

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

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April 5, 2017

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\*Various parts of this paper were presented at *Semantics and Philosophy in Europe 8* (Berlin, 2014), Syntax Seminar at the University of Groningen (2015), Semantics Seminar at Goethe University (Frankfurt, 2015), *PhiLang* (Łódź, 2015), *EGG* Summer School Seminar (Brno, 2015), and *Incontro di Grammatica Generativa* (Lecce, 2016). Critical comments from the participants, in particular James Griffiths, Wolfram Hinzen, Emar Maier, Henk van Riemsdijk, Pavel Rudnev, Daniel Tiskin, Mark de Vries, Robert Truswell, Ede Zimmermann, Roberto Zamparelli, and Jan-Wouter Zwart are gratefully acknowledged. Special thanks go to Jarosław Jakielaszek, the true don Corleone (and hopefully not don Ciccio) of this paper. Of course, I am solely responsible for any errors.

### 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. QEs are taken to be built within the Narrow Syntax. While this fact is empirically well-motivated, it turns out to be conceptually problematic for the feature-driven derivation proceeding by phases. 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 iterative interpretation. On the other hand, having no limits in length and scope, QEs are more challenging from other non-compositional chunks from the point of view of phases. 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 phase theory.

## 1 Introduction

### 1.1 The Aim

There are two key aims of this paper. First, it is to argue that quotation, 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 the current account of phases naturally follow from the approach to Merge developed by Jan-Wouter Zwart (for first drafts, see Zwart (2003), Zwart (2004a), and Zwart (2004b)). The underlying idea of the approach derives from the concept of Merge proposed in the early Minimalism era (cf. Chomsky (1995:244)):

**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 asymmetrizes a numeration  $N$  and its item  $\alpha$  (cf. Zwart (2009), Zwart (2011a), and Zwart (2015), Trotzke & Zwart (2014)):

**Definition 2 (Split Merge)**

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

The account outlined above has a number of core architectural consequences. Split Merge entails, among others, the top-down direction of derivation and an alternative counterpart of phases called *layers*. Crucially, layers differ from phases in that they follow neither from rigid  $\text{PH}^0$ s, nor any architecture of features, but from a purely configurational, set-theoretic criterion. In what follows, I discuss these architectural issues in light of the evidence coming from peculiar properties of quotation. I claim that the discussed effects, together with the way they can be naturally accounted for within Zwart’s framework, uncover certain problems for the mainstream PT. In this regard the paper discusses a fragment of syntactic mechanism that, while being necessary for the proper treatment of quotation, can be made use of within the former, but not the latter. The discussion, however, is not merely aimed at arguing for the superiority of Zwart’s account over the mainstream one. Rather, by showing that a principled solution which extends

the current Minimalist framework is non-stipulatively achievable within Zwart’s approach, it is to suggest some technical points that are claimed to be worth considering for the general architecture of PT.

## 1.2 The Scope

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 is quite long including, among others, compositionality (Werning (2005), Potts (2007), Pagin & Westerstahl (2010), Ginzburg & Cooper (2014), and Maier (2015)), inversion (Suñer (2000), Bruening (2016)), parentheticals (De Vries (2008), Kluck & Vries (2015)), complementation (Planas (2014)), binding (Schlenker (1999) and Schlenker (2015), Maier (2007), Sharvit (2008) and Sharvit (2011)), or quotational heads and the scope of projection (Ackema & Adriaan 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. The present paper, raising the question of how precisely can QEs be generated, shows that this assumption is problematic. In particular, it scrutinizes how the relation between the exponent of quotation (quotes, intonation or any other conventional marker) and the quoting inside can be conceived of on the Minimalist grounds. In this regard it directly tackles the problem of the internal structure of QEs, taking phases to be the crux of the discussion.

The phase-based syntax of the internal structure of QEs faces problems that, to my knowledge, have never been raised with a sufficient precision in the generative tradition. The problem is shown to lie in a conflict between a typically phasal character of QEs and an especially flexible scope of quotation. These observations motivate the organization of the paper. In section 2 I present the empirical data that are problematic for PT. In particular, I show the conflicting properties of QEs which require them to be treated as both atomic (in various senses) and not. The conclusion is that QEs should correspond to phases. However, basing on these data, in section 3 I show that the most widely assumed theories of feature-driven phases are not in a position to account for this effect. Finally, in section 4 I show that what can be hardly accounted for within the mainstream approach, naturally follows from the machinery proposed by Zwart. Section 5 summarizes the results and suggests new prospects for future discussion on PT.

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

At least since the twenties, investigations on foundations of quotation have been dominated by philosophical, logic, or semantic literature (see Saka (2013); Maier (2014b) and Maier (2015) for overviews), syntax remaining silent. The aim of this section is to throw some light on two well-evidenced yet 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 data (subsections 2.2-2.5) showing a many-sided complexity of QEs that has been widely disregarded. This part of discussion is based on a recursive way of forming quotational names, ellipsis, quotation-split and metalinguistic quantification. The section provides empirical material showing some effects which are then argued to be problematic for the most widely assumed PT.

## 2.1 The atomic character of quotational expressions

To begin with, let us have a look at (1) below:

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

The reason why the two sentences are not co-extensional is intuitively clear: two QEs having different\* representations at the SM interface cannot be co-referential/co-extensional. The way the C-I system should deal with this fact was recently scrutinized by Maier ((2014) and much related work). According to the author, the general scheme for the semantics of mixed quotation reads as:

- (2)  $\llbracket \text{‘}\sigma\text{’} \rrbracket =$  the  $x$  that the speaker  $S$  expressed with her use of the phonological string  $\lceil \sigma \rceil$

I assume that Maier’s account worked out for mixed quotation holds, with minor augmentations\*, for pure quotation. If this approach is on the right track, it follows from the right hand side of (2) that the quoting inside  $\lceil \sigma \rceil$  of the QE ‘ $\sigma$ ’ must be interpreted at C-I as an atomic phonological string.\* Generating the quoting inside  $\lceil \sigma \rceil$  as an atomic SO would, in principle, provide a natural solution. For the atomic  $\lceil \sigma \rceil$  the problem of semantic composition as in (1) does not arise whatsoever.

However, the problem is much more severe. As is known, enquotation yields well-formed phrases from any material, regardless of length, syntactic complexity and the degree of deviancy:

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

The above examples can be naturally accounted for if the quoting inside  $\lceil \sigma \rceil$  is treated as a lexical atom. But this is no longer so if QEs are to be generated cyclically, phase-by-phase. Leaving aside at this moment the exact featural make-up of subsequent SOs of 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, the special behaviour of which can be accounted for as following from the  $[_{CP} C^0 TP]$  configuration, with the intensional TP forming a phase complement (cf. Larson (2011), Sheehan & Hinzen (2011), Arsenijević & Hinzen (2012), Hinzen, Sheehan & Reichard (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~~’?

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\*I leave aside the problem of non-literal quotation, such as quoting written signs by means of oral speech, where the two SM-forms are not identical to each other. While the problem is not trivial, it does not directly relate to the mechanism of generating QEs. For some comments on non-literal quotation, see Bennett (1988)

\*I leave aside the detailed discussion, but see subsection 3.3 for some arguments. It is also 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.

\*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), Wislicki (2014))

I take both the grammaticality of the properties of QEs underlying this effect and its universal character (both questioned by Schlenker (2015)) to be an up-to-now unsolved problem. Still, however obvious, it must be acknowledged that having dispensed with barriers, the only way the standard Minimalism can approach this phenomenon is either via lexical atomicity or phases (cf. Boeckx (2012a) and Boeckx (2012b)). That is, if QEs are neither generated as atoms, nor are they trapped in a phase complement, their islandhood remains unaccounted for.

So, the first conclusion is this. The character of the quoting inside  $\ulcorner \sigma \urcorner$  of the QE ' $\sigma$ ' can be naturally accounted for if  $\ulcorner \sigma \urcorner$  is generated as an atomic SO. Otherwise Narrow Syntax has to provide a mechanism that (i) explains the non-compositional effects observed for QEs in (1) and (3), (ii) allows the structure building procedure to survive despite the ill-formed phrases crossing the standard points of Spell Out, (iii) provides a universal way of closing off QEs within one phase complement.

## 2.2 Recursive character of enquotation

Discussing some paradoxes arising from composing the metalanguage and the object language, Boolos (1995) points out an interesting ambiguity, very puzzling for 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 the quoted speaker of the expression starting with *Dog* and ending with *D*. The quoting inside is then ill-formed, including two single quotes: after *Dog* and before *D*. 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 *Dog* and *D*. What is crucial for the present discussion is Boolos' observation that quote(s) embedded within quotes are ambiguous. First, they can be interpreted as elements of chains forming the quoting inside. Second, as the exponent of another operation of enquotation, with various structural distributions.

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  $\ulcorner \ulcorner D \urcorner \circ \ulcorner g \urcorner \dots \ulcorner D \urcorner \urcorner$ . According to the second interpretation, John quoted some person *X* such that *X* typed an ill-formed string of the form  $\ulcorner D \urcorner \circ \ulcorner g \urcorner \dots \ulcorner D \urcorner$ . According to the third possible reading, John assigned the word *Dog* a particular feature, namely the fact 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 iteration, and another based on recursion.

The operation of enquotation can be used iteratively. This fact is neither controversial nor especially enlightening; as discussed in subsection 2.1, whatever appears within quotes can be interpreted as a purely material string. That kind of iteration-based interpretation 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 feature of quotation, viz. its recursive character. This holds at least in the sense of Zwart (2011a) and Trotzke & Zwart (2014). According to the authors, the operation  $f$  is recursive iff the value of  $f(x)$  can become an atomic argument\* 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 quotation. 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, as is empirically supported by the correctness of (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 subsequent applications of the operation of enquotation which allows to formulate names of expressions in a recursive way. This is also supported by the evidence from context-shifts. Quite apart from single quotes providing single context-shift, the grammar must account for the recursive shifting, 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/\*quoting himself) ''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 context-shift would have remained unexplained.

Consequently, here comes the second conclusion. For the kind of Boolos' ambiguity to arise, it is not sufficient that the merger of quotes comes one after another. What is incomparably more demanding is that Narrow Syntax must provide means to distinguish two readings of quotational embedding within a single expression. On the one hand, the system must yield the iteration-based 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.

### 2.3 Ellipsis

The previous subsection shows that the recursive character of the operation of enquotation does not allow to treat QEs as atoms *simpliciter*. Still, the syntactic complexity arising for quotational embedding does not necessarily 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. Tarski (1933/1983:159), recently defended in Werning (2005)). However, there is good evidence against this view. As already observed by ((1973), see also Wiese (1996), Maier (2008)), QEs allow ellipsis. Let us have a look at the following examples,  $\Delta$  standing for the reconstructed material:

- (10) a. Rudolf said 'Alfred knew that perfectly', but I think he didn't  $\Delta$ .  
 where  $\Delta = \begin{cases} \text{know that perfectly} \\ \text{say 'Alfred ...'} \\ \# \text{'know that perfectly' } \end{cases}$

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\*For further comments on the understanding of the property of being atomic, see Trotzke & Lahne (2011)

- b. Marysia powiedziała ‘Nie chciałam tego zrobić’, ale i tak  
 Marysia.NOM said.FEM ‘NEG want.1ST this.GEN do’ but nevertheless  
 wszyscy wiedzą, że chciała  $\Delta$ .  
 everybody knows 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 that’, 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  $\Delta = \begin{cases} \text{‘go too far’} \\ \text{go too far} \end{cases}$

A few facts deserve further comments. Most importantly, ellipsis operating on subsequent projections of the quoting inside show that it must be syntactically transparent, thus automatically non-atomic. The syntax of the quoting inside must provide an access to subsequent features and stages of derivation. 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 deviant quoting inside does not relax the QE from syntactic 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). However, a few problems characteristic for quotation deserve a closer look.

First, EC reconstructed as QEs should not change the original SM-form. If the form of the copied/deleted material is different from the quoting inside,  $\Delta$  should not receive the quotational reading (the fact marked by #). Therefore ellipsis must target the stage of derivation before the quotational mode is specified.

Second, the scope of quotation affects the scope of ellipsis. In (10a) and (10e) ellipsis\* 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:ft. 29)).

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\*Under different indexing of *he* in (10a).

Third, quotation affects the interpretation of indexicals, as in (10f), involving context shift. 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 enable context shifting – an operation that, as shown by Rudnev (2015), can non-trivially depend not only on the quotational mode, but also on the features of  $C^0$ .

Finally, reconstructing the ellipsis targeting 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*. By contrast, in the second one he doubts whether Russell’s statement is generally true. For this to be possible the quoting inside must be reconstructed to the form of the extensional phrase. This interesting phenomenon is also supported by the deviant character of (11c):\*

- (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. The well-formed *smart* should be copied-deleted without any obstacles. The problem, bearing in mind the discussion in 2.1 and the fact that the SOs of quoting inside may not be standard LIs, is non-trivial and deserves separate analysis. Some 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 discussion in 2.2. The previous subsection points out the transparent character of quotes forming a quoting inside within the quotational embedding. This subsection shows that the quoting inside must be universally transparent in terms of both syntactic and interface operations. On the one hand, subsequent SOs of the quoting inside forming AC must enter clausal/temporal relations, as well as case valuation and  $\varphi$ -features agreement. On the other hand, they must be able to undergo post-syntactic stages of computation that account for context shifting and the semantics of propositional attitudes.

## 2.4 Quotation split

The discussion in 2.3 shows that for QE-ellipsis to be reconstructable, 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.’.

The widely admitted account treats the reporting clauses like *she said* above as adjuncts (cf. De Vries (2007), Griffiths (2015a), Griffiths (2015b), and Kluck & Vries (2015) and much related work). Indeed, there are a number of effects that support 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\* Neg<sup>0</sup>.

- (13) ‘John will not come’, she said.

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\*I owe this point and the discussion on the problem to Robert Truswell (*p.c.*, 2015).

\*Note that this works only insofar as the c-command relation is assumed. For a different approach, see the abovementioned comment in Emonds (2001:*ft.* 29)



The question is how this relates to the syntax of QEs. According to the above view, in (12) it is the QE that is a root TP, 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 both the main clause and the backgrounded parenthetical. Presenting a more radical view, Newmeyer (2015) takes all parentheticals to be root clauses, extending the discussion to QEs (see Newmeyer’s examples (47)-(48)). In a more classical account, Emonds (1970:20) 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 itself an argument for treating QEs as transparent not only w.r.t. features, but also to whole SOs. 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 (2011:168), 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 (for some relevant comments, see Ad Neeleman, Titov, Van De Koot & Vermeulen (2009), who suggest different landing sites for contrastive and non-contrastive items).

Second, let us see what happens when one tries to tinker with the reporting clauses. This becomes especially intriguing 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 (2004:230-231) 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.\* Next, the reporting parenthetical would deny that the event of uttering has taken place, the whole phrase becoming odd at discourse level. 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 subsequent effects seem to follow from raising of various parts of QEs (and maybe also of the reporting VP).

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\*Note that this is quite cognate with (2), adapted from Maier (2014a). This would suggest a line of reasoning according to which the source of the odd character of (15b) is semantic, rather than syntactic. Another argument in favour of this approach is that it is the presence of 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.’

Finally, the third interesting observation comes from the argument status of QEs. It is empirically evidenced that pure quotations are basically 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, e.g., Japanese, where both direct and indirect speech involve the overt complementizer *to*. The difference is relevant w.r.t. the quotational split, as the following prediction is borne out. On a par with English indirect speech as in (16), where split is not possible, 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’ Comp he.NOM say.PAST  
He said ‘Tanaka will not come’.  
(Japanese)
- b. Tanaka-wa konai to kare-ga itta.  
Tanaka.TOP come.NEG Comp he.NOM say.PAST  
He said that Tanaka would not come.  
(Japanese)
- c. \*‘Tanaka-wa’ to kare-ga itta ‘konai’  
‘Tanaka.TOP’ Comp 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.

Consequently, the fourth conclusion is this. Quite apart from ellipsis, the evidence from quotation split shows that the quoting inside cannot be treated as atomic. Overt SOs of QEs must remain transparent for movement to the Left Periphery, as well as for further effects observable at discourse level.

## 2.5 Metalinguistic quantification

The discussion in previous subsections show that Narrow Syntax must generate QEs in such a way that the quoting inside remains transparent in many respects. First, the grammar must be sensitive to the recursive use of quotes (subsect. 2.2). Second, the syntax of the quoting inside must allow IM in order to account for ellipsis and the Left Periphery movement (subsect. 2.3-2.4). To close this part, I shall have a look at a very special case of parts of QEs that do not receive the straightforward quotational reading. As shown by Sudo (2013), that kind of special behaviour can be traced 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’ Comp 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 a description, e.g. *such and such man*, *such and such thing*, etc. Polish uses 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 some interesting effects. First of all, they allow two readings. In the first interpretation, they are treated as a homogeneous part of the QE. I leave this (trivial) reading aside. In 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. Serving as quantifiers, 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 we follow Potts (2007)). Therefore each of the sentences in (18) is true if Hanako or John has 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 the homogeneous phonological string. Tellingly, they must be treated as separate SOs, with special semantics making them distinct from the remaining elements 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 the differences between formal features of subsequent items contained in the quoting inside. In particular, it must identify the way metalinguistic quantifiers are distinct from other parts of a given QE. Thus the grammar must account for the non-homogeneous semantics of the SOs of the quoting inside.

## 2.6 Interim summary no. 1

This subsection has explored some features of QEs that seem to be important for their derivation. On the one hand, QEs are not compositional, at least in the straightforward Fregean way. This fact has two consequences: (i) no item of the quoting inside can undergo substitution *salva veritate*; (ii) pure quotation legitimates any ill-formed expression within quotes. Moreover, pure quotation yields *wh*-islands. These facts suggest that QEs are either atomic SOs (as the long-standing tradition argues for), or correspond to phases. On the other hand, the potential gain from treating QEs as atoms stands in stark conflict with the many-sided complexity of QEs. The complex character follows from the recursive behaviour of quotes and various semantic and discourse effects rooted in movement and in formal features of the elements of the quoting inside.

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 the current Minimalism, the only remaining sense in which they can be regarded as atomic is to take them as corresponding phases. The following part 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 phases: some conceptual problems

In section 2 I provided evidence for the non-trivial behaviour of QEs. The following section discusses how the above data can be informative with regard to the current PT. Bearing in mind

the discussion in 2.2-2.4, I assume that the quoting inside of QEs must be transparent, thus non-atomic. It follows, then, that QEs are generated step-by-step. However, while this assumption seems to be indispensable, the section shows that it can be hardly accounted for within the phase-based approach. First, in subsection 3.1, I formulate the assumptions and demands underlying the phasal approach to QEs. Subsection 3.2 scrutinizes whether certain mechanisms allowing modification of phase-scope that have been proposed in the current literature are in a position to account for the problems arising for QEs. Finally, in subsection 3.3 I discuss whether the problems can be solved by postulating quotes for PH<sup>0</sup>s.

### 3.1 Quotation and phases: setting the stage

In this subsection I shall clarify some background assumptions and demands underlying phasal approach to quotation. Let us start from the two following assumptions. First, I assume the existence of an SO – call it  $Q$  – corresponding to the operation of enotation. I also assume that no empirical data provide any argument in favour of postulating two types of quotes – one providing pure, another mixed quotation (cf. Werning (2012) for a similar idea). As it stands, 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, with some margin for additional projections, if necessary:

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

Nevertheless, I do not question the presence of  $Q$  in the Narrow Syntax. I just take it to be well motivated by its perfectly recursive behaviour and the fact that it affects genuinely syntactic phenomena, such as agreement, binding and islandhood. Moreover, as exemplified in (20)-(21), the QEs-specific effects such as legitimizing deviant material, index-shifting, 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/\*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 ‘should studies’ *Principia*.  
 b. Alfred<sub>*i*</sub> was repeating that every student ‘should study my<sub>*i/\*j*</sub> paper’.  
 c. Which book did Alfred say every student #‘should study ~~which book~~’/ ‘should study’ ~~which book~~?

Assumption No. 2 concerns the architecture of features and phases. Following a more or less standard approach I assume that Spell Out is triggered automatically under feature checking, observing PIC. In particular, I am following Chomsky’s (2015:81) recent remark saying that it is exactly identifying phases that is the reason why features exist. In this view it is, then, phases that are the central notion the configuration of features should be subject to.

These are the general assumptions, let us now move to some basic demands of the QEs-as-phases approach. We want to clarify at least two issues: (i) what grounds the phasal approach to QEs and, (ii) the way they fit to the architecture of phases. As for (i), the data clearly show that QEs have at least three properties that are typically phasal (with some differences depending on the account).

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.\* In particular, there is no signal suggesting the legitimization of deviant material. For the recent framework of Chomsky (2013) and Chomsky (2015b) and especially of Chomsky (2008:144), 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), Frampton & Gutmann (2002), and Frampton & Gutmann (2006) and much related work), the problem is more severe. Nonetheless, even assuming the former, it remains to be solved what sort of interpretation would *I should studies Principia* in (20a) obtain reaching a phase before the quotational mode is imposed.\*

Second, the non-compositional character of QEs. After the IA *Principia* in (20a) is Spelled Out, it should be subject to the relevant composition principles. Clearly, it is not. Note that at this stage *Principia* has not received the quotational reading. Even assuming that it could be imposed later on (though there is a danger of violating PIC), it is at this stage that the IA is interpreted at C-I. Taking seriously the crucial idea of phases as a device relaxing the computational load, it is incomprehensible to let *Principia* be interpreted twice. First it would be interpreted extensionally, being subject to substitution for a coreferential DP. Second, it would be interpreted in the quotational context, which blocks this kind of substitution. This is also coherent with Chomsky's (1995:207) earlier claim that it is only an atomic Spell Out of a complex SO that can yield its non-compositional reading.\*

Finally, islandhood. QEs do not allow any sort of movement, IM above quotes yielding either ungrammatical (20c) or misinterpreted (21c) sentences. Thus, assuming the non-atomic character of QEs (cf. sect. 2) and following Boeckx (2012a) and Boeckx (2012b), quotes should trap the flanked SOs within a phase.

Having outlined the empirical grounds for the QEs-as-phases approach, we can now move to the second issue, that is how QEs fit the architecture of phases. Following the assumption No. 2, it is the distribution of features that should identify a QE as a phase, accordingly to the above empirical demands. The crucial question the present paper raises is whether this is possible. The overall framework of Chomsky (2013) and Chomsky (2015b) leaves in general two paths. First, the structure of QEs can be manipulated in such a way that Spell Out is suspended when unwanted and then triggered at the proper moment. Second, a brute force solution, quotes can be assumed to correspond to  $PH^0$ s. I discuss the two options in subsect. 3.2 and 3.3.

## 3.2 Prospects for phase suspension

Trying to face the above assumptions and demands, I shall check some prospects for identifying a phase at the moment corresponding to the merger of  $Q$ . However, QEs, having no length limitations, are especially demanding in this regard. Contrary to idioms, where the number of phases to be skipped is highly limited (cf. Harwood, Hladnik, Leufkens, Temmerman, Corver & Craenenbroeck (2016)), QEs require a more powerful machinery. Abandoning Chomsky's earlier

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\*This configuration is also supported by the evidence from (10g), where the ellipsis must be able to detect the quoting inside before the quotational reading is imposed.

\*Note that the problem with a (simplified) interpretation like (1) below is not that it yields false, but that the formula simply lacks sense, the truth conditions being ill-formed:

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

\*The idea reappears in the literature in the context of phases. Most recently it was adapted to idioms in Harwood, Hladnik, Leufkens, Temmerman, Corver & Craenenbroeck (2016). In a similar vein, Borer (2014a) argues that irregularities (in this particular case inflectional) follow only from local distribution, understood in terms of phases (p. 136).

proposals of weak phases (cf. Chomsky (2001)) and delayed Spell Out (cf. Chomsky (2001) and Chomsky (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  $\text{PH}^0$ , but by the highest projection in a given domain. Second, phase sliding/cancellation triggered by the IM of  $\text{PH}^0$ s. In what follows, I discuss each of the two options.

### 3.2.1 Phase suspension within a domain

The domain-based approach to phase suspension provides a more relaxed account of phases (for an especially liberal view, see Bošković (2014)). The general idea is presented in Bobaljik & Wurmbrand (2013). Let  $Y$  be a  $\text{PH}^0$  and  $Y^n$  its projection closing off the domain. Then, for the configuration  $[X [Y^n Y]]$  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. Let us have a look at how they work in the context of quotation.

The syntactic criterion (adopted, a.o., in Wurmbrand (2013) and Alexiadou, Anagnostopoulou & Wurmbrand (2014); see also Wurmbrand (2016) for a broadened discussion) extends the phase-scope to the highest projection of a given cyclic domain. A cyclic domain is defined as the extended projection of VP/TP:

(22) Cyclic domains:

- i. Aspect domain:  $\theta$ -domain plus any event structure/ Aktionsart dependent aspect;
- ii. T+C-domain: discourse domain, mood, tense, modal domain.

Taken as it stands, the account is clearly too narrow to account for the problem of QEs. Actually, QEs know no limitations w.r.t the length of the quoting inside. It can be both much longer and much shorter than any of the above domains. For this sort of problem not to arise, the item  $Q$  standing for the exponent of quotation would have to generate its own projection closing off a domain. This, however, would amount to taking  $Q$  to be a standard  $\text{PH}^0$ . Moreover, if one assumes crash or any other formal reflex of deviancy, it should also be able to freeze the potential previous phases. I discuss this option in subsection 3.3.

Let us now have a look at the second criterion, i.e. the morphological one. Viewed from this angle, the Spell Out domain contains the whole  $Y^n$  if the morphological features of  $Y$  require local interpretation with  $X$  (e.g. in the case of suppletion). Though specifying this sort of dependency for QEs is far from obvious, 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  $f_Q$  – such that its computation must be local with the computation of the quoting item  $Q$ . Then Spell Out is delayed until the merger of  $Q$ . This results in the following scenario, where the phase level is reached at  $\beta$ , so that Spell Out is triggered on  $\alpha$ :

$$(23) \quad [\alpha:[f_Q],[\text{SUSPENDED PHASE}]\dots] \xrightarrow{\text{merger of } Q} [\beta:[\text{PHASE}] Q [\alpha:[f_Q],[\text{SUSPENDED PHASE}]\dots]]$$

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 iterative and the recursive reading. However, a repeated use of quotes would yield the following (simplified) structure:

$$(24) \quad [\gamma:[\text{PHASE}] Q_2 [\beta:[f_Q],[\text{SUSPENDED PHASE}],[\text{PHASE}] Q_1 [\alpha:[f_Q],[\text{SUSPENDED PHASE}]\dots]]]$$

The difficulty arises for defining the interpretive dependency when  $Q$  – the item on which the rest is to be dependent – turns out to work in a cyclic way. The problem lies in the conflicting features appearing on  $\beta$ . First,  $\alpha$  has  $f_Q$  and thus waits for  $Q$ . After the merger of  $Q_1$  the

obtained  $\beta$  should be ready for Spell Out. This motivates the feature [PHASE]. This is fine; the single use of quotes yields a meaningful expression, so that  $\beta$  should be a full-fledged SO ready for interpretation. The conflict arises because of the outer quotes  $Q_2$ . In order to reach a phase on  $\gamma$ ,  $\beta$  should possess the feature  $f_Q$ , so that the merger of  $Q_2$  can trigger Spell Out on  $\beta$ . But this is problematic, because in such case two conflicting features, [PHASE] and [SUSPENDED PHASE], appear on one SO.

Assume, however, that  $f_Q$  can be somehow\* encoded into  $\beta$  and thus delay Spell Out. This would mean that there is only one phase,  $\gamma$ . Then, however, C-I would be able to compute  $\beta$  only as a homogeneous string. This would account for the iterative use of the inner quotes ( $Q_1$ ). Still, the recursive reading, with  $Q_1$ ,  $Q_2$  being interpreted as two independent operations of enquotation, would be impossible. This effect can hardly be avoided within the presented approach, being a natural consequence of phase suspension. For the recursive reading to be possible,  $Q$ , again, would have to be a  $PH^0$ , triggering Spell Out after each merger.

So, the conclusion is that the above account of phase suspension, defined on both morphological and syntactic criteria, fails to account for QEs. The problems arising for the two approaches cannot be avoided unless the quoting item  $Q$  is taken as a  $PH^0$ . In the next subsection I will discuss whether the expected effect can be obtained by means of a different mechanism leading to the same effect, viz. by suspending a phase via HM.

### 3.2.2 Phase suspension/cancellation by head movement

Drawing on Chomsky's (2015) idea of head movement (HM) creating an amalgam, Epstein, Kitahara & Seely (2016) show that the recent Chomskyan framework opens up a natural way for phase cancellation. Chomsky (2015b) suggests that the  $\sqrt{root-to-v^*}$  pair-Merge makes  $v^*$  invisible, so that  $v^*$  is no longer a  $PH^0$ . If this is so, the authors argue, then in the  $\langle\sqrt{root}, v^*\rangle$  structure, if created presyntactically,\*  $v^*$  is invisible from the beginning. Consequently, the invisible  $v^*$  cannot trigger Spell Out, and the  $vP$  phase is cancelled.

An idea driven by similar mechanisms can be traced back to Gallego's (2010) phase sliding. Both are based on HM. In Epstein, Kitahara & Seely (2016) the phase is cancelled due to the presyntactic pair-Merge yielding  $\langle\sqrt{root}, v^*\rangle$ . In Á. Gallego (2010) Spell Out is delayed due to the IM yielding  $\langle PH^0, H^0 \rangle$ . Leaving aside numerous consequences following from the technical variation, both approaches provide an account that, in principle, could have been of some help to the present problem. The crucial observation is that HM, either syntactic or presyntactic, is able to suspend Spell Out. If so, it is natural to suppose that identifying a quotational phase could follow from the delayed Spell Out caused by HM to the quoting item  $Q$ . To illustrate, take (25):

(25) John said 'Alfred see he.'

The derivation of (25) has to meet at least two demands. First, it must identify a phase at the moment when the quotational character is specified, at least in order to account for the non-compositional character of QE. Second, in order to account for islandhood, it cannot create an edge subsequent SOs could escape to. Think, now, of the following derivation with Spell Out delayed à la Á. Gallego (2010) (irrelevant details omitted):

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

\*There are a number of proposals enabling such an option. For instance, within the framework of Borer (2013), Borer (2014a), and Borer (2014b) or Embick (2015)  $\beta$  could be taken to be sensitive to the syntactic context. I leave aside potential problems for No Tampering Condition that arise at this point.

\*The authors take it as a part of word formation, cf. p. 7.

In the above picture,  $v^*$ , undergoing raising, can no longer Spell Out the lower phase complement. Instead,  $v^*$  is adjoined subsequently to T and C in the result of HM.\* Phase is reached at C and the complex  $\text{PH}^0$  Spells out its complement, viz. TP – the whole quoting inside.

Let us see how the adopted framework could deal with the present problem. The account has a few pros. On the one hand, it does not assume the atomic character of quotation, making its structure transparent. On the other hand, delaying Spell Out until C, it gives rise to the expected phenomena. First, allowing the assumption that at the phase level C-I can see the adjoined item Q, the derivation is safe from the unwanted semantic effects (crush, lack of compositionality). Second, there are good reasons for thinking that the  $\langle\langle v^*, \text{T}^0 \rangle, \text{C} \rangle$  structure fits well with the islandhood of QEs. As Chomsky (2015b) notes, in  $\langle\sqrt{\text{root}}, \text{PH}^0 \rangle$ ,  $\text{PH}^0$  becomes invisible. If this is so for V-to- $v^*$  movement, then the lack of such an effect for any  $\langle\alpha, \beta \rangle$  must have been stipulated. Therefore, following this scenario, C in  $\langle\langle v^*, \text{T}^0 \rangle, \text{C} \rangle$  should become invisible as well. Assuming, moreover, that the ability of a given  $\text{PH}^0$  to create an edge area is its inherent syntactic feature (cf. Chomsky (2000) and Chomsky (2005) and Boeckx (2010)), C made invisible before its edge is created should not create it at all.\* 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  $\langle\langle v^*, \text{T}^0 \rangle, \text{C} \rangle$  complement. Consequently, no escape hatch is created for the lower SOs and the derivation at hand does account for the islandhood of QEs.

However, while it is beyond the scope of this paper to provide a detailed discussion on the problem of HM, there are immediate observations that uncover some difficulties. The problem lies in the lack of syntactic/semantic innocence of HM. Note that for the sort of mechanism shown in (26) to universally apply to any QE, HM must have not entailed any syntactic/semantic side effects. This would have been possible had HM been relegated to the SM interface, as argued for in Chomsky (2001) and much related work. Indeed, there are good reasons for leaving this question open (also in terms of a more fine-grained approach to HM, cf. Ángel J. Gallego & Uriagereka (2015)). The point, however, is that the very logic of the above account rejects, at least in the context of phase sliding, Chomsky’s (2001) approach. The reason is quite straightforward. If the core of syntactic mechanism is building a phase – a chunk computable at C-I (cf. Chomsky (2014)) – and HM manipulates the scope of phases, then HM is a Narrow Syntax operation. And if this is so, then it is natural to expect that HM suspending a phase automatically entails all the formal consequences of this operation. Obviously, if the consequences are contrary to what actually is the case, the derivation is inappropriate.

Indeed, a quick look at HM unearths some unwanted syntactic as well as semantic effects. Remember that the goal of the present discussion is to derive a QE without manipulating the internal syntax of the quoting inside, at least for the reasons given in subsect. 2.3. But this requirement cannot be met once the machinery *à la* Gallego is applied to QEs. First of all, V-to-C movement has its constraints. Had (25) been derived as in (26), we could expect the consequences known from V2 languages to follow automatically. Tellingly, as argued by Koenenman (2000), we would expect the [TENSE] feature to appear on C, contrary to the facts. Second, as argued by Lechner (2007) and Lechner (2010), HM entails certain semantic effects. Indeed, as discussed at length by Truckenbrodt (2006) and the related work, V-to-C movement affects the illocutionary force. However, this is not what is expected from the operation of enquotation. Obviously, the operation itself imposes some special Force on the whole QE. Still, the quoting inside, it is

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\*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.

\*Note that in Chomsky (2015b) analogous problem is avoided for the lower phase: the  $v^*$  edge is filled by the EA before the pair-Merge of  $\sqrt{\text{root}}$  and  $v^*$ . Also, IA moves to the edge of verbal root before FI and thus allows *wh*-movement.



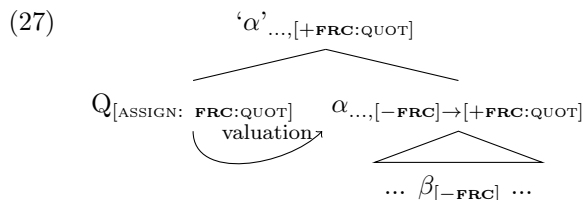
worth repeating, must remain unchanged, allowing computation of the original, that is: quoted, expression. All these data are supported by Mathew (2015). As the author shows for Malayan, V-to-C movement affects, a.o., exhaustivity, long distance anaphora, the deontic/epistemic Mood distinction, or the Aux position. Finally, as recently argued for by Sugimoto (2016), the extended version of Epstein, Kitahara & Seely (2016) is by no means more innocent. As it is shown, the external pair Merge yielding  $\langle T, C \rangle$  results in the infinitival structure – an unwanted effect for the present purposes.

So, in addition to the impossibility of suspending a phase within a given domain, the plausible effect can hardly be obtained via HM. The mechanism cannot grasp the unique character mixture of QEs, viz. their phasal character and the syntactic transparency, without imposing the unwanted side effects. If a phase cannot be suspended by any of the standard ways, then the remaining solution is that Q is itself a  $PH^0$ . I will discuss this option in the next subsection.

### 3.3 Quotes as a phase head

The previous subsection has shown that QEs cannot be derived by means of phase suspension/cancellation. However, in 3.2.1 it has been suggested that there might be some prospects for taking Q to be a  $PH^0$ . Indeed, postulating quotational phases is not unreasonable. As argued for by Boeckx (2015:87), an additional  $PH^0$  is a natural counterpart of growing computational complexity, clearly observable for QEs (no straightforward compositionality, binding, shifted readings of temporal adverbs, pronouns, etc.). In this section I elaborate more on this approach, arguing that it is empirically the most promising, though conceptually highly problematic option.

So, what sort of  $PH^0$  could the quoting Q be? To begin with, following the essential idea of Chomsky’s (2013; 2015; 2015) approach, reaching a phase level is determined by obtaining a complete featural set up (see Grano & Lasnik (2015) for recent comments). If the line of reasoning provided in subject. 3.1 is correct, then QEs require a delayed Spell Out. For this to be possible, Q must value some unvalued formal feature – call it [FRC] (a sort of more fine-grained analogue of Force) – of the c-commanded  $\alpha$ .<sup>\*</sup> The general mechanism of enquotation would then look as follows:



At first sight the above picture might have certain advantages. First, assuming the convergence approach and the more fine-grained analogue of Force, Spell Out would be delayed as required in a principled way.  $\alpha$  waits for the merger of Q when the remaining formal feature is valued. After this  $\alpha$  is Spelled Out as a quoting inside. Second, (27) 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 QE is blocked, islandhood following from the lack of landing site. Third, Spell Out treating the whole QE as one chunk could account for the non-compositional character of QEs. However, while in principle this could serve the descriptive adequacy, there are a number of conceptual difficulties. In what follows,

<sup>\*</sup>It is not at all clear what this feature could actually be. On the one hand, it must be a formal feature, on the other it must be distinct from  $[\varphi]$ , [CASE] and the like. Wislicki (2016) sketches a framework where this can be accounted for by means of semantic typing taking place within the Narrow Syntax. I leave this question open.

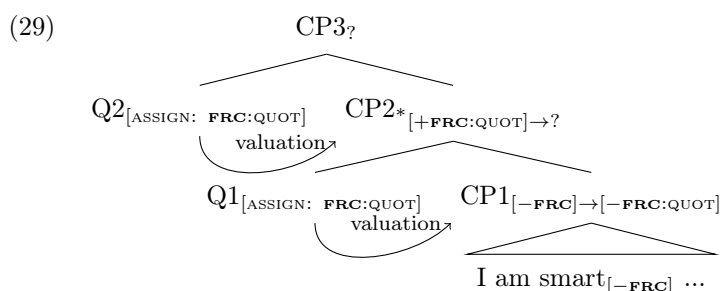
I shall touch upon three of them, that is: the  $\text{PH}^0$  status of Q, its recursive character and the feature set-up following from (27).

First, it cannot pass unnoticed that the adjoined status of Q as a  $\text{PH}^0$ , if accepted at all, must have been very special. The whole idea behind phasal heads is that they play the key role in licensing the semantic interpretation of the complement. Undergoing Agree and valuation, they make the phase complement computable at C-I. In this regard they are absolutely indispensable for the Narrow Syntax to launch Spell Out, so their presence in the derivation is naturally expected to be obligatory. And that is exactly contrary to what is standardly assumed w.r.t. adjuncts – Haegeman’s (1994:387-388) balcony which is neither inside, nor outside the room (of derivation). Thus if Q in this picture is to take part in the mechanism of valuation, it must have been conceived of as a sort of non-standard obligatory (structural) adjunct. Non-standard, because, contrary to standard ones, taken by Boeckx (2008a) and Boeckx (2008b) to be quasi-arguments or argument-like, they are expected to play the role of non-quasi heads. 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  $\text{PH}^0$ . After all, it is exactly one of two special properties of  $\text{PH}^0$ s that they create edges (cf. Boeckx (2012a)), probably in a far non-trivial way (cf. Bošković (2016)). If they do not, then their phasal status can be reasonably questioned.

The second complication is in fact a reappearance of (24) and the related discussion, this time entailing more serious worries. Take (9b), repeated below as (28):

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

The merger of Q applies twice. Assuming its  $\text{PH}^0$  status, the whole mechanism should be driven by valuation, as shown in (27). This, however, turns out to be problematic. Notice that the application of (27) yields the following structure (irrelevant details omitted):



The derivation starts from items that are underspecified w.r.t. the feature [FRC]. First, the structure waits for the full featural set-up, and then it is Spelled Out after the merger of Q, which values [-FRC] as [+FRC:QUOT]. Next the remaining part undergoes further derivation. As shown in (28), the derivation must allow an immediate recursion of enquotation, that is 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 framework of Marc D Richards (2007) and Marc D. Richards (2012)–Chomsky (2007) and Chomsky (2008), every  $\text{PH}^0$  should have its  $\text{H}^0$ -counterpart for the sake of FI. Though there are many ways to overcome this problem,\* there are deeper repercussions of applying this idea. Note that the output of  $\{Q1, \alpha_{[-FRC]}\}$  is some CP2 with [+FRC:QUOT]. Being so, it cannot be valued by the upcoming Q2. As a result, the output of  $\{Q2, \{Q1, \alpha_{[-FRC]}\}\}$  is not computable in terms of features’ valuation, contrary

\*First, it is not at all clear whether Q itself should have unvalued features. Second, they should be interpretable, causing no problem whatsoever. Third, it is still an underdeveloped issue how FI, originally proposed for the Chomskyan framework with rigid  $\text{PH}^0$ s ( $v^*$ , C), should be accounted for within the convergence approach.

to the requirements driving (27). To avoid this problem, there must have been yet another  $H^0$ , an analogue of Richards  $H^0$ -counterpart of  $PH^0$ , that could turn [+FRC:QUOT] into [-FRC]. Postulating this, however, entails introducing very special heads the role of which is just to make an SO underspecified. 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 framework as in (27) is assumed. Take (30a) below. Since, as argued for in 2.2-2.5, the quoting inside should be syntactically transparent, (30a) seems to have the general structure as in (30b), irrelevant details omitted:

- (30) a. Alfred said ‘Dog’.  
 b.  $[_{CP} \text{ Alfred said } [_{NumP} \text{ Num}^0 [_{nP} \text{ } n^0 [_{NumP} \text{ Q } [_{NumP} \text{ Num}^0 [_{nP} \text{ } n^0 \sqrt{dog}]]]]]]]]]$

According to this account, the derivation builds, first, the nominal *dog* and then the quoting nominal ‘*dog*’. In principle, every nominal should be case-valued. It can be safely assumed that the outer nominal ‘*dog*’ is assigned [CASE] by *say*. However, the inner nominal *dog* remains with unvalued [CASE], which should result in crash when the *vP* phase is Spelled Out. Moreover, the problem is made all the more puzzling by certain empirical support to this theoretically unwanted effect, observable in languages where QEs become inflected (for some data with quoted inflected proper names, see Matushansky (2008) and Matushansky (2015)). To illustrate, take the following example from Polish:

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

The QE should have the form of the instrumental NP */koszmarem studentów/*. 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, it is clear that the expected semantic effect is the interpretation where students call Peter not just by means of this string, but by all the strings corresponding to the inflected forms of the NP. Therefore the meaning of the QE should cover all the following strings:\*

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| i. NOM <i>koszmar studentów</i>      | v. INS <i>koszmarem studentów</i>   |
| ii. GEN <i>koszmaru studentów</i>    | vi. LOC <i>koszmarze studentów</i>  |
| iii. DAT <i>koszmarowi studentów</i> | vii. VOC <i>koszmarze studentów</i> |
| iv. ACC <i>koszmar studentów</i>     |                                     |

If this is so, then it is natural to expect that the Narrow Syntax builds a QE which the following dichotomy encoded:

- (i) at the level of Q, the quoting inside remains with unvalued [CASE]; thus the meaning of the QE at hand can be extended to all potential strings corresponding to the particular inflected forms;

---

\*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) (cf. (2)), but probably suggests a need for an even more coarse-grained framework. Second, the fact that subsequent SOs of the quoting inside enter syntactic relations with the reporting verb provides yet another argument in favour of the syntactic transparency of QEs.

- (ii) subsequent SOs of the quoting inside enter the relation of valuation with the reporting verb at the level of the quotational nominal; thus the inflection imposed by the verb is covered.

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 unvalued [CASE], but also block its valuation 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 composed to yield the expected effect, but how do they affect the role of other features so that the expected composition can be obtained.

The above problems allow some partial conclusions. The somewhat stipulative solution, where a new PH<sup>0</sup> is simply added to the Narrow Syntax machinery, shows a very suspicious behaviour. Occupying an adjoined position, it does not create an edge, but provides features' valuation. To account for the recursive enquotation, it requires an additional H<sup>0</sup> whose role is not to specify its complement, but just to the contrary – make it underspecified. Finally, it imposes certain inequality among formal features, some of them being justified to remain unvalued within the phase domain. I take all of these effects to be highly non-standard and at least questionable on the Minimalist ground.

### 3.4 Interim summary no. 2

Let us take stock. Section 2 has shown that QEs have a very special behaviour. On the one hand, they have strictly atomic properties such as islandhood and the lack of straightforwardly compositional meaning. On the other, they remain syntactically transparent. Section 3 has shown certain difficulties that arise when the feature-driven phase-based approach is provided to account for the empirical data. Various ways – morphological or via HM – for identifying unexpected phases fail. An open path seems to exist for the quotes-as-PH<sup>0</sup> approach. However, adapting the machinery entails a number of effects that would require a fundamental reformulation of the otherwise well-established accounts.

Noting that there exist some prospects for a non-standard solution within the Chomskyan framework, I now move to the final part of this paper. Section 4 shows that the problematic issues can be naturally accounted for within Zwart's framework of Split Merge.

## 4 Zwart's Split Merge and quotation

Having shown a number of problems the feature-driven PT has to face to account for QEs, it is now time to propose an different solution. In this section I apply to QEs an alternative account of derivation developed by Jan-Wouter Zwart. It is argued that the approach, relying on substantially different idea of Merge (Split Merge) and phases (layers), provides a more natural account of QEs. Thus apart from the descriptive pros it opens up a path for a methodological discussion on the role of features within the current PT. I start from sketching the general outline of Zwart's approach (subsect. 4.1). Then, in subsect. 4.2, after making a minor modification of the original account, I show how it can deal with the problem of QEs. Finally, to forestall some possible controversies inherently connected with Zwart's top-down approach, in subsect. 4.3 I discuss its explanatory power.

### 4.1 The architecture of Split Merge

Zwart's account of Narrow Syntax exemplifies a non-mainstream, top-down direction of derivation (cf. Zwart (2009), Zwart (2011a), Zwart (2011b), and Zwart (2015), Trotzke & Zwart (2014)).

Moreover, it provides two technical solutions that make it substantially different from other top-down accounts (cf. Chesi & Moro (2015), Bianchi & Chesi (2014), Bianchi & Chesi (2015), Fortuny (2008), and Phillips (2013), a.o.). First, it provides a different account of Merge – Split Merge, an idea dating back to Johnson (2003). Second, it makes use of layers – a counterpart of Chomsky’s phases, following from the formal properties of Split Merge.

Recall the Definition 2 in section 1. According to the definition, Split Merge, rather than combining two items  $\alpha$  and  $\beta$  to yield the unordered set  $\{\alpha, \beta\}$ , targets numeration to split its one 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:

$$(32) \quad \begin{array}{c} N : \alpha \in N \\ \swarrow \quad \searrow \\ \alpha \quad N - \{\alpha\} \end{array}$$

Each derivation, following the general mechanism shown in (32), 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:

$$(33) \quad \begin{array}{c} \text{STEP I: } \{\alpha, \beta, \gamma\} \\ \swarrow \quad \searrow \\ \alpha \quad \text{STEP II: } \{\beta, \gamma\} \\ \quad \swarrow \quad \searrow \\ \quad \beta \quad \text{STEP III: } \{\gamma\} \\ \quad \quad \swarrow \quad \searrow \\ \quad \quad \gamma \quad \{\emptyset\} \end{array}$$

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:

$$(34) \quad \begin{array}{c} \{\{a, \text{dog}\}, \text{Mary}, \text{saw}\} \\ \swarrow \quad \searrow \\ \{a, \text{dog}\} \quad \{\text{Mary}, \text{saw}\} \\ \quad \swarrow \quad \searrow \\ \quad \text{saw} \quad \{\text{Mary}\} \\ \quad \quad \swarrow \quad \searrow \\ \quad \quad \text{Mary} \quad \emptyset \end{array}$$

The structure 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. The elements that are truly atomic no longer take part in the derivation. The elements that are unordered sets go through the interfaces and feed the subsequent layers of the derivation – the mechanism argued by Zwart (2017) to lie at the heart of (syntactic) recursion.\* Thus in (34)

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

the subject DP is Spelled Out and, having passed through the interfaces, it undergoes further splitting. Consequently, the whole derivation consists of two layers, that is:

- (35) 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. All it can do is to detect subsequent elements of sets identified in the course of derivation. Crucially, there are no syntactic mechanisms defined on features. Second, it is absolutely essential for Zwart’s approach that recursion is taken seriously, 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) and Zwart (2015)). However, while the structural duality born by recursion is accounted for in both 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 (35) is first interpreted at C-I as an atom (Layer 1). Then it feeds the derivation of Layer 2 and, undergoing subsequent 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 Split Merge and quotation

In the previous subsection I outlined the general framework of Zwart’s Narrow Syntax. Let us now have a look on how Split Merge can deal with QEs and compare this with the mainstream Minimalism. As I have been at pains to show, there are good reasons for taking the quoting inside to be Spelled Out as a whole. However, as discussed in sect. 3, a feature driven PT faces serious problems in accounting for this fact. The question is whether the entirely different machinery of Zwart is in a position to Spell Out the required structure in a sufficiently explanatory way.

In general, Zwart (2009) provides two criteria for triggering Spell Out and inserting non-atomic elements to the next derivational layer (call it *reinsertion*):

- (36) 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 itself a set;
  - ii. interpretive criterion – interface effects in the form of semantic/phonological idiosyncrasies.

Let us try to apply this machinery to QEs (functional nodes except those relevant for QEs are ignored). Keeping to the general account given in (19b), the QE in (37) should be inserted as  $\{Q, n^0, \text{Num}^0, \text{Tarski}, \text{met}, \text{Carnap}\}$ . Given this, the derivation first yields one layer, the result given in (38):

- (37) ‘Tarski met Carnap’ is a sentence.

- (38) LAYER 1:  $\langle \{Q, n^0, \text{Num}^0, \text{Tarski}, \text{Carnap}, \text{met}\}, \langle \text{is}, \{a \text{ sentence}\} \rangle \rangle$   
 $\rightarrow$  Spell Out and reinsertion of  $\{Q, n^0, \text{Num}^0, \text{Tarski}, \text{Carnap}, \text{met}\}$  and  $\{a \text{ sentence}\}$   
(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 (40). However, the former contains the non-compositional quoting inside ‘Tarski met Carnap’. Crucially, it is expected to be derived as non-equivalent to ‘Tajtelbaum met Carnap’. Therefore, following criterion ii., the derivation stops after splitting off Q and Spells Out the non-compositional quoting inside, as in (39):

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

Finally, the quoting inside Spelled Out and reinserted into LAYER 4 becomes structured by Split Merge and the derivation is finished:

- (41) LAYER 4:  $\langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle$   
FINAL OUTPUT:  $\langle \langle \text{Num}^0, \langle n^0, \langle Q, \langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle \rangle \rangle \rangle, \langle \text{is}, \langle a, \text{sentence} \rangle \rangle \rangle$

The layered derivation yields the above structure, where the following substructures undergo separate interpretations at the interface (square brackets mark items that are atomic in the given layer and complex in the next layer):

- i.  $\langle [\text{SUBJECT}], \langle \text{is}, [\text{COMPLEMENT}] \rangle \rangle \rightarrow$  the structure of the sentence;
- ii.  $\langle \text{Num}^0, \langle n^0, \langle Q, [\text{QUOTING INSIDE}] \rangle \rangle \rangle \rightarrow$  the structure of the subject QE;
- iii.  $\langle \text{Tarski}, \langle \text{met}, \text{Carnap} \rangle \rangle \rightarrow$  the structure of the quoting inside;
- iv.  $\langle a, \text{sentence} \rangle \rightarrow$  the structure of the complement.

Let us now have a look at how the present account deals with QEs. At least two effects following from Zwart’s approach, but not from the mainstream Minimalism, support the account.

First of all, it perfectly accounts for the puzzling property of QEs that requires both atomic and non-atomic treatment of the same SO. Not only the whole QE (cf. (38)), but also the very quoting inside (cf. (39)) are Spelled Out and thus interpreted as atoms. This fits well with the non-compositional character of QEs. On the other hand, both the operation of enquotation and the quoting inside, thanks to the reinsertion procedure, are structured in the proper layers. Therefore, though Zwart’s account is generally supposed to dispense with Movement,\* QEs remain syntactically transparent. Their transparency is secured within subsequent layers, independently from the atomic treatment secured by cyclic (layered) Spell Out. Given this, the atomic interpretation provided within higher layers does not block the non-atomic interpretation of QEs required for ellipsis, quotational split and metalinguistic quantifiers.

Second, the feature independent derivation has no difficulties in accounting for the recursive use of quotes – one of the biggest challenges for the Minimalist account (cf. subsect. 3.2-3.3). Recall the effect given in (7)-(8), where the syntax of ‘*dog*’ is expected to yield double

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

interpretation. One for (7), based on the iterative reading of enquotation, where the expression denotes a sequence of five letters. As such it requires Spell Out targeting the whole QE. Another for (8), based on the recursive reading of enquotation. Here it involves embedding of (quotation) name relation and thus 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:

- (42) 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, C-I treats  $\{\text{Q}, \text{dog}\}$  as an atom. This naturally gives rise to the iteration-based interpretation as in (7), where the quoting inside is treated as a phonological string. Having computed this, the derivation goes on and yields the non-atomic structure. Thus after LAYER 2, C-I takes the QE as a complex consisting of quotes and the quoting inside. This, on the other hand, gives rise to the recursion-based interpretation as in (8), where the quoting inside is treated as involving yet another name relation.

So, as it stands subsequent properties of QEs that were highly problematic for the mainstream MP seem to naturally follow from Zwart’s approach. Still, at least one cog of the machinery seems to me problematic. This is criterion ii. in (36), according to which 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 gives rise to the look-ahead problem.\* However, the problem can be overcome, at least w.r.t. QEs. Note that there are no empirical reasons against merging Q not with subsequent elements of the quoting inside, but with the set  $\{\alpha, \beta, \dots\}$ ,  $\alpha, \beta, \dots$  forming the quoting inside. That is, the initial structure of a QE would not be  $\{\text{Num}^0, n^0, \text{Q}, \alpha, \beta, \dots\}$ , as assumed above, but  $\{\text{Num}^0, n^0, \text{Q}, \{\alpha, \beta, \dots\}\}$ . If this is so, then the general derivation of QE obligatorily proceeds at least in two layers, Spell Out being triggered solely on the structural criterion i.:

- (43) Deriving a QE with the quoting inside consisting of  $\alpha, \beta, \dots$ :  
 $\{\text{Num}^0, n^0, \text{Q}, \{\alpha, \beta, \dots\}\}$
- $$\begin{array}{c}
 \swarrow \quad \searrow \\
 \text{Num}^0 \quad \{n^0, \text{Q}, \{\alpha, \beta, \dots\}\} \\
 \swarrow \quad \searrow \\
 n^0 \quad \{\text{Q}, \{\alpha, \beta, \dots\}\} \\
 \swarrow \quad \searrow \\
 \text{Q} \quad \{\{\alpha, \beta, \dots\}\} \\
 \swarrow \quad \searrow \\
 \{\alpha, \beta, \dots\} \quad \{\emptyset\} \\
 \rightarrow \text{Spell Out and reinsertion of the quoting inside } \{\alpha, \beta, \dots\} \text{ (criterion i.)}
 \end{array}$$

Taking the quoting inside as one element, the syntax of QEs can dispense with criterion ii. and thus avoid the potential look-ahead problem.

Let us then summarize the effects of applying Zwart’s approach to QEs. The (modified) machinery not only accounts for the properties of QEs that are problematic for mainstream MP. Being based on purely structural rules, it also delivers plausible results in a principled way. It

\*Jan-Wouter Zwart (*p.c.*, 2015) proposed that, having no grammatical trigger, Spell Out can be free. This would resemble the idea of Spell Out being as free as Merge (cf. Chomsky 1995:231).



accounts for both atomic and non-atomic interpretation of QEs. Moreover, it naturally explains the iterative and recursive reading of enquotation. 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 (43). Put differently, are we allowed to assume that QEs are initially inserted in this particular form? I am addressing this question in the next subsection.

### 4.3 Structuring and the look-ahead problem

According to the account presented in subsection 4.2, QEs enter the (Zwartian) derivation as  $\{Q, \{\alpha, \beta, \dots\}\}$ , with  $\alpha, \beta, \dots$  standing for the SOs of 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  $\{Q, I\}$ , the account also assumes set embedding, where  $I = \{\alpha, \beta, \dots\}$ . If these complexes are simply assumed, a potential threat of the look-ahead problem naturally arises, coming in the form of at least two subproblems:

- i. what are the basis of assuming beforehand the selection of elements for each set;
- ii. what are the basis of assuming beforehand the recursive set-formation mechanism.

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

- a. how they relate to the mainstream Minimalist Program;
- b. how they relate to the general account of Narrow Syntax.

Let us see whether the problems i, ii pose any 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 a similar view)*

Drawing on this remark, I take the very set formation (Selection) to be syntactically costless. Selection is simply 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 question b does not arise in the context of the problem i. Obviously, Chomsky's remark also accounts for the question a. Note, moreover, that the above reasoning can also be traced in the current version of MP. Having dispensed with Numeration, the current program assumes the absolutely unconstrained Merge. Being free for both the external and the internal instantiation, the concept entails the very set-formation coming for free. Given this, assuming unordered sets Zwart's derivation starts from raises no difficulties for the account.

Let us now turn to the more puzzling problem ii. In subsection 4.2 it was proposed that the operation of enquotation is not defined on the SOs of the quoting inside it dominates. Rather, it operates on an atom – a set containing the SOs of the quoting inside. This allowed QEs to be shipped off to the interfaces on the purely configurational criterion, without resting upon the

interpretive one. However, the price is that the account assumes the (partial) structure of sets which, in principle, should be the output of the derivation.

The main reasoning behind the proposal is simple: Q targets something that must be treated as both atomic and not. In the current MP, there are two ways of formulating the atomic character w.r.t. the above properties. One is to show that a given SO corresponds to a phase complement. Another is to take the SO to enter the derivation as an atomic LI. In section 3 it has been shown that at the current stage of the research, MP meets serious difficulties in defining QEs as phases. However, as recently argued for by Ángel J Gallego (2016), lexical atomicity does not necessarily entails the lack of syntactic transparency. That is, making use of the idea of reprojection (cf. Hornstein & Uriagereka (2002) and Uriagereka (2008)), Gallego proposes the following account. LIs are feature bundles that are structured in the derivation. Subsequently, they are turned into atomic (and thus opaque) units by means of a process that requires reprojection. That is, let standard X(P), Y(P) and Z(P) stand for feature bundles that are able to undergo Merge. Gallego’s account can be considered as resulting in the following process:

$$\begin{aligned}
 (44) \quad & \text{i. } [X' X^0 \dots [Y_P Y^0 Z_P] \dots] \xrightarrow{\text{IM}} \\
 & \text{ii. } [X_P [Y_P Y^0 Z_P]_i [X' X^0 \dots [Y_P Y^0 Z_P]_i \dots]] \xrightarrow{\text{REPROJECTION}} \\
 & \text{iii. } [Y_P]_i [Y' Y^0 Z_P] [X_P \dots [Y_P Y^0 Z_P]_i \dots]] \xrightarrow{\text{LEXICALIZATION}} \\
 & \text{iv. } Y_P \text{ as an atomic LI}
 \end{aligned}$$

Consequently, the YP formed by three types of operations is memorized and becomes an atom feeding the 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 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. Now 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, it is simply not clear why the machinery based on three different operations, fares better than Zwart’s Split Merge. The plausible effect in the form of building the structure bottom-up, rather than assuming it beforehand, has its non-trivial cost. The reason is the dubious status of reprojection as a syntactic operation (cf. 2002; 2016). First, it tampers with SOs, causing a potential threat to 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 tenable in the general syntactic architecture. The problem can be seen as superfluous in light of at least three following remarks. As recently pointed in Zwart (2017), there are no basis for imposing conceptual constraints on the elements of numeration. If this is so, then the assumption that it consists of one type of elements (only features, only morphemes, etc.) would be a stipulation. Next two comments come from Fortuny Andreu & Corominas Murtra (2009). First, as can be deduced from the strictly formal account, the authors point out that what is more basic from the intuitive notion of constituent is the concept of nesting (p. 4). Viewed in formal terms, constituency is simply derivable from and definable in terms of nests. If this is so, then assuming a 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 the 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))

Consequently, 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 the Narrow Syntax. In other words, the approach is safe provided the structure allows to compute the expected results. Thus the problem could have arisen had the quoting inside been outside the scope of Split Merge, so that its structure would remain unexplained. Since this is not the case, I see no reasoning making Zwart’s account 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 expected effects arising for QEs, it is not vulnerable to the above-mentioned methodological objections. Though it assumes the initial structure of unordered sets, methodologically it neither fares worse than the mainstream Minimalism, nor is it problematic on general grounds. Consequently, I conclude that there are no conceptual reasons for rejecting Zwart’s approach either on general grounds or in favour of standard MP.

#### 4.4 Interim conclusion no. 3

Closing section 4 we have finally reached the end of the proper part of the present paper. The whole discussion started from presenting a puzzling syntactic property of QEs which shows that they must be treated as both atomic and complex (section 2). Accounting for this fact, however, turned out to be problematic for the mainstream Minimalism (section 3). Adapting PT to the demands of QEs seems either to be impossible or to require a substantial reformulation of the architecture of features. Finally, in section 4 it has been shown that the crucial property of QEs presented in section 2, though puzzling for standard MP, naturally follows from Zwart’s Split Merge. 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 allowing to avoid the problematic interpretive trigger of Spell Out, has been shown not to pose any methodological threats. Consequently, Zwart’s approach fares well with QEs on both descriptive and explanatory ground. Crucially, it does so without assuming such problematic issues as an adjoined PH<sup>0</sup>, superfluous heads, higher-order hierarchy of features or reprojection.

## 5 Conclusion

In his paper Ángel J Gallego (2016) tackles the problem that is strikingly close to the one emerging for the syntax of quotation, i.e. ‘*how to get lexical atomicity without losing syntactic complexity*’ (p. 148). Gallego espouses a strategy 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 reformulation of the 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 iterative and the recursive reading of embedded enquotation.

Second, it discussed how these properties are problematic for the current PT. As I have argued, the mixture of flexibility of the scope of QEs with the constraints following from their atomic behaviour surpasses the scope of the current theory of phases. 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 the Narrow Syntax (cf. Boeckx (2015)), Chomsky (2015a) takes identifying phases to be the true reason why unvalued features exist. As I have tried to show, defining phases in terms of feature valuation meets serious problems for QEs for which at least the architecture of features must be substantially reformulated. 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 follows from an asymmetric feature set up. Spell Out is triggered when a given SO undergoes a complete feature valuation procedure, resulting in  $[\alpha_{[-F]} \text{PH}^0 \beta_{[+G]}]$ ,  $\beta$  a phase complement,  $\alpha$ - $\text{PH}^0$  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 being merged together. Thus Spell Out is triggered if the first element of a  $\langle\{\alpha, \beta, \dots\}, \{\gamma, \delta, \dots\}\rangle$  pair 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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