Adjunct Stranding, Late Merger, and the Timing of Syntactic Operations

Erik Zyman — University of California, Santa Cruz — ezyman@ucsc.edu

Introduction. Since Lebeaux (1991), there has been great interest in the hypothesis that syntactic structures are not built in a completely cyclic, bottom-up fashion, but rather, some elements—in particular, adjuncts—can be merged *late*, or countercyclically. Here, I argue that previously unnoticed facts about *adjunct stranding* in English show that adjuncts not only can but *must* be merged late—shedding new light on the relative timing of adjunction, movement, and phasal spellout.

Background: adjunct stranding. Certain adverbs, including *exactly* and *precisely*, can be associated with an interrogative *wh*-phrase. When so associated, an adverb of this type can either move with the *wh*-phrase to [Spec,CP] ((1a)) or be stranded by it ((1b)) (Urban 1999, a.o.).

(1) a. Who exactly did they blame? ∼ b. Who did they blame exactly?

I analyze both (1a) and (1b) as involving adjunction of *exactly* to *who*, forming the following structure: $\boxed{[_{\text{DP[WH]}}\ [_{\text{DP[WH]}}\ \textit{who}]\ [_{\text{AdvP}}\ \textit{exactly}]]}$. *Wh*-movement can affect either the larger DP formed by adjunction ((1a)) or the lower segment alone ((1b)); in the latter case, the adverb is stranded.

The puzzle. The natural assumption about the position of *exactly* in (1b) is that it has been stranded in the base (θ-) position of the direct object. It turns out, though, that WH-associated *exactly*-type adverbs apparently cannot be stranded in θ-positions. Consider the following paradigm:

(2) a. Muriel put WHAT exactly on the table with great care?!
b. Who put what exactly on the table with great care?
c. *What did Muriel put exactly on the table with great care?
d. What did Muriel put on the table with great care exactly?

The echo question (2a) and the multiple question (2b) show that a WH-*exactly* constituent can be base-generated in a θ-position. When this happens, though, the *wh*-associate cannot be moved, stranding *exactly* in situ ((2c)). (*Exactly* can be stranded at or near the right edge ((2d), (1b)); I show that in these cases it occupies a position in the C-layer high enough to survive *v*P-fronting and sluicing.) The question, then, is: Why is WH-adjoined *exactly* unstrandable in θ-positions?

Analysis. I propose that WH-adjoined *exactly* is unstrandable in θ-positions because syntactic derivations obey the generalization in (3), **Obligatory Late Merger of Adjuncts** (**OLMA**):

(3) For H a phase head and XP its associated spellout domain (= complement), adjunction within the HP phase occurs immediately before spellout of XP.

That is, the system prioritizes satisfying requirements imposed by features (selectional and EPP), and only when this is finished in a particular phase does it add "inessential" elements (adjuncts).

Consider the consequences of OLMA in (4), a stage in the derivation of the sentences in (2a-c):

(4) $[_{v\text{P}}$ Muriel put-*v* $[_{\text{VP}}$ what put on the table]]

Case 1: *What* does not move. Adjunction takes place within the *v*P phase: *exactly* is adjoined to *what*, and *with great care* to *v*P. By OLMA, immediately after adjunction, the complement of the phase head *v* (= VP, which contains *what exactly*) is spelled out. Thus, when a *wh*-phrase does not move, it can host an adjunct in its base position. This explains the well-formedness of (2a-b).

Case 2: *What* does move. In (4), we cannot adjoin *exactly* to *what* and then move *what* to [Spec,*v*P], because adjunction is followed immediately by spellout. But we also cannot first move

what to [Spec,*v*P] and then adjoin *exactly* to its lower copy—assuming, plausibly, that adjunction must target highest copies. So when a *wh* does move, its lowest copy cannot host an adjunct ((2c)).

Predictions. Under OLMA, it should be possible to move a *wh*-phrase to the phase edge; adjoin *exactly* to it; and, in the next phase, move the host again, stranding *exactly*. That is, *exactly* should be strandable at phase edges. This is true for CP, as *exactly* can be stranded in [Spec,CP]:

(5) a. What do you believe **exactly** (that) everyone said (that) she devoured?
b. What do you believe (that) everyone said **exactly** (that) she devoured?

It is also true for the clause-internal phase, whose edge can host *exactly* in informal registers:

(6) a. [I]What did they **exactly** do at the bar? [[I] = informal]
b. [I]What did he exactly mean by this? [from the Internet; many examples are attested]

Informal clause-medial stranded *exactly* precedes passive and progressive *be*, supporting Harwood's (2015) view that, when present, these auxiliaries are part of the clause-internal phase:

(7) a. *What had she been **exactly** sent?
b. *What had she been **exactly** sending?
c. *What had she been being **exactly** sent?
d. [I]What had she **exactly** been sent?
e. [I]What had she **exactly** been sending?
f. [I]What had she **exactly** been being sent?

Relative clauses. The analysis also predicts that relative clauses (RCs) adjoined to *wh*-phrases should have the same distribution as WH-adjoined *exactly* ((2)). This prediction is borne out:

(8) a. Muriel put WHAT that was slimy on the table with great care?!
b. Who put what that was slimy on the table with great care?
c. ?*What did Muriel put · that was slimy · on the table with great care?

Under OLMA, a WH-adjoined RC should be strandable in [Spec,CP]. The result ((9b)), though not perfect, is much better than sentences that try to strand RCs in non-phase-edge positions ((9c)):

(9) a. What that's really valuable did Mary say that Bill should keep locked up?
b. ?What did Mary say · that's REALLY VALUABLE · that Bill should keep locked up?
c. *What did Mary say that · that's REALLY VALUABLE · Bill should keep locked up?

Finally, stranding a WH-adjoined RC at the left edge of the clause-internal phase (in Harwood's sense) should be more acceptable than stranding it in a non-phase-edge position. This is correct:

(10) a. ?What had already · that was REALLY DIRTY · been washed for two hours by then?
b. *What had already been · that was REALLY DIRTY · washed for two hours by then?

Conclusion. An adjunct to an interrogative *wh*-phrase can be stranded by the movement of its host, unless it was adjoined to the host in the latter's base position. This seemingly odd generalization follows if adjunction within a phase HP occurs *immediately* before the spellout of H's complement. Adjunct stranding, then, furthers our understanding of the timing of adjunction and other operations, with implications for our understanding of the nature of adjunction structures.

References. Harwood, W. 2015. "Being progressive is just a phase: celebrating the uniqueness of progressive aspect under a phase-based analysis." *NLLT* 33: 523-73. Lebeaux, D. 1991. "Relative Clauses, Licensing, and the Nature of the Derivation." *Syntax and Semantics* 25: 209-29. Urban, E. 1999. "*Exactly* stranding." M.A. thesis, University of California, Santa Cruz.