Word order, syntactic structure and information structure
TEAL 8: Theoretical East Asian Linguistics
National Tsing Hua University

C.-T. James Huang

06-04-2013

1. Introduction

- Information structure: topic, focus, discourse linking, etc.
- Deriving information structure from syntactic structure
- [Overt and null topics]
- Topics, relatives and prenominal modification

2. Topic structures and their derivations

Chinese is a topic-prominent language which, as the term suggests, heavily uses structures involving topics and comments:

(1) a. Na-chang da-huo, xingkui   xiaofang-dui lai-de-kuai.
       that-CL   big-fire fortunately fire-brigade   come-DE-quickly
       Lit. 'That big fire, fortunately the fire brigade came quickly.'
    b. Zhe ci kaoshi, women yiding   hui   renzhen xuexi.
       this Cl exam   we   definitely will   earnest study
       'This exam, we definitely will study hard.'
    c. Hua   (a), ta   zhi xihuan meigui hua.
       flower Top she only like   rose   flower
       'Flower, she only likes rose.'

Sentences like the above have been taken to show that some topic structures in Chinese can be derived by External Merge ("base-generation"). Some go even further to say that all Chinese-type topic structures are not derived by movement at all (Xu and Langendoen 1985 and many, especially in the functional-descriptive literature starting with L&T).   Apparent support for this view has sometimes come from the observation that topic structures are not sensitive to movement island constraints.

(2) Zhangsan$_i$ (a), [xuduo [e_i xie] de shu] dou   hen changxiao.
    Zhangsan Top   many   write DE book all   very sell-well
    'Zhangsan$_i$, many books that [he] writes sell very well.'

(3) Zhangsan$_i$ (a), [yinwei e_i mei lai   shangxue],   laoshi   hen shengqi.
    Zhangsan Top because   not come go-to-school teacher very upset
    'Zhangsan$_i$, because [he$_i$] didn't come to the school, the teacher was very upset.'

In (2) the topic has been "extracted" out of a relative clause and in (3) out of an adjunct, apparently violating the CNPC and the CED. But it has been shown early on that extraction is not entirely free island constraints. In particular, there is a systematic left-right asymmetry showing that island violations occur only when extraction takes place from a subject or preposed island, but not from a post-verbal island.

2.1. Left-right asymmetries in extraction

- **CNPC** asymmetries:

(4) a. Zhangsan, [[*e* chang-ge de shengyin] hen haoting].
          Zhangsan,   sing-song de voice   very   good-to-hear
          'Zhangsan, his voice of singing is very good.'
     b. *Zhangsan, [wo hen   xihuan [*e* chang-ge de   shengyin]].
          Zhangsan I   very like   sing-song de voice
          'Zhangsan, I like [his] voice of singing.'
     c. Zhangsan, [*e* chang-ge de shengyin]$_i$ [wo hen   xihuan t_i].
          Zhangsan   sing-song de voice   I   very like
          'Zhangsan, I like [his] voice of singing.'

(5) a. Zhangsan, [[e xie   de shu] bu shao]
          Zhangsan   write de book not few
          Zhangsan, books that he has written are numerous.
     b. *Zhangsan, [wo nian le bu shao [e xie   de shu]]
          Zhangsan I   read le not few   write de book
          Zhangsan, I have read many books that [he] has written.
     c. Zhangsan, [e   xie de shu]$_i$ [wo nian le bu   shao t_i]
          Zhangsan   write de book   I   read le not   few
          Zhangsan, I have read many books that [he] has written.

(6) a. Zhangsan, [[piping   e de ren]   bu   shao]
          Zhangsan   criticize   de person not few
          Zhangsan, people who criticize [him] are numerous.
     b. *Zhangsan, [wo renshi hen duo [piping e de ren]]
          Zhangsan I   know   very many criticize   de person
          Zhangsan, I know many people that criticize [him].
     c. Zhangsan, [piping e de ren]$_i$ [wo   renshi hen duo t_i]
          Zhangsan criticize   de person I   know very many
          Zhangsan, I know many people that criticize [him].

- **LBC** asymmetries:

(7) a. Zhangsan, [e   baba]   hen youqian.
     Zhangsan,   father   very rich
     'Zhangsan, [his] feature is very rich.'
   b. *Zhangsan, wo   kanjian [e baba].
     Zhangsan, I   saw   [his] father.
   c. Zhangsan, [e baba]$_i$ wo kanjian le t_i.
     Zhangsan, [his] father,   I   saw.

(8) a.   nage nühai, [e yanjing] hen   haokan.
     that   girl,   eyes   very pretty.
     'That girl, [her] eyes are very pretty.
   b. *nage nühai, wo   xihuan [e   yanjing].
     That girl,   I   like   [her] eyes.
   c. nage nühai, [e   yanjing]$_i$, wo xihuan t_i.
     That girl,   [her] eyes,   I   like.

- CED (Adjunct Condition) asymmetries

(9) a.   Zhangsan$_i$, yinwei [e$_i$] bu neng lai canjia wanyan, Lisi juede hen shiwang.
     Zhangsan because   not can come join dinner Lisi feel very disappointed
     'Zhangsan, because he could not attend the dinner, Lisi felt disappointed.'
   b. *Zhangsan$_i$, Lisi yinwei [e$_i$] bu neng lai canjia wanyan, juede hen shiwang.
     Zhangsan Lisi because   not can come join dinner   feel very disappointed

(The difference between (a) and (b) is whether the adjunct clause is before or after the main clause subject Lisi.) All the ungrammatical cases can be saved with an overt resumptive pronoun.

2.2. *Account of the left-right asymmetry*

An account of the asymmetry observed above was proposed in Huang (1984, 1989) that has the following features:

(10) a.   Availability of pro: Chinese being a pro drop language. The null category [e] may originate as a PRO/pro that gets coindexed with the topic without movement.
   b.   The identification of PRO/pro is subject to a minimality requirement, i.e. the GCR. Co-index PRO/pro with the closest potential antecedent:
   c.   The (a) and (c) sentences with apparent island violations are grammatical when Topic is directly merged at Spec of TopP, without movement, and is related to the main clause by coindexing with the closest available *pro* below.

d. The (b) sentences cannot be obtained through this non-movement route, because the *pro* is located within a post-verbal constituent, too far to be coindexed with the topic.

e. Since the movement option is also excluded by island constraints, the (b) cases are ill-formed.

- Implication of the above account: Movement *is needed* for derivation of sentences like the following:

(11)   Zhangsan, Lisi bu xihuan [e].
        'Zhangsan, Lisi does not like [e].'

(12)   Zhangsan, wo zhidao ni shuo-guo Lisi bu xihuan [e].
        'Zhangsan, I know you have said that Lisi does not like [e].'

These sentences cannot be derived by merging a Pro at [e] and coindexing it with the topic under the GCR.

2.3. Focus and minimality

- Some apparent counterexamples to the left-right asymmetric pattern and the GCR account of it have been suggested by a number of linguists, including Xu and Liu 2003 show that extraction is possible from some post-verbal islands.
    – The violations are not entirely free however, given the established observations above whose validity has been extensively confirmed.
    – No alternative account has been suggested that explain the existing patterns and their apparent exceptions.

- Based on detailed surveys, Zhang, Min (2009) provides the generalization that extraction is possible from a post-verbal island if the island domain is itself focalized: as in the environment of *zhi* 'only', *lian* 'even', negation, or when in contrast with another constituent.

(13) a. *Zhangsan, wo kanjian le   [e   hou naoshao]
         Zhangsan, I   saw   Perf. [his] back-of-head.
    b.   Zhangsan, wo **zhi** kanjian le   [e   hou naoshao]
         Zhangsan, I   only saw   Perf. [his] back-of-head.
         'Zhangsan saw only the back of his head.'

(14) a.   *na-ge nühai, wo xihuan [e   yanjing]
         That   girl, I like   [her] eyes.
    b.   na-ge nühai, wo xihuan [e   yanjing]; zhe-ge nühai, wo xihuan [e   bizi].
         That girl, I like   [her] eyes;   this girl, I   like [her] nose.

c.   na-ge nühai, wo zhi xihuan [e   yanjing].
      That   girl,   I   only like   [her] eyes.

(15) a.   *na-ge xuesheng, wo jide   [e   mingzi]
           that   student,   I   remember [his] name.
    b.   na-ge xuesheng, wo jide   [e mingzi]; bu   jide   [e zhangxiang]
           That student,   I   remember [his] name; don't remember [his] looks.
    c.   na-ge xuesheng, wo zhi jide   [e mingzi].
          That student,   I only remember [his] name.
    d.   na-ge xuesheng, wo lian [e mingzi] dou   wang le.
          That   student,   I   even [his] name   all   have forgotten.

Zhang, Min's proposal: 張敏 2009

(16) a.   Both the extraction target and the extraction site must be in a state of being
           "activated" (receiving attention).
     b.   The target must be higher in potential topicality, the extraction site must be
           lower in potential topicality and higher in being a focus.
     c.   Definiteness of DP and specificity of events contribute to topicality of target,
           and relative opacity of the extraction site.   Indefiniteness, focus particle,
           negation, contrast, etc., contribute to focus.
     d.   Subjacency applies to topicalization extractions.
     e.   Violation of Subjacency is tolerated only if the extraction site receives
           'extra activation'.

• Translating Zhang's observations to our terms: (also Huang & Yang 2013)

(17)   a.   Focused elements are "activated" → They trigger LF movement to the left
              periphery, to [Spec, FocusP].
        b.   A possible alternative is to adjoin to vP, assuming reconstruction of the
              subject.   (Mitcho Erlewine)
        c.   See also Constant (2013): LF movement of Contrastive Topic.

(18)   Focus = exhaustive focus
        a.   Overt movement: clefts, pseudo-clefts, etc.   → Overt trigger by F^0.
        b.   Focus-in-situ: *shi, only,* focal stress, etc.   → LF movement.
        c.   Also compare Old Chinese vs. Modern Chinese (overt vs. covert movement
              to Focus), another typical case of the derivational timing parameter.

(19) Focus → alternatives → quantification → operator position

See Rooth 1992, 1996 and others after Rooth. For example, the semantics of *only*:

(20)   *only*: $\lambda C \lambda p \forall q [(q \in C \ \& \ \text{True}(q)) \leftrightarrow q = p]$

Partee 2009, on Rooth: *Only* combining with a clause ϕ yields [a] the assertion $\forall p[(p \in [[\phi]]^f \ \& \ \text{True}(p)) \rightarrow p = [[\phi]]^o]$ and [b] the presupposition ϕ.   That is, *only* ϕ [a] presupposes that ϕ and [b] asserts that ϕ is the only true member of ϕ's alternative set. For example:

(21)   John only saw [Bill]$_F$ = only + ϕ
    a. ϕ = John likes [Bill]$_F$ = the ordinary semantic value of ϕ = $[[\phi]]^o$
       [=presupposition]
    b. The focus semantic value of ϕ= $[[\phi]]^f$= the set of alternative propositions
       of the form "John saw x" (including *John saw Bill*).
    c. Assertion: there is no true proposition of the form "John saw x" other than
       ϕ itself (John saw Bill), i.e. the one where x is Bill:
       $\forall p[(p \in [[\phi]]^f \ \& \ \text{True}(p)) \rightarrow p = [[\phi]]^o]$ (Every true proposition that is a
       member of the alternative set is necessarily identical to the presupposed
       proposition.

That is, a focus sentence with *only* involves universal quantification, hence a QR structure in LF by familiar assumption.   Instead of universal quantification over propositions, we could speak of universal quantification over the DP object argument. Bill is the only value that makes the formula {*John saw x*} true = For all x, person (x) (John saw x) $\rightarrow$ Bill (x), viz., Every person that John saw is Bill.

- Recall Chomsky 1976's earlier account of weak crossover:

(22) a.   *Who does his mother love?
    b.   *His mother loves everyone.
    c.   *His mother loves someone.
    d.   His mother loves John.
    e.   *His mother loves JOHN.

(23) a.   The woman he loved betrayed John.
    b.   *The woman he loved betrayed everyone.
    c.   *The woman he loved betrayed someone.
    d.   *Who does the woman he loved betray e?
    e.   *The woman he loved betrayed JOHN.

(24) a. For x = John, his$_i$ mother loves x$_i$.
    b. For x = John, the woman he$_i$ loved betrayed x$_i$.

(25) $\forall x$ (John saw x) (x = John)

- The LF representations (24a-b) are cases of 'weak crossover' in LF. They are ruled out by the "Leftness Condition":

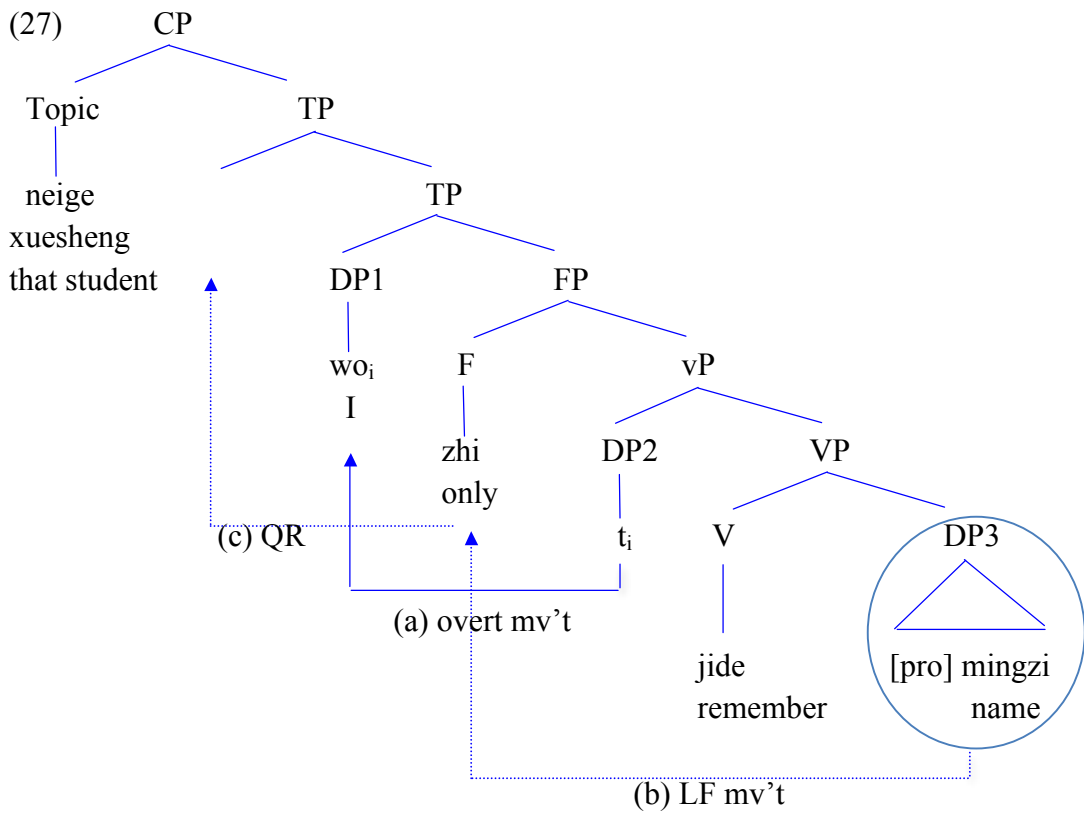(26) The Leftness Condition:
      A variable cannot be the antecedent of a pronoun to its left.

Consider (15c) again:
(15c)   na-ge xuesheng, wo zhi jide [e mingzi].
        That student, I only remember [his] name.

Syntax:
(27)

a. Overt movement of *wo* 'I' from vP (DP2) to SpecTP (DP1).
b. Covert LF movement of *pro mingzi* 'pro's name' to *zhi* 'only', yielding [*only pro's* name.]
c. The focused DP *[only pro's name]* is adjoined to TP by QR.
d. In this new position, *pro* in [*pro name*] may be co-indexed with *Zhangsan*, in accordance with the minimality requirement of GCR:

(28) [$_{CP}$ that student$_i$, [$_{TP}$ [only pro$_i$ name], [$_{TP}$ I remember]]]

GCR

Semantics:

(29)   As for that student, I remember only his name (not his appearance, his age, his grade, or his home address)

(30) $\forall x \in \{$his name, his appearance, …$\}$(I remember x), x = his name.

(31)   For $[[\phi]]^o$ = I remember his name, and $[[\phi]]^f = \{$I remember his name, I remember his appearance, I remember his grade, etc.$\}$:
       $[[\phi]]^o$ & $\forall p[$ $(p \in [[\phi]]^f$ & True(p)$)) \rightarrow p = [[\phi]]^o$

Similarly for (15d), etc.

(32)   na-ge   xuesheng, wo   lian pro mingzi dou   wang le.
       That   student, I   even [his] name all   forgot Perf/FP.
       'That student, even his name I have forgotten.'

       LF after QR:
       Na-ge xuesheng, lian pro mingzi, wo   dou wang le.
       that   student   lian pro name   I   all forget Perf/fP

(33)   For $[[\phi]]^o$ = I forgot his name, $[[\phi]]^f = \{$I forgot his name, I forgot his appearance, I forgot his grade, etc.$\}$ and $[[\phi]]^o$ is at end of scale S:
       $[[\phi]]^o$ & $\forall p[$ $(p \in [[\phi]]^f$ & True(p)$)) \rightarrow p = [[\phi]]^o$

Summary:

- Overt topic structure in Chinese may be formed by co-indexing *pro* with a base-generated topic.
- Coindexing under GCR is subject to minimality/intervention, thus resulting in a systematic left-right asymmetry of *apparent* island violations.
- Movement is needed for the grammatical cases not derivable by *pro*+GCR.
- As for English: no similar apparent island violations possible due to the unavailability of the *pro* option (English is not a pro-drop language). The only way to relate the target to the topic position is by movement, which is restricted by Subjacency.
- Apparent departures from the left-right asymmetries are permitted when Focus is involved. These cases follow from the hypothesis that in-situ foci are subject to LF movement, which preposes the in-situ foci to Spec, FocusP position, closely (enough) below TopicP.

- Implication: information structure is structured syntactically, either overtly or covertly, with focus following topic in the left periphery preceding the core vP/TP. Anaphoric interpretation is subject to minimality in Information Structure as it is in Syntactic Structure.

- Further Implication: evidence for a distinction between *pro*-indexing and movement structure. Related evidence against recent works (Comrie-Matsumoto-LaPolla, etc.) claiming that there is no distinction between pro- and moving structure, even further that there is no need to distinguish between gapped and gapless prenominal modifiers, and no need for distinction between relative clauses and NP complements, etc. Evidence against the constructionist approach to pre-nominal modifier constructions.

Selected References

Chomsky, Noam. 1976. Conditions on rules in grammar.
Constant, Noah. 2013. UMass PhD dissertation, forthcoming.
Huang, C.-T. James & Barry C.-Y. Yang. 2013. Null topics and MCP. Paper
    presented LSA annual meeting, Boston.
Huang, C.-T. James. 1984. On the distribution and reference of empty pronouns. LI.
Li, Charles & Sandra Thompson. 1981. Mandarin Chinese: a functional reference
    grammar.
Partee, Barbara. 2009. Lectures on formal semantics.
Rooth, Mats. 1985. Association with Focus, University of Massachusetts: Ph.D.
    Dissertation.
Rooth, Mats. 1992. A theory of focus interpretation. Natural Language Semantics
    1:75-116.
Rooth, Mats. 1996. Focus. The Handbook of Contemporary Semantic Theory, ed.
    Shalom Lappin, 271-298. Oxford: Blackwell.
Whitman, John. 2013. Paper on pre-head modification in nominal structures.
Xu, Liejiong & Danqing Liu. 2003.
Xu, Liejiong & Terence D. Langendoen. 1985. Topic structures in Chinese.
    Language.
Zhang, Min. 2009. In Yang Shen, ed., *Yuyanxue Luncong* 39.