

BARE QUANTIFIERS, QUANTIFIED NPs AND THE NOTION
OF OPERATOR AT S-STRUCTURE*

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1. INTRODUCTION

Representations at the linguistic level of LF-structure, since its introduction into grammatical theory¹, are conceived of as essentially analogous in form to the representations of standard logical analysis. A sentence such as *John likes everyone*, for example, is assigned a representation like (2) at LF-structure, derived from the S-structure representation (1) via a rule of quantifier movement [QR] (cfr. Chomsky [1977, essay 4], May [1977]):

(1) [_S [_{NP}John] INFL [_Vlikes [_{NP}everyone]]]

(2) [_S [_{NP_i}Everyone][_S [_{NP}John] INFL [_Vlikes [_{NP_i}]]]]]

The empty NP left, under trace theory, by movement of [_{NP}everyone], in (2) is understood as a variable [_vi] bound by the phrase [_{NP}everyone], taken as an operator, much as in the standard logical analysis of (1), a version of which is represented in (3)²:

(3) [For every x_i / x_i a person] John likes x_i

In 'Government and Binding' theory, the notions of 'operator' and 'variable' also play a role at S-structure. As Chomsky (1977, essay 1, p. 59) observed, "[u]nder the trace theory of movement rules, [...], a surface structure is in some respects similar to a logical formula with bound variables" (read 'Surface Structure' as 'S-Structure'). In an S-structure like (4)

(4) $(\bar{S} (NP_i \text{Who}) \text{did} (\bar{S} \text{John like} (NP_i)))$

the trace left by the overt application of $\text{Move } \alpha$ is understood as a vbl bound by an operator (the quasi-quantifier *who*), much as the trace left by the (abstract) application of $\text{Move } \alpha$ to $(NP_i \text{everyone})$ in (2). Such S-structures as (4) can, in fact, be seen as "anticipations", in the Syntax, of the operator/vbl structures normally created in LF³.

The standard analysis thus recognizes the presence of an operator/vbl configuration both at S-structure and LF-structure. By regarding such configurations as fundamentally identical, this analysis is able to express significant generalizations which could not be expressed as readily, it seems, under competing, even intertranslatable, notations (See, for discussion, Chomsky (1977, essay 4; 1980b, chapt. 4, pp. 160ff), Higginbotham (1980), May (1982)).

Whatever differences there are between the operator/vbl configurations created at S-structure and at LF-structure they are not regarded as qualitative. They simply reduce to the different classes of quantificational phrases that undergo the movement at each level: (under the standard analysis) *wh*-phrases and a few other types of quantificational phrases that may move to COMP, at S-structure⁴; and quantificational phrases in general, at LF.

Recent work, some of which will be briefly reviewed in sect. 3 below, redresses this picture of LF at least in part by suggesting that not all quantificational phrases taken in standard logic as having an operator/vbl form enter an operator/vbl form in the linguistic component of LF. So, for example, it has been suggested that certain quantificational phrases such as *anyone*, *any N* and *a certain N* do not enter an operator/vbl configuration at LF-structure, as they appear to behave like Names. They always have wide scope and show none of the properties normally associated with the rule QR

which creates operator/vbl configurations at LF-structure (Cf. Chomsky (1981, 239), Aoun-Hornstein-Sportiche (1981), Hornstein (1984a,b), Pesetsky (1984) and Dobrovie-Sorin (1984) suggest further restrictions of the class of operator/vbl configurations in LF.

According to their analyses, [certain] bare quantifiers, but not their corresponding quantified NPs, are subject to QR in LF, so that only the former enter an operator/vbl form at LF structure. The latter observation is particularly relevant here, for it is suggested below that a similar, systematic, asymmetry between bare quantifiers and quantified NPs is detectable at S-structure as well, despite *prima facie* evidence.

In general, no distinction is ever made between bare quantifiers [such as *what* or *nothing*] and quantified NPs [such as *which film* or *no news*] at S-structure. Apparently for very good reasons. In the ordinary case, either kind of quantificational expression appears to be able to function as an operator at S-structure:

(5) a. [What_i did [you see e_i]]

b. [Which film_i did [you see e_i]]

(6) a. [Nothing_i would [he do e_i to help them out]]

b. [No news_i was [he prepared to give e_i]]

In these structures, either kind of quantificational expression is in COMP, a characteristic operator position [for the negative phrases in (6), cf. Thiersch (1981)]. Outside of the COMP position, however, an asymmetry emerges, in certain contexts, between bare quantifiers and quantified NPs suggesting that only the former, not the latter, may 'inherently' function as operators.

Two such contexts are provided by the Clitic Left Dislocation

{CLLD} construction in Italian (and other Romance languages) and the *L-tous* construction in French.

We discuss these in turn in sect. 2, and return, in sect. 3, to the more general questions which they raise, as well as to their relation to the notion of operator in LF.

2. A brief digression is required on the basic properties of CLLD and *L-tous*. Let us first of all consider CLLD.

2.1 This construction differs in a number of respects (which need not concern us here) from English-type Left Dislocation⁵. In this connection suffice it to say that the left peripheral phrase in CLLD is in close connection with the S-internal position related to it. It behaves w.r.t. various grammatical principles as though it actually occupied the S-internal position, a property sometimes claimed to be a consequence of a general process of Reconstruction (cf. Guéron 1979, Belletti-Rizzi 1981, Chomsky 1981 and other recent work). Nothing of the sort holds for English-type Left Dislocation (the analogue of which is also present in Italian). CLLD bears instead a close similarity to Topicalization (despite the presence in the former of clitic resumptive pronouns)⁶. The two constructions can in fact be regarded as a syntactic minimal pair. The various properties which differentiate the two apparently reduce to a single abstract parameter: the presence in Topicalization vs. the absence in CLLD of Wh-movement (see Cinque (1984) for a discussion of the reasons that motivate such a conclusion and whose essential correctness will be presupposed hereafter). Consider, for example, the most obvious difference between the two constructions: the possible presence of resumptive clitics in CLLD but not in Topicalization:

(7) Gianni, lo_i inviterò domani (non oggi)

'G. him (I-)will invite tomorrow (not today)'

(8) GIANNI_i [*I_o_i] inviterò (non Pietro)

'G. him (I-)will invite (not P.)'

The contrast between (7) and (8) can be seen as a consequence of the assumption that Topicalization but not CLLD involves Wh-movement. Under this analysis, the relevant S-structure representations of (7) and (8) are:

(9) a. [_{TOP}Gianni_i] [_S [_{COMP}] [_S I_o_i inviterò [_{NP}_i]]]

b. [_{TOP}GIANNI] [_S [_{COMP}NP_i] [_S I_o_i inviterò [_{NP}_i]]]

(9b) is thus entirely parallel to (10) or (11) (which are also excluded):

(10) *[[_S Chi_i [_S I_o_i inviterai [_{NP}_i]]]]? 'who will you invite him?'

(11) *[[_S Qui_i a-t-il_i [_S [_{NP}_i] dit cela]]]? 'who has he said that?'

Their ungrammaticality appears to be a consequence of the fact that in (9b), (10) and (11) the operator in COMP does not bind any vbl (cf. Chomsky's [1982] discussion of the principle barring vacuous quantification). The empty NP in S is locally \bar{A} -bound by a clitic, not by the operator in COMP, thus presumably failing to qualify as a vbl.⁷ (7) on the contrary, is wellformed. The principle against vacuous quantification which excluded (9b), (10) and (11) is here inoperative (at least under the assumption that the construction does not involve Wh-movement)⁸.

There is a more interesting property of the resumptive clitic

in CLLD which supports the assumption that the construction does not involve *Wh*-movement. We discuss it here since it also serves the purpose of introducing the basic facts which illustrate the particular asymmetry referred to above. The property is the following: with left dislocated non-NP categories, resumptive clitics are systematically optional. But they turn out to be obligatory with left dislocated NP_S ⁹.

See, for example, [12] vs. [13]:

- [12] a. $\{pp_i$ A Gianni $\}$, $\{gli_i\}$ ho scritto $\{pp_i\}$
 b. $\{AP_i$ Bella $\}$, non $\{lo_i\}$ è mai stata $\{AP_i\}$
 c. $\{VP_i$ Criticato $\}$, non $\{lo_i\}$ è stato $\{VP_i\}$
- [13] a. * $\{NP_i$ Gianni $\}$, ho visto $\{NP_i\}$
 b. $\{NP_i$ Gianni $\}$, $\{l_i\}$ ho visto $\{NP_i\}$

Why is there such an asymmetry? An answer is directly available if CLLD does not involve *wh*-movement. For the asymmetry, then, follows from very general and (for the most part) independent principles:

- [14] Clitics are uniformly optional in CLLD (the null hypothesis)
- [15] Only NPs are partitioned by the features
 $[\pm \text{pronominal}]$ $[\pm \text{anaphor}]$
 [a standard, though perhaps implicit, assumption].

The optionality of the clitic in the non-NP cases is a consequence of [14]. How does the obligatoriness of the clitic with NPs ([13a-

b)) follow? (14) implies the existence of the double option in (13), just as it does for (12), but of the two options, (13a) turns out to be excluded on independent grounds, namely on the basis of (15) and of the conditions on empty NP-types. This is so because the object *ec* does not qualify as anyone of the various (empty) NP-types. It cannot be PRO because governed; it cannot be *pro*, because unidentified; it cannot be NP-trace because free in its governing category. Finally, it cannot be a *vbl* because there is no operator binding it. In sum, no wellformed output is associated with (13a), though one is associated with (13b). Hence the apparent obligatoriness of the clitic with left dislocated NPs.

Note that the absence of (abstract) *wh*-movement in CLLD is crucial to the argument. For, otherwise, the *ec* in (13a) would qualify as a *vbl* (bound by the abstract operator in COMP) and (13a) would, incorrectly, be ruled grammatical. This presupposes also that \bar{A} -binding alone (e.g. by *Gianni* in TOP) does not suffice to identify an *ec* as a *vbl*. We take this to favor (16) over (17) as the appropriate definition of *vbl*:

(16) $Vbl =_{def} \{N_{pe}\}$ in A-position operator-bound and locally \bar{A} -bound¹⁰

(17) $Vbl =_{def} \{N_{pe}\}$ in A-position and locally \bar{A} -bound

Following Chomsky (1982, 102) we further assume (18) as a tentative definition of 'operator' (to be slightly revised later):

(18) S-structure operators = *wh*-phrases (certain negative phrases -see fn. 4) and (optionally) null NPs in COMP (cf. fn. 10)

This has the consequence that [*Gianni*] in [13] will not qualify as an operator, the ec of [13] failing in turn to qualify as a vbl. A desirable result, as noted.

There is an interesting exception to the obligatoriness of the clitic with NPs, which provides indirect evidence for the analysis so far sketched. The clitic ceases to be obligatory (becoming, in fact, impossible) when the left dislocated NP is a bare quantifier. See [19], originally pointed out to me by Paola Benincà (cf. also Benincà, 1984):

- [19] a. Qualcosa_i, di sicuro, [*lo_i] farà [NP_i] 'Something, surely, I'll do'
- b. Tutto_i, non dovrà vender[*lo_i] [NP_i] 'Everything, he will not have to sell'
- c. Molto_i, } non [*lo_i] ha fatto [NP_i] per noi
 Troppo_i }
 Poco_i }
- Much } he hasn't done for us
 Too much }
 Little }

[19] contrasts sharply with [20] where the left dislocated phrase is a quantified NP rather than a bare quantifier. The resumptive clitic is here obligatory again:

- [20] a. Qualche sbaglio, ogni tanto, } *fa anche Gianni
 } lo fa anche Gianni
 'Some mistake, every now and then, (it) makes G. too'

- b. Tutti (i tuoi libri), prima o poi, dovrai $\left\{ \begin{array}{l} *vendere \\ venderli \end{array} \right.$
 'All [your books], sooner or later, you'll have to sell [them]'
- c. Molte lettere, $\left\{ \begin{array}{l} *ho ricevuto in ufficio \\ le ho ricevute in ufficio \end{array} \right.$
 'Many letters, [them] I received in my office'

This complex pattern of obligatory, optional and impossible resumptive clitics finds a very simple account under the assumptions made so far if we merely add bare quantifiers (but not quantified NPs) to the class of [S-structure] operators in [18] (see [21]):

- (21) S-structure operators (i.e. NPs capable of identifying an ec as a vbi when in \bar{A} -position at S-structure):
- 1) (inherent): bare quantifiers ([_{NP}Q])
 - 2) (structural): NPs in COMP (wh-NPs, certain negative NPs and [optionally] null NPs)

Let us review how the various patterns observed earlier follow from (21) and the other assumptions made so far, and repeated here:

- [14] Clitics are uniformly optional in CLLD
- [15] Only NPs are partitioned by the features
 [\pm pronominal] [\pm anaphor]
- [16] Vbi = def [_{NPe}] in A-position operator-bound and locally A-bound

[13a] follows as indicated earlier: the object *ec* does not qualify as any of the possible NP-types; in particular it does not qualify as a vbl since the construction does not contain operators (it does not involve [abstract] wh-movement nor can the \bar{A} -binder *Gianni* qualify as an operator, if [21] is correct). The clitic-less variants of [19] are, instead, wellformed because, although CLLD does not involve wh-movement, the phrase base generated in TOP qualifies as an (inherent) operator, and is in an \bar{A} -position, so that the *ec*'s come to be identified as vbls. The impossibility of there being a clitic in [19], which recalls that in ordinary wh-constructions (see [10] and [11] and [8]), is further indirect support for taking the phrase in TOP to be an operator, because the illformedness of the variants of [19] with a clitic will then be a consequence of the principle barring vacuous quantification¹¹.

The examples in [20] are again ungrammatical because quantified NPs, as against bare quantifiers, do not qualify as operators, so that [20] simply reduces to the case of [13].

As far as the S-structure concept of 'operator' at issue here is concerned, it seems that quantified NPs behave as Names rather than operators.

Such a difference between bare quantifiers and quantified NPs may have a structural correlate, if indeed bare quantifiers are instantiations of the maximal N projection (\bar{N}) rather than of the specifier node of \bar{N} , as indicated in [22]¹²:

[22] a. 'bare' quantifiers: [\bar{N} [_Q(P)]]

b. quantified NPs: [\bar{N} [_{QP}] \bar{N}]¹³

As already noted, the difference between bare quantifiers and quantified NPs apparently neutralizes in COMP position. See [5] and [6] repeated here as [23]–[24]:

- [23] a. What_i did you see e_j
 b. Which film_i did you see e_j
- [24] a. Nothing_i would he do e_j to help them out
 b. No news_i was he prepared to give e_j!

This is understandable if we regard that position characteristically as an operator position. In spite of the fact that only bare quantifiers, we would suggest, are 'inherent' operators, both bare quantifiers and quantified NPs seem to acquire 'structural' operator status when in COMP. Hence the lack of asymmetry in [23]–[24]. See, however, sect. 3 where it will be seen that the asymmetry between bare quantifiers and quantified NPs reemerges even with wh-phrases: precisely when they are in non COMP position¹⁴.

Let us consider now the French *L-tous* case.

2.2 The class of elements which participate in the French *L-tous* construction (studied in detail in Kayne [1977, 1978, 1984, chapt. 4] overlap substantially with the class of NPs that do not require (are in fact incompatible with) a clitic in CLLD. Compare [19] with [25]¹⁵:

- [25] a. J'ai { tout } acheté, aujourd'hui 'I have bought
 { ?beaucoup } (everything/much/
 { ?trop } too much/little,
 { ?peu } today'
- b. Je n'ai rien acheté, aujourd'hui 'I bought nothing today'

In these structures, the Projection Principle requires the presence of a postverbal object (here an *ec* whose 'antecedent' is *tout*, etc.). What kind of NP-type is this *ec*? It cannot be PRO, pro nor NPtrace, for familiar reasons. Following Kayne, it seems reasonable to take it to be a vbl, since it is locally \bar{A} -bound by a quantifier-like element. This analysis appears to be supported by the contrast between [26a] and [26b] (Kayne 1984, chapt. 4):

- [26] a. J'ai tout_i voulu [_gacheter e_i] 'I wanted to buy everything'
 b. *Je l_i'ai voulu [_gacheter e_i] 'I wanted to buy it'

where the 'antecedent' of either *ec* is outside of the governing category of the *ec*. The contrast follows if the *ec* in [26a] is a vbl and the *ec* of [26b] an anaphor, as Kayne suggests.

Thus, [26a] is, in essence, parallel to the wh- case in [27]:

- [27] Qu_i' avez-vous voulu [_gacheter e_i]?' 'What did you want to buy?'

Consider now the following contrast within the L-*tous* construction in French:

- [28] Elle a voulu *tout*_i lire e_i 'She wanted to read everything'
 [29] a. *Elle a voulu *tous ces livres*_i lire e_i 'She wanted to read everyone of these books'
 b. *Elle a voulu *tous*_i lire e_i 'She wanted to read all'
 (ok: ..*tous les*_i lire e_i) (ok: to read them all')

Such contrast recalls point-by-point the contrast seen above in (Italian) CLLD between the clitic-less variant of [19b] and [20b], repeated here

as (20b-b')

{19} b. Tutto_i, non dovrà vendere e_i

{20} b. *Tutti i tuoi libri_i, prima o poi, dovrai vendere e_i (ok: ..
venderli_i e_i)

b' *Tutti_i, prima o poi, dovrai vendere e_i (ok: .. venderli_i e_i)

In (20b), there is a quantified NP in TOP which by itself cannot identify an ec as a vbl. In (20b'), there is either a single QP ([_{QP}tutti]) (as such unable to bind an ec of category NP) or a quantified NP with a null head ([_{NP}(_{QP}tutti) (\bar{N} e)]), in which case we fall back again to the situation of (20b). In (19b), on the other hand, there is a bare quantifier ([_{NP}Q]). It was suggested above that the contrast may follow simply by taking bare quantifiers, but not quantified NPs, to be operators at S-structure. It is thus tempting to extend essentially the same account to the contrast just noted in the French *L-tous* construction.

Only in (28) is there an operator (the bare quantifier *tout*) capable of identifying the object ec as a vbl at S-structure. In (29a-b), whether there is a quantified NP ([_{NP}(_{QP}tous) ces (\bar{N} livres)]) / [_{NP}(_{QP}tous) \bar{N}] respectively) or a single QP ([_{QP}tous]), the object ec will fail to qualify as a vbl for the reasons just reviewed, whence the contrast¹⁶.

The parallelism between CLLD and the *L-tous* case may in fact be less systematic than has been presented (but in ways that do not seem to affect the main point). Note that a clitic may 'save' (29b) (..tous les_i lire e_i) just as it 'saves' (20b') (..venderli_i e_i), as expected. A clitic will also 'save' (20b) (cf. 30), but it will not 'save', unexpectedly, the parallel *L-tous* case (29a) (cf.(31)):

{30} Tutti i tuoi libri_i, prima o poi, dovrai venderli_i e_i

[31] *Elle a voulu tous ces livres_i les_j lire e_j

Such a lack of perfect symmetry between (Italian) CLLD and French L-*tous* may however be due to external reasons. As Kayne (1977, § 1.3] suggests, fullfledged NPs may be systematically excluded from the L-*tous* position, if that is essentially an adverbial-like position. If so, the ungrammaticality of the forms in [32] is also expected, despite the fact that they contain bare quantifiers, capable, in principle, of identifying the object *ec* as a vbi (as can be seen from their counterparts in Italian CLLD):

- [32] a. *Il va quelque chose_i faire e_j 'He will do something'
 b. Il va quelqu'un_i voir e_j 'He will see someone'
 c. *Il ne va personne_i voir e_j 'He will see nobody'

This implies that *tous* in [29b] can only be a single QP, not the specifier node of a fullfledged NP. How can we account, then, for the wellformedness of [28]? Apparently, either one of the available analysis (as [_Nptout] or [_Qptout]) should yield an ungrammatical result. Clearly, a finer analysis is needed which can distinguish between *tout* (and *beaucoup*, *peu*, *rien*, etc.) on the one side and *quelque chose*, *quelqu'un*, *personne*, etc. on the other (and both from *tous ces livres* etc.). One such analysis is sketched in Kayne [1977, p. 30, fn. 21] on partly independent grounds. He suggests that certain coreference facts pertaining to such expressions as *quelque chose* "pourraient être rattachés à ceux qui concernent *tout* et *rien* si *quelque chose* était analysé, non comme *quelque+N*, mais comme [_pquelque chose] où P est le symbole de catégorie, quel qu'il soit, qui domine *quelque* dans *quelques livres* (P ≠ Q: **il va quelque chose faire*)". Let us assume, then, the following analysis, departing minimal-

ly from Kayne's (for us, [quelque chose] must ultimately be an instantiation of NP, if we want to allow for the possibility of its Italian counterpart to bind a NP vbl in CLLD)¹⁷:

(33) a. quantificational NPs: $[_{NP} (pquelques) [_{\bar{N}} (Nlivres)]]$

b. 'bare' quantifiers: b1 $[_{NP}(pquelque chose)]$

b2 $[_{NP}(Qtout)], [_{NP}(Qbeaucoup)]$

[cf. also Kayne (1977, p. 62)]

(34) only Q^n elements can occur in the L-tous position (cf. Kayne (1977), Obenauer (1983b))

(35) The NP of b2 can simultaneously be taken as QP, the maximal projection of Q (given that Q is its only 'head'): $[_{NP}/QPQ]$

Given these assumptions, the appropriate distinctions follow. Quantificational NPs and bare quantifiers b1 will not occur in the L-tous construction because their categorial analysis does not satisfy (34). Bare quantifiers b2, however, do so, by virtue of the Q-projection side of their double analysis. They will also identify the object ec as a vbl by virtue of their NP side.

Further evidence for the operator status of *tout* (*beaucoup*, etc.) at S-structure and for the similarity with (Italian) CLLD cases is the fact that no clitic is possible in (36), just as it was impossible in (19b), repeated below:

(36) *Elle a tout_i voulu le_j lire e_j

(19b) *Tutto_i, non dovrà venderlo_j e_j (with *tutto* ≠ 'entire')

this being plausibly due to the principle barring vacuous quantification,

as suggested above.

In sum, the *L-tous* construction does appear to parallel the CLLD construction except for the additional construction specific restriction [34].

3. The evidence so far reviewed thus illustrates the existence of a particular asymmetry among quantificational expressions at S-structure. Bare quantifiers, but not quantified NPs, act as *inherent* operators, capable of binding an empty NP as a vbl when they are found in \bar{A} -position at S-structure [abstracting from wh-phrases, as noted]. This observation interestingly converges with some recent work by Carmen Dobrovie-Sorin and David Pesetsky on operator/vbl structures in LF. Their work also reveals the existence of asymmetries between bare quantifiers in situ on one side and quantified NPs in situ on the other.

One such contrast, pointed out in Dobrovie-Sorin (1984), involves clitic doubling of quantificational expressions in Roumanian. Whereas clitic doubling of a quantified NP in situ is possible, no clitic doubling is allowed of a bare quantifier in situ. See [37] a-b, among the contrasts discussed by C. Dobrovie-Sorin:

[37] a. Nu (I-)am vazut pe nici-un copil citind
'(I) not (him) have seen any child reading'

b. *Nu I-am vazut pe nimeni [cf. N-am vazut pe nimeni]
'(I) him have seen nobody'

In that article, she suggests that the difference could be related to the different quantificational properties of the two quantifier phrases: the latter being subject to QR at the S-level, in opposition to the former which only involves a quantification inside the NP.

In the context of the analysis sketched above, a simple account of the contrast between (37a-b) seems possible which incorporates Dobrovie-Sorin's suggestion, and generalizes it to the S-structure contrasts seen in sect. 2. Suppose that only bare quantifiers, not quantified NPs are inherent operators in LF, just as they are at S-structure (so the evidence in sect. 2 suggested). And suppose, further, that only inherent operators (in A-position, at S-structure) undergo movement in LF yielding a proper operator/vbl configuration.

This amounts to saying that only quantifier expressions which qualify as operators (either inherently - bare quantifiers - or by virtue of their occupying an operator position - wh- or negative phrases in COMP) will be able to bind a vbl. And when they do, they do it at every level (both S-structure and LF-structure).

Returning to (37), this means that only *pe nimeni*, a bare quantifier, hence an operator, not *pe nici-un copil*, a quantified NP, is moved by QR to S-initial position (an \bar{A} -position) in LF, as suggested by C. Dobrovie-Sorin herself. If so, (37b), though not (37a) will be ruled out by the principle barring vacuous quantification applying at LF-structure. For, after QR, the operator *pe nimeni* in \bar{A} -position will end up binding no vbl in (37b), its trace being locally bound by the 'doubled' clitic, not by an operator. In this light, the contrast in (37) is parallel to that found at S-structure, in CLLD in Italian, between (38a) and (38b)

[38] a. Molti, non ha voluto comprarli 'Many, he didn't want to buy them'

b. *Molto, non ha voluto comprarlo [cf. Molto non ha voluto comprare] 'Much he didn't want to buy it'

The illformedness of (37b) is in fact the exact LF analogue of the

S-structure violation found in (38b) above, and (10) and (11), repeated here:

(10) * $[\bar{S} \text{ Chi}_i [\text{S } \text{lo}_i \text{ inviterai } (\text{NP}_i)]]$? 'Who will you invite him?'

(11) * $[\bar{S} \text{ Qui}_i \text{ a-t-il}_i [\text{S } (\text{NP}_i) \text{ dit cela}]]$? 'Who has he said that?'

In all of these cases there is, at S-structure, an operator binding no vbl (the ec being locally bound by a clitic).

Above, it was noted that the asymmetry between bare quantifiers and quantified NPs is neutralized in the case of wh-phrases and certain negative phrases (cf. (23) and (24)). But that effect was attributed to the fact that such phrases acquire 'structural' operator status by virtue of being in COMP, an operator position. If that is correct, one is to expect the asymmetry to surface again whenever such phrases are found outside COMP. In A-position (i.e., 'in situ'), only bare wh-quantifiers, not wh-quantified NPs, should qualify as operators, hence be able to move in LF and enter an operator/vbl configuration at LF-structure.

Precisely this conclusion is argued for in detail in Pesetsky's study on wh-in-situ (1984). In that paper, he proposes to derive a number of well known asymmetries between bare wh-phrases and wh-quantified NPs, such as those in (39) and (40) below, from the fact that the former, though not the latter, are subject to movement in LF¹⁸:

(39) a. *I don't remember what_i [_S who read e_j]

b. ?I don't remember what_i [_S which people read e_j]

(40) a. *Who_i did you introduce who to e_j ?

b. Who_i did you introduce *which people* to e_i ?

More generally, the distribution of bare wh-in-situ quantifiers, but not of wh-in-situ quantified NPs, consistently shows the properties diagnostic of movement, among which sensitivity to ECP, to the Nested Dependency Condition, and to Subjacency¹⁹. I refer again to Pesetsky (1984) for more careful discussion of this and related questions.

Various aspects of this analysis remain to be investigated in more detail, and evaluated in their capacity to account for some (limited) parametric variation, as that found, apparently, between Roumanian and Spanish (cf. fn. 19). But some converging evidence exists, it seems, for recognizing a formal difference between bare quantifiers and quantified NPs, both at S-structure (sect. 2 above) and LF (cf. Dobrovie-Sorin's and Pesetsky's works). This, in turn, promises to lead us to a better understanding of the *linguistic* notion of operator and its relation to the standard logical notion. If anything, the evidence discussed here seems to support Hornstein's (1984a) conclusion that "in natural language semantically natural classes of expressions do *not* form syntactic natural classes" (p. 118).

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Footnotes

* I wish to thank the participants at the 1984 Tromsø workshop on Romance syntax, where a preliminary version of this paper was presented, and Richard Kayne for their helpful observations.

1. Cf. Chomsky (1975, 1977, Introduction and essays 1,3,4)

2. In fact, representations like (2) can be converted into representations like (3) quite straightforwardly. See Chomsky (1977, essay 3).

3. Cases like (4) contrast with those in (i):

- (i) a. *I invited everyone_i without knowing [NP_i]
 b. *Who_i? John may not like [NP_i], though.

(i)a-b are unacceptable because the empty NPs there, as opposed to the empty NP in (4), do not qualify as vbls at S-structure (as, in fact, no other type of empty category either). This is so because, at S-structure, the empty NP fails to be \bar{A} -bound by an operator (cf. fn. 10). That such a requirement has to be met at S-structure already is clearly shown by the illformedness of (i)a, whose LF-structure (ii)

- (ii) [_S Everyone_i [_S I invited [NP_i] without knowing [NP_i]]]

does contain a potential binder for the empty NP (the operator *everyone* found in \bar{A} -position at that level). Cf. Chomsky (1982).

(4), instead, as noted, is wellformed because its empty NP is

correctly \bar{A} -bound by an operator at S-structure.

4. Cf. Guéron (1981). They comprise certain negative phrases and so-phrases. For the logical properties of the class of negative quantifiers that undergo syntactic Move , see May (1982).
5. See, for discussion, Cinque (1984) and the references cited there. This section is in fact largely based on the central section of that work.
6. What we call Topicalization here (which is the syntactic analogue of English Topicalization) should perhaps in Italian be named, more accurately, 'Focus Movement', owing to the heavy stress and pragmatic contrast falling on the topicalized phrase. But we will adhere to the traditional terminology, for clarity's sake.
7. Cf. Cinque (1984) for a fuller discussion of this point. Kayne (1984, chapt. 10), from which (11) is drawn, with (roughly) the structure indicated, suggests essentially the same analysis for (11).
8. The fact that even non-NP resumptive clitics are excluded in wh-constructions

- (i) a. *Di cosa ne/hai parlato? 'About what did you talk about it?'
 b. *A casa ci sono stato! 'Home, there I went'

may either suggest that the notion of syntactic vbl should be extended to non-NP categories, or, more plausibly, that (9b), (10) and (11) violate two separate conditions, the one suggested in the text, which is restricted to NPs, and an independent one

which limits the occurrence of resumptive clitics to some specific constructions (not including Wh-questions and Topicalization).

9. Only examples with object NPs are discussed here. Subject NPs, due to the pro-drop nature of Italian, apparently do not lend themselves to a verification of the hypothesis. It can be shown, however, that the relevant distinction is between NPs and non-NPs rather than between object NPs and everything else. See Cinque (1984) for discussion of this point.
10. Cf. Chomsky (1981, 102; 1982, 35), Kayne (1984, 222) for considerations favoring (i) over (17):

(i) $vbl = \text{def } \{NP\}$ in A-position locally operator-bound

Here, we opt for (16) over (i), due to such cases as

(ii) Who_i did you say ($\bar{S} t_i'$) (t_i was sick)

where the $vbl\{t_i\}$ is locally A-bound (by t_i') and operator-bound (by who_i), but not locally operator-bound. t_i' must not (necessarily) count as an operator, or else t_i would be bound by two operators (who_i and t_i'), in violation of the Bijection Principle (See Koopman and Sportiche (1981), Chomsky (1982)).

11. Cf. Cinque (1984) for a discussion of some apparent exceptions to the incompatibility of an inherent operator with a clitic. They, in fact, turn out to provide further support for the incompatibility in question and the principle inducing it. Also, note that the obligatory vs. impossible presence of a resumptive clitic cannot be attributed simply to the referential vs. non-referential character (respectively) of the left dislocated phrase. *Troppi libri* ('too many books') in (i)b is just as non-referential as *troppo* ('too much') in (i)a:

- (i) a. Troppo_i, non deve aver[*lo_j] letto e_j, lui 'Too much he must not have read, he'
 b. Troppi libri_i, non deve aver*[li_j] letti e_j, lui 'Too many books he must not have read, he'

The difference, rather, seems to be 'syntactic', in the sense made clear in the text.

12. See Kayne [1977]. Possible evidence in favor of the structure (22a) for 'bare' quantifiers comes, as noted there, from the fact that 'bare' quantifiers are in general incompatible with specifiers and (non appositive) modifiers [V. **L'ultimo qualcosa* 'the last something'; **qualcosa interessante* (cf. *qualcosa di interessante*) ('something interesting')(the wellformedness of the latter in English might relate to the possibility in English, but not in unmarked Italian, of interpreting restrictively an appositive modifier. See the independent difference between *The man who you saw..* and **L'uomo il quale hai visto..* with an appositive structure interpreted restrictively (Cinque [1981/2]).

A further indication of the correctness of (22a) comes from the following fact in Italian. Such forms as *tutti, molti* ('all', 'many') can identify an ec as a vbl:

- (i) a. Tutti_i, non abbiamo visto e_j, ancora 'All, we haven't seen yet'

b. Molti_i, non vedrete e_j, lì 'Many, you will not see there'

but only if they are interpreted as animate. (i)a-b can thus mean 'all/many people' but not 'all/many books'. With a non animate interpretation a resumptive clitic is again required. Note that this would follow under the present analysis if *tutti, molti* with the special animate interpretation had the structure (22a). This is exactly what Belletti-Rizzi (1981, fn. 9) argue on independent

grounds.

13. Luigi Rizzi suggested to me that the operator status of bare quantifiers vs the non operator status of quantified NPs might be related to the independent distinction between the two in terms of the notions: non-restricted vs restricted quantification. This would be especially clear if restricted quantification, in natural language, required the structure $[_{NP}QP \bar{N}]$ with QP indicating the type of quantification and \bar{N} the restriction on the domain of quantification. For elaborations along these lines, see Allegranza (1983).

Note that, in this sense, *who* or *everyone* would semantically be (minimally) restricted quantifiers (For which/every x_i/x_j a person), and syntactically unrestricted quantifiers, if their structure is $[_{NP}who/everyone]$.

14. In this light, the ungrammaticality of (13a) and (20) suggests that the TOP position is not an operator position. Note that if bare quantifiers acting as operators in CLLD could be shown to actually be in COMP (in contrast to quantified NPs), then the notion of 'inherent' (or 'lexical') operator would seem to become unnecessary. Their operator status would simply derive from their (putative) ability to occupy COMP. And we would just have 'structural' operators at S-structure. However, apart from the asymmetries to be discussed in sect. 2.2 and 3, which clearly do not involve the COMP position, there is also evidence that the bare quantifiers of CLLD do not occupy COMP, but TOP. If so, the notion of 'inherent operator' appears to be needed, at least if we want to express the noted asymmetry between bare quantifiers and quantified NPs, which, structurally, occur in the same position: TOP.

The evidence is of the following kind. In subordinate clauses,

a left dislocated phrase can (marginally) be found at the left of the complementizer, as illustrated in (i)a-b (for the complementizer status of *di* in Italian infinitival clauses such as (i)b, cf. Kayne [1984, chapt. 5], Rizzi [1982, chapt. 3]):

- (i) a. ?Vorremmo, i soldi, che non li spendeste subito
 'We would like the money [pl.] that you did not spend them, immediately'
 b. ?Credo, i soldi, di averli già spesi tutti
 'I believe the money [pl.] to have spent them all already'

Now, given the filter against doubly filled COMPs in Italian, the (relative) wellformedness of such forms as (ii)

- (ii) ?Credo, qualcosa, di poter fare e; anch'io
 'I believe something to be able to do I too'

appears to be a positive indication that the bare quantifier binding the vbl occupies TOP, not COMP.

Richard Kayne suggested that the inability of *qualcosa* (and the other bare quantifiers) to function as a free relative pro-form [**Farò qualcosa farai tu* 'I will do something you will do' vs *Farò quanto farai tu* 'I will do what you will do'] may be taken as further indication that *qualcosa* (and, in general, bare quantifier operators) are not found in COMP.

15. The few discrepancies in membership can apparently be ascribed to independent factors. See, for some discussion, Cinque [1984, fn. 20].
16. Note that the class of 'bare quantifiers' (hence operators) is taken here to comprise *tout*, *rien*, *beaucoup*, etc. when they stand for a NP and do not imply a quantification over sets (exs. [25] above).

The same elements in their use as QP specifiers of \bar{N} as in *Elle a mangé tout le gâteau* 'She ate the whole cake', *Jean en_i a beaucoup_j lu e_j e_i* 'J of-them has many read' are not operators. We take *tous*, which quantifies over sets, not to be an operator either, but a QP specifier of \bar{N} , thus differing from Kayne (1984, 100), Haïk (1982). The non operator status of *tous* is indicated by the contrast between [28] and [29b], repeated here:

[28] Elle a voulu tout_j lire e_i

[29b] *Elle_i a voulu tous_j lire e_i [ok/ ...tous les_j lire e_i]

and the wellformedness of

(i) Ces garçons, O_i que mon ami a tous_j voulu revoir e_i...

'These boys, which my friend wanted to see all again...'

in which, if *tous* were to be an operator, the vbl would come to be simultaneously bound by two operators (*tous* and the null NP in COMP) in violation of the Bijection Principle. See also Cinque (1984, fn. 20).

Haïk (1982), Obenauer (1983a) suggest that *beaucoup*, *trop*, etc. are not operators, but they in fact consider, there, only their use as QP specifiers of \bar{N} , not their 'bare quantifier' use as found in [25] in the text.

17. See also (i), containing a bare quantifier in CLLD position, in French:

(i) Tout_j elle ne comprend pas e_i, mais...cela si

'All she does not understand, but that she does'

Cf. Cinque (1984, fn. 20) for discussion.

18. Contrasts such as [39] were originally noted by R. Kayne (cf. Chomsky 1980a). Various analyses have been put forth to account for the contrasts in [39] and [40]. For discussion, see Fiengo (1980), Kayne (1984), Pesetsky (1982, 1984) and references cited there.

19. Note that this analysis requires that bare quantifiers move at LF, but it is still compatible with the possibility that some external factor may exceptionally neutralize their operator status, thus allowing them not to move (cf. the marginal cases of discourse-linked bare *wh*-quantifiers discussed in Pesetsky 1984). With respect to quantified NP_S there is some evidence that not only are they not required to move, but that apparently they cannot move in LF (See Pesetsky 1984, fn. 25). However, see also the case of Spanish clitic doubled quantified NPs discussed in Dobrovie-Sorin (1984). The fact that they cannot be doubled by a clitic just as bare quantifiers, would seem to suggest that they are operators subject to QR in LF.

BIBLIOGRAPHY

Allegrezza V. (1983)

"La quantificazione ristretta", in *Rivista di grammatica generativa*, vol. 8.

Aoun Y. - N. Hornstein - D. Sportiche (1981)

"Some Aspects of Wide Scope Quantification", *Journal of Linguistic Research*, 1 (3), 69-95.

Belletti A. and L. Rizzi (1981)

"The Syntax of *ne*: Some Theoretical Implications", *The Linguistic Review*, 1, 117-154.

Benincà P. (1984)

"Ordini marcati delle parole" chapter of a forthcoming *Grammatica italiana di consultazione*, L. Renzi (ed.), Il Mulino, Bologna.

Chomsky N. (1975)

Reflections on Language, New York.

Chomsky N. (1977)

Essays on Form and Interpretation, New York.

Chomsky N. (1980a)

"On Binding", *Linguistic Inquiry*, 11, 1-46.

Chomsky N. (1980b)

Rules and Representations, Oxford.

Chomsky N. (1981)

Lectures on Government and Binding, Dordrecht, Foris.

Chomsky N. [1982]

Some Concepts and Consequences of the Theory of Government and Binding, Cambridge, Mass.

Cinque G. [1981/2]

"On the Theory of Relative Clauses and Markedness", *The Linguistic Review*, 1, 247-294.

Cinque G. [1984]

"Clitic Left Dislocation in Italian and the Move Parameter", Università di Venezia.

Dobrovie-Sorin C. [1984]

"Le Redoublement clitique et les relatives en Roumain et Espagnol", CNRS, Paris.

Fiengo R. [1980]

Surface Structure, Cambridge, Mass.

Guéron J. [1979]

"Relation de coréférence dans la phrase et dans le discours", *Langue française*, 44, 42-79.

Guéron J. [1981]

"Logical Operators, Complete Constituents, and Extraction Transformations", in R. May and J. Koster (eds.) *Levels of Syntactic Representation*, Dordrecht.

Haïk I. [1982]

"On Clitic *en* in French", *Journal of Linguistic Research*, 2, 63-87.

Higginbotham J. [1980]

"Pronouns and Bound Variables" *Linguistic Inquiry*, 11, 679-708.

- Higginbotham J. and R. May (1981)
 "Questions, Quantifiers and Crossing". *The Linguistic Review*, 1, 4-80.
- Hornstein N. (1984a)
 "Interpreting Quantification in Natural Language". *Synthese*, 59 (2), 117-150.
- Hornstein N. (1984b)
Logic as Grammar. Cambridge, Mass.
- Kayne R.S. (1977)
Syntaxe du français. Paris.
- Kayne R.S. (1978)
 "Le condizioni sul legamento, il Collocamento dei clitici e lo Spostamento a sinistra dei quantificatori". *Rivista di grammatica generativa* 3, 147-171.
- Kayne R.S. (1984)
Connectedness and Binary Branching. Dordrecht, Foris.
- Koopman H. and D. Sportiche (1982)
 "Variables and the Bijection Principle" *The Linguistic Review*, 2, 139-160.
- May R. (1977)
The Grammar of Quantification. Unpublished doctoral dissertation, M.I.T..
- May R. (1982)
 "Logical Form as a Level of Linguistic Representation". IULC, Bloomington.

Obenauer H. (1983a)

"Une quantification non canonique: la "quantification à distance"",
Langue française, 58, 66-88.

Obenauer H. (1983b)

"On the Identification of Empty Categories" CNRS, Paris.

Pesetsky D. (1982)

Paths and Categories, unpublished Ph. D. Dissertation, M.I.T..

Pesetsky D. (1984)

"Wh-in-situ: Movement and Unselective Binding", unpublished paper,
University of Massachusetts, Amherst.

Rizzi L. (1982)

Issues in Italian Syntax, Dordrecht, Foris.

Thiersch C. (1981)

"Aux-Inversion and the Scope of Negation", in M. Kohrt and J. Lenerz
(eds.) *Sprache : Formen und Strukturen*. Tübingen, pp. 213-222.