

Contextual Variables as Pronouns

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1. Introduction

In this paper I pursue the hypothesis that contextual variables of the kind associated with quantificational expressions like *every*, *most* or *usually*, abbreviated as C from now on, are covert pronominal items. An important advantage that this hypothesis offers is that, if true, then the grammatical tools needed to explain properties of pronouns can be used to explain properties of C; i.e., no new machinery needs to be introduced into the grammar to deal with C.

If C is a pronoun, then we expect the behavior of C to be like the behavior of pronouns. What I do in this talk is show that the behavior of bound C is indeed like the behavior of bound pronouns¹. In particular, I show that C is subject to Weak Crossover (WCO).

The organization of the talk is as follows. In §2, I lay out my assumptions about C and I discuss arguments against two alternative analyses of the data. In §3, I show that, just like pronouns, C is subject to WCO in two languages, Mandarin Chinese and English. I also show, importantly, that exceptions to WCO that obtain with pronouns in languages like English obtain with C as well, thus making the case for the pronominal status of C stronger. Brief notes on how the data I present here was collected are included in this section as well. In §4 I discuss some theoretical consequences and issues that arise from the data and I conclude the paper in §5.

2. C

2.1. Assumptions about C

This paper is about the C that in the analyses in e.g., von Stechow, 1994 & 1995 and Westerståhl, 1985 is associated with quantificational expressions like *every* or *always*. To see what C does, consider the example in (1):

- (1) [Speaker A is relating to Speaker B the experiences of last night, when A and some of his students went out for a pizza]
A: Everybody_C had a great time (von Stechow, 1994: 28 & 1995: 163)

Speaker A in (1) does not intend to convey the idea that everybody, literally, had a great time. Rather, the quantification is over a *restricted* set of people, those that went out for a pizza last night with A. Positing a contextual variable in the lexical entry of the quantified determiner *every* is one way to capture this context

dependency². A common notational device adopted by this approach is a subscript ‘C’, as shown in (1A).

It has been noted in the literature that C can be bound as well as free. Heim, 1991 and von Fintel, 1994, 1995 note the example in (2):

- (2) Only one class was so bad that no_C student passed the exam

What is at stake here is the C of *no*. This variable is bound by the upstairs quantificational expression, *only one class*, to result in a reading that can be paraphrased as “only one class x was such that x was so bad that no student in x passed the exam”. This reading suggests that C is of a more complex nature than just a simple variable. von Fintel assumes that it is composed of a functional variable and an argumental variable (cf. Stanley, 2000 & 2002; Stanley and Szabo, 2000; Chierchia, 1993 and Engdahl, 1986 on *wh*-traces; Jacobson, 2000 on pay-check pronouns; Heim, 1990 and Elbourne, 2002 on donkey pronouns):

- (3) $C = f_i(x_j), i, j \in |N$

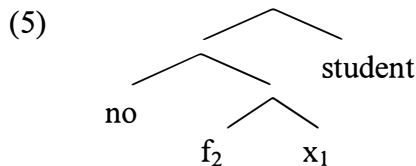
The analysis of (2) is then as in (4):

- (4) [only one class]₁ was so bad that no_{f₂(x₁)} student passed the exam]]

What gets bound in this analysis by the upstairs quantificational expression is the argumental variable of C. The functional variable stays free and is assigned a salient function as its value (of type $\langle e, \langle e, t \rangle \rangle$; a function that takes a class and gives back the set of individuals in that class). The functional variable takes the argumental variable as its argument and results in a set of individuals, which is intersected with the noun *student* via Predicate Modification.

I follow von Fintel in the idea that C has a function-argument internal composition. Given this, let me make the hypothesis to be defended in this paper more fine-grained, by claiming that the argumental variable of C is a covert pronominal item. This paper then shows that the argumental variable of C, when bound, behaves like bound pronouns in that it is subject to the same principles³. Of course, the hypothesis that the functional variable of C is a covert pronominal item should be equally considered, but I won’t do that here^{4, 5}.

A second assumption I make in this paper is that C is present in the syntax in the manner shown in (5), with the denotation of *no* as in (6):



- (6) $[[no]]^g = \lambda C \lambda k \lambda h: C, k, h \in D_{\langle e, t \rangle}. \{x: C(x)=1 \ \& \ k(x)=1\} \cap \{x: h(x)=1\} = \emptyset$

This is an assumption that neither von Stechow nor Westerståhl make, and, even though it is made by other authors (see, e.g., Stanley, 2000 & 2002), it is likely that not everybody will agree on the particular representation in (5). I come back to some of these issues in §2.2 and in §4.

2.2. *Against analyses where nouns are responsible for bound readings*

Before presenting the data that shows that C is subject to WCO, it is first necessary to argue against the following two alternative analyses of the bound reading of (2).

In the first alternative analysis, what gets bound is an implicit variable introduced by relational nouns⁶ (see e.g., Barker and Dowty, 1992 for discussion of this variable). If relational nouns come with a variable of their own, then the bound reading described above for (2) might originate in the variable of *student*⁷, instead of in the variable of *no*. And hence (2) might not tell us anything about C.

Relational nouns, however, cannot be responsible for all bound readings: bound readings are available with non-relational nouns ((7)) and with relational nouns whose potential implicit argument is filled ((9)). Consider first (7):

- (7) The people in our neighborhood are affiliated with a number of different charities. For example, John belongs to “Children of the World”, Susan to “Children of the World” and “We are the Children”, Bill to “ActionAid”, Stefan to “We are the children”, “ActionAid” and “PeaceNow”, and so on for the other fifteen neighbors. It is customary to donate money to charities before Christmas. This year, [*most people*]₁ *have given money to* [[*every* [_{f₂ x₁}]] *charity*].

The italicized sentence in (7) has a reading that can be paraphrased as “most people x have given money to every charity x is affiliated with”. In my analysis, this a reading in which the argumental variable of C is bound. The functional variable of C gets assigned the value in (8):

- (8) $\lambda x \lambda y. x$ is affiliated with y

Importantly, *charity* is not a relational noun⁸, so no variable introduced by a relational noun can be responsible for the bound reading of this sentence. Now consider (9):

- (9) The business professors gathered in the faculty room. The meeting was about the companies with which the School of Business has close contacts. Several professors have had contact with several representatives from those companies lately. As it turns out, [*every professor*]₁ *admires* [[*every* [_{f₂ x₁}]] *representative of Kodak*]

The italicized sentence in (9) has a reading that can be paraphrased as “every professor x admires every representative of Kodak x has been in contact with”. In my analysis, this is a bound reading of C . The functional variable of C gets assigned the value in (10):

(10) $\lambda x \lambda y. x$ has been in contact with y

Importantly, the bound reading of this sentence cannot be traced to a variable associated with the relational noun *representative*, for that variable is filled by overt material, *of Kodak*⁹.

In the second alternative analysis, what gets bound is an implicit variable introduced by nouns generally, not just relational nouns, as proposed in e.g., Stanley, 2000, 2002.

A variable introduced by nouns, however, cannot be responsible for all bound readings, since bound readings are available with adverbs of quantification, where no noun can be blamed. Consider the example in (11):

(11) [Only one summer]₁ was so bad that, if it rained, I [always [f₂ x₁]] missed the bus
(cf. Cooper, 1996 for similar examples)

(11) has a reading that can be paraphrased as “only one summer x was so bad that all situations in which it rained in x are situations in which I missed the bus”. In this reading, the functional variable of the C of *always* gets assigned the value in (12) in my analysis¹⁰:

(12) $\lambda x \lambda s. s < x$

Importantly, adverbs of quantification do not take nouns as arguments, so the variable of a noun cannot figure in the analysis of the bound reading of (11).

The conclusion that I draw from this discussion is that the bound readings of interest here are independent of (relational) nouns but dependent on the quantificational expression (whether it be a determiner quantifier like *every* or an adverb of quantification like *always*). More generally, the conclusion is that the context dependence of quantification is located in the quantifier, not in the noun that sometimes goes with the quantifier.

3. Bound C = bound pronouns

3.1. C and WCO

The version of the principle of WCO that I assume here is that in Lasnik and Stowell, 1991, in (13):

- (13) In a configuration where a pronoun P and a trace T are both bound by a quantifier Q, T must c-command P

Other formulations of the principle are possible, of course (see, e.g., Chomsky, 1976; Jacobson, 2000; Koopman and Sportiche, 1983; Postal, 1971 and Wasow, 1972). I work here with (13), though¹¹.

(13) is about the contrast between (14a) and (14b) and between (15a) and (15b):

- (14) a. [Who₁ [t₁ admires [his₁ boss]]]?
 b. *[Who₁ [does [his₁ boss] admire t₁]]?
- (15) a. [Everyone₁ [t₁ admires [his₁ boss]]]
 b. *[everyone₁ [[his₁ boss] admires t₁]] (i.e., *his boss admires everyone*)

A bound reading of the pronoun *his* is available in (14a) though not in (14b). And the trace of *who* c-commands the pronoun in the former and not in the latter. The same observation, but with *everyone*, is made about (15) ((15b) is obtained after QR of *everyone*).

C is subject to WCO, just as pronouns are. Consider first (16):

- (16) The business professors gathered in the faculty room. The meeting was about the companies with which the School of Business has close contacts. Several professors are in contact with several representatives from those companies. One of the professors asked...
 [Who]₁ t₁ admires [[every [f₂ x₁]] representative of Kodak]?

The question in (16) has a reading that can be paraphrased as “which person x is such that x admires every representative of Kodak x has been in contact with?”, where the value that the functional variable of C gets assigned is as in (17):

- (17) (= (10)) $\lambda x \lambda y. x$ has been in contact with y

That is, the question asks for the person such that that person admires every representative of Kodak that person has been in contact with. Answering this question with “Peter” would mean that Peter is the person who admired every representative of Kodak he himself has been in contact with. Peter may not admire representatives of Kodak he himself hasn’t been in contact with at all. This is a reading in which the C of *every* is bound.

This is in contrast with (18), where the context preceding the question is the same as in (16):

- (18) [same context as (16)]
 *[Who]₁ does [[every [f₂ x₁]] representative of Kodak] admire t₁?

As opposed to the question in (16), the question in (18) does not have a reading where the C of *every* is bound. That is, the question cannot ask, “which person x is such that every representative of Kodak x has been in contact with admires x?”. Rather, it must be about professors liked by every representative of Kodak in some contextually salient set (for example, in the set of representatives of Kodak the School of Business has been in contact with).

This is the kind of behavior we expect if C is a pronoun: if C is a pronoun, C should be subject to the same constraints that pronouns are subject to. The examples in (16) and (18) show that this is the case with respect to WCO.

Notice, incidentally, that the bound readings of (16) and (18) are not functional/pair-list readings of the kind Chierchia, 1993 and Engdahl, 1986, among others, worry about. There is an easy way of seeing this: (16) has a bound reading of C but no pair-list or functional readings, whereas (18) has pair-list and functional readings but no bound reading of C.

C is subject to WCO in other languages as well, just as pronouns in those languages are subject to WCO. (19)-(22) make the case for Mandarin Chinese:

- (19) a. *Shei₁ kanjian-le ta₁ muqin?*
 Who see-Asp he mother (Asp = aspectual perfective marker)
 ‘Who saw his mother?’
 b. **Ta₁ muqin kanjian-le shei₁?*
 he mother see-Asp who
 ‘Who did his mother see?’ (Higginbotham, 1980; Huang, 1982)

Regular pronouns like *ta* ‘he/his’ in Chinese are subject to WCO: a bound reading of the pronoun is available in (19a) though not in (19b). Note that *shei* ‘who’ moves only covertly in Chinese. Other than this, the English and the Chinese examples are parallel in the relevant respect.

Now consider the example in (20), where what gets bound is the argumental variable of the C of *mei-men* ‘every’ instead of a pronoun like *ta*:

- (20) [The students in the physics department gathered in the lounge to discuss their choice of courses in the spring of 2001. At the end of the meeting, the president asked...]
Shei₁ [[mei-men [f₂ x₁]] kecheng] dou xihuan?
 who every-CL course all like (CL= classifier)
 ‘Who liked every course?’

The question asked in (20) has a reading that can be paraphrased as “which person x is such that x liked every course x chose/took in the spring of 2001”, where the value of the functional variable that stays free is as in (21):

- (21) $\lambda x \lambda y. x$ chose/took y in the spring of 2001

That is, the president asks about the person who liked every course that the person himself/herself took in the spring of 2001, as opposed to asking about the person

who liked every course in some contextually salient set, which would be the reading in which the C of *mei-men* ‘every’ remains free.

Notice, incidentally, that quantificational object NPs with *dou* ‘all’ in Chinese must appear preverbally, as noted in the literature (Lin, 1998).

(20) contrasts with (22):

- (22) [same context as (20)]
 *[[Mei-men [_{f₂} x₁]] kecheng] dou rang shei₁ hen naohuo?
 Every-CL course all make who very upset
 ‘Who did every course upset?’

The context is the same as in (20). The question in (22), however, cannot have a reading in which the argumental variable of the C of *mei-men* ‘every’ is bound. That is, the question does not have a reading that can be paraphrased as “which person *x* is such that every course that *x* chose/took in the spring of 2001 upset *x*”. The contrast between (20) and (22) is expected if C is a pronoun subject to pronoun constraints: *shei* ‘who’ c-commands C in (20), but not in (22) (after LF movement of *shei*).

The behavior of bound C is then just like the behavior of bound pronouns, at least with respect to one of the constraints on binding, WCO, and in two languages, English and Chinese.

3.2. Cross-linguistic variation in the behavior of C

Considering the behavior of languages like Chinese with respect to binding of variables is important because the distribution of bound variables is more restricted in this language than in others like English: whereas English possessive binders (i.e., *whose*) can bind pronouns (at least for some speakers), Chinese possessives cannot. Given the hypothesis pursued in this paper, the prediction is made that possessives can bind C in English but not in Chinese. The prediction is indeed confirmed.

Higginbotham, 1980 notes that possessives, like *shei de* ‘whose’ or *mei-ge-ren de* ‘everybody’s’ cannot bind pronouns in Chinese:

- (23) *Shei₁ de muqin kanjian-le ta₁? (de = possessive marker)
 who mother see-Asp him
 ‘Whose mother saw him?’
- (24) *Mei-ge-ren₁ de muqin dou shuo wo xihuan ta₁
 every-CL-man mother all say I like him
 ‘Everybody’s mother said that I liked him’

Neither (23) nor (24) have readings in which the pronoun *ta* is bound by *shei* or *mei-ge-ren*; these sentences only admit a free interpretation of the pronouns.

Significantly, the same state of affairs obtains with C. In (25), the context preceding the question is the same as it was in example (20):

- (25) [same context as (20)]
 *Shei₁ de muqin [[mei-men [f₂ x₁]] kecheng] dou fu-le qian?
 who mother every-CL course all pay-ASP money
 ‘Whose mother paid for every course?’

This question cannot be interpreted as “which person x is such that x’s mother paid for every course that x chose/took?”. The only interpretation it can have is one in which it asks for the person whose mother paid for every course in some contextually salient set, e.g., in the set of courses offered by the physics department in the spring of 2001. This is so even though the interpretation in which the C of *mei-men* ‘every’ is bound is more plausible (i.e., it is more plausible for people to pay for courses that their own children have taken than it is for people to pay for courses that their own children might not have taken).

In this respect, Chinese is well-behaved with respect to WCO ((13)), since WCO prohibits binding by possessives (their trace does not c-command the pronoun).

In English, however, many speakers allow binding by *whose* or *everyone*’s. Consider the examples in (26) and (27):

- (26) [Every man]₁’s/everyone₁’s mother loves him₁
 (e.g., Jacobson, 2000; Safir, 1996)
- (27) Whose₁ picture incriminated his₁ mother? (Safir, 1996)

In this English does not obey WCO. We will see further exceptions to WCO in English in §3.3, but first let me show that the expectation that possessives be able to bind C in English is fulfilled. In the example in (28), the context preceding the question is the same as in (20); the example is the English equivalent of the Chinese in (22):

- (28) [same context as (20)]
 whose₁ mother paid for [[every [f₂ x₁]] course]?

Here the interpretation in which the argumental variable of the C of *every* is bound is available.

Not all English speakers allow binding of pronouns by possessives, though. For example, Lasnik, 1976 judges (29) ungrammatical:

- (29) *Everyone₁’s mother thinks he₁ is unfriendly

A prediction that remains to be tested is that speakers who do not allow possessives to bind pronouns should not allow them to bind C either.

Importantly, then, the distribution of bound pronouns *and* C is more restricted in Chinese than in English, something we expect if the hypothesis that the argumental variable of C is a pronoun is correct. The (in)ability of possessives to bind variables present us with a case of cross-linguistic variation in the behavior of C (and maybe a case of dialectal variation in English, when further tests are conducted). The issue of variation is taken over again in §4.

3.3. *More exceptions to WCO in English*

Exceptions to WCO ((13)) in English have been noted in the literature. It is worth discussing at least some of these now because, if the argumental variable of C is a pronoun, we expect it to be exempt from WCO in exactly those cases in which we find that regular pronouns like *he* are exempt from it. I will consider two exceptions here, exemplified in (30) and (31):

(30) [who₁ [did Jan say [she admired t₁][in order to please him₁]]]

(31) a. PRO₁ seeing his₁ father pleased [every boy]₁
 b. *Mary's seeing his₁ father pleased [every boy]₁

The first exception, noted by Lasnik and Stowell, 1991, is that a pronoun contained within an adjunct clause can be bound by a quantifier even if the trace of the quantifier does not c-command the pronoun. In (30), the trace of *who* does not c-command the pronoun *him* in the purpose clause, and yet the sentence has a reading in which the pronoun is bound by the quantifier.

The second exception I discuss was noted by Higginbotham, 1980: if a PRO controlled by a quantifier is present to do the binding, then the fact that the trace of the quantifier does not c-command the pronoun is irrelevant. This is the case in (31a), which allows a reading in which *his* varies with *every boy*, and (after QR) the trace of *every boy* does not c-command *his*. In contrast, (31b), where there is no PRO, does not allow a bound reading of the pronoun.

Why these exceptions to the WCO generalization arise is of course an important question in its own right, but one I do not address in this paper. What is important for the hypothesis that the argumental variable of C is a pronoun is the prediction that C is also exempt from WCO in the environments in (30) and (31). This prediction seems to be borne out. Consider first (32):

(32) [Jan and John, the heads of the School of Business, asked the business professors to gather for a meeting. The meeting was about the companies with which the School of Business has close contacts. Several professors are in contact with several representatives from those companies. After the meeting, one professor asked another professor...] (≈(16); cf. (30))
 [Who]₁ did Jan say [she admired t₁] [because of how [[every [f₂ x₁]] representative of Kodak]] treats him₁?

In this example, the C of *every* is embedded inside an adjunct clause, a *because*-clause in this case. The C of *every* can be bound by *who*, despite the lack of c-command by the trace of *who*.

(33a) and (33b) show that C is also exempt from WCO if it is bound by PRO, just as pronouns are ((31)):

- (33) [The business professors, including Mary, Steve and Peter, gathered in the faculty room. The meeting was about the companies with which the School of Business has close contacts. Several professors are in contact with several representatives from those companies. After the meeting, one of the professors said...] (\approx (16); cf. (31))
- a. PRO₁ talking about [[every [f₂ x₁] representative of Kodak] pleased [most professors]₁]
- b. *Mary's talking about [[every [f₂ x₁]] representative of Kodak] pleased [most professors]₁]

(33a) has a reading in which the argumental variable of the C of *every* is bound ("most professors x are such that x's talking about every representative of Kodak x has been in contact with pleased x"), even though the trace of *most professors* (after *most professors* QRs) does not c-command it. (33b), on the other hand, does not have a reading in which this C is bound ("most professors x are such that Mary's talking about every representative of Kodak x has been in contact with pleased x"). This is as expected.

The fact that the same exceptions to WCO that arise for pronouns arise for C as well is further support for the idea that C itself (or, rather, that the argumental variable of C) is a pronoun.

3.4. Methodology for data collection¹²

The English and Chinese data presented in this chapter were collected by myself over a period of three months in 2002-2003. The consultants included three native speakers of English and two native speakers of Mandarin Chinese. For the English data, more consultants were initially considered (up to a total of seven). However, the results reported in this paper concern only three English native speakers because the remaining were either not available for questioning on a regular basis (and thus I have only partial reports from them) or they rejected bound readings of C in almost all cases (which prevents further testing). All of these consultants were linguists, but they were kept uninformed of the purposes of the experiment and the claims and theories being tested. Some of the judgments were collected over e-mail, others were collected in person.

Often, both for the English and the Chinese data, the judgment required concerns the availability of a reading for a sentence. To test for the availability of readings for sentences, the procedure used was as follows. A context was provided preceding the test sentence, known to be grammatical independently. The test sentence was followed by a sentence/series of sentences that were

compatible only with one of the readings being tested. Consultants were asked whether they thought this/these last sentence(s) were compatible with the italicized sentence in the context provided. (34) and (35) illustrate this procedure for examples (7) and (9), respectively. The follow-up material is underlined:

- (34) The people in our neighborhood are affiliated with a number of different charities. For example, John belongs to “Children of the World”, Susan to “Children of the World” and “We are the Children”, Bill to “ActionAid”, Stefan to “We are the children”, “ActionAid” and “PeaceNow”, and so on for the other fifteen neighbors. It is customary to donate money to charities before Christmas. This year, *most people have given money to every charity*. There was only one neighbor who couldn’t afford to give any money at all. But the economic situation has not improved so much that people were able to give money to charities they don’t belong to.
- (35) The business professors gathered in the faculty room. The meeting was about the companies with which the School of Business has close contacts. Several professors have had contact with several representatives from those companies lately. As it turns out, *every professor admires every representative of Kodak*. That is, each professor admired those representatives of Kodak that same professor has been in contact with

An affirmative answer in both of these cases was taken to indicate that the bound reading of the C of *every* (the *every* of *every representative of Kodak* in (9)/(35)) is available.

In order to test for the readings of a question, I elicited judgments in the following way. First, a context in which the question would be asked naturally was provided. Then the question was asked, and an answer was provided for that question. It is the answers that were crucial, for they were compatible with only one of the readings of the question. Speakers were asked whether they accepted the answer for the question in the context provided.

Consider (22) again, repeated as (36):

- (36) [The students in the physics department gathered in the lounge. The meeting was about the courses they took in the spring of 2001. At the end of the meeting, the president asked...]
Mei-men kecheng dou rang shei hen laohuo?
 every-CL course all make who very upset
 ‘Who did every course upset?’

The context and the answer to the question were provided in English (the Chinese speakers were proficient in English). The answer provided in the case of (22)/(36) in order to test whether the question in italics has a reading in which the C of *mei-men* is bound (“which person x is such that every course that x took upset x?”) was “Peter. That is, out of all the students in the department, Peter is the one that was upset by every course that he, Peter, took”. The Chinese speakers did not

accept this as an answer for the question in italics, and the conclusion was drawn that no bound reading of the *C* of *mei-men* is available in (22)/(36).

3.5. *General conclusions of this section*

There is evidence that the hypothesis that the argumental variable of *C* is a pronoun is correct. The evidence is that the constraints that apply to pronouns apply to *C* as well, both in Chinese and in English, even down to the exceptions to those constraints in English and to the differences between Chinese and English with respect to possessive quantifiers.

4. Theoretical issues and consequences

An important issue to be considered in the light of the discoveries in §3 is the syntactic presence of *C*, which I promised to come back to anyway.

It might be tempting to take the evidence that *C* is subject to WCO as evidence for the position that *C* is present in the syntax. If WCO is a syntactic constraint, how could it be otherwise? The thing is that WCO does not *have* to be a syntactic constraint. In fact, there are proposals of non-syntactic versions of WCO in the literature, such as Jacobson (2000). Of course, Jacobson's general assumptions about matters such as the organization of the grammar or about the very existence of variables are radically different from the assumptions I make here. We could say that, if one assumes the existence of variables in the grammar and a syntactic version of WCO, then the data from §3 shows that *C* is an item present in the syntax¹³. This is in opposition to Stanley (2000), who takes the fact that certain contextual variables (different from *C*) are subject to WCO as evidence that they are syntactically active.

Contra Recanati (2002), the evidence in §3 shows that *C* is a *linguistically* active variable (that is, a variable that is present at some level of linguistic representation). Whether WCO is a syntactic or a semantic constraint, it is clearly a linguistic constraint. Recanati's (2002) suggestion for a non-linguistic (i.e., non-syntactic and non-semantic) treatment of contextual variables like *C* is thus not appropriate¹⁴.

What can also be said in favor of the position that *C* is present syntactically is that if *C* is a pronoun, which I have shown to be the case here, and pronouns are present in the syntax, which I take to be uncontroversial, then *C* should be present in the syntax as well¹⁵.

What sorts of evidence could one bring up against the idea that *C* is pronoun? Cappelen and Lepore (2002) bring up a number of problems for the idea that contextual variables are pronominal items. A posited covert pronoun should enter into anaphoric relations, since pronouns can. For example, *C* should be able to antecede other pronouns, since pronouns can antecede other pronouns, as shown by *he/him* in (37) (modified):

(37) He's a senator, but nobody respects *him*

But C cannot antecede pronouns:

(38) *Many students failed, and *it* is a big domain

If the potential covert pronoun is made overt, the relationship with *it* can be established though:

(39) Many students in this domain failed, and *it* is a big domain

Under the hypothesis that C is a covert pronominal item, we expect parallel behavior with other pronouns, but that is not what we find in examples like (37)-(38).

Notice, though, that not all pronominal elements can antecede pronouns. Consider the following facts from Spanish:

- (40) a. *pro₁ dijo que vendría pronto y él₁ también dijo que traería
 said that would-come early and he also said that would-bring
 a Manuela
 to Manuela
 ‘He said that he would come early and he also said that he would bring
 Manuela’
 b. Él₁ dijo que vendría pronto y él₁ también dijo que traería a Manuela

(40b) needs a context in which an appropriate reason is provided for the presence of the pronoun in the second clause. Such a context would be one in which the speaker is angry because two things didn't happen: whoever said that he would arrive early didn't, and that same person, who said that he would bring Manuela, didn't do so either. The speaker feels that it is important to emphasize the two faults committed by this person, and can do so by repeating the pronoun. The first pronoun in (40b) can antecede the second one in this context. In the same context, however, *pro* cannot antecede the pronoun in the second clause in (40a). A context in which (40a) is felicitous, though without coreference between *pro* and *él*, is one in which Juan arrived late and the person, different from Juan, who had to bring Manuela didn't. The speaker points to the person who had to bring Manuela and didn't when s/he says *él*. If not all pronominal elements can antecede pronouns, the behavior of C in (38) is not surprising.

Also, as Andy Kehler (p.c.) points out, (38) improves when an antecedent for C is provided in previous context:

(41) Math is a very complicated subject. Many students fail; it is a big domain, after all.

In (41), *many* quantifies over the set of Math students. The restriction to individuals who study Math is provided by the preceding context. *It* can be

dependent on C in this example. Notice that (37) and (40b) are also appropriate only if there is a reference for the pronoun *he/él*.

Facts like (37) and (40) suggest that pronominal items sometimes can and sometimes can't antecede other pronominal items. This suggests that the ability of pronouns to depend anaphorically on some item is not really indicative of the nature (pronominal or not) of the item¹⁶. Hence, (38) is not indication that C is not a pronoun. What seems to be wrong with the example is that a referent for C must be provided, as suggested by Kehler's example ((41))¹⁷.

The results reported in §3 need to be evaluated from the point of view of language acquisition. Given that there is variation in the distribution of pronouns across languages (or, at least, across English and Chinese), we are forced to postulate a parameter about binding by possessive quantifiers. This parameter allows binding by such items in English but not in Chinese (with qualifications, having to do with potential dialectal variation in English, as we have seen). That C is covered under the umbrella of this parameter constitutes further support for the hypothesis pursued here, that C is a pronoun. This is because if C is a pronoun, the task of language acquisition is made easier on the child, in the sense that the English child needs exposure to a limited set of data only, not even necessarily related to C (which, arguably, are more complicated than the data with pronouns such as *he*), in order to draw the conclusion that C can be bound by possessive quantifiers. Likewise, once the Chinese child has drawn conclusions about the behavior of pronouns with respect to binding by possessive quantifiers, he does not need to be exposed to further data with C.

An important issue that arises in this discussion is how exactly the child, whether a speaker of Chinese or English, learns the behavior of pronouns with respect to binding by possessive quantifiers. Notice for example the difficulty of the English child learning the behavior of pronouns: what he or she has to learn is not that a sentence is possible, but that a *reading* is possible. Significantly, the Chinese child has to learn, not that a sentence is impossible, but, again, that a *reading* is impossible. One possibility here is to say that the initial assumption made by the child is that readings in which a pronoun is bound by a possessive quantifier are impossible, and only in case the child is provided with positive evidence does he or she change the assumption. This possibility hinges, of course, on the availability of a certain amount of input for the child.

I leave the discussion about language acquisition here, noting that whatever its outcome turns out to be (and here I appeal to the experts), it is always advantageous to be able to say that C is a pronoun. Whatever language acquisition mechanisms turn out to be the correct ones, in particular for the acquisition of binding by possessive quantifiers, learning the behavior of C will never come at an extra cost.

5. Conclusion

In this paper I have provided evidence that the argumental variable of C is a pronominal item. I have shown that the behavior of the bound argumental variable

of C is parallel to the behavior of bound regular pronouns such as *he*, in several interesting respects. First, C is subject to WCO in English and Chinese. Then, exceptions to WCO in English arise both for pronouns and for C. Then, where the distribution of bound pronouns is more restricted (as in Chinese vs. English with respect to binding by possessive quantifiers), the distribution of bound C is equally more restricted.

Some consequences of this discussion for the syntactic presence of C and for language acquisition were briefly discussed.

Endnotes

* This paper presents material from Chapter 2 of my dissertation (Martí (2003)). Thanks to the audiences at SALT XIII and at the Annual Conference of the Linguistic Society of Southern Africa (2003), specially Richard Breheny, Andy Kehler, Jochen Zeller, Angelika Kratzer and Chris Barker, for their comments and questions. And thanks to Norman Clarke, for being my friend and for providing a place for us to stay in Seattle.

¹ For discussion of free instances of C within the framework of this hypothesis, see Martí (2003).

² It is not the only way, though. See von Stechow (1994: 28-9), Neale (1990: 95-102), Stanley and Szabó (2000) and Stanley and Williamson (1995) for discussion of some possibilities and arguments that a device that interacts with the recursive semantics is needed. See also Breheny (this volume).

³ I will often abbreviate “argumental variable of C” to just “C”.

⁴ See Stanley (2002) for examples where the functional variable of C is bound.

⁵ In (1), the functional variable can be treated as the identity function and the argumental variable as a set of individuals (Stanley, 2000 & 2002), or C can be a simple variable, a set of individuals.

⁶ Pauline Jacobson (p.c.) suggested this possibility to me.

⁷ *Student* is a relational noun according to Barker and Dowty’s tests because the prenominal possessive (*John’s students*) and the *of*-possessive (*the students of John*) are possible and have the same meaning.

⁸ Both the prenominal possessive (*John’s charity*) and the *of*-possessive (*the charity of John*) are possible with *charity*. However, it is not possible to interpret *charity* as “non-profit organization” in the *of*-possessive, which is the sense intended in the text. *Charity* is thus non-relational when understood as “non-profit organization”, though possibly relational when understood as “charitable qualities”.

⁹ *Representative* is a relational noun, since both *Kodak’s representative* and *the representative of Kodak* are possible with the same meaning, the meaning intended in the text.

Observe that the bound readings in (7) and (9) need context to make a function salient for *f*, whereas the bound reading of (2) doesn’t. I hypothesize that the reason for that is that, in (2), the relational noun itself makes a value for the

function salient, but (7) and (9) have no relational noun that can do that and have to rely on the context.

¹⁰ And the *if*-clause, *if it rained*, provides the first argument (or, in my analysis, the second) of the adverb of quantification, as widely assumed.

¹¹ An interesting question is whether the facts I present below are compatible with any version of WCO, as suggested by Howard Lasnik (p.c.). I leave this question aside here.

¹² This section was inspired by §3.2 in Matthewson (1998).

¹³ It remains to be seen in detail whether a system like Jacobson's could accommodate the fact that C is subject to WCO. I leave that for a future occasion.

¹⁴ It is unclear how such a treatment would deal with the binding of these variables to begin with.

¹⁵ Partee (1989) has suggested that contextual variables associated with items like *opposite* or *local* are not syntactically present. Her arguments together with answers to them are discussed in Martí (ms.) and in Chapter 2 in Martí (2003).

¹⁶ In any case, why should it be?

¹⁷ Other arguments from Cappelen and Lepore are against C being an indexical like *I* or *here*, which I am not advocating.

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