

MATCHING THE CONSTITUENCY OF QUANTIFICATION AND SENTENCE STRUCTURE:

TWO CASE STUDIES FROM MANDARIN CHINESE

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While it is no longer necessary to point out the fruitfulness of the tripartite structure approach to quantification, not all areas within the fence set by this theory have yet been populated. This presentation will colonize two of these unpopulated spots with hitherto underinvestigated phenomena from Mandarin Chinese.

The first phenomenon concerns information-structure and, more accurately, obligatory background marking. The special thing about Chinese background marking is that, given certain structural conditions, it is (i) obligatory and (ii) paradigmatic. The sentences in (1) illustrate both of these properties.

- (1) a. Zhǐyǒu ZHÈ-zhǒng *shū* *Lǎo Wáng* \*(cái) *mǎi-guo*.  
 only this-CL:kind book Old Wang CAI buy-ASP  
 ‘Old Wang has bought only THIS kind of book before.’
- b. Jiùshì *Nǐ* *LÁI,* *wǒ* \*(yě) *bù* *huì* *qù*.  
 even.if you come I YE not will go  
 ‘Even if YOU COME, I will not go.’/‘If YOU COME, I still won’t go.’
- c. Lián *TĀ* \*(dōu) *huì* *lái*.  
 even (s)he DOU will come  
 ‘Even (S)HE will come.’
- d. Zhǐ-yào *Nǐ* *LÁI,* *wǒ* \*(jiù) *qù*.  
 only-must you come I JIU go  
 ≈ ‘If YOU COME, I’ll go.’

All sentences in (1) have focused constituents in small caps with specific focus quantificational meanings: (1a) precludes the truth of any relevant alternative sentence, (1b) presupposes the truth of at least one alternative sentence (the existential second translation is more accurate in this respect), (1c) makes a universal statement concerning alternatives, and (1d) presupposes that not all alternatives are true. Apart from the fact that negated universal quantification over alternatives, as postulated for (1d), has, to the best of my knowledge, never been proposed as a lexically encapsulated focus quantificational notion, the complete coverage of the relevant domain is special (albeit theoretically expected from the point of view of quantificational focus theories and Löbner’s 1990 findings concerning the design of quantificational lexical paradigms): Each of the four classic quantificational types is represented by (1a-e). The paradigm of focus-related expressions in (1) thus covers the complete semantic space that is relevant in this domain. The obligatoriness of *cái*, *yě*, *dōu* and *jiù* in (1) constitutes the second peculiarity of the discussed Mandarin system. The underlined focus markers *zhǐyǒu*, *jiùshì*, *lián* and *zhǐyào* precede and c-command their interacting foci, whereas obligatory *cái*, *yě*, *dōu* and *jiù* follow their interacting foci. Thus, while the obligatory particles covary with the quantificational type of focus, they do not seem to partake in the focus marking itself (otherwise we would expect them to c-command their foci). Instead, they occur in a fixed position probably immediately above AspP or some non-epistemic modal projection (Shyu 1996). The material following the particles invariably belongs in the presupposition of the focus-background structure, so I take the particles to constitute an agreement phenomenon: The quantificational type of the focus is reflected in the background. Since the focus-background partition may be subsumed under a general notion of subject-predicate partitionings, and since syntactic subjects are typical agreement triggers, the postulated Mandarin agreement system is not fully unexpected. The only unexpected property of the system is that the agreement is not realized within morphology, but, at best, as a case of pro-cliticization. The four particles in (1) are the core members of the investigated paradigm of conventionalized background markers in Mandarin. Even though all four quantificational types are covered

by them, at least two more members of the paradigm can be identified: *hái* (basic meaning ‘still’) and *zài* (basic meaning ‘once more’). (2) and (3) illustrate their use as focus agreement markers.

- (2) *Bāo-shang LIÁNG-kuài hóng-bù,*  
 wrap-up 2-CL:piece red-cloth  
*hái zhǐbuzhù xué ne.*  
 HAI unable.to.stop blood PRT  
 ‘Even wrapping it up with TWO pieces of red cloth could not stop the bleeding.’
- (3) *Wǒ HUÍQÙ KǎOLǚ YĪ-XIÀ, wǒ zài gào su nǐ zěnme bàn.*  
 I return ponder 1-CL:bit I ZAI tell you how handle  
 ‘I’LL RETURN HOME AND THINK ABOUT IT, and (only) THEN {will I/I’ll} tell you what to do.’

*Hái* as an agreement particle is claimed to inherit from its basic use as ‘still’ (i) the existential quantification over alternatives (some alternative is true) and (ii) the scalar, though not necessarily temporal, ordering of the alternatives such that the considered alternative focus values are lower on the relevant scale. Property (i) makes agreement-*hái* a more special variant of agreement *yě* (cf. (1b)). Property (ii) restricts the use of agreement-*hái* in such a way that its use in negative polarity contexts is excluded, because in negative polarity contexts only higher scalar values are considered. In this kind of context, agreement-*yě* still is a good option; cf. (4).

- (4) *Wǒ tóu YĪ-DIǎNR {yě/\*hái} bù tòng.*  
 I head 1-CL:bit YE/HAI not hurt  
 ‘My head doesn’t hurt THE SLIGHTEST BIT/AT ALL.’

My proposal for *zài* as an agreement particle says that the domain of quantification is restricted to a single alternative, and this alternative is excluded. This makes the difference between quantification of type  $\neg\forall$  and  $\neg\exists$  vanish. The disappearance of the difference between these two quantificational types, which results from the cardinality restriction of the domain, is unelegantly mirrored by the two-fold translation into English, one of them signalling  $\neg\exists$ -quantification, the other one coming close to signalling  $\neg\forall$ -quantification over alternatives. The restriction of the set of alternatives to a cardinality of 1 is not reflected in the translation.

The second case study concerns the mapping of modal quantificational structures to syntactic structures. It draws heavily on Kratzer’s (1981, 1991) theory of modality, and on Partee’s (1995) ideas concerning the constituency of quantificational structures. The problem is nicely illustrated by the sentences in (5) and (6).

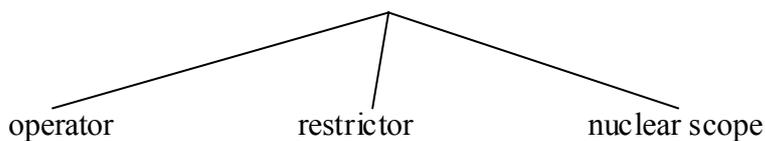
- (5) *Tā bìxū qù dàshǐguǎn, cái néng shēnqǐng qiānzhèng.*  
 (s)he must go embassy CAI can apply.for visa  
 ‘(S)he must go to the embassy to be able to apply for a visa.’/  
 ‘Only if (s)he goes to the embassy can she apply for a visa.’
- (6) *Tā [bìxū xià yǔ] cái lái.*  
 (s)he must fall rain CAI come  
 ‘It must rain in order for him/her to come.’/‘Only if it rains does (s)he come.’

Upon first inspection, (5) seems to be an average complex *cái*-sentence, a sentence type typically rendered by *only-if*-conditionals in English (for a simple *cái*-sentence cf. (1a)): The first conjunct delimits the set of situations within which the second conjunct is true, and no other possibilities exist. The problem has to do with the use of *bìxū* ‘must’ in (5). If we render the sentence as an *only-if*-conditional in English without omitting this modal verb, we get a wrong translation: *Only if (s)he has to go to the embassy can (s)he apply for a visa*. The obligation to go to the embassy doesn’t, of course, influence the outcome, it is only the question of going or not going to the embassy that matters. If we want to retain the modal verb in our translation, we must resort to a purposive construction as in the first translation of (5). If we

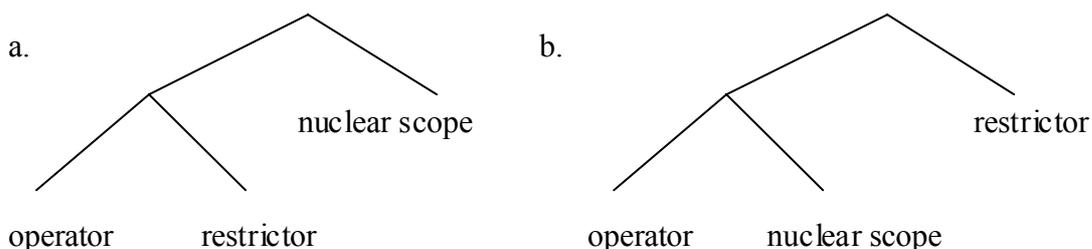
prefer a conditional construction, we must drop the modal of necessity. In case we decide in favour of a purposive construction, we face the problem that the facts of syntactic dominance are switched: In the first translation of (5), the main clause precedes the subordinate purpose clause, but in the Mandarin sentence the first clause is subordinate. The same dilemma can be stated for (6): The subordinate clause *bìxū xià yǔ* ‘must fall rain’ contains a modal of necessity with wide scope, and a literal translation that captures both the facts of syntactic subordination and the scope of the modal is impossible (the sentence does not mean ‘Only if it must rain does (s)he come’).

Three analyses that might come to mind are shown not to solve the problem. The first of these analyses would say that there is an implicit anaphor representing the subordinate clause minus the modal in the matrix clause, much like *then* in *She must go to the embassy, only then can she apply for a visa* does, except that *then* in the English sentence is not implicit. The strongest argument against this analysis is derived from the fact that the subordinate clauses in the Mandarin sentences may not be dropped, while this is generally possible if an overt anaphor is used. The second analysis would propose a reanalysis of the modal operators. The modal operator *bìxū* ‘must’ might be said to have undergone reanalysis such that, in this construction, it is interpreted as a conjunction or complementizer. It is, however, generally possible to use just any modal of necessity in the relevant construction, which would mean that all and only the synchronically available modals of necessity have previously been reanalyzed as conjunctions or complementizers. This is not a very attractive theory. Moreover, speakers’ intuitions insist on the status of *bìxū* etc. in the relevant construction as modal verbs. The third possibility would be to say that Mandarin, instead of embedding purpose clauses, embeds means clauses. The drawback of this analysis is the fact that the modal would still have to take matrix scope, thereby rendering this idea unattractive as well.

The solution to the puzzle that I favour makes use of an unorthodox mapping from constituents of modal quantification to sentence structure. If modal structures can be represented as quantificational structures, and if there is no logically pre-established binary branching opposing the quantifier together with the restrictor to the nuclear scope, then it should also be possible to find the quantifier and the nuclear scope forming a constituent, with the restrictor being opposed to it (Partee 1995). The diagram in (7) depicts the flat logical structure of tripartite structures; (8a) gives a binary constituency reflecting the way we tend to think about the constituency of quantification in familiar natural languages, especially in the domain of generalized quantifiers; (8b) is the alternative binary branching that I will apply to the Mandarin case.



(8)



If we analyze the main clauses of the Mandarin sentences in (5) and (6) as restrictors, i.e. as accessibility relations or specifications of the circumstantial ordering source, everything falls into place. (9) (=5) may, in simplified possible-worlds terms, then be paraphrased as in (10).

- (9) *Tā bìxū qù dàshǐguǎn, cái néng shēnqǐng qiānzhèng.*  
 (s)he must go embassy CAI can apply.for visa  
 ‘(S)he must go to the embassy to be able to apply for a visa.’/  
 ‘Only if (s)he goes to the embassy can she apply for a visa.’
- (10) ‘[All]<sub>QUANTIFIER</sub> the possible worlds which are [such that (s)he can apply for a visa]<sub>RESTRICTOR</sub>  
 are [such that (s)he goes to the embassy]<sub>NUCLEAR SCOPE</sub>.’

If we take the language-independent flat structure of quantification seriously, we expect to find phenomena which implement modal quantification syntactically the way the discussed Mandarin structure does. After all, *if*-sentences with explicit adverbial quantifiers (*If the sun shines, I sometimes go jogging*) have the same quantificational constituency, the only difference being that the restrictor in such sentences is syntactically subordinate.

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