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variation exists, perhaps with respect to which categories can receive and pass on Case features.

With regard to traces in Comp, under the definition of proper government formulated here, these traces are not properly governed. However, it appears that at times a trace in Comp must be licit. This problem could be addressed under the γ -assignment treatment of the ECP if traces in Comp are assigned γ -features by some mechanism other than proper government.

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Remarks on Empty Categories in Chinese

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In recent years the study of empty categories in generative grammar has produced interesting results that greatly contribute to our understanding of the nature of Universal

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Grammar. As Chomsky (1981, 55) puts it, the properties of empty categories “can hardly be determined inductively from observed overt phenomena, and therefore presumably reflect inner resources of the mind.” Therefore, as has been shown to be often the case, properties of such abstract elements found in one language often find close counterparts in another. Some parametric variations are almost always expected, and such differences constitute very interesting facts for the refinement of the theory of Universal Grammar and linguistic typology. On the other hand, we do not expect such abstract properties to differ drastically from one language to another. It has often been the case that although languages exhibit diverse surface properties, upon closer investigation such diverse properties fall within a small set of universal patterns.

Xu (1986), in his study of empty categories in Chinese, claims to have found a totally new class of empty categories (ECs) fundamentally different from those defined in Chomsky (1982). After showing that ECs in Chinese do not behave exactly like Chomsky’s variable, NP-trace, PRO, or pro, he concludes that they may be identified as all of the four types as a whole, as instances of the “free empty category” (FEC). An FEC is an “all-inclusive EC” with no specified features, “characterized by their complete freedom of referentiality.” The FECs are freely indexed “on condition that the binding principles are not violated.” Such ECs are not “inherently but contextually defined” (pp. 90–91). Thus, if it is A-bound in its governing category, an FEC is identified as an anaphor, but if it is A-free in its governing category, it may be identified as a pronominal; and so forth.

In section 1 of this article I will show that, although the lack of one-to-one correspondence between Chinese and (for example) English with respect to the properties of empty categories is not surprising, the idea of an FEC is unfounded and must be abandoned. In section 2 I will consider problems relating to Xu’s discussion concerning the status of ECs in Chinese. In section 3 I will try to clarify some controversial issues concerning subject-object asymmetries and conclude with a brief remark on Xu and Langendoen (1985), arguing that such asymmetries call for an explanation that goes well beyond the proposal made there.

1. The Nonexistence of FEC

Consider the following sentences:

- (1) Zhangsan_i, ta_i lai-le.
Zhangsan he come-Perf
'Zhangsan_i, he_i came.'
- (2) *Zhangsan_i, ta_i renshi.
Zhangsan he know
'*Zhangsan_i, he_i knows.'

In sentence (1) the pronoun *ta* is naturally interpreted as taking the topic *Zhangsan* as its antecedent. In (2) the same pronoun is not interpreted in the same way. More pre-

cisely, if the topic *Zhangsan* is taken to be the object of *renshi* ‘know’, then the subject pronoun cannot referentially depend upon the topic, precisely as in English. The crucial difference between (1) and (2) clearly has to do with the fact that (1) involves an intransitive verb, whereas (2) involves a transitive. A binding-theoretic account rules out the impossible reading of (2) straightforwardly if it is assumed that the empty object in (2), as shown in (3), is a variable or a pronominal:

(3) **Zhangsan_i, ta_i renshi e_i.*

More specifically, the ill-formedness of (3) follows, like that of its English counterpart, from Principle B or C of the binding theory (4), on a par with the sentences (5) and (6) (and their English counterparts):

(4) A. An anaphor is bound in its governing category.

B. A pronominal is free in its governing category.

C. An R-expression is free.

(5) *ta renshi ta.*

he know he

‘He knows him.’

(6) *ta renshi Zhangsan.*

he know Zhangsan

‘He knows Zhangsan.’

If the empty object in (3) is an FEC, the difference between (1) and (2) does not have an explanation. More specifically, as an FEC, the null object in (2) can be coindexed with the subject *ta* and is defined as an anaphor—that is, as an empty reflexive. In this way, (2) is predicted to have the interpretation of a left-dislocated sentence, on a par with *John, he knows himself*. But this is precisely the interpretation that (2) does not allow.

Xu (1986) does attempt to argue that a null object like that in (2) can be an anaphor. He notes that, as an answer to a question like (7), the null object in (8) can refer to its own subject (on a par with a reflexive) (compare his (50d)):

(7) *Zhangsan piping-guo ziji le ma?*

Zhangsan criticize-Exp self Asp Q

‘Has Zhangsan criticized himself?’

(8) *ta piping-guo-le e.*

he criticize-Exp-Perf

‘He has [criticized himself].’

There are many arguments against taking (8) as the crucial evidence for the existence of an empty anaphor (and that of an FEC). I will mention some of them. First, it is only as a reply to (7) that (8) has the reading indicated; it does not have that reading in general. In contrast to this situation, consider (9), where the embedded null subject is naturally interpreted as referring to *Zhangsan* even when the sentence is uttered out of context:

- (9) Zhangsan shuo [e mingtian yao lai].
 Zhangsan say . . . tomorrow will come
 'Zhangsan said that [he] will come tomorrow.'

In order to maintain that the null object in (8) can *in general* be an anaphor, Xu attempts to explain away the limitation on the anaphoric interpretation of (8) by appealing to probability considerations: "There were thousands of people John could criticize, so the chances were overwhelmingly against picking John himself . . ." (p. 89). This is his reason for the fact that the null object in (8) is usually not taken as bound by its subject except in special contexts. However, this explanation cannot hold up. If we are to appeal to nonlinguistic explanations, what we expect is exactly the opposite. In the case of (9), for example, the embedded null subject is more naturally interpreted as referring to *Zhangsan* than to anyone else, when the sentence is uttered alone, even though as an empty pronoun it could refer to any of thousands of people. The reason is, of course, that *Zhangsan* happens to be the only person named in this context. The same point can be made with overt pronouns, as in *John said I saw him*, where the chance of picking *John* as the antecedent for *him* is clearly greater than that of picking any other person. Now, the same probability considerations should lead one to predict that (8), when uttered out of context and in the absence of any person named other than the subject *ta*, should have the null object (construed as an FEC) bound by its own subject as its primary interpretation, a clearly false prediction.

Although the existence of (8) as a grammatical sentence in response to (7) may be said to present a *prima facie* case of a null object reflexive peculiar to Chinese, note that a similar fact is found in English. Compare the following:

- (10) *John_i, he_i liked e_i.
 (11) Himself_i, John_i liked e_i.

Ungrammatical sequences like (10) exemplify standard cases of strong crossover, arguing for the hypothesis that the null object in (10) is a variable falling under Principle C. However, when the \bar{A} -binder of the variable is itself an anaphor, as in (11), no strong crossover effect is observed, and the null object may be coindexed with its own subject as if it were an empty reflexive.

There is a striking similarity between (8) in Chinese and (11) in English: they both constitute apparent counterexamples to Principle C, and they occur only when the null object refers to 'himself' outside the minimal clause—an overt topic in the case of (11), and a topic under discussion in discourse (a "discourse topic") in the case of (8). Probably half a dozen different solutions have been proposed for this problem, commonly known as the problem of reconstruction.¹ It is not generally agreed as yet which of these pro-

¹ See, for example, Van Riemsdijk and Williams (1981), Saito (1985), Kuno (1986), and especially Barss (1986) and the references cited there. Note that the similarity between English and Chinese regarding (8) and (11) may be seen as support for the general idea of treating the null object in (8) as a variable on a par with that of (11), as proposed in Huang (1984a).

posals is the right one, but the general agreement is that one should not assume, on the basis of (11), that English has an empty reflexive. Now if Chinese ECs are FECs on the basis of evidence like (8), then according to Xu's reasoning, English ECs are also FECs, a conclusion that no one would accept. Even if English empty categories were FECs, Xu's whole point—that Chinese empty categories are very different from English empty categories—would be lost.

For these reasons, then, the proposal of an FEC in Chinese is unfounded. To justify the existence of an FEC in Chinese on the basis of sentences like (8) is to suggest the same FEC for English on the basis of (11), thus allowing representations like (3) in Chinese and (10) in English as well-formed.

2. The Status of ECs in Chinese

In this section I will show that Xu's discussion of the status of Chinese ECs is inadequate. This is not intended as a defense of any particular proposal; since Xu's proposal does not hold together, it is not necessary to defend the proposal he argues against.

Xu claims to have shown that there is a class of ECs in Chinese that cannot be identified as any of the "standard" EC types defined in Chomsky (1982). A sufficient demonstration of such a claim would be to show that an EC, *a*, can be neither a variable, nor an anaphor, nor PRO, nor pro. However, Xu does not give such a demonstration. Instead, he picks out different ECs, *a*, *b*, *c*, *d*, and attempts to show that *a* does not behave like a variable, *b* does not behave like an NP-trace, *c* cannot be a PRO, and *d* cannot be a pro. For example, in his discussion of PRO Xu's purpose is to show that what might be regarded as the bona fide examples of PRO in Chinese in fact do not behave like PRO. However, instead of looking at such examples, he cites examples like the following (compare his (31) and (32)):

- (12) Zhangsan *jueding* [e *mingtian* *huijia*].
 Zhangsan decide tomorrow go-home
 'Zhangsan decided to go home tomorrow.'
- (13) Zhangsan *daying* wo [e *mingtian* *keyi lai*].
 Zhangsan promise I tomorrow can come
 'Zhangsan promised me to come tomorrow.'

Xu argues that *e* cannot be identified as PRO because, unlike their English counterparts, these sentences are ambiguous because the reference of *e* is quite free in Chinese. But this is an argument based on little more than an analysis of Chinese by direct translation from English. Although in English an empty subject under verbs like *promise* and *decide* is always a PRO by Chomsky's definition, there is no reason to expect that an empty subject under *jueding* 'decide' or *daying* 'promise' has to be a PRO in Chinese. Since Chinese is a pro-drop language, allowing null subjects in finite clauses, there is good reason to consider the *e* in (12)–(13) to be a pro. The ambiguity of (12)–(13) is on a par with that of *John decided that they should come*, where *they* could refer to any plurality

of entities. The status of the EC as a pro is further evidenced by the fact that the subject can be lexically filled:

- (14) Zhangsan jue ding [women mingtian huijia].
Zhangsan decide we tomorrow go-home
'Zhangsan decided that we (should) go home tomorrow.'
- (15) Zhangsan daying wo [Lisi keyi lai].
Zhangsan promise I Lisi may come
'Zhangsan promised me that Lisi may come.'

Given that *e* in (12)–(13) can be a pro in Chinese, nothing is achieved by showing that it cannot be identified with PRO. In fact, it is easy to find ECs that have the precise properties of PRO. Such an EC is found with obligatory control verbs like *shefa* 'try', *xiang* 'wish', *bi* 'force', *yaoqiu* 'request', *mingling* 'order', *qing* 'request', *shi* 'cause', *pai* 'send', *jiao* 'tell' and with Equi verbs like *yao* 'want', *xihuan* 'like', *taoyan* 'hate'. Obligatory control is required of the EC every time it occurs with such verbs and, in the case of the control verbs (though not of the Equi verbs), the embedded subject is obligatorily null, thus ruling out the possibility of a pro in Chomsky's sense. To show that ECs in Chinese cannot be identified with PRO, a minimal requirement is to consider sentences involving these verbs or the "very small number of verbs" mentioned in Xu's footnote 12. Needless to say, these verbs are problematic for the proponent of the FEC.

Consider next Xu's claim that ECs in Chinese cannot be identified with pro. His main arguments are (a) that those ECs otherwise identifiable with pro may behave like empty reflexives bound in their governing categories, and (b) that such ECs also behave differently from overt pronouns, since unlike overt pronouns they can precede their antecedents and be bound by quantificational NPs.² The assumption that there exists an empty reflexive in general has already been shown to be untenable. The second argument is based upon the unfounded assumption that pro must behave in every way

² There are three factual inaccuracies in Xu's claim. First, it is not true that forward pronominal anaphora is always possible. In examples like the following, forward pronominal anaphora is unacceptable:

- (i) *zai Zhangsan jia, ta hen tinghua.
at Zhangsan home he very obedient
'At Zhangsan's home, he is very obedient.'
- (ii) zai ta jia, Zhangsan hen tinghua.
at he home Zhangsan very obedient
'At his home, Zhangsan is very obedient.'

Second, it is not true that backward anaphora involving overt pronouns is unacceptable. As indicated above, (ii) is perfect. Also, as already indicated in Huang (1982), which Xu cites, examples like (iii) are quite good (especially when compared to (iv)):

- (iii) ta de mama hui-lai de shihou, Lisi yijing hen lei le.
he DE mother return DE time Lisi already very tired Asp
'When his mother came home, Lisi was already very tired.'
- (iv) *ta hui-lai de shihou, Lisi yijing hen lei le.
he return DE time Lisi already very tired Asp
'When he returned home, Lisi was already very tired.'

like an overt pronoun. Although *pro* is usually expected to share certain properties with overt pronouns, no previous analysis has assumed that they should behave alike in every way. In fact, overt and empty pronouns are known to exhibit a range of differences in many languages.³

Let us turn now to Xu's claim that the ECs found with passive sentences in Chinese cannot be identified with NP-traces. His point is that the postverbal EC in a passive sentence can apparently be unbound, and that if such an EC were an NP-trace it would be in violation of Principle A. Thus, in (16) (his (28)) the *e* in the answer (16b) is said to refer to the phrase 'two cups' mentioned in the question but not to its own subject 'tea set':⁴

Furthermore, in relativized constructions involving resumptive pronouns the anaphora is of course backward:

- (v) *ni bi ta gai-jia de neige nuren*
 you force her re-marry DE that woman
 'the woman who you forced to remarry'

See Huang (1982) for an account involving the notion of "cyclic c-command." For a considerable improvement along similar lines, see Teng (1985).

Third, it is not true that overt pronouns can never be bound by quantificational NPs. The bound variable reading in the following sentence is perfect:

- (vi) *meige ren dou shuo wo hai-le ta.*
 every man all say I wrong-Perf him
 'Everyone says that I wronged him.'

In fact, in the position of *ta* a null object or a reflexive *ziji* is bad. It seems that an overt pronoun may not be used as a bound variable where an anaphor or a *pro* would serve the same purpose but that it must be used where such an alternative is not available. Compare the following:

- (vii) *meige ren dou shuo zijile/*ta yao lai.*
 every man all say self/e/he want come
 'Everyone says that he will come.'

For a highly interesting account of bound pronouns in Chinese, see Aoun (1986). For a description of the reference of reflexives in Chinese, see Huang et al. (1985) and Tang (1985).

³ For example, an overt pronoun subject is quite unnatural in Italian and unacceptable in Irish (see McCloskey and Hale (1984)). Furthermore, Saito and Hoji (1983) have reported that in Japanese an overt pronoun cannot be bound to a quantificational NP. This restriction on bound-variable pronouns seems to obtain only in pro-drop languages or languages with long-distance anaphors, where a *pro* or a reflexive could serve the purpose of a bound-variable pronoun. See Montalbetti (1984, 89ff.) for extensive discussions.

⁴ One might suspect that (16a) is a passive sentence without an NP-trace, given that the verb 'break' is followed by a lexical object 'two cups'. However, following Thompson (1973), there is reason to consider that the V-O combination 'break two cups' is a compositional verb phrase taking the NP-trace of 'this tea set' as its "outer object." The occurrence of the "inner" object (or what Lyu (1958) termed the "retained object") does not preclude the possible occurrence of an outer object trace, so long as the semantics of the V-O combination can be understood in such a way that it denotes an action that affects some individual. This situation is not essentially different from *ta bang mang wo* 'He helped me', where *mang* 'business' is the inner object that together with the verb takes 'me' as the outer object. The only difference is that in this example the V-O combination *bang mang* can be used as a lexical category (compound), though it need not (given *ta bang-le wo de xuduo mang* 'He has helped a lot'), whereas in (16a) the V-O combination is a phrasal category. This phrasal status of the V-O combination in (16a) makes it necessary for the outer object to occur preverbally, since in postverbal position it would not be Case-marked and would violate the X-structure filter proposed in Huang (1982). There is abundant evidence that in Chinese V-O combinations may range in their status from strictly lexical to strictly phrasal, with some having a dual status. For some discussion, see Huang (1984b).

- (16) a. zhetao chaju bei John dapo le liangge beizi ma?
 this tea-set by John break Perf two cup Q
 'Were two cups of this tea set broken by John?'
 b. bu, zhetao chaju bei wo dapo le e.
 no this tea-set by me break Perf
 'No, (of) this tea set (two cups) were broken by me.'

Thus, according to Xu, *e* in (16b) cannot be an NP-trace because it is free. Here Xu is apparently confusing speakers' pragmatic inference with their linguistic judgment. (16b) may well be simply translated as 'No, this tea set was broken by me', with *e* being bound by its subject 'this tea set', and nothing prevents the listener from making the inference that two cups were broken. In fact, according to Xu's reasoning, the same point could be made about English. Consider (17):

- (17) a. Was the last chapter taken up by Bill?
 b. No, the entire book was taken up t by John.

It is difficult to imagine that anyone would claim that the object trace in (17b) is free, referring to *the last chapter* mentioned in (17a) but not bound by the subject *the entire book* in its governing category. But such a claim would seem perfectly natural under Xu's approach. A similar remark applies to his (29).

At this point it is appropriate to reflect on the nature of the issues surrounding the theory of empty categories in Chinese. A theory of empty categories contains (a) an inventory of ECs together with their definitions, and (b) a set of principles (each with possible independent motivations) that regulate their distribution and reference. In Huang (1982; 1984a) I assumed the inventory of ECs as defined by Chomsky (1981; 1982) and investigated their properties in Chinese in relation to certain related principles. Thus, each EC is defined according to whether it is free or bound, whether it is θ -bound or $\bar{\theta}$ -bound, whether it is locally A-bound or locally \bar{A} -bound, and whether it is governed or ungoverned (see Chomsky (1981, 330ff.)). Under this approach, the identification of an EC as one of the four categories is *not* a problem, for each EC is necessarily either free or bound, θ -bound or $\bar{\theta}$ -bound, and so on. Problems arise when the properties of each EC so identified are examined vis-à-vis the principles that govern other aspects of their distribution and reference, for example, the binding principles and the principle that restricts the occurrence of pro to environments involving rich agreement markings. In Huang (1984a) I took up such problems and proposed some revisions of the principles, but kept Chomsky's inventory of ECs as he originally proposed.

Xu has taken the opposite approach. He basically assumes that the principles proposed by Chomsky should apply in Chinese exactly as they do in English. Then, noting that there are ECs in the language that do not quite fit into the framework, he proposes a different inventory of ECs for Chinese, more specifically the FEC. A priori, there is of course nothing wrong with such an alternative approach. What matters is whether the proposal explains the observed range of facts; as I have demonstrated, Xu's proposal

does not. In the next section I will consider whether certain ECs can be identified as variables in Chinese.

3. Subject-Object Asymmetries

From the foregoing discussion, it seems clear that a null object as in (2), repeated in (18), must be assumed to be either a variable or a pronominal (pro):

- (18) *Zhangsan, ta renshi e.*
Zhangsan he know
 ‘Zhangsan, he knows.’

This is necessary in order to account for the fact that *e* cannot be coindexed with both the topic *Zhangsan* and the subject *ta*. As a variable coindexed with the topic, *e* is required by Principle C to be A-free. As a pronominal (pro, given that it is governed), *e* is required by Principle B to be disjoint from its own subject *ta*. Now consider sentences like (19):

- (19) *Zhangsan shuo Lisi bu renshi e.*
Zhangsan say Lisi not know
 ‘Zhangsan said that Lisi does not know [him].’

In (19) *e* cannot be bound by its own subject, *Lisi*, suggesting again that *e* is not an anaphor. Furthermore, since there is apparently no operator \bar{A} -binding *e*, the null object is, by Chomsky’s definition, a pro. Given that pro can also appear as a null subject as in (20),

- (20) *Zhangsan shuo [e bu renshi Lisi].*
Zhangsan say not know Lisi
 ‘Zhangsan said that [he] does not know Lisi.’

one might simply stop here and conclude that Chinese has a pro in both subject and object position and that the agreement-based theory of pro-drop of Chomsky (1982) must be revised to allow for languages like Chinese. With respect to the null subject in (20), a revision of the agreement-based theory is precisely what I suggested in Huang (1982; 1984a). There is certainly no need to resort to any new category like the FEC.

With respect to the null object in (19), however, I suggested that a much more interesting conclusion can be reached. An important fact about (19) is that the null object is normally interpreted as deictic, referring neither to the embedded *Lisi* nor to the matrix subject *Zhangsan* (a fact that is not adequately reflected in its English translation). This fact is most clearly seen in comparison with (20), where the null subject clearly can take the matrix subject as its antecedent. This contrast can further be brought out by comparison with the following pair, where an overt pronoun appears in the place of the EC in (19)–(20), and where the contrast disappears completely:

- (21) Zhangsan shuo [ta bu renshi Lisi].
 Zhangsan say he not know Lisi
 'Zhangsan said that he does not know Lisi.'
- (22) Zhangsan shuo [Lisi bu renshi ta].
 Zhangsan say Lisi not know him
 'Zhangsan said that Lisi does not know him.'

(The same point can be illustrated with numerous similar examples.) If *e* in (19) is a pro, then it is not clear why it cannot be A-bound by the matrix subject. If, on the other hand, *e* is a variable in (19) though not necessarily in (20), then this fact readily falls under Principle C. The new problem that arises, of course, is that such a variable would be \bar{A} -free in violation of the general LF principle of variable binding (see May (1977)). As a way to tackle this problem, I suggested, following Chomsky's (1980) treatment of null objects in English purposives, that such object ECs as those found in (19) are each \bar{A} -bound by an operator (in this case a topic) that is itself phonetically null.

As it has turned out, this hypothesis has considerable unexpected support. In Huang (1984a) I developed this idea further, citing German and Portuguese data in support of it. I further showed that the hypothesis explains a whole range of asymmetries observed with constructions involving strong crossover, Subjacency, and Ross's (1967) Left Branch Condition. Considerable further support can be derived from Portuguese (Raposo (1984)), Japanese (Hasegawa (1984)), Spanish (Campos (1986)), Swedish (Elisabet Engdahl (personal communication)), and even American Sign Language (Lillo-Martin (1985)).⁵

Xu challenges the bound-variable proposal, citing Huang (1982) though not Huang (1984a).⁶ He produces three arguments against this proposal. In one argument he claims that the asymmetry of the kind observed above does not exist. The second argument is that a null object cannot be a variable in Chinese because the relation between such an EC and its antecedent may violate Koopman and Sportiche's (1983) Bijection Principle. The third argument is that the antecedent-gap relationship does not obey Subjacency. Of these arguments, the last two simply miss the point, as they are based on an apparent misunderstanding of the concept of a variable as defined in Chomsky (1982). I will show why this is so, and then discuss Xu's first argument.

The purpose of Xu's article is to show that certain ECs cannot be identified as variables as assumed in Chomsky (1982). However, according to Chomsky's approach in this work, the typology of ECs is functionally determined. An EC is defined as a variable at any given level if and only if it is locally \bar{A} -bound at that level, regardless of

⁵ On the question of universality, see Cole (1986) and Chung (1984), who both conclude that the hypothesis may be right for some languages but not for the languages they cite (Imbabura Quechua, Chamorro). Others have also expressed disagreements with extending this hypothesis to Japanese and Korean (Kameyama (1983), Yoon (1985)), though for certain asymmetries claimed to exist in Japanese they do not have any alternative explanations. Whether or not they will ever be settled, these disagreements are over whether the null object is a pro or a variable, occurring at a level of discussion where no account would claim that it is an anaphor or an FEC.

⁶ He does address certain points made solely in Huang (1984a), however.

its derivational history. An essential point that Chomsky makes is that, under this functional approach, one can explain why certain parasitic gap constructions are relatively well-formed even though the parasitic gap (as in *e* in (23) and (24)) is located in a syntactic island relatively inaccessible to movement:

(23) He is the man whom everyone who meets *e* admires *t*.

(24) This is the book that John bought *t* before I read *e*.

According to the functional definition of ECs, both *e* and *t* in these sentences are variables. Such configurations violate the Bijection Principle, and Chomsky's precise point, following Elisabet Engdahl, is that such constructions are relatively well-formed. The demonstration that Chinese allows such configurations therefore does not argue against the bound-variable hypothesis but instead provides further confirmation for it.

As for the observation that certain antecedent-gap relations may violate Subjacency in Chinese, it is irrelevant. This simply shows that the gap found in *such constructions* is not created by movement⁷ but must have been generated in the base (and identified as a pro at D-Structure, that is, an empty resumptive pronoun) and become a variable by definition at the point where it is coindexed with its local \bar{A} -binder, as I showed in Huang (1984a). Similarly, the relation between *e* and its \bar{A} -binder violates the Complex NP Constraint in (23) and the Condition on Extraction Domains (Huang (1982)), in (24). But in both cases it is a variable by definition.⁸

Turning now to the factual dispute about the existence of subject-object asymmetries, the asymmetry illustrated with the contrast between (19) and (20), and between (19)–(20) on the one hand and (21)–(22) on the other, seems to me to be clear to everyone I have spoken with. As I remarked in Huang (1984a), these contrasts may sometimes be obscured in certain special contexts, since (19) may allow an interpretation according to which the embedded null object corefers with the matrix subject if it is used as an answer to questions like *shei bu renshi Zhangsan?* 'Who doesn't know Zhangsan?'⁹ Also, in such sentences as *xiaotou yiwei meiyou ren kanjian e* '*The thief thought that

⁷ Logically, movement *can* be involved in cases where no Subjacency violation is involved. The hypothesis that movement is never involved is rightly considered to be hard to establish in Xu and Langendoen (1985, 27) but is considered "inevitable" in Xu (1986, 82). Concerning similar problems in Japanese, Saito (1985) has argued that an apparent Subjacency violation is possible in Japanese just in case a given gap can be generated as an empty resumptive pronoun. This is precisely the point held in Huang (1984a) for Chinese. Saito further shows that in case a gap is bound by a PP or an adjunct, the antecedent-gap relation clearly obeys Subjacency. As he argues—rightly, I think—this is because there are no resumptive pro-PPs in the language, so the only way to create a PP or adjunct gap is via movement.

⁸ In more recent work it has been argued that the functional definition of ECs proposed by Chomsky may not be desirable (see Epstein (1983/1984), Brody (1984), Lasnik (1985), and Saito (1985), among others) and that an EC may not change its identity in the course of a derivation. If this is correct, then variables are always created by movement, and \bar{A} -bound empty resumptive pronouns are not variables. The fact that the distribution of some gaps is not constrained by Subjacency shows that such gaps are not variables but empty resumptive pronouns. However, the point mentioned in the text remains valid since Xu's discussion is based on Chomsky's (1982) definition of ECs (in fact, the features of his FEC are also functionally determined). Under the functional definition, the status of an EC is independent of Subjacency.

⁹ In fact, some speakers indicated to me that even in these situations (19) does not sound very natural and is better with an overt pronoun as in (22).

no one saw e' pragmatic considerations may favor an interpretation where the embedded null object refers to 'the thief'.¹⁰ In spite of all this, however, it remains clear that there is a contrast between (19) and (20) under normal conditions. It remains true, for example, that no special context is required in order to obtain an anaphoric reading for the null subject in (20). Also, no special context is required in the case of overt pronouns either in subject or in object position, as shown in (21) and (22). Given these facts, the possibility of having an anaphoric reading for the null object in (19) under certain circumstances should not lead one to the conclusion that the observed asymmetry does not exist. There are several ways to incorporate such apparent counterexamples. One might adopt Evans's (1980) proposal to reinterpret the theory of binding as a theory of referential dependency. According to this proposal, the italicized *he* and *John* in (25) (from Evans (1980, 360)) may be coreferential, but neither referentially depends upon the other:

(25) What do you mean John loves no one? *He* loves *John*.

Another idea is to regard those sentences in which an R-expression corefers with a c-commanding argument as ungrammatical *with respect to some principle* (namely, Principle C) but acceptable at a level where that principle is irrelevant. According to this approach, the second sentence of (25) would be ungrammatical if *he* and *John* were coindexed at the sentence level (that is, when the second sentence is taken in isolation). At the discourse level, however, coindexing may be allowed as a result of the pronoun's picking its reference from the preceding context. Another example illustrating this idea is Chomsky's (1982, 92ff.) treatment of certain apparent violations of the Weak Crossover condition (cf. Chomsky (1976)).

My view of (19) and examples like *xiaotou yiwei meiren kanjian* 'The thief thought that nobody saw [him]' is similar. That is, treating the null object as a variable, the reading according to which the EC is A-bound is not available at the grammatical level where Principle C applies. However, at a discourse level pragmatic and contextual factors may allow an interpretation according to which coreference becomes possible. Xu objects to this on grounds that "evidently, alternative readings are not [to be?/C.-T. J. H.] ruled out by syntactic constraints" and that "they are not the first choice out of semantic, pragmatic, probabilistic, and statistical considerations" (p. 78). These reasons are, however, based on unfounded assumptions. A theory of generative grammar is not a mere description of native speakers' acceptability judgments. A grammar is a theory of abstract representation within a modular theory of the mind, and its outputs, no less than its inputs, are abstract entities, not physical objects like sound waves or rocks and other physical denotations. To say that sentence (19) with the null object A-bound is ungrammatical with respect to Principle C is simply to say that the given representation is not allowed at the level where that principle applies. There is nothing more unusual in this respect than, say, the claim that *John, I saw* (where the verb is not followed by

¹⁰ For some speakers, in fact, the sentence is taken to mean that the thief thought that no one would see *the act of stealing* (and therefore the thief by implication).

an EC) is ungrammatical at D-Structure, S-Structure, and LF (with respect to sub-categorization or the Projection Principle), even though it is a perfectly acceptable sentence at Phonetic Form (PF) (where the principle is irrelevant). Similarly, *I wanna go* is ill-formed at D-Structure according to one analysis, though perfectly well-formed at PF. There is, in a word, no real ground against treating alternative readings as available only at a certain level but not at another.¹¹ Whether or not certain facts should be treated in a particular modular manner is an empirical matter, depending on whether the range of observed facts receives a principled explanation. It is important to keep in mind that facts do not falsify a theory—only theories do. If a theory were falsified on the basis of mere facts, then one could easily conclude on the basis of the following sentences that English does not exhibit strong crossover effects and that it has an FEC (where the implied embedded object can (and must in (26)) refer to *John*):

(26) John is easy to please.

(27) John complained that Bill didn't help.¹²

Xu's suggestion is to regard the anaphoric reading of (19) as grammatical with respect to Principle C and to account for the fact that such a reading is unavailable under normal circumstances by appealing to semantic, pragmatic, probabilistic, and statistical considerations. However, it is precisely out of these considerations that (20)–(22) each favor an anaphoric reading of the proforms they contain, null or overt. It is natural to assume that the same considerations should favor an anaphoric reading for the minimally different (19), but this is, unexpectedly, a wrong result. It is precisely because this unexpected result does not have an obvious pragmatic or functional explanation that a formal explanation is particularly called for.¹³

¹¹ It may be suggested (Hasegawa (1984)) that, when the null object in (19) is A-bound under special circumstances, such sentences are considered acceptable but ungrammatical. Under the common modular view of the mind, a sentence may be grammatical but unacceptable, multiple center-embedding being one classical example (Chomsky (1965)) and internal-clause complementation being another (Ross (1967); also see Kuno (1973)). Once a modular view is taken, it is also possible that acceptable or interpretable sentences may be ungrammatical. Bever and Langendoen (1973) have argued that the sequence *a not unhappy man* is one such example. Other examples have been argued to exist (Otero (1976), Emonds (1976), Hornstein and Weinberg (1981)). Whether or not one considers this view of acceptable agrammaticality debatable, note that in the present case we do not need to appeal to this view, but simply appeal to the notion of levels where a given principle may or may not obtain.

¹² The Chinese counterpart of (27) also allows the reading according to which the unexpressed object of *help* refers to the matrix subject. In both cases what is omitted refers to some unspecified task, possibly the task of helping John. The point here is, of course, that although the object of *help* can be *inferred* to be John, this fact should not lead one to the claim that English has A-bound empty objects. In this connection, note also that some of Xu's sentences that are intended to show that a null object can be A-bound are not clearly transitive at the syntactic level; see, for example, his (55) *John bu guanxin* and (56) *John laoshi chuixu*. These sentences look like transitives only because he translates them as 'John doesn't care for' and 'John often boasts of'. But they may well be translated as 'John doesn't care' and 'John often boasts' (compare *John ate, John sings*).

¹³ Xu also expresses his objection to testing the grammaticality of sentences in a pragmatically neutral context. But abstraction is necessary in any science. He attempts to argue against ruling out the proximate reading in (19) by the following reasoning. Consider the sentence *John lost his book*. When uttered out of context, it has a primarily proximate interpretation, meaning that John lost his own book. But no one would accept the proposal that the alternative (obviative) interpretation is to be ruled out by grammar. So, the

Thus, there is good reason to look seriously at the subject-object asymmetry surrounding (19)–(22) (and numerous similar examples). The proposed bound-variable hypothesis is a first step toward an explanation of this asymmetry, and it appears to be quite interesting especially because it has been shown to be extendable to other languages. To be sure, certain problems do arise in this regard, not all of which have an obvious solution.¹⁴ An eventual solution to these problems will most likely require abandoning the hypothesis. But to argue successfully against such a proposal requires at least suggesting an alternative account, beyond a mere listing of facts, for the central facts that have motivated the proposal in the first place. But Xu has not presented any alternative, except for the impossible FEC.

I will conclude with a brief discussion of a proposal made in Xu and Langendoen (1985) concerning certain subject-object asymmetries found in topic and relativized structures. I will show that their proposal sheds no new light on the problem.¹⁵

The purpose of Xu and Langendoen (1985) is to provide arguments for the familiar “aboutness hypothesis” that the well-formedness of a Chinese topic structure can be characterized by the necessary and sufficient condition that the comment clause of such a structure says something about the topic. The “aboutness” requirement as a necessary condition is obvious. The same requirement as a sufficient condition is also hardly objectionable, for in English, too, as long as a relationship can be established between *John* and *I saw*, the sentence *John, I saw* is well-formed. The real substance of the “aboutness hypothesis” lies in the assertion that although in English the relation can be established only through syntactic means (by movement or some sort of coindexing), in Chinese it can be established as long as the pragmatics and semantics of a given clause allow it to say something about the topic.¹⁶ Under such an approach, which in fact is a restatement of the approach of Li and Thompson (1976), a problem arises as to how to account for the following contrasts:

argument goes, one should not have a grammar that includes only the readings that are available only in pragmatically neutral contexts. Xu’s use of this example, however, is based on a misunderstanding. I would argue precisely that, because pragmatic considerations strongly favor the proximate reading (since John is the only person mentioned in context), we must not be led by these considerations to exclude the obviative reading as ungrammatical. But in the case of (19) pragmatic considerations would strongly favor a proximate reading of the null object when the sentence is uttered out of context, precisely as they do in this English example. It is the unexpected nature of the lack of this proximate reading that provides strong evidence for a formal approach.

¹⁴ Some problems are mentioned in Huang (1984a). For example, the Generalized Control Rule proposed there does not account for free or arbitrary PRO or pro. Furthermore, although the bound-variable hypothesis receives support from a number of languages, there are languages that cannot be analyzed in the same way. For a possible solution to the first problem, see Huang (1986).

¹⁵ Much of the material contained in Xu and Langendoen (1985) is repeated in Xu (1986), including, for example, facts related to the Bijection Principle, Subjacency, and strong crossover. My remarks concerning these points in this section apply to the joint article as well.

¹⁶ In one instance Xu and Langendoen claim that a topic-comment sentence is well-formed just in case the comment clause can be an independent well-formed sentence. Surely the independent well-formedness of the comment clause is not sufficient, for *Zhangsan, Lisi dao-le* ‘Zhangsan, Lisi has arrived’ is not acceptable even though the comment ‘Lisi has arrived’ is perfectly well-formed as an independent sentence. Rather, the correct criterion should be that a topic-comment structure is well-formed iff the comment is well-formed *as a comment*. Hardly anything follows from this near tautology.

- (28) a. Zhangsan, e changge de shengyin hen haoting.
 Zhangsan sing Rel voice very good
 'Zhangsan, the voice with which [he] sings is good.'
- b. ?*Zhangsan, wo xihuan e changge de shengyin.
 Zhangsan I like sing Rel voice
 'Zhangsan, I like the voice with which [he] sings.'
- c. Zhangsan, e changge de shengyin wo xihuan.
 Zhangsan sing Rel voice I like
 'Zhangsan, the voice with which [he] sings, I like.'

In (28a) the topic *Zhangsan* can be related to an empty argument in a complex NP in subject position. In (28b), however, it cannot be related to an empty argument in a complex NP in object position, though the relation can be established once the complex NP is moved to a position preceding the subject 'I'. A similar contrast is observed in (29):

- (29) a. Zhangsan, baba hen youqian.
 Zhangsan father very rich
 'Zhangsan, [his] father is very rich.'
- b. ?*Zhangsan, Lisi xihuan baba.
 Zhangsan Lisi like father
 'Zhangsan, Lisi likes [his] father.'

In (29a) the implicit possessive argument of an inalienable possession ('father') in subject position can be related to the topic *Zhangsan*, but in (29b) this relationship cannot be established with the inalienable possession in object position. Asymmetries like (28)–(29) are what concerned me in Huang (1982; 1984a) in the first place, and as a first step toward explaining these asymmetries, I proposed a condition on coindexing that subjects it to some notion of minimal distance. This condition rules out (28b) and (29b) because the coindexing relationship cannot be established, owing to the intervention of the subject NP. More precisely, these sentences are odd because in each case the comment hardly says anything about the topic.

Xu and Langendoen deny that such asymmetries exist but, in dealing with examples akin to (29), surprisingly claim that they have an explanation. Their explanation, in its relevant details, is the following. If taken alone, the comment clause in (29a) with the NP 'father' in subject position can refer to the father of a definite person not mentioned in the comment clause. However, the object NP 'father' in the comment clause of (29b) cannot refer to any definite person not mentioned in the comment. Therefore, (29a) has a way to satisfy the "aboutness" requirement, but (29b) does not. This "explanation," however, is a mere restatement of the explanation proposed in Huang (1982, 516ff.)—much less, in fact, than the latter.¹⁷ In Huang (1982; 1984a) I took this observation as

¹⁷ Xu and Langendoen also mention that in both (29a) and (29b) 'father' may refer to (a) the class of fathers and (b) the speaker's father. Since these are irrelevant to the problem, I did not mention them in Huang (1982).

the starting point and asked why this should be the case, a question I then tried to answer in terms of the proposal mentioned in the preceding paragraph. Certainly the reason for this asymmetry does not come freely as a matter of logic or simple pragmatics, and a true answer to the problem requires more than simply restating it.

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