

Verb fronting in Mandarin Chinese

Luis Vicente
UC Santa Cruz
koldito@gmail.com

Lisa Cheng
Leiden University
l.l.cheng@let.leidenuniv.nl

October 31, 2008

1 Introduction

Mandarin Chinese has a VP topicalization construction (Huang 1988).

- (1) [_{VP} piping ziji_i de pengyou], Zhangsan zhidao Lisi_i juehui bu hui
criticize self's friend Zhangsan knows Lisi definitely not will
“Criticize his_i own friends, Zhangsan knows that Lisi_i will definitely not do so.”

It also has a verb doubling process with resultatives (Cheng 2007 and references).

- (2) ta **qi** nei pi ma **qi** de hen lei
he ride that CL horse ride RES very tired
“He rode the horse, and the horse got tired”

Something almost undescribed so far (Liu 2004; Constant and Gu 2008): two processes that combine verb topicalization with verb doubling.

- First construction: verbal clefts.

- (3) Q: ni chi-guo fan meiyou?
you eat.ASP rice not.have
“Have you already eaten?”
A: **chi**, wo shi **chi**-guo le, bu guo...
eat I COP eat.ASP SFP but
“As for eating, I have (indeed) eaten, but (I still feel hungry)”

- Second construction: verbal *lian...dou*

- (4) ta lian **kan** dou mei **kan**
he LIAN look DOU not.have look
“He didn’t even look”

We call both constructions *verbal* because they are subcases of the more general cleft and *lian...dou* constructions, respectively. Note that only the verbal versions feature double pronunciation.

- (5) a. Zhangsan shi **zuotian** kandao (***zuotian**) Wang xiaojie
Zhangsan COP yesterday see yesterday Wang ms
“It is yesterday that Zhangsan saw Ms. Wang”

- b. ta lian **zhe-be shu** dou kan-le (***zhe-be shu**)
 he LIAN this.CL book DOU read.ASP this.CL book
 “He read even this book”

Although verb-fronting-plus-doubling constructions do not exist in (Standard) English, they are extremely common crosslinguistically, and they are usually referred to as *predicate clefts*.

- (6) *Some languages with predicate clefts (mostly from Kandybowicz 2006)*
 Akan, Basque, Brazilian Portuguese, Brazilian Sign Language, Buli, Capeverdean, Caribbean English Creole, Chinese, Edo, Ewê, Fongbe, French, Guadeloupe, Gullah, Gungbe, Haitian Creole, Hausa, Hebrew, Hungarian, Igbo, Île de France Creole, Jamaican, Japanese, Korean, Krio, Mauritian Creole, Negerhollands, Nupe, Nweh, Papiamentu, Rodrigues Island Creole, Russian, Saramacan, Seselwa, Spanish, Sranan, Trinidad Dialect English, Turkish, Twi, Vata, Yiddish, Yoruba.
- (7) **Comer**, *pro* he **comido**
 eat.INF I have eaten
 “As for eating, I have indeed eaten” [Spanish, Vicente 2007]
- (8) **Olvasni, olvasta** János egy könyvet
 read.INF, read.PST.3SG János a book.ACC
 “As for reading, János has indeed read a book” [Hungarian, Vicente 2007]

Normally, predicate clefts give rise to a verum focus reading (focus on the truth of the proposition), though this is not always the case –e.g., in French, they create a high degree/surprise reading.

- (9) Pour **manger** des pommes, Laurent a **mangé** des pommes
 for eat.INF of.the apples Laurent has eaten of.the apples
 “As for eating apples, look at how many Laurent has eaten!” [French, J. Rooryck p.c.]

In all languages, the lower instance of the verb appears inflected as appropriate. As for the upper copy, it tends to be realized as an infinitive/bare verb form in European and Asian languages (including Chinese). On the other hand, African and Creole languages tend to realize it as a nominalized verb.

- (10) a. (ká) **dē-kā** àlī Àtìm **dē** mángò-kǔ dīem
 FOC eat.NOMLZR COMP Àtìm eat mango.DET yesterday
 “It is eating that Àtìm did with the mango yesterday” [Buli, Hiraiwa 2005]
- b. **Bi-ba** Musa à **ba** nakàn o
 REDUP-cut Musa FUT cut meat FOC
 “It is cutting that Musa will do to the meat” [Nupe, Kandybowicz 2006]

The syntactic properties of predicate clefts are also very well-defined:

- In many languages, the relation between the two verbs is one of movement (exceptions: Yiddish, various idiolects of Spanish and Brazilian Portuguese).
- Movement targets a constituent in the extended VP area, though the exact projection may vary among languages.
- Double pronunciation is a last-resort strategy to salvage an otherwise deviant structure.

In this talk...

- If we obviate double pronunciation, verbal clefts and verbal *lian...dou* have the exact same syntax as regular clefts and verbal *lian...dou*.
- Several tests show that the two verbs are links of one and the same movement chain, as in several other languages where comparable constructions exist.
- Despite these similarities, verbal clefts and verbal *lian...dou* sentences differ on the trigger of double pronunciation.

2 Verbal clefts

2.1 Brief survey of Mandarin clefts

Mandarin clefts are focus constructions built around the copular verb *shi*. Focus falls on the constituent immediately following *shi*.

- (11) a. zhei ben shu **shi** [_{FOC} ta] kan-le, keshi...
 this CL book COP he read.ASP but
 “This book, it is HE who read it, but...”
- b. **shi** [_{FOC} Zhangsan] zuotian kandao Wang xiaojie, bu **shi** [_{FOC} Lisi]
 COP Zhangsan yesterday see Wang ms not COP Lisi
 “It is ZHANGSAN who saw Ms. Wang yesterday, not LISI”

Cheng (to app.a) proposes that clefts are inverse predication structures: *shi* takes a small clause complement, whose *pro* predicate raises to the left of *shi*.

- (12) *Structure of shi sentences*
- a. **shi** [[subject] [*pro*]]
- b. [*pro*] **shi** [[subject] [*t*]]
-

- (13) a. Shi wo
 COP I
 “It is me”
- b. [*pro*] [shi [_{SC} wo *t*]]
-

Constituents belonging to the small clause subject can also appear to the left of *shi* (floating *shi*) These constituents are interpreted as topicalized.

- (14) a. Zhangsan [**shi** [_{FOC} zuotian]] kandao Wang xiaojie
 Zhangsan COP yesterday see Wang ms
 “It is YESTERDAY that Zhangsan saw Ms Wang.”
- b. Zhangsan zuotian [**shi** [_{FOC} kandao] Wang xiaojie]
 Zhangsan yesterday COP see Wang ms
 “It is SEEING that Zhangsan did to Ms Wang yesterday”

Focus falls on the constituent immediately following *shi*. Since focalized constituents are clearly displaced within the small clause subject, we may assume a specialized focus projection.

- (15) $\overbrace{\text{shi } [_{SC} \text{ Taipei ta qu-guo } t]}^{\downarrow}$ (bu shi Taizhong)
 COP Taipei he go.ASP not COP Taizhong
 “It is Taipei that he went to, and not Taizhong”

Non-verbal clefts have a contrastive focus reading –i.e., the denotation of the focused constituent is contrasted against a set of Roothian alternatives. On the other hand, verbal clefts have a *verum focus* reading, where it is the truth value of the proposition that is contrasted against the opposite truth value. Verbal clefts also give rise to an adversative implicature (a *but* effect), which may be only implicit.

- (16) **chi**, wo shi **chi**-guo le, bu guo...
 eat I COP eat.ASP SFP but
 “As for eating, it is true that I have eaten, but (I still feel hungry)”

Note also that verbal clefts have a preference for letting the lower copy of the verb be the rightmost element in the clause. We don’t have anything interesting to say about this.

- (17) a. ? chi, wo shi chi-guo **zhe-zhong mian**
 eat I COP eat.ASP this.kind noodle
 “As for eating, it is true that I’ve eaten this kind of noodles”
 b. **zhe-zhong mian** chi, wo shi chi-guo
 this.kind noodle eat I COP eat.ASP
 “As for eating, it is true that I’ve eaten this kind of noodles”

2.2 Verbal clefts involve movement

There is evidence that, in several other languages featuring verb doubling (Hebrew, Spanish, Hungarian, Yiddish, Russian, Nupe, Vata, several creoles...) the two copies of the verb are links of one and the same movement chain. The same holds for Mandarin.

2.2.1 Argument for movement #1: locality effects

The two copies of the verb can be separated by finite clause boundaries.

- (18) Q: Zhangsan kan-guo zhe-bu dianying ma?
 Zhangsan see.ASP this.CL movie Q
 “Has Zhangsan seen this movie?”
 A: **kan**, wo xiangxin [_{CP} ta [shi **kan**-guo]], bu guo...
 see I believe he COP see.ASP although
 “As for seeing, I believe that he has indeed seen it, but...”

Nonetheless, island boundaries cannot intervene between the two copies. This is illustrated here with a complex NP island and an adjunct island.

- (19) a. * **kan**, wo tongyi [_{NP} nei-ge ta [shi **kan**-guo (yici) de] kanfa]
 see I agree that.CL he COP see.ASP once DE opinion
 “As for seeing, I agree with the opinion that he has indeed seen it once”

- b. * **kan** women zai [_{ADJ} mei-ge ren [shi **kan**-wan zhe-fen baogao] yihou], cai
see, we be.at every.CL HUMAN COP see.ASP this.CL report after then
kai hui
meeting have
“As for reading, we only held a meeting after everybody had finished reading this report”

This contrast suggest that verbal clefts involve A-bar movement between the two copies.

2.2.2 Argument for movement #2: lexical identity effects

Locality effects indicate that there is A-bar movement, but not that the chain directly relates the two copies of the verb. Locality violations are also compatible with an indirect dependency involving a null operator.

The lexical identity restriction: the two copies of the verb must consist of the exact lexical item. One cannot get an “aboutness” construction. This is surprising because, otherwise, Chinese does allow aboutness topics.

- (20) * Luxing, wo [shi zuo feiji]
travel I COP sit airplane
“As for travelling, I fly”
- (21) ✓ yie-sheng dong-wu, wo zui xi-huan shi zi
wild animal I most like lions
“As for wild animals, I like lions the most”

This restriction follows from the copy theory of movement if the two verbs are links of one movement chain.

2.2.3 What type of movement?

A fronted verb in a verbal cleft cannot pied-pipe other VP/*v*P internal material.

- (22) * [kan-le zhe-ben shu], wo shi [kan-le (zhe-ben shu)]
read.ASP this.CL book I COP read.ASP this.CL book
“As for reading this book, I did indeed read (this book)”

This might seem to indicate that there is obligatory remnant predicate movement in these cases. This is unlikely, because the Chinese object shift rule has a very limited domain of application (Soh 1998): it can only scramble DPs around low (VP-level) adverbs for defocalization purposes.

- (23) a. wo qing-guo lian-ci **na-ge ren**
I invite.ASP twice that.CL person
“I invited that person twice”
- b. wo qing-guo **na-ge ren** lian-ci
I invite.ASP that.CL person lian-ci
“I invited that person twice”

Therefore, there are two possibilities (although we don’t have direct evidence for either of them as opposed to the other –this will remain an open point).

- A-bar movement of a bare verbal head, stranding its complement (Koopman 1984; Vicente 2007).
- Movement of \sqrt{P} , below the level where the complement is merged (Harbour 1999; Landau 2006).

Minor digression — how is this detected in other languages? Through morphological clues. For instance, in Spanish, the shape of the topic is sensitive to voice alternations, which suggests that the moving constituent must be large enough to include at least the functional head responsible for voice (other languages have similar patterns for middle/inchoative/causative/. . . morphology).

- (24) a. { \checkmark Reparar / * reparada }, Mauricio ha reparado la puerta
 fix.INF fix.PASS.3SG.FEM Mauricio has fixed the door
- b. { * Reparar / \checkmark reparada }, la puerta ha sido reparada
 fix.INF fix.PASS.3SG.FEM the door has been fix.PASS.3SG.FEM

In Biblical Hebrew (Harbour 1999), the topic can appear in the default *binyan*, irrespective of the *binyan* of the lower copy. However, Modern Hebrew forces the topic to match the *binyan* of the lower copy (Landau 2006). This means that BH allows copying of a bare root (below the level where the *binyan* is determined), whereas MH forces copying of a larger category.

- (25) w’attâh hu’ **nâqoh tinnâqâh** lo’ θ innâqâh
 and.thou he be.clean you.will.be.clean not you.will.be.clean
 “And are thou he who shall altogether go unpunished? Thou shall not go unpunished”
 [Biblical Hebrew, Jeremiah 49:12]
- (26) w’attem **hinnâqeh θ innâqâh** lo’ θ inâqu
 and.you be.clean you.will.be.clean not you.will.be.clean
 “And should ye be utterly unpunished? Ye shall not be unpunished”
 [Modern Hebrew, same verse]

Since Chinese has no inflectional morphology, this particular strategy is unavailable.

2.3 Interim conclusion

Verbal clefts require:

- A-bar movement of a verbal constituent, but nothing exceptional wrt syntax.
- Spell out of two links of this A-bar chain (to be discussed in section 5).

3 Verbal *lian. . . dou*

3.1 Brief survey of *lian. . . dou* constructions

Rough semantics — *dou* has occasionally been analyzed as a universal/distributive quantifier, but in reality it is a maximality operator (Xiang 2008; Cheng to app.b).

- (27) a. haizimen qu-le gongyuan
 children go.ASP park
 “The children went to the park (although one or two didn’t)”

- b. haizimen **dou** qu-le gongyuan
 children DOU go.ASP park
 “All the children went to the park (without exception)”
- (28) tamen **dou** mai-le fangzi
 they DOU buy.ASP horse
 “They all bought horse(s)”
 [no distributive or collective reading required]

Lian is an operator that attaches to the immediate left of the focalized constituent. It defines a set of alternatives ordered by likelihood (Xiang 2008).

- (29) a. * Lian **zuotian** [*FOC* Zhangsan] dou qu gongzou le
 LIAN yesterday Zhangsan DOU go work SFP
 “Even Zhangsan went to work yesterday”
- b. * Lian **Zhangsan** [*FOC* zai fangguan] dou bu chi le
 LIAN Zhangsan in restaurant DOU not eat SFP
 “Zhangsan doesn’t eat even when in a restaurant”

The combination of *lian* and *dou* creates an *even* reading –specifically, *dou* asserts that the proposition in question holds for all the alternatives defined by *lian*, all the way to the least likely point of the scale (cf. Badan 2007).

Sometimes, more than one constituent might appear between *lian* and *dou*, in which case focus falls invariably on the leftmost one.

- (30) a. *lian* [*FOC* zhe-ben shu] ta dou kan-le
 LIAN this.CL book he DOU read.ASP
 “He has read even THIS BOOK”
- b. *lian* [*FOC* zhe-ben shu] wo yiwei ta dou kan-le
 LIAN this.CL book I think he DOU read.ASP
 “I think that he read even THIS BOOK”

Three further properties of *lian*...*dou* constructions.

- The presence of *lian* is optional. Since there is no meaning difference between examples with and without *lian*.

- (31) ta ___ kan dou mei kan
 he look DOU not.have look
 “He didn’t even look”

We may assume that a silent version of *lian* is present here, because the *even* reading surfaces only if the constituent associated to it receives focal stress (Badan 2007).

- (32) a. * Zhangsan dou lai le
 Zhangsan DOU come SFP
 “Zhangsan all came”
- b. ZHANGSAN dou lai le
 Zhangsan DOU come SFP
 “Even Zhangsan came”

- In verbal *lian...dou*, the presence of negation is obligatory, as opposed to (a) other types of *lian...dou*, and (b) verbal clefts.

(33) * ta lian kan dou ___ kan
 he LIAN read DOU read
 “He even looked”

We don’t have anything interesting to say about this property (yet).

- The lower copy of the verb cannot be followed by any verbal dependents, which have to be left-dislocated. This effect is much stronger than it is in verbal clefts.

(34) a. * ta lian kan dou mei kan **zhe-ben shu**
 he LIAN read DOU not.have read this.CL book
 “He didn’t even READ this book”
 b. ✓ **zhe-ben shu** ta lian kan dou mei kan
 this.CL book he LIAN read DOU not.have read
 “This book, he didn’t even READ (it)”

3.2 Verbal *lian...dou* requires movement

3.2.1 Argument for movement #1: locality effects

In the same way as with verbal clefts, verbal *lian...dou* dependencies can span finite clause boundaries, but they are blocked by intervening island boundaries.

(35) lian **kan** wo xiangxin [_{CP} ta dou mei **kan**]
 LIAN see I believe he DOU not.have look
 “I believe that he didn’t even look”

(36) a. * lian **kan** wo zhidao [_{CP} ta weishenme dou mei **kan**]
 LIAN look I know he why DOU not.have look
 “I know why he didn’t even look”
 b. * lian **kan** ta bei che zhuang-le [_{ADJ} yinwei ta dou mei **kan**]
 LIAN look he by car hit.ASP because he DOU not.have look
 “He was hit by a car because he didn’t even look”

This contrast shows that the dependency between the two copies of the verb is mediated by an A-bar chain.

3.2.2 Argument for movement #2: lexical identity effects

In the same way as with verbal clefts, the two copies of the verb in verbal *lian...dou* must consist of the same lexical item. The following sentences are *not* counterexamples, since they get a concessive/conditional reading different from the focus reading characteristic of verbal *lian...dou*.

(37) a. lian **lüxing** wo dou bu **zuo** feiji
 LIAN travel I DOU not sit airplane
 “I won’t even fly if I’m travelling”
 b. lian **xiayu** wo dou bu **da** yusan
 LIAN rain I DOU not hit umbrella
 “I won’t even carry an umbrella if it’s raining”

3.3 Interim conclusion

Verbal *lian...dou* requires:

- A-bar movement of a verbal constituent, with an obligatory presence of sentential negation.
- Spell out of two links of this A-bar chain (to be discussed in section 5).

4 The analysis of double pronunciation

Standard view on double pronunciation of chain links: economy principles require PF to spell out only one link of a movement chain, as that is enough to recover the semantics of the moved constituent. However, certain morphological factors can override economy principles and force pronunciation of a second link.

Factors that override economy principles:

- **Morphological repair:** double pronunciation is necessary because otherwise we'd create a morphologically deviant structure (typically, one in which affixes are left without a stem).

(38) *German split topicalization*

- a. Sie kennt [**keinen** alten Professor]
she knows no old professor
[where *keinen* = NEG + ∃]
- b. * [**Einen** alten Professor] kennt sie [**k-___**]
a old professor knows she no
- c. [**Einen** alten Professor] kennt sie [**keinen**]
a old professor knows she no

(39) *Hungarian verb doubling*

- a. Agy **olvasta** a könyvet
Agy read.PAST.3SG the book.ACC
- b. **Olvasni, olvasta** Agy a könyvet
read.INF read.PAST.3SG Agy the book
- c. * **Olvas(ni), ___-ta** Agy a könyvet
read.INF ___PAST.3SG Agy the book

This is clearly not going to work for Mandarin, given that Mandarin verbs don't have any inflectional morphology that can be stranded.

- **Morphological fusion:** double pronunciation happens because one of the copies fuses with another element, and therefore becomes invisible for the linearization algorithm.

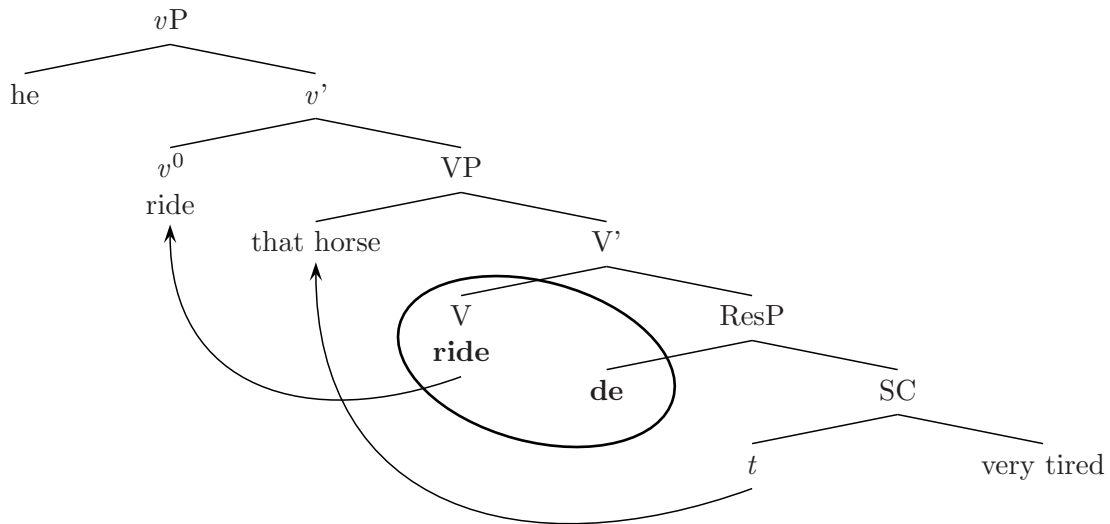
(40) *German wh- doubling*

- a. **Wen** glaubt Hans **wen** Jakob gesehen hat?
who.ACC thinks Hans who.ACC Jakob seen has
“Who does Hans think that Jakob has seen?”

b. wen glaubt Hans [_{CP} [_{C°} wen + C⁰] Jakob t] gesehen hat?

This option is more plausible, since Mandarin has already been argued to exhibit this kind of strategy in resultative constructions (Cheng 2007).

(41) ta qi nei-pi ma qi de hen lei
 he ride that.CL horse ride RES very tired
 “He rode the horse and the horse got very tired”



A representation for (41): the lower copy of *qi* fuses with the resultative head *de*, thus bleeding copy reduction.

5 Double pronunciation in Mandarin

5.1 Verbal *lian...dou*

Verbal *lian...dou* sentences have three invariant elements that can be hosts for fusion: *lian*, *dou*, and negation.

- **Negation** cannot be the host of fusion because various constituents can intervene between the verb and negation.

(42) a. lian kan ta dou bu xiang kan
 LIAN look he DOU not want look
 “He didn’t want to even look”
 b. lian kan ta dou bu yiding kan
 LIAN look he DOU not certainly look
 “He certainly didn’t even look”

- **dou** cannot be the host of fusion either, for the same reason as negation.

(43) lian kan wo xiangxin [_{CP} ta dou mei kan]
 LIAN see I believe he DOU not.have look
 “I believe that he didn’t even look”

We are therefore left with the option of fusion with *lian*, which is always immediately adjacent to the leftmost copy of the verb. Note that the fact that *lian* is sometimes silent is not necessarily a problem, as in the German *wh*- doubling cases, the lower *wh*- word also fuses to a phonetically null C^0 .

Why is doubling restricted to verbs?

- (44) a. ta lian **zhe-ben shu** dou kan-le (***zhe-ben shu**)
 he LIAN this.CL book DOU read.ASP this.CL book
 “He read even THIS BOOK”
 b. lian **ta** dou (***ta**) kan-le zhe-ben shu
 LIAN he DOU he read.ASP this.CL book
 “Even HE read this book”

A related asymmetry: in German *wh*- doubling, only simple *wh*- words can be doubled.

- (45) *German wh- doubling*
 a. **Wen** glaubt Hans **wen** Jakob gesehen hat?
 who.ACC thinks Hans who.ACC Jakob seen has
 “Who does Hans think that Jakob has seen?”
 b. * **Wessen Buch** glaubt Hans **wessen Buch** Jakob gelesen hat?
 which book thinks Hans which book Jakob read has
 “Which book does Hans think that Jakob has read?”

Nunes (2004) argues that fusion always takes bare heads (X^0 s) as its input. If we assume that Mandarin verbs qualify as bare heads, while DPs and pronouns are phrasal, the restriction of doubling to verbs follows.

5.2 Verbal clefts

In verbal clefts, the only constant element is the copula *shi*. However, *shi* cannot be the host of fusion because of the same reason as *dou* and negation above: some elements can intervene.

- (46) a. kan **shi** xiang **kan**
 see COP want see
 “As for seeing, I will certainly see”
 b. kan **shi** yiding **kan**
 see COP certainly see
 “As for seeing, I will certainly see”

Besides, we observe an optional splitting effect with bisyllabic verbs, unexpected if double pronunciation here is a consequence of fusion.

- (47) a. ta **xi shi xihuan**
 he XI COP like
 “As for liking, he does like (it)”
 b. ta **xihuan shi xihuan**
 he like COP like
 “As for liking, he does like (it)”

An interface solution? — what the splitting effect is telling us is that double pronunciation in this case is not reducible to morpho-phonological requirements. Rather, something external (interface conditions, cf. Bobaljik 2002) forces both positions to have *some* phonetic realization. In this case, we can get away with partial spellout because recoverability is not an issue.

If something like this is viable, there is still the question of how to restrict it to verbal clefts. This is something we still don't know how to do.

6 Conclusions

- **Syntactically**, verbal clefts and verbal *lian...dou* are unexceptional: they are instances of the more general cleft and *lian...dou* constructions and, as in many other languages, they involve A-bar movement of a verbal constituent.
- **Semantically**, there isn't much to report either. Verbal clefts exhibit the verum focus reading observed in predicate clefts in several other languages. Verbal *lian...dou* sentences have the *even* meaning characteristic of the *lian...dou construction*.
- **Phonologically**, however, things are trickier. We have show that the trigger for double pronunciation must be different for each construction.

Various issues left to solve:

- Why is the presence of negation obligatory in verbal *lian...dou*?
- Why do verbal *lian...dou* and (to a lesser extent) verbal clefts require the lower copy of the verb to be clause final?
- What is the proper characterization and analysis of the splitting effect with bisyllabic verbs in verbal clefts?

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