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## On QU-Features\*

### 1. The Status of QU-Features

There seem to be two opposite alternatives to analyze quantifier raising QR in terms of the Minimalist Program outlined in the same paper by Chomsky (2000).

- (1) a. QR is feature driven.
- b. QR is not feature driven.

According to (1a), QR is feature driven. To incorporate QR, Chomsky (2000:109) proposes that there are “QU-features” triggering movement of quantifiers, alongside the P-features (periphery features) that drive movement. Presumably, QR is a covert operation. Such an operation can apply only if it has an effect on interpretation at LF (Chomsky 2000:109, see also Chomsky 1995:294).<sup>1</sup>

On the contrary, (1b) will have different consequences. Chomsky (2000:108, fn44) suspects that QR is not feature driven. It is an operation lacking overt counterparts and not interacting with the computation of human language  $C_{HL}$ , which might be among the principles of interpretation of LF, hence “postcyclic”, inspecting a representational level in the manner of many other systems.

Which alternative is more plausible? In this paper, it will be argued that (1a) is basically correct. In what follows, let us take (1a) to be correct for the moment and discuss the nature of QU-features. I will return to (1b) in section 5.

### 2. Problems of covert QU-Features

The possibility of having QU-features inducing covert movement seems dubious. There are some questions that need to be explained.

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<sup>1</sup> The QU-feature should not be confused with the quantification feature [quant] proposed by Chomsky (1995:377). [quant] is interpretable and its movement is triggered by an “optional affix feature” in LF. See footnote 3.

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A question is related to the mechanism that can satisfy uninterpretable features. In the Minimalist Program outlined in Chomsky 2000, 2001a, Agree is an operation that eliminates uninterpretable features. Interpretable features do not need to be eliminated and do not induce dislocation. Notice that it is not the case that all uninterpretable features induce dislocation. Some uninterpretable features, such as  $\phi$ -features of T, do not induce dislocation. “Long distance agreement”, i.e. agreement without raising the goal to the probe, is possible to satisfy those uninterpretable features. Suppose that there is an economy principle ‘Merge over Move’ or ‘MOM’ (Chomsky 1995, 2000, 2001a). Operations without Move should be more economical and thus preferable.<sup>2</sup>

Given that QU-features are the features that must be eliminated and induce dislocation, they should be analyzed as uninterpretable. If they are uninterpretable, why can’t a more economic operation be used to satisfy QR, such as long-distance agreement between QU-features (*probe*) and the quantifiers (*goal*) without Move?

To answer this question, one possible explanation could be that raising the quantifier to satisfy the QU-feature is to derive a proper scopal relation at LF for LF convergence, as what May (1977, 1985) originally proposed. If this explanation holds, we are forced to say that QU-features are “weak” so that Move takes place covertly. Consequently, we have to assume that some economy principle, such as Procrastinate, plays a role in the computation.

Although Procrastinate provides some apparent justification for covert QR, the status of such an economy principle is dubious. Chomsky (2000:132, 2001a:15) discusses the problems of Procrastinate and explicitly argues that such a principle is no longer formulable. The concept of strength has no place. With the motivation for Procrastinate gone, overt-covert distinction collapses. Computations are performed as quickly as possible. Uninterpretable features must be eliminated at once. If Move is required, it must be carried out as quickly as possible and thus covert movement no longer exists. In this vein, QU-features should be satisfied as quickly as possible without exception. Eliminating them by covert operations is no longer possible in the framework without Procrastinate.

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<sup>2</sup> Although Chomsky (2001b) claims that internal Merge (=Move) is a free operation, on a par with external Merge (=Merge), contrary to what has been being assumed in the Minimalist Program, the new claim is problematic. See Tang 2001 for a review. In this paper, Move is still regarded as a costly operation.

Another problem of covert QR is that covert pied-piping is not permitted in the Minimalist Program. Let us first consider an example in English. Higginbotham (1980) observes that (2) is ambiguous, in which the object may take either narrow scope or wide scope. Interestingly, the object must have a narrow scope interpretation if *he* is bound by *someone* in (3).

(2) Someone played every piece of music you knew. ( $\exists > \forall, \forall > \exists$ )

(3) Someone<sub>i</sub> played every piece of music he<sub>i</sub> knew. ( $\exists > \forall, *\forall > \exists$ )

Why can't the object in (3) have scope over the subject? To be interpreted as a bound pronoun, *he* in (3) must be c-commanded by *someone* at LF and thus the *every* phrase cannot undergo QR at LF (Higginbotham 1980). Obviously, such an analysis requires covert pied-piping of the *every* phrase. However, it is assumed in the Minimalist Program that pied-piping requires phonological content and is for PF convergence only (Chomsky 1995, 2001a). If covert pied-piping is prohibited, what precludes the possibility to raise just enough feature of the quantifier *every* in (3) to get a wide scope reading for LF convergence?

### 3. Solution: QU-Features as OCC Features of $\nu$

Before proceeding, let me spell out an assumption adopted in this paper.

(4) Move is an operation that involves copying and deletion.

(4) is also known as the “copy theory” of movement originally proposed by Chomsky (1993). The so-called “trace” is actually a copy of the moved element, which will be deleted by a PF rule for PF convergence (Chomsky 1993 et seq). There is an LF analogue to the PF rule; all but one member of the LF chain are deleted (Hornstein 1995, 1999, cf. Chomsky 1993).

To solve the problems addressed in the previous section, I

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propose that QR is feature driven, triggered by the QU-feature.<sup>3</sup> The QU-feature is a reflex of the “OCC feature” (also known as “P-feature” or “EPP-feature” in Chomsky 2000, 2001a) of  $\nu$ , as stated in (5).<sup>4</sup> The term “QU-feature” is only a mnemonic for the OCC feature of  $\nu$ .

(5) QU-features are assigned to the edge of  $\nu$ P.

The “edge” of  $\nu$ P is also known as the “EPP position” or the periphery position of  $\nu$ . I assume that quantification involves the peripheral configuration, on a par with other surface semantic effects, such as presupposition, focus, specificity, etc. The QU-feature enters the derivation only if it has an effect on outcome. As being a kind of OCC features, QU-features are uninterpretable and must be eliminated by Move as quickly as possible. Hence, they induce dislocation in the narrow syntax. The motivation for assigning QU-features to  $\nu$  is to trigger object shift and to derive the wide scope interpretation of the object.

Let us consider the English example in (6), in which the object *every book* may have either a wide scope reading or a narrow scope reading.

(6) A student bought every book.

To get the wide scope reading of the object OB,  $\nu$  is assigned the QU-feature. To eliminate the QU-feature of  $\nu$ , OB raises to the specifier SPEC of  $\nu$ . Following Johnson (1991), Koizumi (1995), Kural (1998), Tang (1998), Tanaka (1999), among others, I assume that the verb V raises out of  $\nu$ P overtly in English.<sup>5</sup> After T is introduced into the derivation, SU raises to SPEC of TP and leaves a copy behind. The

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<sup>3</sup> As noted in footnote 1, the quantification feature [quant] proposed by Chomsky (1995) is triggered by an “optional affix feature”. To integrate [quant] into the present approach, we may say that the so-called “optional affix feature” is actually the QU-feature (*probe*), which triggers movement of quantifiers that bear [quant] (*goal*).

<sup>4</sup> According to Chomsky (2001b), if  $\alpha$  is required to satisfy the OCC feature of  $\beta$ , that means “ $\alpha$  is an occurrence of some  $\beta$ ”. For example,  $\alpha$  is located in the edge of  $\beta$ .

<sup>5</sup> To avoid unnecessary controversial debates, the landing site of the verb in English is omitted. The landing site could be either T or some functional category between T and  $\nu$ . Furthermore, whether verb movement in English is a phonological process, in the sense of Chomsky (2001a), does not affect the present analysis.

derivation is illustrated in (7).

$$(7) \begin{array}{l} [_{vP} \text{OB} [ \text{SU} [ \text{V} \text{OB} ] ] ] \\ [_{TP} \text{SU} [ \text{V} [_{vP} \text{OB} [ \text{SU} [ \text{V} \text{OB} ] ] ] ] ] \end{array} \Rightarrow$$

Conforming to the copy theory adopted in this paper requires deleting the copy of the moved element at PF and deleting all but one member of the LF chain. The PF representation in (8) shows that the word order “SU + V + OB” is correctly derived.<sup>6</sup>

$$(8) \quad [_{TP} \text{SU} [ \text{V} [_{vP} \text{OB} [ \text{SU} [ \cancel{\text{V}} \cancel{\text{OB}} ] ] ] ] ] \quad (\text{PF})$$

(9) is the LF representation for the wide scope reading of the object in (6). OB in SPEC of *v* cannot be deleted because object shift in (9) contributes to semantic interpretation and OB must stay in that position for LF interpretation. On the contrary, subject raising perhaps derives “surface” semantic effects only (Chomsky 2000, 2001a), which is not for LF convergence. As moving SU to SPEC of TP is not for LF interpretation, there is an option to delete either one of the members of the chain. To ensure the wide scope reading of the object, only the copy of SU that is c-commanded by OB remains at LF.<sup>7</sup>

$$(9) \quad [_{TP} \cancel{\text{SU}} [ \text{V} [_{vP} \text{OB} [ \text{SU} [ \cancel{\text{V}} \cancel{\text{OB}} ] ] ] ] ] \quad (\text{LF: OB} > \text{SU})$$

If *v* does not have the QU-feature, OB remains *in-situ*. Regardless of which member of the subject chain is deleted, SU always c-commands OB at LF, as illustrated in (11). The wide scope reading of the subject is derived.<sup>8</sup>

$$(10) \begin{array}{l} [_{vP} \text{SU} [ \text{V} \text{OB} ] ] \\ [_{TP} \text{SU} [ \text{V} [_{vP} \text{SU} [ \text{V} \text{OB} ] ] ] ] \end{array} \Rightarrow$$

<sup>6</sup> If verb movement is a phonological process, creating no chains (Chomsky 2001a), the copy theory has nothing to do with the verb movement in (8).

<sup>7</sup> Hornstein (1995, 1999) has a similar proposal, but he assumes that QR is a covert operation. See our discussion in section 4.

<sup>8</sup> Maki Irie and Hironobu Kasai (personal communication) raise a question of how the type mismatch between the verb and the *in-situ* object quantifier can be solved. Due to limited space, I will ignore the issue of how the syntactic LF representation is actually converted to semantic forms. See Heim and Kratzer 1998 for a handy summary of the discussion of “type mismatch” in the literature.

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- (11) a.  $[_{TP} \text{SU} [ \text{V} [_{vP} \text{SU} [ \text{V} \text{OB} ] ] ] ] ]$  (LF: SU > OB)  
 b.  $[_{TP} \text{SU} [ \text{V} [_{vP} \text{SU} [ \text{V} \text{OB} ] ] ] ] ]$  (LF: SU > OB)

If the verb is followed by a preposition, such as *about* in (12), I assume with Hornstein and Weinberg (1981) that the verb and the preposition will be reanalyzed as a complex verb. Suppose that the object *everyone* has the wide scope reading. To derive the right word order, the object undergoes object shift triggered by the QU-feature of *v*, followed by the movement of the complex verb, as exemplified in (13).

(12) Someone talked about everyone.

- (13) a.  $[_{TP} \text{SU} [ \text{V-P} [_{vP} \text{OB} [ \text{SU} [ \text{V-P} \text{OB} ] ] ] ] ] ]$  (PF)  
 b.  $[_{TP} \text{SU} [ \text{V-P} [_{vP} \text{OB} [ \text{SU} [ \text{V-P} \text{OB} ] ] ] ] ] ]$  (LF)

Independent evidence to support the reanalysis comes from the distribution of focus adverbs in English. I have argued elsewhere that focus adverbs like *only* are adjoined to verbal functional projections (Tang 1998). For example, the focus adverb *only* in (14) is underlyingly adjoined to a functional projection above VP, as in (15a). To derive the right word order, I assume that the verb *talked* and the preposition *about* undergo reanalysis, as in (15b), and then the complex verb undergoes movement, as in (15c).

(14) John talked about only linguistics.

- (15) a. ...only talked [ about linguistics ]  $\Rightarrow$   
 b. ...only [ talked about ] linguistics  $\Rightarrow$   
 c. ...[ talked about ] only *t* linguistics

Under the present analysis, the problem of (3), as repeated in (16), can now be solved. To get the wide scope reading of OB, the QU-feature is assigned to *v* triggering object shift. OB c-commands SU. Nevertheless, OB that contains *he* must be c-commanded by SU if *he* is interpreted as bound. The derivation in (17) cannot satisfy both of these requirements and thus crashes.

(16) Someone<sub>*i*</sub> played every piece of music he<sub>*i*</sub> knew.

- (17)  $[_{TP} \text{someone} [ \text{V} [_{vP} \text{OB} [ \text{someone} [ \text{V} \text{OB} ] ] ] ] ] ]$  (LF: \*OB > SU)

Agree ( without Move ) is not enough to satisfy the

uninterpretable QU-feature by virtue of the fact that the QU-feature induces dislocation. Once the QU-feature is introduced, it must be satisfied as quickly as possible. Covert operations can be dispensed with. Hence, all the questions addressed in the previous section are solved.<sup>9</sup>

#### 4. Problems of Hornstein's (1995, 1999) analysis

Hornstein (1995) attributes the effects of QR to Case checking. He assumes with Chomsky (1993) that the subject raises to SPEC of Agr<sub>S</sub>P overtly to check nominative Case while the object raises to SPEC of Agr<sub>O</sub>P at LF to check accusative Case. To derive the wide scope reading of the object, the copy of OB deletes while the copy of SU remains at LF. The derivation is shown in (18).

(18) [<sub>AgrSP</sub> ~~SU~~ [<sub>AgrOP</sub> OB [<sub>VP</sub> SU [ V ~~OB~~ ]]]] (LF: OB > SU)

Chomsky (1995) dispenses with Agr in the Minimalist Program. Given that Agr is eliminated, Hornstein (1999) reinterprets his analysis without Agr. Instead of raising to SPEC of Agr<sub>S</sub>P and SPEC of Agr<sub>O</sub>P, Hornstein (1999) proposes that the landing sites for SU and OB are SPEC of TP and T, respectively. The formal features FFs of the object raise to T at LF, leaving copies of the moved FFs behind.<sup>10</sup> To derive the wide scope reading of the object, the copy of the subject must be retained in SPEC of VP, as in (19), in which “FF(OB)” stands for the formal features of OB.

(19) [<sub>TP</sub> ~~SU~~ [ FF(OB)+T [<sub>VP</sub> SU [ V ~~OB~~ ]]]] (LF: OB > SU)

Although Hornstein (1999) has successfully translated his old analysis into an Agr-less analysis, it is not unproblematic.

First of all, to account for the unambiguity of (16), as repeated in (20), Hornstein (1999) seems to appeal to pied-piping of the entire phrase *every piece of music he knew* at LF. However, as I have pointed out in the previous discussion, covert phrasal movement is incompatible with

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<sup>9</sup> Accounting for antecedent-contained deletion ACD sentences like (i) will not be a problem if ACD sentences are derived from the expressions that introduce “afterthoughts” like (ii) (Chomsky 2001b).

(i) John loves everyone Mary does.

(ii) John loves everyone, (that is, more accurately, . . .) everyone Mary likes.

<sup>10</sup> Strictly speaking, FF of OB raises to V and then FF of V raises to T at LF (Hornstein 1999:62).

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the Minimalist Program. Chomsky (1995:262) points out that movement should copy just the features necessary to ensure convergence. Copying of anything more than features is unexpected and should be banned.

(20) Someone<sub>i</sub> played every piece of music he<sub>i</sub> knew.

Notice that *he* in (20) is the subject of the finite verb *knew*. It has already received the nominative Case from the embedded T in the relative clause. Obviously, moving FFs of *he* to T in the matrix clause at LF, as shown in (19), is neither for Case nor for satisfying any possible features.

Secondly, even if we assume with Hornstein (1999) that FFs of *he* in (20) move to T at LF, semantic features of *he* are still left in the original position. It is likely that semantic features play a role in quantification and binding. If this is the case, we are forced to say that semantic features of *he* must undergo covert pied-piping to T along with FFs of *he*. Needless to say, covert pied-piping of semantic features is problematic in the Minimalist Program.<sup>11</sup>

Thirdly, Hornstein's (1995, 1999) analysis does not hold if the theory of Case checking is replaced by Agree. Chomsky (2000, 2001a) proposes that Agree is an operation of matching of a probe and a goal. It is a new way to eliminate uninterpretable features. Unlike feature checking, "long distance agreement" is possible. Chomsky (2000:122) takes structural Case to be a reflex of an uninterpretable  $\phi$ -set and it can be erased *in-situ* under matching with the probe. In other words, uninterpretable  $\phi$ -features and Case features can be satisfied by long distance agreement. Among the uninterpretable features, it is only the OCC feature that is satisfied by Merge inducing dislocation/pied-piping. If satisfying structural Case does not necessarily trigger movement, there is no way to derive the effects of QR.

Forthly, reducing QR to Case checking is problematic when we are dealing with examples like (21).

(21) A different student tried to stand near every visitor.

Johnson (2000:197) notices that the preposition phrase *near every visitor* may have scope over the subject *a different student* in (21). To get the wide scope reading of *every visitor*, either the preposition phrase or the quantifier has to move to the matrix clause. In Hornstein's (1995, 1999) analysis, the motivation for moving the preposition phrase

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<sup>11</sup> Thanks to Maki Irie for pointing this out to me.



or the quantifier would be for Case checking. However, it is unlikely that the preposition phrase or the complement of the preposition undergoes movement driven by structural Case.

In the present analysis, we may assume that the verb *stand* and the preposition *near* in (21) undergo reanalysis. The quantifier *every visitor* raises to the matrix  $\nu\text{P}$  to satisfy the QU-feature of  $\nu$ , crossing over the subject, as shown in (22). Such an operation has nothing to do with structural Case and the problem can be solved.

- (22) a. [ SU [ tried to stand [<sub>PP</sub> near every visitor ]]]           ⇒  
       b. [ SU [ tried to stand near [ every visitor ]]]           ⇒  
       b. [<sub>νP</sub> [<sub>DP</sub> every visitor][ SU [ tried to stand near  $t_{DP}$ ]]]   ⇒  
       c. [<sub>V</sub> tried to stand near] .[<sub>νP</sub> [<sub>DP</sub> every visitor][ SU [  $t_V$   $t_{DP}$ ]]]

To derive the right word order, we have to move *tried to stand near*, as shown in the step in (22c). Kayne (2000) independently argues that the English infinitival *to* is a complementizer and the “V-*to*-V” order in the infinitives is derived by a sequence of steps of movement.<sup>12</sup> If Kayne is right, his analysis lends important support to the proposal in (22).

If the above discussion is correct, it seems that quantifiers could undergo successive QR in English infinitives. One might expect that the object quantifier could have wide scope over the subject in (23). However, this is not true. How can we exclude the ungrammatical derivation in (24), in which Q2 (the object quantifier *everyone*) moves to the matrix clause via the edge of the embedded  $\nu\text{P}$  and thus eventually c-commands Q1 (the subject quantifier *someone*)?<sup>13</sup>

- (23) Someone believes John to have loved everyone. ( $\exists > \forall$ ,  $*\forall > \exists$ )

- (24)  $*Q_1$  [<sub>νP</sub> Q2 [ Q1 believe [<sub>νP</sub> Q2 [ to have loved Q2 ]]]] ]  
       [QU]   [QU]

Let us put aside the issue of word order in (24), particularly the

<sup>12</sup> Kayne (2000) does not explicitly spell out the position of the subject in the infinitives. I tentatively assume that it is merged above *to*. The derivation of the “V-*to*-V” sequence is rather complicated in Kayne’s (2000) analysis, which will be ignored here. See Kayne 2000 for the details. Regardless of whether his technicality is correct, the insight of his analysis is that the “V-*to*-V” sequence should move to a position higher than what we usually expect.

<sup>13</sup> Thanks to Hironobu Kasai (personal communication) for raising this interesting question.

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derivation of the infinitives. I suspect that the ungrammaticality of (24) mainly lies on the deletion of the intermediate Q2. Recall that the purpose of introducing the QU-feature is to ensure that a quantifier is located in the edge of  $\nu\text{P}$  so that the quantifier can receive appropriate interpretation at the interfaces. If the intermediate Q2 is deleted, as what we can see in (24), the edge of the embedded  $\nu\text{P}$  becomes empty in both LF and PF. In other words, assigning the QU-feature to the embedded  $\nu\text{P}$  has no effects on outcome. Due to economy considerations, (24) should be ruled out.

### 5. Parametric Variation: A Syntactic Approach

Is QR universal? Let us compare English with Chinese. It is a well-known fact that English sentences involving two or more quantifiers are ambiguous whereas their Chinese counterparts are unambiguous (S.-F. Huang 1981, C.-T. J. Huang 1982, Lee 1986, Aoun and Li 1989, among others). The indefinite object *a book* in (25) may have either a narrow scope reading or a wide scope reading. In contrast, *yi-ben shu* ‘a book’ in (26) has a narrow scope reading only. The lack of scopal ambiguity in Chinese seems to suggest that QR is omitted in Chinese.

(25) Everyone bought a book. ( $\forall > \exists, \exists > \forall$ )

(26) Meigeren dou ma-le yi-ben shu. ( $\forall > \exists, * \exists > \forall$ )  
 everyone all buy-PERF one-CL book  
 ‘Everyone bought a book.’

To account for the differences between Chinese and English Hornstein (1995:164) assumes with Aoun and Li (1989) that English subjects begin within VP and raise to SPEC of  $\text{Agr}_s\text{P}$  while Chinese subjects are directly generated in SPEC of  $\text{Agr}_s\text{P}$ . The parametric variation lies on the Internal Subject Hypothesis. Even though the object raises to SPEC of  $\text{Agr}_o\text{P}$  at LF in Chinese, there is no copy of the subject in the VP internal position and the object does not have a chance to c-command the subject, as in (27). For this reason, the object quantifier cannot have wide scope in Chinese.

(27) [ $_{\text{AgrSP}} \text{SU}$  [ $_{\text{AgrOP}} \text{OB}$  [ $_{\text{VP}} \text{V OB}$  ]]]

Is there really no copy of the subject in the VP internal position? Huang (1993) argues that the Internal Subject Hypothesis also holds in

Chinese. That is to say, both Chinese and English should look alike with respect to the underlying position of subjects. If Huang (1993) is correct, the structure for Chinese in (27) should be refuted and the lack of scopal ambiguity in Chinese becomes unexplained.

Let us assume that QR is not feature driven for the moment, according to (1b). Under this approach, Chomsky (2000:fn44) conjectures that QR interacts with the language-external systems at the “border” of the language faculty and is not part of  $C_{HL}$ . If this approach is correct, why can't *yi-ben shu* ‘a book’ undergo QR at the “border” of the language faculty freely to derive a wide scope reading in Chinese? How do we account for the parametric variation between Chinese and English with respect to QR?

The claim that QR is feature driven may shed some light on this issue. To capture the differences between Chinese and English with respect to scopal ambiguity, I assume that whether  $v$  has the QU-feature is subject to a parameter, as stated in (28).

- (28) The head H of phase Ph may be assigned an EPP-feature.  
(Chomsky 2000:109)

$v$  is the head of the phase  $vP$ . According to (28), assigning the QU-feature (=OCC feature/P-feature/EPP-feature of  $v$ ) may optionally apply.  $v$  in English may be assigned the QU-feature whereas  $v$  in the SVO order in Chinese lacks the QU-feature. Along these lines, the object quantifier in (26) remains *in-situ* and will not raise to SPEC of  $vP$ . Regardless of which member of the subject chain gets deleted at LF after it raises to SPEC of TP, the object will never c-command the subject, as shown in (29) and (30).<sup>14</sup> The wide scope reading of the object quantifier should not be available. Hence, no ambiguity arises.

(29) [<sub>TP</sub> SU T [<sub>vP</sub> ~~SU~~ [ V OB ]]]

(30) [<sub>TP</sub> ~~SU~~ T [<sub>vP</sub> SU [ V OB ]]]

On the other hand, the QU-feature triggers movement of the object quantifier in English. Even if OB raises to SPEC of  $vP$ , the word order is still SVO, given that verbs raise out of  $vP$  in English. Although both (7) and (10) derive the same word order on the surface, their

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<sup>14</sup> Unlike English verbs, it has been argued that Chinese verbs never raise out of  $vP$  and the path of verb movement in Chinese is “shorter” than that in English (Huang 1997, Fukui and Takano 1998, Tang 1998, among others).

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structures as well as interpretations are not the same.

As we can see, the difference between (25) in English and (26) in Chinese is attributed to (non)existence of QU-features in these two languages coupled with the parametric theory of verb movement. Parametric variation with respect to QR is subject to overt syntactic operations. To some extent, the scopal relation is determined overtly, which is reminiscent of the “Isomorphic Principle” (Huang 1995 and references cited therein). The findings of our discussion are now clear: QR is an overt operation and subject to overt properties, such as (non)existence of QU-features. Parametric values should be deduced from detectable data. These lines of research should be compatible with the minimalist point of view.

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