

An argument in favour of a *v*P phase boundary in raising, passive, and unaccusative verbs*

Naiara Centeno
UI Urbana-Champaign
centeno@uiuc.edu

Luis Vicente
UC Santa Cruz
koldito@gmail.com

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One of the questions raised by the introduction of phase theory (Chomsky 2000, 2001, *et seq.*) is which categories create phase boundaries. While it is quite uncontroversial that CP does define such a boundary, the status of *v*P has been subject to some debate. Chomsky's original suggestion was that phase boundaries at the *v*P level arise only with transitive verbs, and not with passive, unaccusative, or raising verbs. However, Legate (2003) and Sauerland (2003) have amassed an interesting array of reconstruction data that suggest that the latter group of verbs project an intermediate landing site for movement at the *v*P level. Assuming a correlation between intermediate landing sites and phase boundaries, Legate's and Sauerland's data suggest that, contrary to Chomsky's proposal, passive, unaccusative, and raising predicates project a *v*P phase in the same way as transitive verbs.

This paper provides a new argument in favour of Legate's and Sauerland's conclusion. The argument is based on the interaction in Spanish of raising, passive, and unaccusative verbs with the determiner sharing construction. Determiner sharing, first discussed in McCawley (1993), is a construction in which a single quantifier is interpreted as taking two separate NP restrictors, each restrictor inside a different conjunct of the same coordinate structure. One of McCawley's original examples is given in (1), where [] indicates the position of the "missing" quantifier. This example also illustrates the other defining property of determiner sharing, namely, the absence of a verb in the second conjunct. Originally, McCawley took this as an indication that determiner sharing is dependent on gapping. Lin (2002) refined this generalization by pointing to the acceptability of examples like (2), which show that what must be gapped is not the verb itself, but rather the tense-bearing element.

- (1) Too many Irish setters are named Kelly and [] huskies Fritz.
[=*too many* Irish setters are named Kelly and *too many* huskies are named Fritz]

*The authors' names appear in alphabetical order. Usual acknowledgements and disclaimers apply.

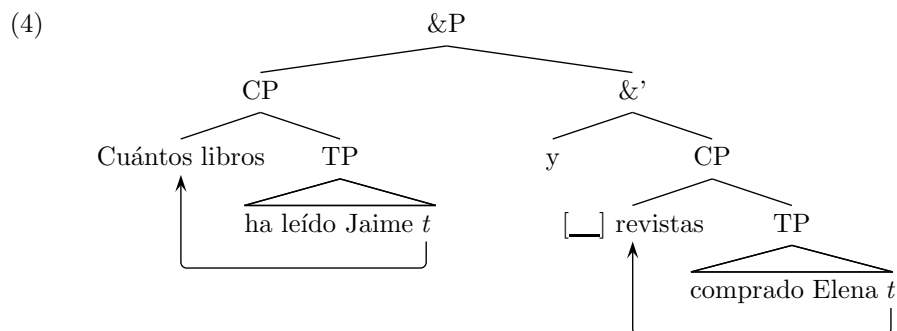
- (2) Too many boys have drunk whisky and [] girls eaten porkchops.
 [=too many boys have drunk whisky and too many girls have eaten porkchops]

Let us turn now to determiner sharing in Spanish, and in particular to Arregi and Centeno's (2005) and Centeno's (in prep.) work. One of the subtypes of determiner sharing that Arregi and Centeno tackle is illustrated by sentences like (3a), where the shared quantifier is the *wh*- word *cuántos* 'how many'. Following their terminology, we will refer to this construction as *wh*- sharing. Note that tense (in the form of the perfective auxiliary *ha*) has also been gapped in the second conjunct, in the same way as in (2). Here we abstract away from the derivation of the *wh*- sharing effect,¹ and focus instead on one important restriction noted by Arregi and Centeno –namely, that *wh*- sharing is grammatical only if the *wh*-less NP is moved to the left edge of its conjunct: leaving it in situ leads to ungrammaticality (3b). They interpret this restriction as an indication that *wh*- sharing forces the creation of an A-bar chain in the second conjunct, even in the absence of a visible *wh*- word (4).² This is quite a plausible analysis, given that this particular word order is dependent on there being *wh*-movement.

- (3) a. ¿Cuántos libros ha leído Jaime y [] revistas
 how many books has read Jaime and magazines
 comprado Elena?
 bought Elena
 “*How many* books has Jaime read, and *how many* magazines has Elena bought?”
- b. * ¿Cuántos libros ha leído Jaime y Elena comprado []
 how many books has read Jaime and Elena bought
 revistas?
 magazines?
 “*How many* books has Jaime read, and *how many* magazines has Elena bought?”

¹The reader interested in the fine details of the technical analysis is referred to Lin (2002), Arregi and Centeno (2005) and Centeno (in prep.).

²Note that here we are ignoring the landing site at the *vP* level only to avoid cluttering the representation.

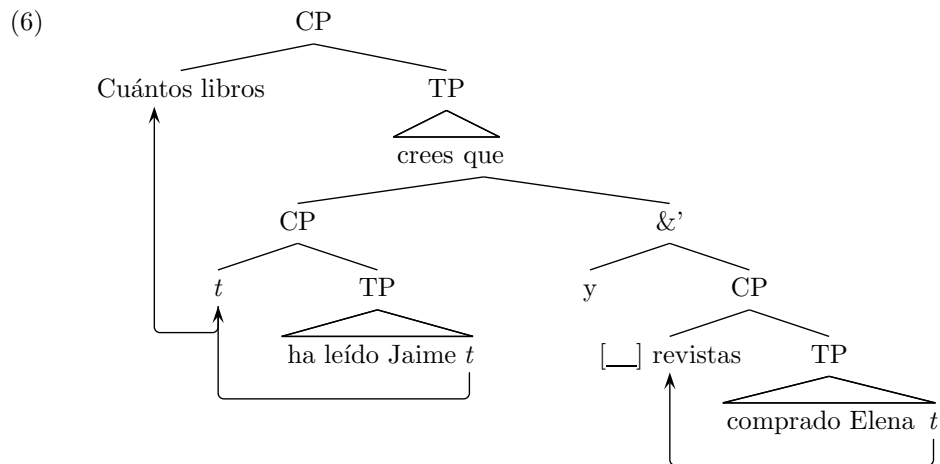


Furthermore, coordination need not happen at the topmost level: given a multiclausal structure, it is possible to coordinate the embedded clauses to the exclusion of the matrix clause, as in (5a). Arregi and Centeno point out that such examples are subject to the same restriction as (3) above: the *wh*-less NP must move to the left edge of its conjunct.

- (5) a. ¿Cuántos libros crees que ha leído Jaime y [] revistas comprado Elena?
 how many books think.2SG that has read Jaime and magazines bought Elena
 “*How many* books do you think that Jaime has read, and *how many* magazines do you think that Elena has bought?”
- b. * ¿Cuántos libros crees que ha leído Jaime y Elena comprado [] revistas?
 how many books think.2SG that has read Jaime and Elena bought magazines
 “*How many* books do you think that Jaime has read, and *how many* magazines do you think that Elena has bought?”

Arregi and Centeno explain the ungrammaticality of (5b) in the same way as that of (3b): *wh*-sharing requires the creation of an A-bar chain in the second conjunct, and this requirement is what forces the *wh*-less NP to undergo movement in the absence of a visible *wh*-head. Importantly, note that the second conjunct here consists of only the embedded clause –hence, the surface position of the *wh*-less NP must be the SpecCP slot of the embedded clause.³

³We are aware that this structure involves an apparent violation of the Coordinate Structure Constraint. Nonetheless, the analyses in Lin (2002), Arregi and Centeno (2005), and Centeno (in prep.), on which this squib is based, all assume that the CSC can be circumvented under certain conditions, giving rise to gapping in general and to determiner sharing in particular. Thus, to the extent that those analyses are correct, the type of extraction represented here should be unproblematic for our purposes.



The intermediate SpecCP is not the only position in which the wh-less NP can appear. As shown in (7), it can also surface to the immediate left of the matrix past participle. Arregi and Centeno argue that this position is the edge of the matrix *vP* phase, which offers a landing site for successive cyclic wh- movement. Thus, the derivation for (7) would be analogous to the one offered in (6) for (5a), with the only difference that the wh-less NP would undergo one extra step of movement to the edge of the matrix *vP*.

- (7) ¿Cuántos libros has [v_P dicho que ha comprado Jaime] y
 how many books have.2SG said that has bought Jaime and
 [v_P [] revistas escuchado que ha vendido Elena]?
 magazines heard that has sold Elena
- “How many books have you said that Jaime has bought, and how many magazines have you heard that Elena has sold?”

As in the previous cases, fronting of the wh-less NP is obligatory: it is not possible to leave it in situ (8a) or move it only to the intermediate SpecCP position (8b), even though that we have already seen that this is an available position for wh-less NPs in wh- sharing constructions (5a).

- (8) a. * ¿Cuántos libros has [v_P dicho que ha comprado Jaime]
 how many books have.2SG said that has bought Jaime
 y [v_P escuchado que Elena ha vendido [] revistas]?
 and heard that Elena has sold magazines
- “How many books have you said that Jaime has bought, and how many magazines have you heard that Elena has sold?”

- b. * ¿Cuántos libros has [_{*vP*} dicho que ha comprado Jaime]
 how many books have.2SG said that has bought Jaime
 y [_{*vP*} escuchado que [] revistas ha vendido Elena]?
 and heard that magazines has sold Elena
 “*How many* books have you said that Jaime has bought, and *how many* magazines have you heard that Elena has sold?”

Let us assume, therefore, that Arregi and Centeno (2005) and Centeno (in prep.) are correct in claiming that the position of the *wh*-less NP in *wh*-sharing structures marks an intermediate landing site and, by extension, a phase boundary (see these works for more detailed argumentation). If so, then one can use the *wh*-sharing construction to determine whether raising, passive, and unaccusative predicates contain a *vP* phase. The prediction is that, if such a phase boundary exists, it will be possible to place a *wh*-less NP in a *vP* specifier position. Starting with raising predicates, example (9) below agrees with this prediction. Note that, in order to avoid the infelicity of repeating the same raising verb in both conjuncts, we have used both *parecer* ‘seem’ and *resultar* ‘turn out’ (cf. Torrego 1996 for the raising status of the latter). In order to maintain the parallelism with the previous examples, we also provide the ungrammatical variants (10a) and (10b), in which the *wh*-less NP has failed to move to the left edge of its conjunct.

- (9) En el mundo laboral, ¿cuántas ventajas han [_{*vP*} resultado
 in the workplace how many advantages have turned out
 tener siempre los hombres] y [_{*vP*} [] desventajas parecido sufrir
 have always the men and disadvantages seemed suffer
 las mujeres]?
 the women
 “In the workplace, *how many* advantages have men always turned out to have, and *how many* disadvantages have women seemed to suffer from?”
- (10) a. * En el mundo laboral, ¿cuántas ventajas han
 in the workplace how many advantages have
 [_{*vP*} resultado tener siempre los hombres] y [_{*vP*} parecido
 turned out have always the men and seemed
 sufrir las mujeres [] desventajas]?
 suffer the women disadvantages
 “In the workplace, *how many* advantages have men always turned out to have, and *how many* disadvantages have women seemed to suffer from?”

- b. * En el mundo laboral, ¿cuántas ventajas han
 in the workplace how many advantages have
 [_{*vP*} resultado tener siempre los hombres] y [_{*vP*} parecido
 turned out have always the men and seemed
 [] desventajas sufrir las mujeres]?
 disadvantages suffer the women
 “In the workplace, *how many* advantages have men always turned
 out to have, and *how many* disadvantages have women seemed to
 suffer from?”

The grammaticality of (9), by analogy with (7), suggests that raising predicates project a *vP*-level phase boundary that successive cyclic movement must pass through. Note, though, that this example (as well as all the preceding ones) are compatible with an alternative analysis in which the *wh*-less NP simply moves to the left edge of the second conjunct, irrespective of whether the latter qualifies as a phase boundary or not. The crucial example that can distinguish these two options is one in which the conjoined categories are the TP complements to a raising predicate. A phase-based analysis like Arregi and Centeno (2005) will predict *wh*-sharing to be impossible in this environment, given the assumption that TPs are not phases. On the other hand, if *wh*-less NPs are simply required to move to the left edge of their conjunct whatever its phasal status, *wh*-sharing will be predicted to be possible in this environment. The relevant example needs to be constructed carefully, though. For instance, the deviance of (11) below appears to suggest that it is the former analysis that is correct. However, note that, on the assumption that Spanish infinitives raise to T (cf. Grohmann and Etxepare 2003), the second conjunct has not undergone tense gapping. If determiner sharing is dependent on tense gapping (cf. Lin 2002), then this could also be the source of ungrammaticality.

- (11) ?? En el mundo laboral, ¿cuántas ventajas han resultado
 in the workplace how many advantages have turned out
 [_{TP} tener siempre los hombres] y [_{TP} [] desventajas sufrir
 have always the men and disadvantages suffer
 las mujeres]?
 the women
 “In the workplace, *how many* advantages have men always turned out
 to have, and *how many* disadvantages have women seemed to suffer
 from?”

In order to control for this factor, we have included the TP adverb *siempre* ‘always’ in (12). The inclusion of this adverb ensures that, even though the verb is missing, the second conjunct is a full TP –as opposed to just the *vP* of the embedded transitive predicate, which would project its own phase boundary. The fact that this example is also deviant suggests that TP, not being a phase boundary, does not offer an intermediate landing site.

- (12) ?? En el mundo laboral, ¿cuántas ventajas han resultado
 in the workplace how many advantages have turned out
 [_{TP} tener a menudo los hombres] y [_{TP} [] desventajas
 have often the men and disadvantages
 siempre las mujeres]?
 always the women
 “In the workplace, *how many* advantages have men often seemed to
 have, and *how many* disadvantages have women always seemed to
 have?”

The same reasoning can be extended to passive and unaccusative predicates, as shown in (13) and (14) below: the fact that in all cases the *wh*-less NP must appear at the left edge of the conjunct suggests that these types of verbs also project a *vP* level boundary, contrary to Chomsky’s original hypothesis.

- (13) a. ¿Cuántos libros fueron [_{vP} vendidos] y [_{vP} [] revistas
 how many books were sold and magazines
 robadas]?
 stolen
 “*How many* books were sold, and *how many* magazines were
 stolen?”
- b. * ¿Cuántos libros fueron [_{vP} vendidos] y [_{vP} robadas []
 how many books were sold and stolen
 revistas]?
 magazines
 “*How many* books were sold, and *how many* magazines were
 stolen?”
- (14) a. ¿Cuántos hombres han [_{vP} entrado en el bar] y
 how many men have walked in the bar and
 [_{vP} [] mujeres salido de él]?
 women walked.out of it
 “*How many* men have walked into the bar, and *how many* women
 have walked out of it?”
- b. * ¿Cuántos hombres han [_{vP} entrado en el bar] y
 how many men have walked in the bar and
 [_{vP} salido [] mujeres de él]?
 walked.out women of it
 “*How many* men have walked into the bar, and *how many* women
 have walked out of it?”

As in the case of raising verbs, the argument must be completed by showing that *wh*-less NPs cannot appear at the edge of a non-phasal category. In this case, we focus on VP, assuming that the past participle undergoes (across-the-board) movement out of VP (cf. Zagana 2001). If SpecVP were a possible

landing site for successive cyclic movement, then the following examples ought to be grammatical in the indicated reading. The fact that are not suggests that, while *v*P is a phase in passive and unaccusative predicates, VP is not.

- (15) a. * ¿Cuántos libros fueron [_{VP} vendidos] y [_{VP} [] revistas]?
 how many books were sold and magazines
 “*How many* books were sold and *how many* magazines were sold?”
- b. * ¿Cuántos hombres han [_{VP} entrado en el bar] y
 how many men have walked in the bar and
 [_{VP} [] mujeres]?
 women
 “*How many* men have walked into the bar, and *how many* women
 have walked into the bar?”

If the reasoning developed here is correct, we are led to agree with Legate (2003) and Sauerland (2003) that raising, passive, and unaccusative predicates project a phase boundary at the *v*P level, in the same way as regular transitive verbs. Moreover, this conclusion also supports the view that successive cyclic movement stops only at designated points of the structure (namely, *v*P and CP, see Chomsky 2000, 2001; Abels 2003), rather than at every single XP along the movement path (Takahashi 1994; Boeckx 2007).

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