

# Quotation as a Challenge for Feature-Driven Phases: An Argument for Zwart’s Merge\*

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## Abstract

The present paper discusses the problem of deriving quotational expressions (QEs) – a relatively unexplored field in the generative tradition – in the context of phase theory (PT). QEs are taken to be built within Narrow Syntax. While this fact is empirically well-motivated, it turns out to be conceptually problematic for cyclic derivations driven by feature makeup. Empirical data show that QEs represent a unique mixture of conflicting properties. On the one hand, they must be interpretable as both atomic and not. This extends to two readings of the embedding of enquotation, which are argued to follow from recursive and purely iterative, non-recursive interpretation. On the other hand, having no limits in length and scope, QEs are more challenging for PT than other non-compositional chunks. I argue that these effects unearth an important conceptual contrast. While they pose certain problems for the Minimalist approach, they naturally follow from the account of Narrow Syntax proposed by Jan-Wouter Zwart. In this regard the gap in applicability of each account to the discussed phenomenon sheds new light on the role of features in PT.

## 1 Introduction

There is no exaggeration in saying that quotation has become a textbook example of a source of counterexamples to supposedly well-described effects. The list contains, a.o., compositionality (Ginzburg & Cooper 2014; Maier 2017; Pagin & Westerstahl 2010; Potts 2007; Werning 2005), inversion (Suñer 2000, Bruening 2016), parentheticals (De Vries 2008, Kluck & Vries 2015), complementation (i Planas 2014), binding (Schlenker 1999, 2015, Maier 2007, Sharvit 2008, 2011), or quotational heads and the scope of projection (Ackema & Neeleman 2004, Pafel 2011, De Vries 2012). All of these, however, tacitly assume that quotational expressions (QEs) are somehow generated in Narrow Syntax, mostly as derivable phrases, less often as atoms. Raising the question of how precisely can QEs be generated, I show that this assumption is far from innocent.

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There are two key aims of this paper. First, it is to argue that QEs, a relatively unexplored area in the syntactic literature, poses serious problems for phase theory (PT). Second, it is to show that the effects that are problematic for mainstream PT naturally follow from the approach proposed by Jan-Wouter Zwart, developed first in Zwart (2003, 2004a,b). The underlying idea of the account derives from the concept of Merge proposed by Chomsky (1995) in the early Minimalism era:

**Definition 1 (Early Minimalism Merge)**

*K, the output of Merge, is a set  $\{\alpha, \{\alpha, \beta\}\}$ ,  $\alpha$  the label of  $\{\alpha, \beta\}$ ,  $\alpha$  and  $\beta$  syntactic objects.*

Since, by Kuratowski (1921),  $\{\{\alpha\}, \{\alpha, \beta\}\} = \langle \alpha, \beta \rangle$ , Zwart takes up the idea pursuing the concept of Merge functioning as an operation providing asymmetry. In this regard, he does not follow the account of Merge yielding an unordered set  $\{\alpha, \beta\}$ . Instead, he lets Merge be a splitting operation that provides an asymmetric relation between a numeration  $N$  and its item  $\alpha$  (cf. Zwart 2009, 2011a, 2015; Trotzke & Zwart 2014):

**Definition 2 (Split Merge)**

*For a finite numeration  $N = \{\alpha, \beta, \dots\}$ ,  $Merge : N \rightarrow \langle \alpha, N - \{\alpha\} \rangle$ .*

The account outlined above has a number of core architectural consequences. Split Merge entails, a.o., an alternative counterpart of phases called *layers*. The crucial difference lies in the fact that layers follow neither from rigid phase heads (PH<sup>0</sup>s), nor an architecture of features, but from a purely configurational, set-theoretic criterion.

These conceptual differences allow to sketch the crucial problem of this paper. A cyclic derivation of the internal structure of QEs faces difficulties that have not been scrutinized in the generative tradition. On the one hand, the non-compositional semantics, islandhood and different status of morphosyntactic relations suggest that they should be treated as atoms. On the other hand, data coming, a.o., from ellipsis show that they must be derived as standard expressions. A closer analysis supports treating the material flanked by quotes as non-atomic yet corresponding to a single phase complement, without previous cycles defined on it. These effects naturally follow from Zwart’s framework. Still, a more detailed technical discussion shows that deriving such a quotational phase is highly problematic for a feature-driven PT.

Apart from this, a more far-reaching contribution of this paper follows from comparing the two accounts. The fact that they are not equally applicable to the problem at hand suggests some technical points that are claimed to be important for a general theory of cyclic derivations.

These observations motivate the organization of the paper. In section 2 I present some conflicting properties of QEs forcing syntax to treat them as both atomic and not. This suggests that QEs correspond to phases. Next, in section 3, suggestions following from empirical data are framed within provisional conceptual remarks. In section 4 I show that these challenging effects follow from the machinery proposed by Zwart. Finally, in section 5 I show that what is naturally derived by Zwart’s system becomes a serious problem for theories based on feature-driven phases. Section 6 summarizes the results and suggests new prospects for future discussion on PT.

## 2 A (Non-)atomic syntax of quotation: some challenging data

As overviewed in Saka (2013) or Maier (2014b, 2017), at least since the twenties investigations on foundations of quotation have been dominated by philosophical, logic, or semantic literature, syntax remaining silent. In this section I present data showing conflicting syntactic properties of QEs. On the one hand, QEs show an atomic behaviour, mainly in terms of compositionality

and islandhood (subsection 2.1). On the other hand, there is a plenty of so far disregarded data (subsections 2.2-2.5) showing a many-sided complexity of QEs. The section provides empirical material which will turn out to be important from the point of view of PT.

## 2.1 *The atomic character of quotational expressions*

To begin with, let us have a look at (1) below, exemplifying two non-equivalent sentences:

- (1) a. She said ‘Dogs and cats are nice’.  
 b. She said ‘Cats and dogs are nice’.

The reason why (1a)-(1b) are not co-extensional is intuitively clear: two QEs having different<sup>1</sup> SM (sensory-motor) representations are not equivalent. To secure a coherent semantics meeting this requirement, Maier (2014a) proposes the following general denotation for mixed quotation:

- (2)  $\llbracket \ulcorner \sigma \urcorner \rrbracket =$  the  $x$  that the speaker  $S$  expressed with her use of the phonological string  $\ulcorner \sigma \urcorner$

I assume that the account holds, perhaps with some augmentations,<sup>2</sup> for pure quotation. If this approach is on the right track, it follows from the right hand side of (2) that the quoting inside  $\ulcorner \sigma \urcorner$  of the QE  $\ulcorner \sigma \urcorner$  must be interpreted at the conceptual-intentional interface (C-I) as a single constant.<sup>3</sup> In this regard, Maier’s account is very convenient. First, though intuitively semantics of QEs involves dealing with SM-forms, putting phonological strings into formal semantic terms could give rise to type-theoretic complications. In Maier’s account  $\ulcorner \sigma \urcorner$  is a constant. In this regard the account avoids the issue of phonological atomicity affecting the C-I interpretation. This is also plausible if Kremers (2015) is right in suggesting that the problem of phonological atomicity is more relevant for the SM-mapping than either Narrow Syntax or C-I as such.

Still, there is more than one way in which the constant  $\ulcorner \sigma \urcorner$  may appear at C-I. Apart from the trivial scenario according to which it is generated as an atom, QEs could be derived cyclically, phase-by-phase, so that  $\ulcorner \sigma \urcorner$  would become a single phase complement. The latter, however, involves serious complications. As is known, enquotation yields well-formed phrases from any material, regardless of length, syntactic complexity, and the degree of deviancy:

- (3) a. Bush said that Americans ‘misunderestimate Europeans’.  
 b. John said ‘Alfred see a he’.

Leaving aside the exact feature makeup of syntactic objects (SOs) forming QEs, it seems natural to assume the existence of an SO Q c-commanding the quoting inside (see also De Vries 2006). If this is true, however, then a potential problem arises. Until the merger of Q, neither Narrow Syntax nor C-I has a signal allowing them to neglect various deviances. In this regard, QEs are more demanding from *that*-clauses, whose special behaviour can be accounted for as following from the  $[_{CP} C^0 TP]$  configuration identifying TP as a single phase complement (cf. Larson 2011; Sheehan & Hinzen 2011, Arsenijević & Hinzen 2012 or Hinzen et al. 2014).

<sup>1</sup>I leave aside the problem of non-literal quotation, such as quoting written signs by means of oral speech. As discussed by Bennett (1988), the problem is not trivial, but it does not relate to mechanisms generating QEs.

<sup>2</sup>It is worth pointing out that Maier (2014a) himself takes his results to support the view that mixed quotation is, to much extent, reducible to pure quotation. This, of course, is not straightforward. Mixed quotation does not override the syntactic category of the quoting inside, contrary to pure quotation which yields nominals, as in (3b). Rather, it affects some core mechanisms, such as Agree and compositionality, but leaves the quoting inside transparent for the rest of the phrase, as in (3a). In this regard it can be said to be both used and mentioned. In section 3 I outline a unified approach to the two modes of quotation.

<sup>3</sup>That is, within this account it is subsequent parts of the QE, not the quoting inside and the exponent of quotation, that fail to compose in the Fregean way. I assume this to be true, despite an interesting problem arising for composing quotes with what they flank, known as *Reach puzzle* (cf. Reach 1938, Geach 1980, Read 1997, Mendelsohn 2005, Gaskin & Hill 2013, Wiślicki 2014)

Quite apart from the above effects, QEs are atomic in yet another sense. Standardly, they block *wh*-extraction, at least in pure quotation:

- (4) \*Which book did Alfred say ‘I should study ~~which book~~’?

I take the grammaticality of the properties of QEs underlying this effect as well as its universal character – both questioned by Schlenker (2015) – to be an up-to-now unsolved problem. Still, as pointed out by Boeckx (2012a,b), the only way mainstream Minimalism can approach this phenomenon is either via lexical atomicity or phases. That is, if QEs are neither generated as atoms nor are they trapped in a phase complement, their islandhood remains unexplained.

So, the first conclusion is this. The character of a QE ‘ $\sigma$ ’ can be accounted for if its quoting inside  $\ulcorner \sigma \urcorner$  is generated as an atomic SO interpreted as a single constant. However, if  $\ulcorner \sigma \urcorner$  is to be derived by a system meeting the Minimalist standards, the derivation is expected to yield the following results. (i) syntactic structures allow to predict the non-compositional effects observed for QEs in (1) and (3); otherwise C-I receives no instructions to yield semantically desired formulas. (ii) the design of the syntax-semantics mapping allows an ill-formed quoting inside as in (3b) to survive even after crossing standard points of Spell Out; otherwise the derivation might crash before reaching the proper stage. (iii) PT provides a way for identifying QEs as phases; otherwise the system might have problems in accounting for islands as exemplified in (4).

## 2.2 Recursive character of enquotation

Discussing some paradoxes arising from composing quotational and non-quotational expressions, Boolos (1995) points out an ambiguity which is interesting from the point of view of recursive syntactic mechanisms. Take the following example:

- (5) According to John, ‘Dog’ has one ‘D’.

The distribution of quotes allows at least two readings. One, where John is quoted in the mode of mixed quotation. Then the quoting inside, i.e. the string uttered (typed) by John, is  $\ulcorner D \circ o \circ g \urcorner \_ \_ \_ h \_ \_ \_ \ulcorner D \urcorner$ . Under this interpretation, John’s utterance is ill-formed; it includes one right quote (after *Dog*) without the left one, and one left quote (before *D*) without the right one. According to the second interpretation, John is not quoted at all. The speaker of (5) uses two QEs to say what John thinks about the relation between the word *Dog* and the letter *D*. What is crucial for the present discussion is Boolos’ observation that quotes embedded within quotes are ambiguous. First, they can be interpreted as elements of strings forming the quoting inside. Second, as the exponent of another operation of enquotation.

Let us now extend the above example to the quotational embedding as in (6) below:

- (6) John wrote ‘ ‘Dog’ has one ‘D’ ’.

There are at least three interpretations of this sentence. First, that John typed a well-formed string of the form  $\ulcorner \ulcorner D \circ o \circ g \urcorner \_ \_ \_ h \_ \_ \_ \ulcorner D \urcorner \urcorner$ . According to the second interpretation, John quoted someone who typed an ill-formed string of the form  $\ulcorner D \circ o \circ g \urcorner \_ \_ \_ h \_ \_ \_ \ulcorner D \urcorner$ . According to the third possible reading, John assigned the word *Dog* a particular property, namely that its one letter is *D*. The ambiguity, however, is far from trivial. In fact, (the extended) Boolos’ problem lies at the core of syntax, following from two different interpretation mechanisms: one based on pure iteration but not recursion, and another based on recursion.

Enquotation can be applied iteratively. This is neither controversial nor especially enlightening; as discussed in subsection 2.1, whatever appears within quotes can be interpreted as a material string. That kind of interpretation, based on pure iteration, underlies the first reading of (6) and assures that the following sentences are true (letting each quote stand for one letter):

- (7) a. ‘Dogs’ has four letters.  
 b. ‘‘Dogs’’ has six letters.  
 c. ‘‘‘Dogs’’’ has eight letters.

However, the iteration-based interpretation does not reveal a much more important property of quotation, viz. its recursive character. This holds at least in the sense of Zwart (2011a) and Trotzke & Zwart (2014) where the operation  $f$  is said to be recursive iff the value of  $f(x)$  can become an atomic argument<sup>4</sup> of yet another application of  $f$ . Indeed, viewed from that angle the last two interpretations of (6) are possible only under the recursive reading of enquotation. Crucially, for the third reading to emerge, *Dog* must be interpreted as a unit that undergoes the operation of enquotation twice. First, as a nominal *Dog* turned into the QE ‘*Dog*’. Second, as a part of QE picking out John’s (written) utterance. Put simply, enquotation is a recursive operation yielding names of expressions they flank, as shown in (8):

- (8) a. Dogs are mammals.  
 b. ‘Dogs’ is a word.  
 c. ‘‘Dogs’’ is a name of a word.  
 d. ‘‘‘Dogs’’’ is a name of a name of a word.

It is therefore clear that the atomic character is just one aspect of QEs. Quite apart from this, the quoting inside must remain transparent for successive applications of enquotation yielding names of expressions in a recursive way. This is also supported by the evidence from context shifts (CSs), which are sensitive to recursion, as exemplified below:

- (9) a. Alfred<sub>*i*</sub> said ‘I<sub>*i*</sub>/\*<sub>*j*</sub> am smart’.  
 b. Alfred<sub>*i*</sub> said (quoting Rudolf) ‘‘I\*<sub>*i*</sub>/<sub>*j*</sub> am smart’’.

Clearly, had the material embedded within the outer quotes been interpreted just as a plain string, the recursive CS would have remained unexplained.

So, here comes the second conclusion. Boolos’ ambiguity demonstrates that the merger of quotes is not simply iterated one after another. Two types of possible interpretation show that Narrow Syntax must provide means to distinguish two readings of quotational embedding. On the one hand, the system must yield the non-recursive reading, where the quoting inside is an atomic string. On the other hand, it must account for the recursion-based reading, where the quoting inside is interpreted as an output of yet another operation of enquotation.<sup>5</sup>

### 2.3 *Ellipsis*

The previous subsection shows that syntax, in order to account for the recursive character of the operation of enquotation, cannot treat QEs as atoms *simpliciter*. Still, this does not entail any sort of transparency of the quoting inside where the operation is not repeated. Actually, there is a long tradition of treating QEs as “syntactically simple expressions” (cf. **tarski1983** 1983 [1933]:159, recently defended in Werning 2005). However, there is evidence against this view. As already observed by Partee (1973) and commented by Wiese (1996) and Maier (2008), QEs

<sup>4</sup>See Trotzke & Lahne (2011) for further comments on the understanding of atomicity, and Lobina (2017) on a critique of this approach to recursion.

<sup>5</sup>As an anonymous reviewer points out, this is true if it is assumed that the distinction cannot be provided by C-I. Two comments are in order at this point. First, as discussed by Hinzen (2015) and the related work, there are good reasons for postulating a possibly parsimonious (though perhaps not simply redundant) account of C-I. Second, following standard Minimalist assumptions I take this to be true at least for recursion. That is, I take accounting for linguistic recursion to be exactly the task of syntax as the proper structure-building mechanism.

allow ellipsis. Let us have a look at the following examples,  $\Delta$  standing for the elided constituent (EC):

- (10) a. Rudolf said ‘Alfred knew that perfectly’, but I think he didn’t  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{know that perfectly} \\ \text{say ‘Alfred ...’} \\ \# \text{‘know that perfectly’} \end{cases}$
- b. Marysia powiedziała ‘Nie chciałam tego zrobić’, ale i tak  
 Marysia.NOM said.3RD.FEM ‘NEG want.1ST.FEM this.GEN do.INF’ but nevertheless  
 wszyscy wiedzą, że chciała  $\Delta$ .  
 everybody.3RD.MASC know3RD.MASC that wanted.3RD.FEM  
 where  $\Delta = \begin{cases} \text{to [this.ACC] zrobić [do]} \\ \# \text{‘to [this.ACC] zrobić [do]’} \\ * \text{tego [this.GEN] zrobić [do]} \end{cases}$   
 Marysia said ‘I didn’t want to do this’, but nevertheless everybody knows that she did.  
 (Polish)
- c. She said ‘I didn’t want abar dabar’, and now everybody wonders what would have happened if she did  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{‘want abar dabar’} \\ * \text{want abar dabar} \end{cases}$
- d. Rudolf said ‘Alfred knew that perfectly but I didn’t  $\Delta$ ’.  
 where  $\Delta = \begin{cases} \text{know that perfectly} \\ \# \text{‘know that perfectly’} \\ * \text{say ‘Alfred ...’} \end{cases}$
- e. Rudolf said ‘Alfred knew that perfectly’, but I didn’t  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{know that perfectly} \\ \# \text{‘know that perfectly’} \\ \text{say ‘Alfred ...’} \end{cases}$
- f. Yesterday she said ‘We went there today’, but I know they didn’t  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{go there yesterday} \\ \# \text{go there today} \end{cases}$
- g. Russell’s ‘All movements go too far’ didn’t let me sleep, though I don’t think they really do  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{‘go too far’} \\ \text{go too far} \end{cases}$

Let us have a quick look the data. Most importantly, ellipsis operating on various projections of the quoting inside show that it must be syntactically transparent, thus not atomic. In (10a) and (10d) the system must be able to detect bare *vP* (without TENSE). Interestingly, this concerns also those cases where the quoted material is ill-formed, as in (10c). Thus a deviant quoting inside does not relax syntax from securing transparency. In (10b), on the other hand, the pronoun *this* must be identified before it is assigned accusative by  $v^0$  (while negation requires genitive, *want* assigns accusative).<sup>6</sup> Let us now have a closer look at some conceptual problems.

<sup>6</sup>An anonymous reviewer rightly points out that the same distribution of CASE (the ACC/GEN-shift) can be found in non-quotational sentences. Accordingly, the argument goes, quotation should not affect the recoverability of ellipsis. I have no objections to this point. What I claim is that (10b) unearths two additional complications. First, no matter where does the system locate the source of case marking, it can be hardly defined if the QE is

First, EC reconstructed as QEs should not change the original SM-form. If it is different from that of the quoting inside,  $\Delta$  should not receive the quotational reading (the fact marked by #). Therefore the operation recovering the EC must target a stage of derivation completed before the quotational reading is assigned.

Second, the scope of quotation affects the scope of ellipsis. In (10a) and (10e) ellipsis<sup>7</sup> can operate either on the QE or the root clause. By contrast, wide ellipsis is not possible in (10d) – a fact that can suggest that quotes block the embedding relation of the root clause and the quoting inside (as advocated by Emonds 2001).

Third, quotation affects the interpretation of indexicals, as in (10f), involving CS. While the problem is not new, it looks differently in light of ellipsis. It shows that the internal structure of QEs must be transparent enough to allow CS – an operation which, as shown by Rudnev (2015), can non-trivially depend not only on the quotational mode, but also on the features of  $C^0$ .

Finally, recovering EC from quotation affects the computation of propositional attitudes, as is most clear from (10g). According to the first interpretation, the speaker doubts whether the statement about movements is true in the sense of what Russell means by *going too far*. According to the second interpretation, he doubts whether Russell’s statement is generally true. For this to be possible the quoting inside must be reconstructed to the form of extensional phrase. This interesting phenomenon is also supported by the deviance of (11c):<sup>8</sup>

- (11) a. John said ‘Alfred are smart’.  
 b. John said ‘Alfred is smart’ and I think he really is.  
 c. \*John said ‘Alfred are smart’ and I think he really is.

Leaving aside the problem of parallelism in ellipsis, it is not clear why (11c) is unacceptable despite the fact that (11a-11b) are perfectly fine. Recovering the well-formed *smart* should be possible. The problem, bearing in mind the discussion in 2.1 and the fact that SOs forming the quoting inside may not be standard lexical items (LIs), is not trivial and deserves separate analysis. A hint may be found in Sakamoto (2016), where the strict correlation between phases and ellipsis is proposed. Though the problem is beyond the scope of this paper, it unearths yet another aspect of the complexity of QEs.

So, the third conclusion extends the above discussion. In subsection 2.2 I argued that syntax must secure transparency of successive applications of enquotation. This subsection shows that the quoting inside must be transparent in terms of both syntactic and interface operations. On the one hand, SOs of the quoting inside serving as AC must enter clausal/temporal relations, as well as CASE assignment and  $\varphi$ -agreement. On the other hand, they must be able to undergo post-syntactic stages of computation that account for CS and semantics of propositional attitudes.

## 2.4 Quotation split

The discussion in 2.3 shows that for QE-ellipsis to be recoverable, the quoting inside must be transparent in terms of agreement/assignment of such features as CASE,  $\varphi$  or TENSE. The present subsection pushes the problem towards overt transparency of SOs forming the quoting inside. It raises the question of whether the quoting inside is subject to IM of its parts. The evidence comes from quotation split, as in (12) below:

- (12) ‘Some boys’, she said, ‘came to the party.’

treated as an atomic SO. Second, the fact that the quotational interpretation of EC is problematic if SM-forms of antecedent constituent (AC) and EC are different suggests a non-trivial challenge for the relation between syntax and the interfaces.

<sup>7</sup>Under different indexing of *he* in (10a).

<sup>8</sup>I owe this point and the discussion on the problem to Robert Truswell (*p.c.*, 2015).

According to a widely admitted account, reporting clauses like *she said* in (12) are parenthetical adjuncts (cf. De Vries 2007; Griffiths 2015a,b; Kluck & Vries 2015). Indeed, there are a number of effects supporting this approach. Griffiths (2015b), for instance, argues that it is only the adjoined position of the reporting clause in (13) that predicts that it is not affected by the c-commanding<sup>9</sup> Neg<sup>0</sup>.

(13) ‘John will not come’, she said.

The question is how this relates to the syntax of QEs. Following the above view, in (12) it is the QE that should be treated as a root CP, with the reporting parenthetical occupying the *v*P-adjoined position. The current view on the problem, however, is quite diversified. De Vries (2007) takes into consideration various points where the reporting clause can be adjoined, yielding different interpretations. De Vries (2006) claims that the reporting clause can be taken as both the main clause and the backgrounded parenthetical, depending on its structural position. Presenting a more radical view, Newmeyer (2015) takes all parentheticals to be root clauses, extending the discussion to QEs.<sup>10</sup> In a more classical account, Emonds (1970) takes both the reporting and the quoting clauses to be roots. Actually, no matter which account one assumes, it follows from any of them that quotation split provides an argument for treating QEs as transparent not only w.r.t. features, but also to whole SOs and their structural properties. The difference is that the approach assuming an adjoined position of the reporting clause makes the syntax of QEs relatively simple. In what follows I present three effects that suggest that quotational split results (at least in some cases) from movement from QEs.

Let us first have a look at the simplest example. Take (12) and compare it with (14) below:

(14) ‘Some’ she stressed ‘boys came to the party.’

The clear contrast between the two suggests two different landing sites in the Left Periphery. While in (12) the DP ‘*Some boys*’ seems to be remerged to [Spec, TopP] (cf. Williams 2011, Abels 2012), (14) has a more complex structure. The DP ‘*Some boys*’, as an effect of D<sup>0</sup>-movement, obtains the contrastive-topic reading, with the additional stress on *some* and the intonational focus marking of *came*. Since the non-contrastive topic interpretation of ‘*some*’ is excluded regardless of the reporting verb, it suggests that the initial position ([Head, DP] vs. [Spec, TP]) is not neglectable.<sup>11</sup>

Second, let us see what happens when one tries to tinker with reporting clauses. Especially intriguing effects can be observed for negated phrases, as in (15):

(15) a. She didn’t say ‘Some boys came to the party’.  
 b. \*‘Some boys’ she didn’t say ‘came to the party’.

Rizzi (2004) argues that extraction of certain *wh*-phrases becomes more acceptable when the information they represent is presupposed or discourse-linked. Had this condition been adapted for QEs, IM in (15b) moving ‘*Some boys*’ to the Left Periphery would entail that the information that the particular QE has been uttered is presupposed.<sup>12</sup> Next, the reporting parenthetical

<sup>9</sup>Note that this works only insofar as the c-command relation is assumed; for a different approach, see the abovementioned comment by Emonds (2001).

<sup>10</sup>See Newmeyer’s examples (47)-(48).

<sup>11</sup>See Neeleman et al. (2009), who suggest different landing sites for contrastive and non-contrastive readings.

<sup>12</sup>Note that this is quite cognate with (2) adapted from Maier (2014a). This would suggest that the source of the odd character of (15b) is semantic, rather than syntactic. Another argument in favour of this approach is that, as shown below, it is a negated reporting verb, and not Neg<sup>0</sup> as such, that gives rise to the problem:

(1) ‘The president’ this time John didn’t smile ‘is a donkey.’.



would deny that the event of uttering has taken place, the whole phrase becoming odd at the level of discourse. However, for this sort of explanation to be sound, quotation split must involve movement to the Left Periphery, not just a simple adjunction. Moreover, the syntax of QEs must be sensitive to what splits the QE in question. This sort of sensitivity can be hardly guaranteed by adjunction. Thus leaving aside whether the adjoined position of the reporting VP is always unjustified, it is reasonable to conclude that the discussed effects seem to follow from raising of various parts of QEs (and maybe also of the reporting VP).

Finally, the third interesting observation comes from the argument status of QEs. In general, pure quotations are nominals with the +SINGULAR feature. However, it is much less obvious what is the label of the complement of the reporting  $V^0$ . For most Indo-European languages it is assumed that the reporting verb merges with the nominal QE-complement, contrary to indirect speech involving the  $[\text{VP } V^0 [\text{CP } \dots]]$  structure. This clearly contrasts with Japanese where both direct and indirect speech involve the overt complementizer *to*. The difference is substantial, as the following prediction is borne out. On a par with English indirect speech as in (16), where split is impossible, Japanese blocks the quotational split, as in (17c):

- (16) \*Some boys he said that came to the party.
- (17) a. ‘Tanaka-wa konai’ to kare-ga itta.  
‘Tanaka.TOP come.NEG’  $C^0$  he.NOM say.PAST  
He said ‘Tanaka will not come’.  
(Japanese)
- b. Tanaka-wa konai to kare-ga itta.  
Tanaka.TOP come.NEG  $C^0$  he.NOM say.PAST  
He said that Tanaka would not come.  
(Japanese)
- c. \*‘Tanaka-wa’ to kare-ga itta ‘konai’  
‘Tanaka.TOP’  $C^0$  he.NOM say.PAST ‘come.NEG’  
(literally) ‘Tanaka’ he said ‘will not come’.  
(Japanese)

Again, leaving aside the source of this effect, it is clear that the adjoined position of reporting clauses does not provide any relevant explanation.

So, here is the fourth conclusion. The evidence from quotation split shows that syntax must provide more than the purely morphosyntactic transparency of quoting inside. It must account for movement to the Left Periphery, yielding effects observed at the level of discourse.

## 2.5 Metalinguistic quantification

The above discussion shows that various pieces of information concerning the structure of the quoting inside must remain syntactically transparent. To close this part, I shall have a look at a related effect observed for single elements of QEs that cannot be treated as parts of homogeneous strings. As analysed by Sudo (2013), that kind of special behaviour can be found in metalinguistic quantifiers, as in (18) below:

- (18) a. Hanako-wa ‘Kinō dare-dare-ga kita’ to itta.  
Hanako.TOP ‘Yesterday someone-someone.NOM come.PAST’  $C^0$  say.PAST  
Hanako said ‘Yesterday such-and-such man came’.  
(Japanese)

- b. Jan powiedział ‘Denerwuję się ilekroć ktoś tam przychodzi’.  
 Jan said.3RD ‘feel-nervous.1ST SELF every.time someone.NOM INDEF come.3RD  
 Jan said ‘Every time such-and-such man comes I feel nervous’.  
 (Polish)

The special character of such units is, more often than not, additionally marked. Japanese makes use of what is called by Sudo *wh*-doublets, e.g. *dare-dare* lit. *who-who*, *nani-nani* lit. *what-what*, *itsu-itsu* lit. *when-when*, etc. In English this function is borne by a doubled determiner with NP, e.g. *such and such man*, *such and such thing*, etc. Polish makes use of indefinite pronouns, e.g. *ktoś* ‘someone’, *coś* ‘something’, or *jakiś* ‘some kind of’ with the additional marker of indefiniteness *tam*, i.e. *ktoś tam* ‘such and such man’, etc.

Indeed, such units give rise to numerous interesting effects. First of all, they allow two readings. According to the first interpretation, they are parts of homogeneous QEs. I leave this (trivial) reading aside. According to the second (prominent) interpretation, they do not receive the reading of the surrounding context. That is, neither Hanako nor Jan quoted in (18) has uttered the string containing *dare-dare* and *ktoś tam*, respectively. In this sense they are not parts of the quoting utterance. What makes them special, however, is that nor is the surrounding quotational context completely blind for the units in question. Quantifying into QEs, they receive the quotational reading in the sense of scope specification. They quantify not over real-world objects (type *e*), but over linguistic objects (type *u*, if one follows Potts 2007). Therefore each of the sentences in (18) is true if Hanako, resp. John, uttered a nominal with the +PERSON feature, e.g. *Suzuki*, *Daniel*, etc. Crucially, for this reading to be possible, the quantifiers cannot be just a part of a homogeneous phonological string. They must be treated as SOs distinct from the rest of the quoting inside.

The fifth conclusion is especially significant for both syntax and semantics of QEs. It was argued in previous subsections that quotes operate in a recursive way on the material the formal features of which must be transparent. The present subsection shows that the grammar of QEs must be fine-grained enough to account for a remarkably different status of particular SOs flanked by quotes. Tellingly, it must identify the way metalinguistic quantifiers are distinct from other parts of a given QE.

## 2.6 Interim summary no. 1

This subsection has explored some features of QEs that are crucial from the point of view of their derivation. On the one hand, QEs are not straightforwardly compositional. This fact has two consequences: (i) items of the quoting inside cannot undergo substitution *salva veritate*; (ii) pure quotation legitimates any ill-formed material within quotes. Moreover, pure quotation yields *wh*-islands. These facts suggest that QEs are either atomic SOs (as defended in the Tarskian approach) or that they correspond to phases. On the other hand, these observations stand in stark conflict with data showing a complex character of QEs. These include recursive enotation, ellipsis, discourse effects rooted in movement, and quantifying into QEs.

The provisional and very generalized conclusion is that Narrow Syntax should provide a mechanism that allows to treat QEs as both atomic – in some sense – and complex – in another sense. If lexical atomicity excludes syntactic complexity, then QEs cannot be generated as LIs. Under mainstream Minimalism, the only remaining sense in which they can be regarded as atomic is to take them as corresponding to phases. The remainder of this paper investigates what this can exactly mean for Narrow Syntax and how demanding for the formal apparatus it can become.

### 3 Quotation and cyclic derivations: setting the stage

The data discussed in the previous section suggested that QEs should be treated as both atomic and not. This, in turn, entails that they correspond to phases. In this subsection I shall clarify crucial ideas behind the phasal approach to quotation. I make two basic assumptions. First, that there is an SO – call it  $Q$  – corresponding to the operation of enquotation. Second, that no empirical data support postulating two types of quotes – one providing pure, another mixed quotation (cf. Werning 2012 for a related idea). The only fact distinguishing the two is that the former involves a very universal nominalization, while the other does not change the label of what it flanks. Thus I take the general structure of mixed and pure quotation to be as follows:

- (19) a. MIXED QUOTATION:  $[_\beta Q [_\beta \alpha]]$   
 b. PURE QUOTATION:  $[_{NumP} Num^0 [_n P n^0 [_\beta Q [_\beta \alpha]]]]$

Note that according to this picture, pure and mixed QEs are derived from the common underlying structure with adjoined  $Q$ . This assumption is not groundless; as exemplified in (20)-(21), the QEs-specific effects such as legitimizing deviant material, CS, or islandhood do not strongly depend on the mode of quotation:

- (20) a. Alfred said ‘I should studies *Principia*’.  
 b. Alfred<sub>*i*</sub> said ‘I<sub>*i*</sub>/<sub>*j*</sub> should study *Principia*’.  
 c. \*Which book did Alfred say ‘I should study ~~which book~~’?  
 (21) a. Alfred was never good at English; according to him every student ‘study’ *Principia*.  
 b. Alfred<sub>*i*</sub> was repeating that every student ‘should study my<sub>*i*</sub>/<sub>*j*</sub> paper’.  
 c. Which book did Alfred say every student #‘should study ~~which book~~’/ ‘should study’ ~~which book~~?

These are general assumptions; let us now clarify what grounds a phasal approach to QEs. The relevant arguments come from crash, compositionality and islandhood. First, the problem of crash. According to (19), the exponent of quotation  $c$ -commands the quoting inside. This means that before the merger of  $Q$ , the derivation proceeds normally.<sup>13</sup> In particular, there is no signal for C-I to neglect deviancies. For Chomsky (2008), where the very existence of crash is questioned, this fact is at most puzzling, but not that problematic. For the crash-proof approach (cf. Frampton & Gutmann 1999, 2002, 2006 and much related work), the problem is more severe. Nonetheless, even assuming the former, the grammar must explain what sort of interpretation would *I should studies Principia* in (20a) obtain reaching a phase before the quotational mode is imposed.<sup>14</sup>

Second, the non-compositional character of QEs. If the meaning of QEs cannot be composed from the meaning of expressions flanked by quotes, then Narrow Syntax should prevent C-I from applying standard composition principles. In the most plausible scenario, syntax should Spell Out the quoting inside as an atomic unit, not a compositional structure. This, in general,

<sup>13</sup>This configuration is also supported by the evidence from ellipsis (subsection 2.3), where syntax must be able to detect the quoting inside before the quotational reading is imposed.

<sup>14</sup>Note that the problem with a (simplified) interpretation like the one below is not that it yields false, but that the formula simply lacks sense, the truth conditions being ill-formed:

(1)  $\lambda e_i. should\_studies(I, Principia, e_i) = 1$  iff I should studies Principia in  $e_i$

corresponds to the view held by Chomsky (1995) that it is only the atomic Spell Out of a complex SO that can yield its non-compositional reading.<sup>15</sup>

Finally islandhood. QEs do not allow overt movement crossing quotes, the result being either an ungrammatical (20c) or a misinterpreted (21c) phrase. Thus, assuming the non-atomic character of QEs (cf. section 2) and following Boeckx (2012a,b), quotes should trap SOs they flank within a phase.

This is a general sketch of empirical and conceptual grounds for treating QEs as phases. Now I move to the crucial technical problem and see how QEs fit cyclic derivations. To begin with, I show that there is a perfect match between the data discussed above and Zwart’s derivation based on Split Merge.

## 4 Zwart’s Split Merge and quotation

Two previous sections unearthed various effects showing that QEs show a typically phasal character. In this section I demonstrate that all of them naturally follow from a non-mainstream account of cyclic derivation developed by Jan-Wouter Zwart. The approach is based on Split Merge, a special type of Merge. Its definition requires an original account of cycles which do not follow from an architecture of features. In this regard, the section opens up a path for a methodological discussion on the role of features within PT. I start from sketching a general outline of Zwart’s approach (subsection 4.1). Then, in subsection 4.2, I show how it can deal with QEs. Finally, to forestall some possible controversies inherently connected with Zwart’s approach, in subsection 4.3 I discuss its explanatory power.

### 4.1 The architecture of Split Merge

Zwart’s account of Narrow Syntax exemplifies a top-down approach to derivation (cf. Trotzke & Zwart 2014; Zwart 2009, 2011a,b, 2015). Moreover, it provides two technical solutions that make it substantially different from other top-down accounts (cf. Fortuny 2008; Phillips 2013; Bianchi & Chesi 2014, 2015; Chesi & Moro 2015, a.o.). First, a different account of Merge – Split Merge, an idea dating back to Johnson (2003). Second, layers – a counterpart of Chomsky’s phases, adjusted to the properties of Split Merge.

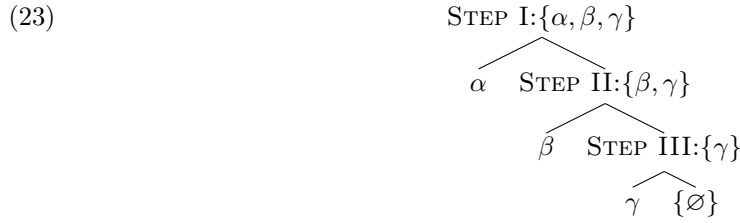
Recall Definition 2 in section 1. According to it, Split Merge, rather than combining two items  $\alpha$  and  $\beta$  to yield an unordered set  $\{\alpha, \beta\}$ , targets numeration to split its element. Doing so, it provides asymmetry between the numeration  $N$  and its element by creating an ordered pair  $\langle \alpha, N - \{\alpha\} \rangle$ . In tree-notation, this corresponds to the following structure:

$$(22) \quad \begin{array}{c} N : \alpha \in N \\ \wedge \\ \alpha \quad N - \{\alpha\} \end{array}$$

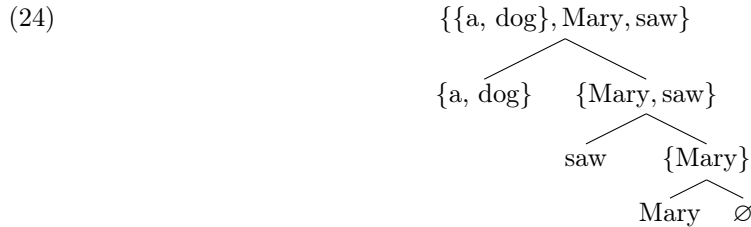
Each derivation, following the general mechanism shown in (22), proceeds until Merge exhausts the whole numeration, reaching the empty set (see De Belder & Van Craenenbroeck 2015 and references therein for a discussion on the importance of this last step). Thus for  $N = \{\alpha, \beta, \gamma\}$ , Split Merge operates in three steps yielding the following structure:

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<sup>15</sup>The idea reappears in the literature in the context of phases. Recently it was adapted to idioms in Harwood et al. (2016). In a similar vein, Borer (2014a) argues that irregularities (in her discussion: inflectional) follow only from local distribution, understood in terms of phases.



The above structure is a notational variant of the embedding of ordered pairs of the form  $\langle \alpha, \langle \beta, \gamma \rangle \rangle$ . In this regard Split Merge is in fact single branching, pair-embedding being read off from left branches. However, as it stands the derivation is not able to account for the effect of further left branching. Thus while it can derive *John saw Mary*, it faces a conceptual problem with *A dog saw Mary*. If Merge can split off only one element of  $N$ , then it can only yield  $\langle a, \langle \text{dog}, \langle \text{saw}, \text{Mary} \rangle \rangle \rangle$ . To avoid the unwanted structure where  $D^0$  cannot combine with NP to form an argument, Zwart goes for a non-homogeneous account of numeration. He lets it consist of elements that are sets themselves. For *A dog saw Mary* this gives the following derivation:



The structure in (24) is equivalent to  $\langle \{a, \text{dog}\}, \langle \text{saw}, \text{Mary} \rangle \rangle$ , with one element being an unordered set. It is at this moment where the second technical aspect of Zwart’s machinery – layers – comes into play. Once the numeration is exhausted, the apparatus Spells Out the whole structure. Those elements that are truly atomic no longer take part in the derivation. Those being unordered sets go through the interfaces and feed the next derivational layer – the mechanism argued by Zwart (2017) to lie at the heart of (syntactic) recursion.<sup>16</sup> Thus in (24) the subject DP is Spelled Out and, having passed through the interfaces, undergoes further splitting. Consequently, the whole derivation consists of two layers, that is:

- (25) A dog saw Mary.  
 LAYER 1:  $\langle \{a, \text{dog}\}, \langle \text{saw}, \text{Mary} \rangle \rangle$   
 LAYER 2:  $\langle a, \text{dog} \rangle$   
 FINAL OUTPUT:  $\langle \langle a, \text{dog} \rangle, \langle \text{saw}, \text{Mary} \rangle \rangle$

Leaving aside numerous arguments supporting the approach (cf. Zwart 2009, Trotzke & Lahne 2011), I focus on its two key properties. First, Zwart’s Merge is based solely on set-theoretic properties of the initial set, more accurately on the  $\in$ -relation. The role of Split Merge is to detect elements of the set feeding the particular layer. Crucially, successive cycles are not defined in terms of features. Second, it is essential for Zwart’s approach that recursion is defined not just in terms of configuration, but in terms of configuration and interpretation. That is, within Chomsky’s approach with  $\text{Merge}(\text{PH}^0, X) = \{\text{PH}^0, X\}$ ,  $X$  can be the output of  $\text{Merge}(Y, Z)$ . Thus  $\text{Merge}(\text{PH}^0, X)$  is equivalent to  $\{\text{PH}^0, \{Y, Z\}\}$ . Therefore, structurally  $X$  is both atomic – as the argument of Merge – and complex – as the output of Merge. It is exactly this property that is taken by Zwart to lie at the heart of recursion (cf. Zwart 2013, 2015). However, while the

<sup>16</sup>Note that this sort of approach to the syntax-semantics relation is not reserved for Zwart’s account. It was also suggested in mainstream MP in Pesetsky & Torrego (2007)

structural duality born by recursion is accounted for in each of the two approaches, the interpretive is not. In Chomsky’s approach, X is Spelled Out and interpreted as a complex in a compositional way. By contrast, Zwart’s layering provides a recursive interpretation.  $\{a, \text{dog}\}$  in (25) is first interpreted at C-I as an atom (LAYER 1). Then it feeds LAYER 2 and, undergoing successive operations of Split Merge, it is interpreted once again as a complex. Or, seen the other way round, the whole DP structure is interpreted as a complex in LAYER 2 and as an atom feeding the interpretation in LAYER 1. These two properties – features-independent derivation and interpretive recursion – will play a crucial role in dealing with QEs by means of Zwart’s syntax.

## 4.2 Applying Split Merge

In the previous subsection I outlined the general framework of Zwart’s syntax. Let us now have a look on how Split Merge can deal with QEs. I divide the discussion into three parts. First, I show how QEs can be derived by Split Merge. Second, I connect these findings with the data presented in section 2 and discuss how this approach allows to account for the problematic effects. Finally, I show that the account is flexible enough to capture crucial aspects of mixed quotation.

### 4.2.1 Splitting quotation

Let us first have a look at how QEs could be structured within Zwart’s derivation. As noticed above, the account allows a syntactic complex to be Spelled Out as an atom and then reinserted into next derivational layer. In general, Zwart (2009) defines two criteria triggering that kind of operation (call it *reinsertion*):

- (26) Spell Out and reinsertion criteria in Zwart’s approach:
- i. configurational criterion – a structure of the form  $\langle\{\alpha, \beta, \dots\}, \gamma\rangle$ , i.e. a situation where an item that has been split off is a set;
  - ii. interpretive criterion – interface effects in the form of semantic/phonological idiosyncrasies.<sup>17</sup>

Let us apply this machinery to QEs (irrelevant functional nodes are ignored). Keeping to the general account in (19b), the QE in (27) should be inserted as  $\{Q, n^0, \text{Num}^0, \text{Tarski, met, Carnap}\}$ . Then the derivation creates, first, LAYER 1, resulting in (28):

- (27) ‘Tarski met Carnap’ is a sentence.
- (28) LAYER 1:  $\langle\{Q, n^0, \text{Num}^0, \text{Tarski, Carnap, met}\}, \langle\text{is}, \{\text{a sentence}\}\rangle\rangle$   
 $\rightarrow$  Spell Out and reinsertion of  $\{Q, n^0, \text{Num}^0, \text{Tarski, Carnap, met}\}$  and  $\{\text{a sentence}\}$  (criterion i)

The numeration is exhausted and LAYER 1 is Spelled Out. Still, its two elements, the subject and the complement, are not atomic *simpliciter* – both are unordered sets. Thus, following criterion ii, the derivation creates two further layers: one for the subject (LAYER 2) and one for the complement (LAYER 3). The latter is an unproblematic DP, so that the derivation proceeds standardly, yielding (30). However, the former contains the non-compositional quoting inside  $\lceil \text{Tarski met Carnap} \rceil$ . Crucially, it is expected to be derived as non-equivalent to  $\lceil \text{Tajtelbaum met Carnap} \rceil$ . Therefore, following criterion ii, the derivation stops after splitting off Q and Spells Out the non-compositional quoting inside, as in (29):

<sup>17</sup>Under certain methodological assumptions, the criterion might give rise to the look-ahead problem; the problem will be discussed below.

- (29) LAYER 2:  $\langle \text{Num}^0, \langle n^0, \langle \text{Q}, \{\text{Tarski, Carnap, met}\} \rangle \rangle \rangle$   
 $\rightarrow$  Spell Out and reinsertion of  $\{\text{Tarski, Carnap, met}\}$  (criterion ii)
- (30) LAYER 3:  $\langle \text{a, sentence} \rangle$

The quoting inside is Spelled Out as an atom at the level of LAYER 2. Next, it is reinserted into the final LAYER 4, where it is structured as in (31):

- (31) LAYER 4:  $\langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle$

Zwart’s derivation yields a layered structure where the following substructures undergo separate interpretations at the interfaces (square brackets mark items that are atomic in one and complex in the next layer):

- (32) Output of the Split Merge derivation of (27):  
 FINAL OUTPUT:  $\langle \langle \text{Num}^0, \langle n^0, \langle \text{Q}, \langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle \rangle \rangle \rangle, \langle \text{is}, \langle \text{a, sentence} \rangle \rangle \rangle$
- L1.  $\langle [\text{SUBJECT}], \langle \text{is}, [\text{COMPLEMENT}] \rangle \rangle \rightarrow$  the structure of the sentence;
- L2.  $\langle \text{Num}^0, \langle n^0, \langle \text{Q}, [\text{QUOTING INSIDE}] \rangle \rangle \rangle \rightarrow$  the structure of the subject QE;
- L3.  $\langle \text{a, sentence} \rangle \rightarrow$  the structure of the complement.
- L4.  $\langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle \rightarrow$  the structure of the quoting inside;

The profit is twofold. On the one hand, Split Merge allows to structure QEs. On the other hand, Spell Out targets both the quoting inside as an atomic unit and as a structured term. In what follows I show how these conceptual effects allow to deal with the data discussed in section 2.

#### 4.2.2 Split Merge and its descriptive force

Let us now have a look at the descriptive force of Zwart’s machinery. To recall, section 2 collected data posing at least two challenges. First, while the lack of compositionality and movement (subsection 2.1) suggests that QEs are atoms, effects observed for ellipsis, quotation split and metalinguistic quantification (subsection 2.3-2.5) provide strong arguments against treating them as atomic *simpliciter*. Second, the generalized Boolos’ ambiguity: the occurrence of quotes within quotes allows both the non-recursive and the recursive reading of embedding of enotation. In what follows I discuss each of the two problems in light of the above account.

Let us start from the first problem, viz. the atomicity/complexity of quoting inside. To see how Zwart’s syntax accounts for this duality, recall the above derivation summarized in (32). First of all, note that both the whole QE, as in (28), and the quoting inside, as in (29), are Spelled Out in LAYER 1 and 2, respectively. Importantly, the form in which they are shipped off to the interfaces is not that of a syntactic structure, but a set, thus an atomic unit. A natural consequence of this situation is that both Narrow Syntax and C-I treat them as simple, syntactically non-structured expressions.

This has at least three plausible results. First, it fits well with the non-compositional character of QEs. That is, if C-I receives an atomic unit, and not a syntactic structure, it cannot apply any composition principles. Thus the QE and the quoting inside are assigned an atomic interpretation. Second, while Zwart’s account is generally supposed to dispense with Movement,<sup>18</sup> closing off the quoting inside within a separate layer naturally accounts for the islandhood of quotation (provided that layers are taken as a counterpart of phases).

The third result is obtained thanks to the reinsertion procedure. Note that both the whole QE and the quoting inside are structured in layers coming after previous Spell Outs. That is,

<sup>18</sup>Cf. Zwart (2009) for the relevant arguments, but see also Zwart (2011b, 2015) for some general prospects for Movement within his account, and Fortuny Andreu & Corominas Murtra (2009) for a possible formalisation.

SOs are shipped off to the interfaces as atoms after LAYER 1 and 2, and then structured within LAYER 2 and 4, respectively. This fact is of a crucial importance from the point of view of data presented in subsection 2.3-2.5. Obviously, for Narrow Syntax to be in a position to account for each of the three pieces of evidence, QEs must be syntactically transparent. And indeed, what Split Merge forming LAYER 4 does is exactly securing the relevant source of information by providing the standard sentential structure. Thus neither recovering ellipsis, nor accounting for various options of quotational split, nor identifying the proper position for metalinguistic quantification is blocked. They follow from parsing the quoting inside, which at this layer is treated as a standard, non-quotational phrase.<sup>19</sup>

Let us now move to the second problem, i.e. that concerning the non-recursive/recursive reading of quotational embedding, as discussed in subsection 2.2. Recall the effect in (7)-(8), where the syntax of ‘*dog*’ is expected to yield double interpretation. One for (7), based on the non-recursive reading of enquotation, where the expression denotes a sequence of five letters. This requires Spell Out targeting the whole QE. Another for (8), based on the recursive reading of enquotation. Here it involves embedding of (quotational) name relation, with the named object treated as an atom. This requires interpretation after each quotational layer. Assuming that the QE enters the derivation as  $\{\text{Num}^0, n^0, \text{Q}, \text{Q}, \text{dog}\}$ , its derivation proceeds in three layers:

- (33) Generating ‘*dog*’  
 LAYER 1:  $\langle \text{Num}^0, \langle n^0, \langle \text{Q}, \{\text{Q}, \text{dog}\} \rangle \rangle \rangle \rightarrow$  Spell Out and reinsertion of  $\{\text{Q}, \text{dog}\}$  (criterion ii)  
 LAYER 2:  $\langle \text{Q}, \{\text{dog}\} \rangle \rightarrow$  Spell Out and reinsertion of  $\{\text{dog}\}$  (criterion ii)  
 LAYER 3:  $\langle \text{Q}, \text{dog} \rangle \rightarrow$  end of derivation.

Note that it is exactly the double Spell Out (one after LAYER 1 and another after LAYER 2) that yields the expected effect. After LAYER 1,  $\{\text{Q}, \text{dog}\}$  is treated as an atom. At this stage C-I receives the instruction following from the  $\langle \text{Q}, \{\text{Q}, \text{dog}\} \rangle$  structure, namely that  $\{\text{Q}, \text{dog}\}$  is the quoting inside of the quotational phrase. Therefore it interprets it as an unstructured string ‘ $\hat{d}\hat{o}\hat{g}$ ’.<sup>20</sup> This naturally gives rise to the non-recursive interpretation as in (7), where the quoting inside is treated as a phonological string. After this step the derivation goes on and yields the non-atomic structure. Thus after LAYER 2, C-I receives instruction following from the  $\langle \text{Q}, \{\text{dog}\} \rangle$  structure, namely that  $\{\text{Q}, \text{dog}\}$  which was previously interpreted as an atomic quoting inside ‘ $\hat{d}\hat{o}\hat{g}$ ’, is a structured quotational phrase with the atomic quoting inside  $\hat{d}\hat{o}\hat{g}$ . This gives rise to the recursion-based interpretation as in (8), where the quoting inside is treated as embedding another instance of enquotation.

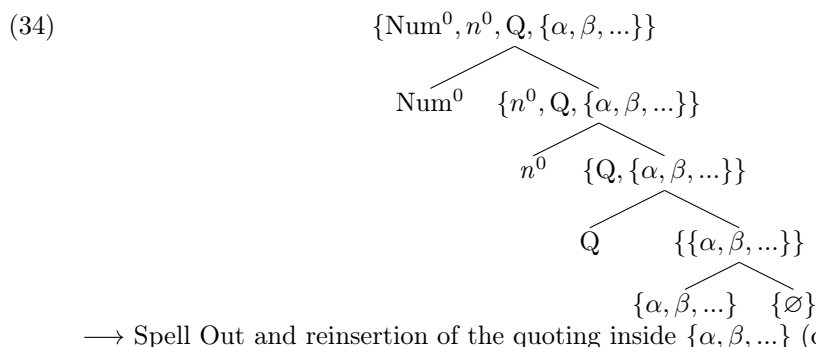
So, as it stands the properties of QEs discussed so far seem to naturally follow from Zwart’s approach. Still, at least one cog of the machinery might be conceived of as problematic. This is criterion ii in (26). According to this the derivation can freely Spell Out a phrase that shows idiosyncratic behaviour at the interfaces. Postulating Narrow Syntax that is able to detect semantic idiosyncrasies might give rise to the look-ahead problem.<sup>21</sup> However, the problem can be overcome, at least w.r.t. QEs. Note that there are no empirical reasons against merging Q not with elements  $\alpha, \beta, \dots$  forming the quoting inside, but with the set  $\{\alpha, \beta, \dots\}$ . Then the initial form of QEs would be  $\{\text{Num}^0, n^0, \text{Q}, \{\alpha, \beta, \dots\}\}$ . If this assumption is accepted, then the general derivation of QEs can be driven by Spell Out triggered solely on the structural criterion i:

<sup>19</sup>Recall the effect observed, e.g., in (10a) where EC can be reconstructed as a non-quotational phrase.

<sup>20</sup>An anonymous reviewer suggests that the numeration feeding LAYER 1 should contain only one Q, because the second Q is treated just as a letter. I take this effect to follow from the atomic treatment of the set  $\{\text{Q}, \text{dog}\}$ . However, excluding the second Q from the numeration would require adding it at next stages; this would significantly increase the complexity of derivation.

<sup>21</sup>Jan-Wouter Zwart (*p.c.*, 2015) proposed that Spell Out could be defined as free. This would resemble the idea of Spell Out being as free as Merge defended by Chomsky (1995).





Put shortly, taking the quoting inside as a single element allows the syntax of QEs to dispense with criterion ii. If this approach is justified, then the obtained result has two substantial pros. First, it derives both the atomic and complex character of QEs. Second, it remains free from the look-ahead problem, Spell Out being triggered only by the configurational criterion. To encompass the last important effect discussed in this paper, I shall now have a general look at how the proposed account deals with mixed quotation.

#### 4.2.3 Split Merge and mixed quotation

I have showed that Split Merge perfectly accounts for the puzzling data from pure quotation involving both atomic and non-atomic interpretation of QEs. A natural question, then, is whether the account is in a position to derive the expected effect for mixed quotation. While due to space limitations I cannot discuss all the subtleties of mixed quotation (see Maier 2017 and references therein), in what follows I show that Zwart’s account allows to derive those properties that are crucial from the point of view of phases.

Perhaps the most extensively discussed property of mixed quotation is that such phrases are both used and mentioned. This fact is interestingly connected also with the problem of phases. To see why this is so, consider the following examples:

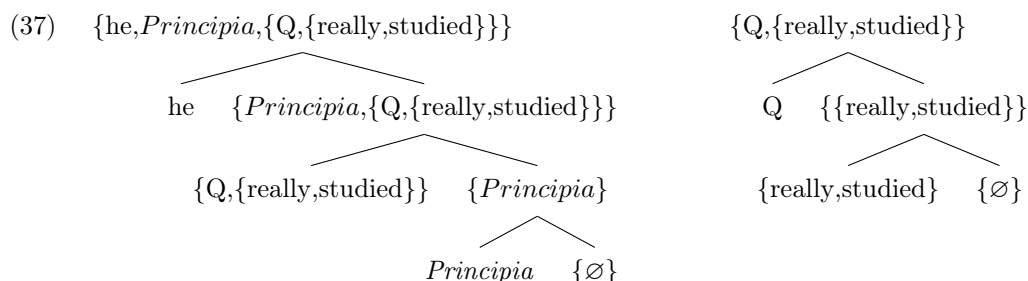
- (35) a. Alfred said that he ‘really studied’ *Principia*.  
b. Alfred said that he ‘scrutinized’ *Principia*.

- (36) Alfred was never good at English; according to him every student ‘study’ *Principia*.

What (35)-(36) show is that QEs, even when formulated in the mixed mode, behave like atoms. For one, they are not compositional; thus the two sentences in (35) are not pairwise equivalent. For another, they justify improper agreement; thus (36) is fine even though *study* does not agree with *every student*. In this regard, their properties are similar to those of pure quotation.

There are at least two aspects in which these observations are interestingly connected with phases. First, if non-compositional phrases must be Spelled Out as single chunks, then what should be shipped off in (35) is a verbal head. This, however, is at odds with mainstream Minimalism. According to this, the computation of features allows to Spell Out either the  $\text{PH}^0$  complement, as in Chomsky (2015b), or the whole phase, as in Bošković (2016b), but not the  $\text{PH}^0$  as such. Second, if Agreement (at least in Chomsky’s approach) is local, i.e. evaluated within a single phase, then the fact that the head in (36) can avoid Agreement without giving rise to crash is remarkable. At least, it suggests that that kind of local relationship does not hold. Under standard PT this implies that the head that would undergo local Agreement in a non-quotational context is closed off within a separate phase. Thus the head is no longer in a local (viz. phasal) relationship with the subject.

While that kind of behaviour would require a special reformulation of the scope of Spell Out within the feature-driven PT, it can be naturally accounted for within Zwart’s machinery. To see this, let us have a look at the derivation of *he ‘studied’ Principia*, a simplified clause of that in (35a). The initial numeration consists of three elements:  $\{\text{he}, \textit{Principia}, \{\text{Q}, \{\text{really}, \text{studied}\}\}\}$ . The two following layers provide the sentential and the quotational structure, respectively:



The first, left-hand side layer provides the structure relating the subject, the verb and the object. The complex verb is treated here as an atom, and shipped off as such to the interfaces. In order to provide the relevant structure of the complex verb, the reinsertion procedure creates the next, right-hand side layer. At this stage, the derivation provides the relevant structure of the mixed-quoted verb, relating the exponent of quotation with the quoting inside. The latter is, again, treated as an atomic unit, structured in the third layer (omitted for expository reasons). Crucially, the verb which is itself complex can be treated as atomic at one stage, and then undergo further analysis at another. Spell Out is triggered only by the configurational criterion, so that the derivation involves neither a dedicated trigger of Spell Out, nor a look-ahead problem.

Let us then summarize the effects of applying Zwart’s approach to QEs. First, the machinery accounts for the discussed properties of QEs, including the non-recursive and the recursive reading of enquotation. Second, it yields the expected effects for a more challenging mixed mode of quotation. Third, it delivers plausible results in a principled way, being based on purely structural rules. What remains to be explained is the problem inherently connected with the top-down approach, namely what gives rise to the structure of the initial numeration in (34). Put differently, are we allowed to assume that QEs are inserted in this particular form? I am addressing this question in the next subsection.

### 4.3 Split Merge and the look-ahead problem

According to the account presented in subsection 4.2, QEs enter the derivation as  $\{\text{Q}, \{\alpha, \beta, \dots\}\}$ , with  $\alpha, \beta, \dots$  forming the quoting inside. Thus the derivation starts from an SO whose complexity is assumed beforehand. Moreover, the complexity at hand is twofold. Apart from the unordered set  $\{\text{Q}, I\}$ , the account assumes set embedding, where  $I = \{\alpha, \beta, \dots\}$ . If these assumptions are to be justified, at least the two following problems should be answered:

- i. What is the basis of assuming the selection of elements for each set?
- ii. What is the basis of assuming the recursive set-formation mechanism?

In the context of the present discussion, the two problems naturally pertain to at least two methodological questions:

- a. How do they relate to mainstream MP?

b. How do they relate to the general account of Narrow Syntax?

Let us see whether the problems **i**, **ii** pose a real threat to Zwart’s account in light of questions **a** and **b**.

As for the problem **i**, questions **a** and **b** can be reduced to one in light of Chomsky’s comment on the concept of Numeration:

*Within the framework just outlined, there is also no meaningful question as to why one numeration is formed rather than another – or rather than none, so that we have silence. That would be like asking that a theory of some formal operation on integers – say, addition – explain why some integers are added rather than others, or none. (...) The problem of choice is real, and largely mysterious, but does not arise within the narrow study of mechanisms. (Chomsky 1995:227; see also Dummett 1991:97 for similar comments)*

Drawing on this remark, I take selection of SOs feeding the derivation to be syntactically costless (in current MP this corresponds to the idea of absolutely unconstrained Merge). It is not relevant for the theory of knowledge syntax instantiates. Thus the cost, even if real, is not syntactic. If this reasoning is on the right track, the problem **i** does not arise for syntax proper. Consequently, the fact that Zwart’s derivation starts from unordered sets raises no conceptual difficulties.

Let us now turn to the more puzzling problem **ii**. In subsection 4.2 I took the operation of enquotation to be defined not on the SOs  $\alpha, \beta, \dots$  forming the quoting inside, but on an atom – a set  $\{\alpha, \beta, \dots\}$ . This allowed syntax to ship off QEs to the interfaces on the purely configurational criterion, without resting upon the interpretive one. However, the price is that the account assumes a structure of sets which, in mainstream MP, is the output of derivation.

The main reasoning behind the proposal is simple: Q targets something that must be treated as both atomic and not. However, as argued for by Gallego (2016), lexical atomicity does not necessarily rule out syntactic transparency. Making use of ideas presented by Hornstein & Uriagereka (2002) and Uriagereka (2008), Gallego proposes to let LIs be structured in the derivation and then turned into atoms by means of reprojection:

- (38) i.  $[X' X^0 \dots [YP Y^0 ZP] \dots] \xrightarrow{IM}$   
 ii.  $[XP [YP Y^0 ZP]_i [X' X^0 \dots [YP Y^0 ZP]_i \dots]] \xrightarrow{REPROJECTION}$   
 iii.  $[YP_i [Y' Y^0 ZP] [XP \dots [YP Y^0 ZP]_i \dots]] \xrightarrow{LEXICALIZATION}$   
 iv. YP derived as an atomic LI

Consequently, the YP formed by three types of operations is memorized and becomes an atom feeding standard derivation. Thus the account yields exactly the same result as Zwart’s machinery. It allows to structure SOs that, having gone through the interfaces, become atoms in the next stage of derivation. The difference is that Gallego’s account does not assume any structure beforehand. Instead, it builds it from feature bundles taken to be (true) syntactic atoms. The question is whether this makes Zwart’s syntax vulnerable to the problem **ii** in the context of questions **a** and **b**. Let us address them in turn.

As for the former, I can see no relevant arguments for preferring a machinery based on three different operations than Zwart’s Split Merge, especially that the former has its non-trivial cost. The reason is a dubious status of reprojection as a syntactic operation (cf. Gallego 2016, Hornstein & Uriagereka 2002). First, it tampers with SOs, causing a potential threat to the No Tampering Condition (NTC). Second, it involves a higher-order syntax (or post-syntactic cycles) – a new step in computation that requires justification when considered from the Minimalist perspective. Neither of the two threats is, in the relevant sense, involved in Zwart’s approach.

Turn, now, to the question **b**, viz. whether Split Merge assuming the initial set-embedding is acceptable on conceptual grounds. The problem can be seen as superfluous in light of at least three following remarks. As recently pointed out by Zwart (2017), there is no basis for imposing conceptual constraints on the elements of numeration. Rather, it would be a stipulation to assume that it can consist of one type of elements (only features, only morphemes, etc.). Next two comments are presented by Fortuny Andreu & Corominas Murtra (2009). First, providing a strict formal account the authors show that what is more basic from the intuitive notion of constituent is the concept of nesting (p. 4). Viewed in formal terms, constituency is derivable from and definable in terms of nests. The relevant conclusion is that assuming a complex constituent is not problematic provided its structure can be explained in terms of nesting. And here comes the second remark. As the authors observe, it is unreasonable to take Narrow Syntax to be a structure-building mechanism where the ordering of steps renders a cognitive mechanism:

*(...) although the algorithm runs through a time step indicator, such time step is only given for the operational purposes and does not imply – in our field of study – any temporal evolution. What is reasonable to ask is whether from the defined mathematical framework we can derive the core properties that we observe in the studied object. (Fortuny Andreu & Corominas Murtra 2009:8)*

Seen in this light, it is not relevant whether syntax assumes atoms and builds complexes in successive steps, or the other way round.<sup>22</sup> It is not the constituent the derivation starts from, but the structure the derivation yields that is relevant w.r.t. the explanatory power of Narrow Syntax. Consequently, the approach is safe provided the structure allows to compute the expected results in a principled, compositional way. Thus the problem could have arisen had the quoting inside been outside the scope of Split Merge. Since this is not the case, I see no reason for taking Zwart’s account to be problematic in the context of question **b**.

So, to close this part of the discussion, it has been shown that while Zwart’s derivation accounts for the effects arising for QEs, it is not vulnerable to the above-mentioned methodological objections. Though it assumes initial structures of unordered sets, methodologically it neither fares worse than mainstream MP, nor is it problematic on general grounds.

#### 4.4 Interim conclusion no. 2

In this section I applied Zwart’s account to the data discussed in section 2 and initially framed in a general concept of cyclic derivation in section 3. I have shown that the crucial properties of QEs naturally follow from Zwart’s cyclic derivation. Under the proper embedding of unordered sets, Split Merge perfectly yields both the atomic and complex reading of QEs. Moreover, the embedding at hand, while posing no methodological threats, allows to avoid the problematic interpretive trigger of Spell Out in (26). Consequently, Zwart’s approach fares well with QEs on both descriptive and explanatory grounds. Crucially, it does so assuming neither special status of Q, nor other dedicated mechanisms allowing Narrow Syntax to derive the relevant effects observed for QEs.

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<sup>22</sup>This goes in hand with a comment given by an anonymous reviewer pointing out that Zwart’s account does not assume an order imposed on layers. I assume that some information concerning ordering of layers is necessary, at least to account for the fact that structures interpreted as a gibberish at a lower layer can be meaningful at a higher one. Still, it is defined only in terms of structure determined by the criterion of Spell Out and the definition of Split Merge, but not a temporal cognitive process.

## 5 Quotation and phases: some conceptual problems

In section 2 and 3 I argued that QEs have all the hallmarks of phases. Then in section 4 I showed that the relevant properties can be naturally accounted for within a non-mainstream derivation proposed by Zwart. Closing that section I showed that there are no conceptual reasons for taking standard MP as superior to Zwart’s account. What remains to be discussed is whether the two approaches have comparable descriptive force. In this final section I am going to discuss whether PTs essentially built on Chomsky’s program are in a position to derive the expected effects. I analyse two approaches that have been effectively used in related cases. First, in subsection 5.1 I scrutinize whether mechanisms modifying the phase scope allow to identify phases on QEs. Second, in subsection 5.2 I discuss whether the effects observed for QEs can be accounted for by postulating quotes for PH<sup>0</sup>s.

### 5.1 Prospects for phase suspension

I shall start this part of the discussion from checking prospects for identifying a phase at the moment corresponding to the merger of Q. The motivation behind this attempt is clear: QEs, having no length limitations, are especially challenging for derivations assuming rigid points of Spell Out. Contrary to idioms, where the number of phases to be skipped is highly limited (cf. Harwood et al. 2016), QEs require a more powerful machinery. Abandoning Chomsky’s earlier proposals of weak phases (cf. Chomsky 2001) and delayed Spell Out (cf. Chomsky 2001, 2004), there are two main ideas explored in the current literature. First, the domain-based account, where each phase is determined not by a rigid PH<sup>0</sup>, but by the highest projection in a given domain. Second, phase sliding/cancellation triggered by the IM of PH<sup>0</sup>s. In what follows, I discuss each of the two options.

#### 5.1.1 Phase suspension within a domain

The domain-based approach to phase suspension provides a more relaxed account of phases. The general idea is presented in Bobaljik & Wurmbrand (2013). Let Y be a PH<sup>0</sup> and Y<sup>n</sup> its projection closing off the domain. Then, for the configuration [X [Y<sup>n</sup> Y]] Spell Out is suspended iff Y depends on X for its interpretation. The authors specify two algorithms for the interpretive dependency to arise: the syntactic and the morphological one. The former, developed, a.o., in Alexiadou et al. (2014) and Wurmbrand (2013, 2017) is irrelevant for the present discussion. It provides two domains, i.e. the Aspect domain and the T+C domain, neither of which generally overlaps with quotational domains. QEs can be both longer and shorter than any of the two.

Let us then focus on the second criterion, i.e. the morphological one. According to it, the Spell Out domain contains the whole Y<sup>n</sup> if the morphological features of Y require local interpretation with X (e.g. in the case of suppletion). Assume that the criterion could be adapted to the problem at hand. This would mean that the quoting inside has some morphological feature – call it  $f_Q$  – which must enter a local relation with the quoting item Q. For the sake of exposition, I mark  $f_Q$  which has entered such a relation as ‘ $\checkmark f_Q$ ’, and the one that has not as ‘ $\times f_Q$ ’. Spell Out is delayed until the merger of Q, so that the phase level is reached at  $\beta$ . As a result,  $\times f_Q$  on  $\alpha$  is turned into  $\checkmark f_Q$ .  $\beta$  is a full-fledged QE, a fact marked as  $\beta : \checkmark$ :

$$(39) \quad [\alpha : [\times f_Q] \dots] \xrightarrow{\text{merger of Q}} [\beta : \checkmark \text{ Q } [\alpha : [\times f_Q] \rightarrow [\checkmark f_Q] \dots]]$$

Despite numerous details left aside, the account seems promising for examples like (20)-(21). But there is another problem. As discussed in subsection 2.2, the grammar should also account

for repeated enquotation, yielding both the non-recursive and the recursive reading. However, a repeated use of quotes, marked by  $Q_1$  and  $Q_2$ , yields the following (simplified) structure:

$$(40) \quad [\beta:\checkmark Q_1 [\alpha:[\checkmark f_Q] \dots]] \xrightarrow{\text{merger of } Q_2} [\gamma:?? Q_2 [\beta:\checkmark, *? \rightarrow [\checkmark f_Q] Q_1 [\alpha:[\checkmark f_Q] \dots]]]$$

Difficulties for defining the interpretive dependency arise when  $Q$  – the item on which the rest is to be dependent – works in a cyclic way. The idea proposed by Bobaljik & Wurmbrand (2013) rests upon the fact that Spell Out is delayed if  $Y$  is inherently (morphologically) dependent on  $X$ . If this is so, then after (39)  $\beta$  must be a complete QE; otherwise Spell Out must have been delayed again. However, this means that, when feeding further steps of derivation as in (40),  $\beta$  is no longer morphologically incomplete. In particular, it has no  $[\times f_Q]$ . Thus the computation of enquotation, viz.  $[\times f_Q] \rightarrow [\checkmark f_Q]$ , cannot be defined.

Assume, however, that a more flexible framework, e.g. the one proposed by Borer (2013, 2014a,b) or Embick (2015), allows to circumvent this obstacle. In such accounts, where SOs can be sensitive to syntactic contexts,  $[\times f_Q]$  could have been encoded into  $\beta$  in the context of the upcoming  $Q_2$ . Unfortunately, leaving aside a serious problem arising for NTC, the account hardly solves the problem of QEs. Indeed, contrary to the one above, it is able to identify a phase on  $Q_n$ . However, dependency between features as definable in this approach is strictly contextual: it arises only in the context of  $Q$ . Therefore, until the merger of  $Q$  the account is not able to block Spell Out triggered within lower phases. Consequently, it does not meet the abovementioned demands.

So, the above mechanism of phase suspension does not yield the expected results. Below I discuss whether a better effect can be obtained by means of a different mechanism leading to the same result, viz. by suspending a phase via HM.

### 5.1.2 Phase suspension/cancellation by head movement

The idea that HM can affect the phase scope is quite old; it has appeared in the literature in at least two versions, viz. Gallego (2010) and Epstein et al. (2016).<sup>23</sup> The crucial observation is that if a  $PH^0$  is not visible at the position where it should mark the relevant phase, then Spell Out is delayed. If this is so, then identifying a quotational phase could follow from delaying Spell Out by raising  $PH^0$ (s) to the level of  $Q$ . To illustrate, take (41):

$$(41) \quad \text{John said 'Alfred see he'}$$

The derivation of (41) must reach the phase level at  $Q$ , for the reasons discussed in section 2 and 3. Moreover, in order to account for islandhood, it cannot create an edge as a potential landing site for SOs of the quoting inside. Consider, then, the following derivation, with Spell Out delayed by successive HM (irrelevant details omitted):

$$(42) \quad [CP \text{ John said } [_{NumP} \dots [CP \ Q \ [CP \langle C, \langle T^0, v^* \rangle \rangle] [TP \ \text{Alfred } [_{T'} t_{\langle T^0, v^* \rangle} [ v^* P \\ t_{Alfred} [v' t_{v^*} [VP \ \text{see he} \dots ]]]]]]]]]]$$

In (42)  $v^*$ , undergoing successive HM,<sup>24</sup> can no longer Spell Out the lower phase complement. Phase is reached at  $C$  and  $TP$  – the whole quoting inside – is Spelled Out.

Let us see how that kind of mechanism could deal with the present problem. The account has certain pros. First, it does not assume the atomic character of quotation. Second, the

<sup>23</sup>The latter draws on Chomsky (2015b) and the idea of the  $\sqrt{\text{root-to-}v^*}$  raising creating an amalgam, so that  $v^*$  becomes invisible. The former considers raising of  $PH^0$ , after which its lower copy is neglected. In either case, an invisible/neglected  $PH^0$  cannot trigger Spell Out.

<sup>24</sup>I assume the simplest account, where all the heads undergo IM, causing no potential threat for HMC. In this regard I do not discuss a direct  $v^*$ -to- $C$ , or excorporation in the sense of Roberts (1991) and much related work.

delayed Spell Out forms a quotational phase. Therefore, under the assumption that C-I can compute the adjoined item Q at the level of the CP phase, the derivation is safe from unwanted semantic effects (crash, lack of compositionality). Moreover, there are good reasons for taking the  $\langle C, \langle v^*, T^0 \rangle \rangle$  structure as accounting for islandhood of QEs. That is, if one follows the idea of Chomsky (2015b) that HM creating an ordered pair  $\langle PH^0, H^0 \rangle$  amalgamates  $PH^0$  and thus makes it invisible, then C in  $\langle C, \langle v^*, T^0 \rangle \rangle$  should become invisible as well. Assuming, moreover, that the ability of a given  $PH^0$  to create an edge is its inherent syntactic feature (cf. Chomsky 2000, 2005 and Boeckx 2010), C made invisible before its edge is created should not create it at all.<sup>25</sup> If this is so, then the only item that can create the edge over TP is  $v^*$ . However, the remerged  $v^*$  has already done its work below TP, creating the edge for the EA *Alfred*. It follows, then, that  $v^*$  raises, makes T and C invisible, waits for the adjoined elements and Spells Out the  $\langle C, \langle v^*, T^0 \rangle \rangle$  complement. Consequently, no edge for movement is created, which explains the islandhood of QEs.

However, while it is beyond the scope of this paper to provide a detailed discussion on the problem of HM, the account involves severe difficulties. Note that for HM to affect the phase scope, one cannot assume, *contra* Chomsky (2001), that it is relegated to SM.<sup>26</sup> If, on the other hand, it is a syntactic operation, then it is natural to expect certain effects to appear on the quoting inside where HM has taken place. First, as argued by Koenenman (2000), the [TENSE] feature would be expected to appear on C. Second, as discussed by Truckenbrodt (2006) and Lechner (2007, 2010), V-to-C movement should affect the illocutionary force. Finally, as investigated by Mathew (2015), that kind of successive HM should affect, a.o., exhaustivity, long distance anaphora, the deontic/epistemic Mood distinction, or the Aux position. Interestingly, as recently argued for by Sugimoto (2016), the extended version of Epstein et al. (2016) is by no means more innocent. The external pair Merge yielding  $\langle T, C \rangle$  should result in the infinitival structure. However, neither of these effects follow from the operation of enquotation. The operation itself imposes some special reading on the whole QE. Still, the quoting inside, as supported by the data from ellipsis (section 2.3), must remain unchanged, allowing computation of the quoted expression.

So, a convincing solution can hardly be obtained via HM. In order to grasp the character of QEs, viz. their phasal character combined with the unconstrained length, such a derivation must avoid side effects. However, if the relevant phases cannot be suspended by standard means, a natural suspicion is that Q itself is a  $PH^0$ . I discuss this option in the next subsection.

## 5.2 Quotes as a phase head

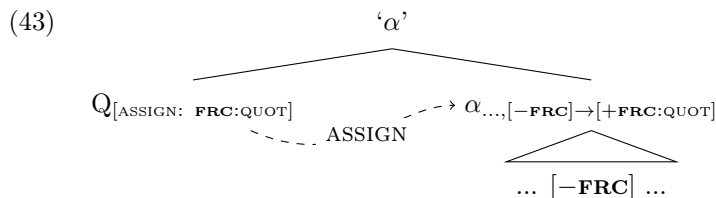
In the previous subsection I showed that QEs cannot be derived by means of phase suspension/cancellation. However, most of these difficulties could be deemed superfluous had Q itself been identified as a  $PH^0$ . Indeed, the idea is not unreasonable. As argued for by Boeckx (2015), an additional  $PH^0$  is a natural effect of a growing computational complexity, clearly observable for QEs (no straightforward compositionality, binding, CS, etc.). In this section I argue that it is empirically the most promising, though conceptually a highly problematic solution.

So, what sort of  $PH^0$  could the quoting Q be? To begin with, following Chomsky's crucial idea (Chomsky 2013, 2015a,b and the related work), a phase level is reached only if the phase complement obtains a complete feature makeup (see Grano & Lasnik 2016 for recent comments). If the line of reasoning sketched in subsection 3 is correct, then QEs require a delayed Spell Out. For this to be possible, SOs forming the quoting inside must have some unvalued/unassigned

<sup>25</sup>Note that in Chomsky (2015b) an analogous problem is avoided for the lower phase: the  $v^*$  edge is filled by the EA before the pair-Merge of  $\sqrt{root}$  and  $v^*$ .

<sup>26</sup>And perhaps also for reasons following from a more fine-grained account of Gallego & Uriagereka (2015)

formal feature. Call it [FRC], a sort of more fine-grained analogue of Force.<sup>27</sup> Q, a PH<sup>0</sup>, would assign [+FRC:QUOT]. The final result would be a complete QE ‘α’. The general mechanism of enotation would then look as follows:



At first sight the above picture might have certain advantages. First, assuming the convergence approach, Spell Out would be delayed in a principled way.  $\alpha$  waits for the merger of Q which assigns [+FRC:QUOT].<sup>28</sup> Next  $\alpha$  is Spelled Out as a quoting inside. Second, (43) could explain to some extent the islandhood of QEs. Note that Q, occupying an adjoined position, would not project. Failing to project, it cannot create an edge. Consequently, movement from QEs is blocked and islandhood follows from the lack of landing site. Third, assigning the [+FRC:QUOT] feature could account for the non-compositional character of QEs. However, while in principle this could meet the descriptive adequacy, there are a number of conceptual difficulties. In what follows, I shall touch upon three of them, that is: the status of Q as a PH<sup>0</sup>, the recursive character of Q, and the architecture of features following from (43).

First, it cannot pass unnoticed that the adjoined status of Q as a PH<sup>0</sup>, if accepted at all, must have been very special. The whole idea behind phasal heads is that, securing the proper Agreement/Assignment relation, they are absolutely indispensable for Narrow Syntax to launch Spell Out. Since without Spell Out C-I could not receive structures for interpretation, the presence of PH<sup>0</sup>s in the derivation is obligatory. And that is exactly contrary to what is standardly assumed w.r.t. adjuncts, whose presence in the derivation is optional. Thus if Q in this picture is to involve operations on features, it must have been conceived of as a sort of non-standard obligatory (structural) adjunct. Contrary to standard ones, taken by Boeckx (2008a,b) to be quasi-arguments or argument-like, they would be expected to play the role of non-quasi PH<sup>0</sup>s. This is one point. Another is the problem of edges. As noted above, the lack of edge following from the adjoined status of Q fits well with the islandhood of QEs. Still, the edge-less character would make Q an atypical PH<sup>0</sup>. After all, the ability to create an edge, probably in a far non-trivial way (cf. Bošković 2016a), is one of two special properties of PH<sup>0</sup>s (cf. Boeckx 2012a). If Q lacks this property, its phasal status can be reasonably questioned.

The second complication resembles, to much extent, those arising for (40), this time entailing more serious worries. Take (9b), repeated below as (44):

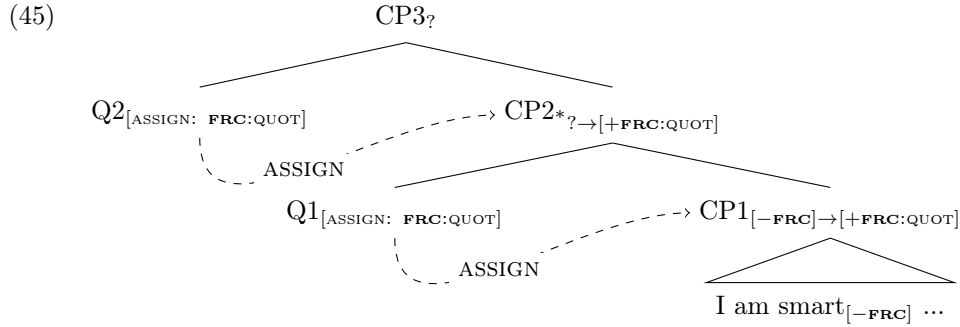
(44) Alfred said ‘I am smart’. (quoting Rudolf)

The merger of Q applies twice. Assuming its PH<sup>0</sup> status, the whole mechanism should be driven by features’ assignment, as shown in (43). This, however, turns out to be problematic. Notice that the application of (43) yields the following structure (irrelevant details omitted):

<sup>27</sup>It is not at all clear what [FRC] could correspond to as a formal feature. Wiślicki (2016) sketches a framework where this could be accounted for by means of semantic typing taking place within Narrow Syntax.

<sup>28</sup>There are further technical problems concerning the appearance of [-FRC] on  $\alpha$ . Since [-FRC], in order to delay Spell Out, should appear on SOs forming the quoting inside, the most efficient approach would probably be to take [-FRC] to percolate up to  $\alpha$  (see Koster 2007 for comments on various options of feature percolation within a Minimalist approach).





The derivation starts from items with unvalued [FRC]. First, the structure waits for the full feature makeup, and then it is Spelled Out after the merger of Q, which assigns [+FRC:QUOT]. However, the obtained structure must allow an immediate recursion of enquotation, viz. the merger of Q. Note, however, that it is at this point that the mechanism faces two problems, interestingly connected to each other. As argued for within the Richards-Chomsky framework (cf. Chomsky 2007, 2008; Richards 2007, 2012), every  $PH^0$  should have its  $H^0$ -counterpart allowing FI. Though there are many ways to overcome this problem,<sup>29</sup> there are deeper repercussions of applying this idea. Note that the output of  $Merge(Q1, CP1_{[-FRC]})$  is CP2 with [+FRC:QUOT], not [-FRC]. If this is so, then assigning [+FRC:QUOT] by Q2 to CP2 cannot be defined. As a result, operations on features are not computable, contrary to the requirements driving (43). To avoid this problem, there must have been yet another  $H^0$ , an analogue of Richards  $H^0$ -counterpart of  $PH^0$ , that provides [-FRC]. Postulating this, however, entails introducing heads the role of which is just to yield an SO with [-FRC]. These would be needed solely for conceptual reasons, and thus automatically questionable on economic grounds.

The third problem concerns the asymmetry of features that comes into play once the [FRC]-based approach as in (43) is assumed. Take (46a) below. Since, as argued for in subsections 2.2-2.5, the quoting inside should be syntactically transparent, the QE in (46a) seems to have the general structure as in (46b):

- (46) a. ‘Dogs’ is a noun.  
 b. [ $NumP$   $Num^0_{[SG]}$  [ $nP$   $n^0$  [ $NumP$  Q [ $NumP$   $Num^0_{[PLR]}$  [ $nP$   $n^0$   $\sqrt{dog}$ ]]]]]]

According to this account, the derivation builds, first, the nominal *dog* and then the quoting nominal ‘*dog*’. In principle, every nominal should be assigned case. It can be safely assumed that the outer nominal ‘*dog*’ is assigned [NOMINATIVE]. However, the inner nominal *dog* remains with unchecked [CASE], which should result in crash. Moreover, the problem becomes all the more puzzling when we have a look at languages where QEs become inflected (for some data with quoted inflected proper names, see Matushansky 2008, 2015). To illustrate, take the following example from Polish:

- (47) Studenci nazywają Piotra ‘koszmarem studentów’/  
 Students.NOM call.3RD.PLR Peter.ACC ‘nightmare.INS students.GEN’/  
 ??? ‘koszmar studentów’.  
 ??? ‘nightmare.NOM students.GEN’

<sup>29</sup>First, it is not at all clear whether Q itself should have unvalued features. Second, [+FRC:QUOT] should be interpretable, causing no problem whatsoever. Third, it is still an underdeveloped issue how FI, originally proposed for the Chomskyan framework with rigid  $PH^0$ s ( $v^*$ , C), should be accounted for within the convergence approach.

Students call Peter ‘The nightmare of students’.  
(Polish)

The QE should have the form /koszmarem studentów/, viz. that of INSTRUMENTAL. Here comes the puzzle. On the one hand, two QEs having different forms at SM are not equivalent to each other. On the other hand, (47) means that students call Peter not just by means of this string, but by all the strings corresponding to the inflected forms of the NP, viz.:<sup>30</sup>

- |      |                               |                              |
|------|-------------------------------|------------------------------|
| (48) | i. NOM koszmar studentów      | v. INS koszmarem studentów   |
|      | ii. GEN koszmaru studentów    | vi. LOC koszmarze studentów  |
|      | iii. DAT koszmarowi studentów | vii. VOC koszmarze studentów |
|      | iv. ACC koszmar studentów     |                              |

It is then natural to expect Narrow Syntax to build a QE with the following dichotomy encoded:

- (i) at the level of Q, the quoting inside remains with unchecked [CASE]; thus the meaning of the QE can be extended to all potential strings corresponding to the inflected forms;
- (ii) SOs of the quoting inside enter morphosyntactic relations with the reporting verb at the level of the quotational nominal.

Still, though empirically well-motivated, this would impose certain inequality among features. In some derivations [+FRC:QUOT] could not only justify Spelling Out a nominal with unchecked [CASE], but also block CASE-assignment for the sake of proper interpretation. This would entail not only the existence of some hierarchy of features – an old idea dating back at least to Muysken & Riemsdijk (1986). Actually, the account would entail some higher-order hierarchy. It would specify not how features can be computed to yield the expected semantic effect, but how do they affect the role of other features so that the expected computation can take place.

The above problems allow some partial conclusions. Letting Q be a new PH<sup>0</sup> entails serious complications. Occupying an adjoined position, Q does not create an edge, but assigns a formal feature. To account for the recursive enquotation, it requires an additional H<sup>0</sup> whose only role would be to provide the [–FRC] feature allowing further computation. Finally, [+FRC:QUOT] must have legitimized unchecked uninterpretable features appearing at the phase level. I take all these effects to be highly non-standard and at least questionable on Minimalist grounds.

### 5.3 *Interim summary no. 3*

Let us take stock. In section 2 and 3 I argued that a mixture of conflicting properties suggest that QEs correspond to phases. In section 4 I presented how all the discussed effects can be very naturally accounted for within a non-mainstream approach proposed by Zwart. The account, I argued, fares no worse on purely conceptual grounds than mainstream MP. However, in this section it has been shown that the latter does fare worse on descriptive grounds in that various ways for identifying quotational phases are untenable. An open path seems to exist for the quotes-as-PH<sup>0</sup> approach. However, adapting the machinery to this proposal would require a substantial reformulation of its otherwise well-established elements.

<sup>30</sup>Note that this fact supports at least two points raised in section 2. First, it not only reinforces an especially flexible semantics of QEs proposed in Maier (2014a), but probably suggests a need for an even more coarse-grained framework. Second, the fact that SOs of the quoting inside enter syntactic relations with the reporting verb provides yet another argument in favour of the syntactic transparency of QEs.

## 6 Conclusion

Gallego (2016) tackles the problem that is strikingly close to the one discussed in this paper, i.e. ‘*how to get lexical atomicity without losing syntactic complexity*’ (p. 148). Gallego’s strategy is based on the following line of reasoning: ‘*the logic to pursue is that LIs can indeed have internal structure, which then gets opaque somehow*’ (p. 148). The logic I have been trying to pursue in this paper can be stated as a mirror image of the one above, that is *SOs can be opaque and then get structured somehow*. Jan-Wouter Zwart (*p.c.*, 2015) suggested to me that the two strategies – bottom-up and top down – should be treated as parallel. What I have been at pains to show is that at the current stage of the research they cannot, at least w.r.t. quotation.

There are at least four main outputs of the present analysis. First, it has presented the conflicting properties of QEs. The properties force the duality of interpretation – the atomic and the complex one, distinguishing the non-recursive and the recursive reading of embedded enotation. Second, it has discussed how these properties are problematic for current PT. As I have argued, the mixture of the flexible scope of QEs with the constraints following from their atomic behaviour cannot be easily accounted for within current PT. Third, it has been shown that the expected properties of QEs naturally follow from Zwart’s Split Merge machinery.

These are straightforward conclusions. The fourth lesson can be drawn from the apparent inapplicability of mainstream Minimalism to what is naturally accounted for within Zwart’s approach. Crucially, this concerns the account of phases and the role of features in PT. Resisting polemic accounts questioning the presence of features in Narrow Syntax (cf. Boeckx 2015), Chomsky (2015a) takes identifying phases to be the true *raison d’être* of unvalued features. As I have tried to show, defining phases in terms of an architecture of features faces serious problems. To put this more precisely, assume the general idea argued for in Boeckx (2015) saying that phases are inherently connected with a symmetry-breaking mechanism. This fact looks differently for each of the two accounts. In mainstream Minimalism a phase is a result of asymmetry observed within features. Spell Out is triggered when a given SO has a complete feature makeup, viz.  $[\alpha_{[-F]} \text{PH}^0 \beta_{[+G]}]$ ,  $\beta$  a phase complement,  $\alpha$ -PH<sup>0</sup> a phase edge. By contrast, in Zwart’s syntax it is asymmetry that follows from Spell Out. A phase breaks symmetry which arises in the form of two sets merged together. Thus Spell Out is triggered if derivation yields the  $\{\{\alpha, \beta, \dots\}, \{\gamma, \delta, \dots\}\}$  pair, viz. the one where the first element is a set. It has been shown that while the asymmetry cannot be simply provided in terms of features within the Minimalist account, it naturally emerges in terms of configuration within Zwart’s machinery. In this regard, QEs appear to be a challenging and still unexplored area contributing much to a wider discussion on the general theory of phases.

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