I   know   he why   DOU not.have look

    'I know why he didn't even look.'

(26) Lexical identity

    a. It is not possible to use the lower verb to futher specify the upper one (27).

    b. Lexical identity effect follows directly from the copy theory of movement.

    c. Multiple chain links are spelled out.

(27) Examples

    *(Lián) [$_F$**lián**-shēn], Zhāngsān dōu méi **yóu** yǒng.
    LIAN   practice-body Zhangsan DOU not.have swim swim

    Intended: 'Zhangsan didn't even train (his body) by swimming.'

2.2 Potential counter-examples

(28) Observations:

    a. Regular *lián. . . dōu* sentences only allow placement of *dōu* in the matrix clause with the higher verb.

    b. Verb doubling *lián. . . dōu* sentences only allow placement of *dōu* in the same clause as the lower verb.

(29) Examples

    a. Regular *lián. . . dōu* sentences

    ?*(Lián) [$_F$zhè-běn shū], Līsì xiǎng zhīdào [shéi **dōu** yǐjīng mǎi-le   t].
    LIAN   this-CL   book Lisi want know   who DOU already buy-PERF

    'Lisi wants to know who bought even this book.'

    b. Regular *lián. . . dōu* sentences

    (Lián) [$_F$zhè-běn shū], Līsì **dōu** xiǎng zhīdào [shéi yǐjīng mǎi-le   t].
   LIAN this-CL   book Lisi DOU want know   who already buy-PERF

    'Lisi wants to know who bought even this book.'

c. Verb doubling *lián...dōu* sentence

?*(Lián) [$_F$**kàn**], wǒ **dōu** zhīdào Lǐsì méi **kan**.
LIAN   look   I   DOU know Lisi not look

'I know that Lisi didn't even look.'

d. Verb doubling *lián...dōu* sentence

(Lián) [$_F$**kàn**], wǒ zhīdào Lǐsì **dōu** méi **kan**.
LIAN look   I   know Lisi DOU not look

'I know that Lisi didn't even look.'

(30) Solutions:

    a. *dōu* needs to c-command the trace left by the movement of [*lián* FOCUS].

    b. The silent pronoun in the thematic position recieves the theta role and then it is linked to the island-external position.

    c. While Mandarin has null pronouns that can recieve the appropriate theta-role, it lacks (by hypothesis) null pro-verbs that can assign the relevant theta-roles.

(31) Illustrations

    a.

    b.
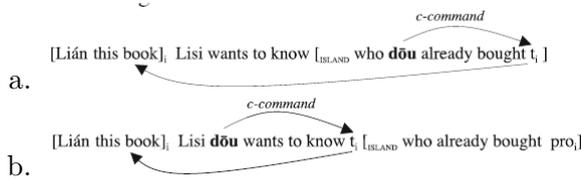
(32) Conlusions:

    a. Both regular and verb doubling lián...dōu sentences have an identical syntactic structure and an identical distribution foci.

    b. The verb doubling lián...dōu sentence represents the A-bar movement chain and all of its links are spelled out.

    c. Because of lack of null pro-verbs, in verb doubling lián...dōu sentences, the verb must be merged in a low position.

3. Verb doubling clefts and lián...dōu sentences as a probe into the nature of verb movement

(33) The remnant movement analysis

    a. The relation between the two verbs in the observed structures is one of the movement.

    b. In case of remnant predicate movement, we would firstly expect the VP-internal constituents to scramble out (like in Russian or in German).

    c. Even though the scrambling obtains in Mandarin, typically, objects do not scramble to the left of the verb though it is possible.

    d. Therefore, there is no productive scrambling movement that fulfils the first step of remnant movement.

    e. Moreover, it is unclear what can drive the movement of the consituents in such cases.

(34) Example

lián **ch**ī, tā dōu méi   **ch**ī jǐ-kō
LIAN eat, he DOU not.have eat several-month

'As for eating, he didn't even eat much.'

(35) Illustration

a. Base sentence: tā dōu méi [lián chī] jǐ-kǒ

b. Object movement: tā jǐ-kǒ$_i$ dōu méi [lián chī] t$_i$

c. [lián-V] movement: [lián chī]$_j$, tā jǐ-kǒ$_i$ dōu méi chī$_j$ t$_i$

d. Movement of materials following jǐ-kǒ: [lián chī]$_j$, tā jǐ-kǒ$_i$ dōu méi chī$_j$ t$_i$

(36) An alternative to remnant movement

a. The analytical option: **Long-distance head movement to Specifier position**

b. It proceeds in the same way as A-bar phrasal movement, i.e. it moves a bare verbal head to a specifier position in the left periphery, for the purpose of satisfying some features like topic, focus etc.

(37) Theoretical background:

a. In the context of the **X-bar Theorie**: **Head Movement Constraint** (Travis 1984):
An X^0 may only move into Y^0 which properly governs it.

b. In the context of the **Bare Phrase Structure** (Chomsky 1995): **Chain Uniformity Condition** (Chomsky 1995a):
A chain is uniform with regard to its phrase structure status.

c. CUC seems to be not feasible, because one phrase could be X^{min} and X^{max} at the same time (like head-to-head movement).

d. The CUC can be droppped.
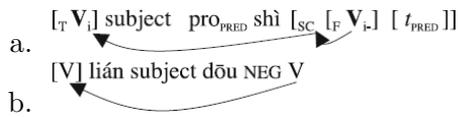
(38) The pinciples of the alternative to remnant movement:

a. **Cyclicity**

b. **Proper Binding Condition**

c. **Last Resort**

d. **c-selection**

e. **m-merger**

(39) **Long-distance head movement to Specifier position**

a. long distance movement of bare head

b. selectional features are [topic] and [focus]

c. movement to the specifier position

d. head movement and m-merger have two independet motivations

e. m-merger is not obligatory

(40) Application to the verb doubling constructions

    a. The verb undergoes the movement from v to a topic position in a left periphery.

    b. In the verb doubling lián... dōu sentence, the verb undergoes the movement to the specifier of the *lián* projection, following be the morpho-phonological merger.

(41) Illustrations

    a. [$_T$ **V**$_i$] subject pro$_{PRED}$ shì [$_{SC}$ [$_F$ **V**$_i$] [t_{PRED}]]

    b. [V] lián subject dōu NEG V

4. The doubling effect

(42) Two causes of doubling effect:

    a. Doubling is a morphological repair mechanism: after movement, bound morphemes require a host.

    b. Doubling is a consequence of morphological fusion: one of the links fuses with the adjacent constituent, which is unvisible for reduction.

(43) Doubling is a morphological repair

    a. Hungarian cannot front a verbal root (realized as an infinitive) while stranding thense and agreement morphology.

    b. Mandarin verbs carry no bound tense or agreement morphemes, therefore, no morpho-phonological deviance can arise.

    c. This reasoning is not applicable to the verb doubling constructions.

(44) Example

    Olvas(ni), **olvas-ta**   Agy a   könyvet.
    read   read-PAST.3SG Agy the book

    'As for reading, Agy did indeed read the book.'

(45) Morphological fusion

    a. $[\alpha][\beta]\ldots \rightarrow [\alpha\beta]\ldots[\beta]$

    b. There is only one syntactically relevant instance of β for the linearization algorithm, the other one is fused.

    c. In verb doubling *lián... dōu* sentence, the upper copy of the verb always fuses with *lián*, irrespective of whether *lián* is phonetically realized or not.

    d. In verb doubling cleft, the verb undergoes fusion with a phonetically null head, a focus head.

(46) Observations & Conclusions

    a. Only verbs and not the nominal constituents can be doubled.

    b. Therefore, we could assume that the fusion obtains regardless of the categorial status of the head.

    c. We can also assume that such restriction is an assymetry does not follow from morfological fusion analysis.

    d. *" Futher research is needed to further shed light in the nature of doubling[...]"*

4. Conclusions

(47) Empirical results:

    a. Verb doubling sentences and their non-verbal counterparts have the same internal syntax.

    b. No remnant VP could be created to move a bare verb to the topic.

(48) Theoretical consequence:

    a. The cause of the doubling effect is to be located at PF.

    b. Bare heads can undergo long-distance A-bar phrasal movement.

(49) **In the context of the course:**

Both head and phrase movement are regulated by the same principles.