

CHAPTER 10

Syntactic Doubling and Deletion as a Source of Variation

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1. Introduction

In syntactic doubling constructions (a subset of) the features of a morpheme are expressed phonologically twice. Examples of subject pronoun doubling in Flemish, are given in (1) and (2). (1) is a case of full (i.e. identical) doubling, (2) a case of partial doubling.^{1,2} This phenomenon is called doubling because the same semantic content can be expressed with a single instance of the subject pronoun, both in the relevant dialects and in the related standard language.

- (1) **Zij** heeft **zij** daar niks mee te maken.
 she.STRONG has she.STRONG there nothing with to do
 ‘She has got nothing to do with it.’
- (2) **Ze** heeft **zij** daar niks mee te maken.
 she.WEAK has she.STRONG there nothing with to do
 ‘She has got nothing to do with it.’

It has become clear recently that syntactic doubling is a pervasive phenomenon cross-linguistically.³ The first hypothesis on which this paper builds is that syntactic doubling is a core property of the syntax of natural language and that it is necessary for full interpretation at the level of Logical Form. More specifically, a local syntactic configuration of the type [a b a] is necessary to express monadic predication.⁴

The second hypothesis of this paper is that syntactic doubling is an important source of cross-linguistic and intralinguistic variation. Syntactic doubling involves local redundancy of features. As is well-known, redundancy of such features often allows these features to be left unexpressed at the level of Phonological Form (PF) under the condition of local recoverability. Given this condition, a local syntactic doubling configuration [a b a] can give rise to three different realizations at PF: [a b a], [a b], [b a].⁵ The PF-realizations [a b] and [b a] thus involve cases of hidden syntactic doubling.

If the hypothesis is correct that syntactic doubling is a core property of natural language and if the three PF-realization options are real, this defines a research program in which we have to look for cases of [a b] and [b a] that in fact involve syntactic doubling underlyingly. The case study discussed in this paper in support of the two hypotheses involves focus particle doubling in Dutch. In the unmarked case, a single focus particle is enough in Dutch (3) and (4), but the particle can be optionally doubled, as (5) shows.

- (3) **Maar** één student ken ik.
 only one student know I
 ‘I know only one student.’
- (4) Eén student ken ik **maar**.
 one student know I only
 ‘I know only one student.’
- (5) **Maar** één student ken ik **maar**.

only one student know I only
 ‘I know only one student.’

I argue that the cases in which there is only one visible particle involve hidden focus particle doubling, where one of the particles is left unpronounced. The second particle is necessary to make full semantic interpretation of the first particle possible, and triggers movement of the first particle. Since that particle is attached to a constituent and can pied pipe this constituent, this gives rise to additional word order options.

2. Background: Some remarks on the theory of syntactic variation

The theoretical background of this paper is the Minimalist Program, in particular the hypothesis that there is no variation in the syntactic module of the grammar.⁶ According to this hypothesis, all apparent syntactic variation can be reduced to variation in specification of morphemes in the Lexicon, in particular morphosyntactic feature specification, and to spell out options at PF. Optionality arises in the mapping from the syntactic module to PF, not in the syntactic module itself. A syntactic structure built in the syntactic component feeds into PF and LF. At PF, various spell out options are available for this syntactic structure. Consequently, the various spell out options are syntactically and semantically equivalent.

While variation in lexical specification and spell out options at PF constitute grammar internal sources of language variation, it is also plausible that there are grammar external, i.e. sociolinguistic factors determining part of the language variation patterns. In the domain of the Lexicon and in particular phonotaxis we are used to the distinction between possible and impossible words, and within the class of possible words between actual and non-realized words. Impossible words are words that the grammar rules out (e.g., English *rtap*), possible words are words that the grammar allows. Within the latter class, the actual words are in the Lexicon of the relevant language (e.g. English *part*), while the non-realized words (e.g. English *tarp*) are not in the Lexicon because they haven’t been conventionalized.

If it is true that the grammar generates semantically and syntactically equivalent options, and if it is also the case that languages can pick one or more of these options but do not necessarily exploit all of them, then we have to assume that the structures resulting from PF spell out can be conventionalized and stored in the Lexicon as well. This implies that at the level of phrases we also have to distinguish between possible and impossible structures, and within the class of possible structures between actual and unrealized structures. This may perhaps seem controversial but the assumption is necessary anyway in view of proposals that verbs and pronouns are stored in the Lexicon as syntactic phrases.⁷

The distinction between actual and unrealized structures at the level of phrases has a very important methodological consequence. When a particular structure is reported to be absent in a language, we do not know in advance whether the pattern is impossible because it violates certain syntactic principles, or whether it is absent just because it has not been conventionalized. The distinction also raises an intriguing sociolinguistic question. Empirical domains for which spell out options at PF have been made plausible seem to differ with respect to whether the different options covary with sociolinguistic factors. For example, the different word order options in verb clusters correspond to particular geographic areas and are subject to normative pressure.⁸ On the other hand, the various options found in multiple PP Extraposition and in the focus particle patterns discussed in this paper do not seem to correlate with any sociolinguistic factor.⁹ This deserves further research. It may be that frequency is

playing a role here, and that the frequency of a particular option has to pass a certain threshold in order for it to be exploitable by sociolinguistic factors.

It is not unusual in the generative framework to abstract away from certain types of variation, in particular microvariation, as the main goal of the enterprise is to find those building principles that all language varieties have in common. However, if variation is a property that makes language special among cognitive systems,¹⁰ if there are no macroparameters but only microparameters in the sense of Kayne (2000), and if, as stated above, it is not a priori clear which part of grammatical variation can be explained by intragrammatical factors and which part by extragrammatical factors, it is essential to study grammatical variation in all its tiny details, both from an internal and external perspective.

3. Syntactic doubling as a problem for good language design

Syntactic doubling was defined above as in (6):

(6) Syntactic doubling

(A subset of) the features of a morpheme are expressed phonologically twice or more.

At first sight, syntactic doubling seems to violate major principles of good language design, or, in Minimalist terms, it seems to be an imperfection, as the duplicate does not seem to contribute to the semantic interpretation of the clause. The main claim of this section is that syntactic doubling is a core property of natural language syntax, necessary for full interpretation. For the sake of concreteness, we start with a number of examples of syntactic doubling.

3.1. Syntactic doubling in varieties of Dutch

Most examples of syntactic doubling in this section are from the Syntactic Atlas of the Dutch Dialects, a recent survey of 267 dialects of Dutch spoken in The Netherlands, Belgium and north western France.¹¹ The sentence in (7) is a case of doubling because the nominal group contains both an indefinite determiner and the numeral ONE. Both have the features [indefinite], [singular].¹²

(7) Indefinite determiner doubled by ONE

Ge zet **unn-en** arig-en vent (**in-ne**) N.Brabantish
 you are a.MASC strange.MASC guy one.MASC
 ‘You are one strange guy.’

The colloquial Dutch phrases in (8) involve possessive doubling. In (8a-d) the possessors agree with the possessive pronoun in person, gender and number. The phrase in (8d) is a case of partial doubling, as the possessor *hem* ‘him’ does not have the possessive feature of the possessive head *z’n* ‘his’. These cases of agreement, in fact all cases of agreement, fall under the header of syntactic doubling given the definition in (6).^{13,14}

(8) Possessive doubling

- a. **Jan z’n** boek
 John his book
 ‘John’s book’
 b. **Maria d’r** boek

- Mary her book
‘Mary’s book’
- c. **de jongens hun** boek
the boys their book
‘the boys’ book’
- d. **hem z’n** boek
him his book
‘his book’

The sentence in (9) is a case of optional partial complementizer doubling. The complementizer *dat* ‘that’ has the features [finite, subordinate], while the complementizer *of* ‘if’ has the features [Q, finite, subordinate].

(9) Complementizer doubling

- Ik weet niet wie **(of)** **(dat)** er komt. Coll. Dutch
I know not who if that there comes
‘I don’t know who will come.’

The complementizers IF and THAT are between brackets which means that they can but do not have to be there.¹⁵ The fact that one or both complementizers can be silent in this construction is remarkable as complementizer deletion is normally impossible in varieties of Dutch. The deletability of complementizers here plausibly has to do with the presence of another complementizer and *wie* ‘who’.

Aspectual auxiliaries can double in certain West Flemish dialects. In (10), we find doubling of *gaan*.¹⁶

(10) Aspectual auxiliary doubling

- da-n-ze in den lak **(goan)** **goan** vissen West-Flemish
that.PL-they in the lake go go fish
‘that they go fishing in the lake’

Cases like (11) of so called periphrastic DO can also be considered to involve doubling.¹⁷

(11) Periphrastic DO

- Ik **doe** de kopjes **afwassen** Zeeuws, N-Brabantish. D. Limburg
I do the cups wash
‘I’ll wash the cups.’

Particularly interesting is (partial) wh-pronoun doubling, of which Dutch has five different variants, given in (12): with one wh-element (12a), with two identical wh-elements (12b), with two distinct wh-pronouns (12c), with a wh-element and a relative pronoun (12d,e). Optionality arises here too, as there are many speakers who allow more than one option. The variants in (12a-c) do not have a clear geographic distribution, while the variants in (12d,e) occur in a very restricted area.

(12) WH-pronoun doubling (Barbiers et al. 2009)

- a. **Wie** denk je dat ik gezien heb? Dutch
who think you that I seen have
All: ‘Who do you think I saw?’

b.	Wie	denk je	wie	ik	gezien	heb?	Coll. Dutch
	who	think you	who	I	seen	have	
c.	Wat	denk je	wie	ik	gezien	heb?	Coll. Dutch
	what	think you	who	I	seen	have	
d.	Wie	denk je	die	ik	gezien	heb?	Restr. areas
	who	think you	REL	I	seen	have	
e.	Wat	denk je	die	ik	gezien	heb?	Restr. areas
	what	think you	REL	I	seen	have	

Similar doubling patterns occur in long relativization. Here we find a clearer geographic distribution.¹⁸

(13) Relative pronoun doubling

Dit is de man	die	ik	denk	die	ik	gezien	heb.
this is the man	REL	I	think	REL	I	seen	have
‘This is the man that I think that I saw.’							

There is no correlation between wh-doubling patterns and relative pronoun doubling patterns, e.g. full (identical) doubling of wh-pronouns (*wie-wie*) does not occur in the same dialects in which full (identical) doubling of relative pronouns (*die-die*) occurs.¹⁹

Doubling is not restricted to two elements. Many of the doubling types illustrated above allow for tripling or even quadrupling. An extreme example is the combination of subject pronoun doubling, complementizer agreement and verbal agreement in (14), in which the plural feature is expressed four times.

(14) Subject pronoun doubling and agreement

da-n-ze-ziender		rijker	zij-n	West Flemish
that.PL-they.WEAK-they.STRONG		richer	are.PL	
‘that they are richer’				

All of these doubling constructions seem to violate principles of good language design and all of them raise similar analytical and theoretical questions. Yet, it is unlikely that the various doubling cases represent a unified phenomenon. Some seem to be the result of purely formal syntactic requirements, e.g. wh-doubling and subject pronoun doubling, which have been analyzed as multiple spell out of copies in a movement chain.²⁰ In other types of doubling constructions, semantic interpretation is playing a role too, as in the focus particle doubling construction illustrated in (15), to be discussed below.

(15) Focus particle doubling

(Maar)	twee boeken	ken	ik	(maar)	Coll. Dutch
only	two books	know	I	only	
‘I know only two of the books.’					

3.2. How doubling seems to violate good language design

If we were to design a syntax for natural language from scratch, the five principles in table 1 would be good criteria for the quality of this design. Syntactic doubling seems to violate all of them. The first principle, Universality or the Universal Base Hypothesis, says that all languages have the same syntactic structure.²¹ The fact that

syntactic doubling can be optional within a language variety, or completely ungrammatical in a closely related language variety contradicts this principle if it is to be analyzed as a phenomenon in the syntactic component of the grammar.

The second principle, Compositionality seems to be violated too.²² If the task of the syntactic module is to combine simple meanings of individual morphemes into complex meanings of phrases and sentences, then the presence of semantically superfluous morphemes is unexpected, and languages without (particular) syntactic doubling constructions show that such doubling morphemes are superfluous indeed. Put differently, if a language has a particular construction with and without doubling, the variant with doubling is expected to add something to the semantic interpretation.

The third principle says more or less the same but now from a syntactic perspective. If we adopt the Minimalist hypothesis that syntax is economical, not containing any superfluous elements or steps in the derivation, syntactic doubling is a problem. A construction with a doubled pronoun seems to be less economical than the same construction with a single occurrence of this pronoun.

Table 1: Principles of good language design

I	Universality	Strongest version: All languages have the same syntactic structure
II	Compositionality	Every step and every element in a syntactic structure directly contributes to semantic interpretation
III	Economy	No superfluous derivational steps or elements
IV	Explicitness	No hidden elements
V	Uniqueness	For each type of semantic relation (e.g., predication), there is exactly one syntactic configuration; => no optionality

The fourth principle, the principle of Explicitness, says that a syntactic construction should not contain any hidden elements. If the non-doubling counterpart of a doubling construction contains elements that are not spelled out at PF, then variation in doubling is a problem for this principle too. We know, of course, that there can be a lot of hidden material in a sentence, so this principle is violated massively by constructions other than doubling. So the questions to be asked here are: (i) When/how can syntax deviate from maximal explicitness? (ii) Does doubling satisfy the principle of Explicitness? We will see below that the answer to the latter questions is yes and that the non-doubling counterparts of these doubling constructions can be considered as maximally explicit too because they satisfy a condition of local recoverability of hidden material.

The fifth and final principle of good language design is what we may call Uniqueness. According to this principle, every type of semantic relation corresponds to exactly one type of syntactic configuration. The Uniformity of Theta Assignment Hypothesis is an instance of this principle.²³ If that principle holds for the syntax of natural language and if doubling is a syntactic phenomenon, then the intralinguistic optionality and cross-linguistic variability of doubling is a problem, as it shows that one semantic relation may correspond to more than one syntactic configuration.

4. Syntactic doubling as a core property of good language design

4.1. Origins of syntactic doubling

The task is now to develop an analysis of syntactic doubling such that it does not violate these five principles of good language design. This analysis should also explain why syntactic doubling is such a pervasive phenomenon, possible with every functional element in language.²⁴ Rather than taking it as an imperfection, I take it to be a core property of natural language syntax. Analyses of doubling based on this assumption will take the form of (16).

- (16) The computational system requires doubling under conditions to be specified. In such conditions, non-doubling arises when one or more duplicates are left unexpressed at PF under the condition of local recoverability.

We will see that an analysis based on (16) can satisfy all the principles of good language design described in section 3.2. An example of this type of analysis is the analysis of doubling in movement chains in Nunes (2004). In his approach syntactic doubling is the normal case because the computational system requires elements to be copied to positions higher up in the structure. The fact that multiple spell out of copies in movement chains is nevertheless rare is due to Antisymmetry requirements.²⁵

Nunes' analysis roughly works as follows. In a long wh-question such as *Who do you think I have met* the wh-element that belongs to the embedded clause is copied up to the initial position of the embedded clause and subsequently, it is copied up to the first position of the main clause. The computational reasons for this have been amply discussed in the literature and need not concern us here. The result of the two copying operations is schematically given in (17).

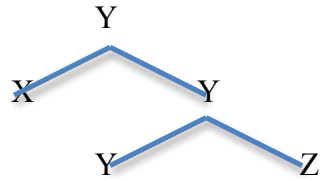
- (17) [MAIN CLAUSE wh ... [EMBEDDED CLAUSE wh wh ...]]

If no other conditions were active, the spell out of (17) would be *Who do you think who I have met who*, with tripling of *who*. However, according to the antisymmetry linearization algorithm, a structure such as (17) cannot be spelled out. The reason is that the three wh-copies count as one and the same element, and this element is both hierarchically higher and lower than the intervening material. This provides a contradictory linearization instruction to the spell out component and the structure is ruled out. The structure is saved when the lower copies of wh are deleted, i.e. remain silent at PF.

Thus, in Nunes' analysis doubling is the normal case but it is often obscured because the linearization component requires most copies to be deleted, which is possible because they are part of the same chain and hence recoverable. In those cases where we see actual doubling at the surface, an offending copy has survived due to a morphological reanalysis process (e.g., morphological reanalysis of the wh-copy with an embedded complementizer) which makes it distinct from the higher copy.

An approach of the type in (16) for configurations that are more local than wh-chains is proposed in Barbiers (1995). The central hypothesis of this proposal is that the syntactic configuration in (18) is the basic unit of semantic interpretation.

(18) Basic unit for semantic interpretation

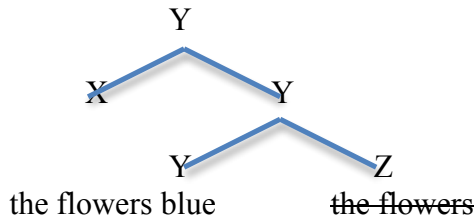


Semantic interpretation: $Y(X,Z)$, where $X \neq Z \Rightarrow$ dyadic predication
e.g., [X *the book* [Y *on* [Z *the table*]]]

If it is true that (18) is the basic unit for interpretation, this implies that every predicative head has exactly two arguments. This is OK for dyadic predication, but a problem for monadic predication relations such as between *blue* and *the flowers* in *The flowers are blue*, where *blue* seems to have only one argument: blue(the flowers).

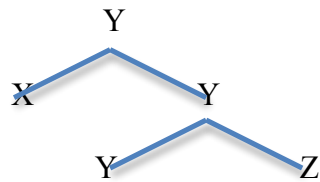
By hypothesis, the dyadic predication relation in (18) is reduced to a monadic one if the two arguments of the predicative head are formally identical. This is the case if argument X is a copy of argument Z, as in (19), or if Z is an agreement morpheme that has a subset of the morphosyntactic features of X, as in (20).²⁶

(19)



Interpretation: $Y(X,Z)$, where $X = Z \Rightarrow$ monadic predication

(20)



les fleurs.FEM.PL bleu -es.FEM.PL

Interpretation: $Y(X,Z)$, where features of X = features of Z \Rightarrow monadic predication

Thus, the configurations in (19) and (20) are more local cases of syntactic doubling. This doubling arises as a consequence of the principle in (21).

(21) Principle of Semantic Interpretation (hypothesis)

- (i) Dyadic predication $Y(X,Z)$ iff X immediately c-commands Y, and Y immediately c-commands Z.
- (ii) Monadic predication $Y(X)$ iff X immediately c-commands Y, and Y immediately c-commands Z, and the features of Z are a subset of the features of X, or the converse.²⁷

4.2. Syntactic doubling as a source of syntactic variation

According to the hypothesis discussed in the previous section, monadic predication always comes with doubling, either because a predicative head takes an argument as its specifier and an agreement morpheme agreeing with this specifier as its complement, or because the complement of the predicative head is copied to its specifier. Both configurations in (19) and (20) involve local redundancy. Local

redundancy may give rise to unexpressed elements at the level of spell out. Thus the phenomenon of pro-drop can be interpreted as a case in which a subject pronoun in SpecIP is not pronounced under (partial) formal identity with an agreement morpheme on the finite verb in I. Similarly, we expect this to be possible in configurations such as (19) and (20). The interaction between semantic (LF-) requirements and spell out (PF-) requirements is summarized in (22).

- (22) Doubling and Deletion Hypothesis (DaD)
- (i) Local syntactic doubling is necessary for monadic predication.
 - (ii) Redundant (i.e. doubled) features can be silent at PF if locally recoverable.

The local redundancy in the configurations in (19) and (20) makes invisibility of the element in complement or specifier position possible or, if linearization requirements play a role here as well, even necessary. As a result, there will be many cases of hidden doubling in natural languages.

The DaD hypothesis in (22) makes clear predictions with respect to what kinds of cross-linguistic syntactic variation we expect to find. It also makes it possible to reduce head marking, dependent marking and juxtaposition to one general configuration. Bouchard (2003) argues that head marking, dependent marking, juxtaposition and superimposition are the only four logically possible ways to express a semantic relation between two elements in a linear structure. According to him the restriction to these four options has nothing to do with principles of Universal Grammar, i.e. innate building principles specific for language. In a linear structure, there simply are no other ways to express a relation between two elements.

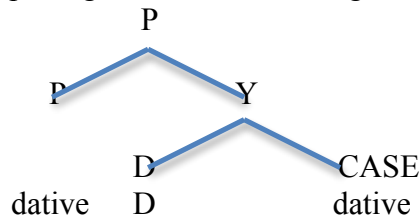
I put superimposition aside as it involves the complex interaction between two subsystems, e.g. syntax and tone. From the perspective of (22), then, the remaining three, head marking, dependent marking and juxtaposition, can all be reduced to the same basic configuration in which the two arguments of a predicative head are formally identical. These three possibilities follow from the Principle of Semantic Interpretation (21), a good candidate for UG.

The typology predicted for head marking is now as given in (23). Where the typology says ‘languages’ one could also read ‘constructions’, as a language may choose option (i) for construction type C1 and option (ii) for construction type C2.

- (23) Predicted typology for head marking
- (i) Languages without agreement on Y: The features of Z (= agreement) are a subset of the features of X (= specifier), so Z can be PF-silent (e.g., Chinese).
 - (ii) Pro-drop languages: The features of X (= specifier) are a subset of the features of Z (= agreement), so X can be PF-silent (e.g., Italian).
 - (iii) Languages with agreement and without pro-drop (both X and Z spelled out) (e.g., German).
 - (iv) No languages that lack both pronouns and agreement: violation of recoverability.

For dependent marking, something similar holds, if the configuration of dependent marking is also a doubling configuration, as in (24). In this configuration, the feature Dative is locally present twice, once in a preposition, once as a Case feature.

(24) Morphological case as doubling



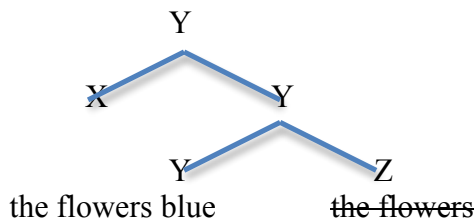
This predicts the typology in (25). Again, ‘languages’ can also be read as ‘constructions’.

(25) Predicted typology for dependent marking

- (i) Languages without Case and with prepositions (e.g. English)
- (ii) Languages without P but with Case (e.g. Finnish)
- (iii) Languages with Case and prepositions (e.g. German)
- (iv) No languages that lack both Case and prepositions: violation of recoverability

Finally, juxtaposition is predicted to come in three types. Given the configuration in (19), repeated here as (26), either the complement or the specifier can be spelled out, or both.

(26)



This predicts the typology in (27). Again, ‘languages’ can be read as ‘constructions’.

(27) Predicted typology for juxtaposition

- (i) Languages that spell out the complement (e.g. VO languages; English)
- (ii) Languages that spell out the specifier (e.g. OV languages; Japanese)
- (iii) Languages that spell out both.
- (iv) No languages where both specifier and complement are silent: violation of recoverability

As far as I know, languages of type (27-iii) that overtly spell out both the complement and the specifier in the configuration in (26) do not exist. If so, this directly follows from Antisymmetry. As was discussed above for copies in a movement chain, Antisymmetry in principle rules out spell out of more than one copy as this would lead to contradictory input for the linearization component. Only if one of the copies undergoes morphological reanalysis with some head or if the two copies are not completely identical (e.g. one a pronoun, the other a full DP) is overt doubling expected to be possible. Some examples to which this analysis of juxtaposition has been applied include optional PP Extraposition as VP Intraposition and word order variation in verb clusters in Dutch.²⁸

4.3. Diachronic cycles

The typologies in (23), (25), (27) are likely to form the base of diachronic cycles such as the Jespersen cycle.²⁹ From this perspective, such cycles are the result of two counteracting forces. The Principle of Semantic Interpretation requires the argument in a monadic predication relation to be structurally present twice, while such local redundancy can or must be avoided at PF. It can be avoided because PF-deletion of features is possible if the features are locally recoverable. It must be avoided in the case of full identity because this causes problems for linearization, as was discussed above. As soon as an element in such a configuration loses a feature due to independent processes, e.g. paradigmatic impoverishment or phonological weakening, this loss must be compensated by the other element.

Thus, consider the following hypothetical scenario. Suppose a language has full and distinct person and number specification on the finite verb for each member of the paradigm such that subject pronouns can be silent.³⁰ Next, person inflection is lost in the plural by an independent morphological or phonological process, possibly under the influence of language contact. The consequence of this loss is that [person] has to be overtly expressed elsewhere, on the subject pronoun. If this subject pronoun also has a [plural] feature, the inflection on the verb now becomes fully redundant and is expected to disappear, i.e. to be no longer expressed phonologically. Similarly, if an overt morphosyntactic distinction is lost in the pronominal paradigm this is expected to be compensated by an inflectional ending that represents the lost feature.

This scenario for diachronic cycles allows for various stages to become stable: if nothing happens to the inflectional paradigm, a language will retain the pro-drop property. If nothing happens to the pronominal paradigm, the verbal inflection will not change.

4.4. How syntactic doubling satisfies principles of good language design

If we handle syntactic doubling in the way described above, then all principles of good language design are satisfied. One syntactic configuration underlies all monadic and dyadic predication relations in all languages, so Universality and Uniqueness are guaranteed and there is no optionality in the syntactic module of the grammar.

Monadic predication requires a local doubling configuration, so both elements in the doubling configuration contribute to semantic interpretation; neither of them is superfluous. Syntactic doubling therefore does not violate Compositionality.

There are no superfluous steps or elements in the derivation of monadic predication relations, so syntactic doubling conforms to the principle of Economy.

Finally, the derivation complies with the principle of Explicitness. Hidden elements only occur under local recoverability, i.e., a specifier of a head can be silent if the formally identical complement of that head is spelled out and vice versa.

5. Focus particle doubling in Dutch. A case of criterial doubling.

So far we have identified two types of doubling. The first type arises when a constituent is copied to higher positions in a movement chain, such as in long wh-questions. Doubling is standard in such chains, but only becomes visible at PF if it does not violate conditions on linearization. The second type of doubling arises in monadic predication configurations, in which two arguments of a predicative head must be formally identical. In this section, we analyze a third type of doubling, criterial doubling which combines properties of both types of doubling.

Here is the analysis in a nutshell.³¹ Focus particles such as *ook* ‘also’, *alleen* ‘only’, *zelfs* ‘even’, *maar* ‘only’, *al* ‘already’ are relations between two arguments.³²

When a focus particle is attached to a constituent (e.g., DP, PP, CP), a problem for full interpretation arises, as in such a configuration the particle has only one argument. A second particle is attached to a constituent that can serve as the second argument of the lower particle, e.g. to TP. The first particle is then copied into the Spec of the second particle, optionally pied piping the argument to which it was attached first. In the resulting configuration, the two particles share the two arguments, a case of absorption.³³ Because there is a particle in the head and in the specifier of the higher focus particle projection, spell out options arise. The idea that focus particle configurations should involve doubling was first proposed on theoretical grounds in Bayer (1996) for German and later in Kayne (2000) for English. In both cases this involves abstract doubling, because German and English do not seem to have visible focus particle doubling. Overt focus particle doubling in Dutch suggests that these ideas are on the right track. The analysis provided in this section also solves the distributional paradox that has been discussed many times in the literature.³⁴

5.1. Introduction to focus particle doubling

The Dutch focus particle *maar* ‘only’ can be attached to constituents such as DP (28a), PP (28b) and to extended projections of the verb (28c). In traditional terms, the latter are cases of adverbial use, in which *maar* ‘only’ expresses durativity or repetition.

- (28) a. [Maar_{DP} één boek] ken ik.
 only one book know I
 ‘I know only one book.’
- b. [_{PP} Maar in één boek] staat een handtekening.
 only in one book stands a signature
- c. Jan bleef maar praten.
 John kept only talking.
 ‘John kept on talking.’

Since [*maar één boek*] precedes the finite verb in verb second position and only one constituent can precede the finite verb in Dutch, [*maar één boek*] must be a constituent, and *maar* must be attached to the nominal group (DP) [*één boek*].³⁵

When *maar* ‘only’ is attached to a DP or PP, it is optionally doubled elsewhere in the clause, as in (29a,b). This is a genuine case of doubling, not a case in which an adnominal or ad-adpositional focus particle is combined with an adverbial focus particle. As is shown in (29c,d), *maar* ‘only’ in its adverbial use cannot be combined with stative verbs such as *kennen* ‘know’ and *hebben* ‘have’, for reasons that need not concern us here. Since (29a) also involves the verb *kennen* ‘know’, we can conclude that the second instance of *maar* ‘only’ is possible because of the first instance of *maar* ‘only’. The brackets indicate that one of the instances of *maar* ‘only’ can be left out without changing the meaning of the clause.

- (29) a. (**Maar**) één boek ken ik (**maar**).
 only one book know I only
 ‘I know only one book.’
- b. (**Maar**) aan één boek heb ik (**maar**) iets.
 only on one book have I only something
 ‘Only one book is useful for me.’
- c. *Ik ken het boek **maar**.
 I know the book only
- d. *Ik heb **maar** iets aan het boek.
 I have only something on the book

There are other focus particles in Dutch that can be doubled, among others *wel* ‘as many as’ (30a) and *al* ‘already’ (30b).

- (30) a. (**Wel**) vijftig boeken heeft hij (**wel**).
 as many as fifty books has he as many as / AFFIRM
 I. ‘He has as many as fifty books.’
 II. ‘He does have as many as fifty books.’
- b. **Al** tien boeken heeft hij **al**.
 already ten books has he already
 ‘He already has a hundred books.’

There are two classes of focus particles in Dutch. Class 1 focus particles (31-i) allow identical doubling, class 2 focus particles (31-ii) do not allow identical doubling. That class 2 focus particles do not allow identical doubling is illustrated in (32). Interestingly, members of these two classes can be combined, and then the order is always fixed. The linear order is always class 2 particle – class 1 particle. This is illustrated in (33).

- (31) Two classes of focus particles in Dutch:
- (i) Class 1 allows doubling: a.o. *maar* ‘only’, *wel* ‘as much as’, *al* ‘already’ (cf. 30)
 - (ii) Class 2 does not allow doubling: a.o. *zelfs* ‘even’, *ook* ‘also’, *alleen* ‘only’ (cf. 32)
 - (iii) Class 1 and Class 2 particles can be combined but only in the linear order Class 2 – Class 1 (cf. 33).

- (32) a. **Alleen** Jan ken ik (***alleen**)
 only John know I only
- b. **Ook** Jan ken ik (***ook**).³⁶
 also John know I also
- c. **Zelfs** Jan ken ik (***zelfs**).
 even John know I even

- (33) a. alleen maar ‘only only’ - *maar alleen
 zelfs al ‘even already’ - *al zelfs
- b. Hij is nu ook al / *al ook boos op haar.
 he is now also already / already also angry at her
 ‘He is even angry at her now.’

The analysis that I will give below of this phenomenon is that focus particles of class 1 are functional heads in the extended verbal domain that trigger movement of focus particles of class 1 or 2 to their specifier positions. Since specifiers always precede heads, the predicted linear order is Class 2 – Class 1.

5.2. Focus particle doubling and the distributional paradox

It is well-known from the literature that focus particles show a distributional paradox in German, Dutch and English.³⁷ The paradox is that focus particles seem to be able to attach to a constituent when it is in sentence initial position but not when it is elsewhere in the clause. This is illustrated in (34). In (34a), the particle *ook* ‘also’ and the PP [op Marie] precede the finite verb. If the generalization is correct that in verb second languages like Dutch maximally one constituent can precede the finite verb, *ook* ‘also’ and the PP must form one constituent, so *ook* ‘also’ must be attached to this PP. However, (34b) seems to indicate that the particle cannot be attached to PP. A similar paradox occurs with *maar* ‘only’ (34c,d) and all other Dutch focus particles.

- (34) a. **Ook** [PP op Marie] is hij boos geweest.
 also at Mary is he angry been
 ‘He has also been angry at Mary.’
 b. Hij is boos (***ook**) [PP op Marie] geweest.
 he is angry also at Mary been
 c. **Maar** [PP op één jongen] is hij boos geweest.
 only at one boy is he angry been
 d. Hij is boos (***maar**) [PP op één jongen] geweest.
 he is angry only at one boy been

One of the solutions in the literature is that focus particles cannot attach to constituents at all and that in cases like (34a,c) the particle is attached to the entire clause (CP), not to the clause initial constituent.³⁸ Such an analysis has various disadvantages, which I mention briefly here: (i) It forces us to give up the generalization that only one constituent can precede the finite verb in main clauses in verbs second languages like Dutch and German, an otherwise quite robust generalization; (ii) It wrongly predicts that a clause initial focus particle can take the entire clause as its semantic argument in sentences like (35b); (iii) It wrongly predicts that a clause initial focus particle always takes wide scope with respect to the verb or quantified subjects (36).

- (35) a. Jan heeft gewandeld en ook heeft hij gezwommen.
 John has walked and also has John
 ‘John has walked and also has he swum.’
 b. *Jan heeft gewandeld en ook hij heeft gezwommen.
 John has walked and also he has swum.

- (36) Alleen vlees at niemand.
 only meat ate nobody
 I. only > no one: ‘Meat was the only thing that nobody ate.’
 II. no one > only: ‘There was nobody who only ate meat.’

My solution to the distributional paradox is the opposite, and in the spirit of Bayer (1996). I would like to propose that focus particles can attach to every constituent of the right semantic type, but that focus particles when attached to a constituent have to

move to find the second argument. The derivation goes like this. In (37a), *Hij is boos ook op Marie geweest* lit. he is angry also at Mary been, [ook op Marie] ‘also at Mary’ is a constituent. The sentence is ungrammatical not because *ook* ‘also’ attaches to the PP, but because *ook* ‘also’ cannot stay in that position. It has to move to some high position in the middle field, as indicated in (37b). When it does that, it can pied-pipe the prepositional phrase, as in (37c), and the order will be *Hij is ook op Marie boos geweest*. From that position, the particle or the particle and the PP can move up to clause initial position (37d,e).

- (37) a. *Hij is boos [ook [PP op Marie]] geweest.
 he is angry also at Mary been
 b. Hij is ook boos [~~ook~~ [PP op Marie]] geweest.
 he is also angry also at Mary been
 c. Hij is [ook [PP op M.]] boos [~~ook~~ [~~PP op M.~~]] geweest.
 he is also at Mary angry also at Mary been
 d. Ook is hij ~~ook~~ boos [~~ook~~ [PP op Marie]] geweest.
 also is he also angry also at Mary been
 e. [Ook [PP op Marie]] is hij [~~ook~~ [~~PP op Marie~~]] boos [~~ook~~ [~~PP op Marie~~]]
 geweest.
 also at Mary is he also at Mary angry also at Mary
 been

The position in the middle field to which the focus particle must move can be made visible by introducing one of the category 1 particles, the ones that can double. This is given in (38a). In (38a), the particle *ook* ‘also’ has moved to the specifier of the projection of *al* ‘already’. In (38b), *ook op Marie* ‘also at Mary’ as a whole has moved to this specifier position.

- (38) a. Hij is ook **al** boos ~~ook~~ op Marie geweest.
 he is also already angry also at Mary been
 ‘He has even been angry at Mary.’
 b. Hij is [ook op Marie] **al** boos [~~ook op Marie~~] geweest.
 he is also at Mary already angry also at Mary been.

Evidence that the triggering focus particle (*al* ‘already’ in (38a)) is a functional head while the moved focus particle (*ook* ‘also’ in (38b)) is a constituent in the specifier of that head comes from fronting. A functional head cannot be fronted in Dutch, while an element in specifier position can. Exactly this contrast we find between class 1 and class 2 focus particles, as illustrated in (39).

- (39) a. *Al is hij ook op Marie ~~al~~ boos geweest.
 already is he already at Mary already angry been
 b. Ook is hij op Marie al boos geweest.
 even at he at Mary already angry been

The derivations for (38) are given in (40).

- (40) (38a): [... [alP ook [al al [AP boos [PP ~~ook~~ [PP op Marie [...³⁹]]]]]]
 (38b): [... [alP [PP ook op Marie] [al al [AP boos [PP ~~ook~~ [~~PP op Marie~~ [...

Focus particle doubling arises when the moving particle is identical to the triggering particle. This is illustrated for *maar* ‘only’ in (41). In (41a), *maar* ‘only’ has carried along the PP *op één jongen* ‘at one boy’ in its way up. Again, overt doubling is not obligatory, as the variants of (41a) in (41b,c) show.

- (41) a. Hij is **maar** op één jongen **maar** boos geweest.
 he is only at one boy only angry been
 b. Hij is **maar** op één jongen boos geweest.
 he is only at one boy angry been
 c. Hij is op één jongen **maar** boos geweest.
 he is at one boy only angry been

The derivations of (41a-c) are given in (42). In all three cases, [_{PP} *maar op één jongen*] ‘only at one boy’ is in the specifier of *maar* ‘only’. In (42a), both the head and the specifier contain an instance of *maar* ‘only’. Thus, one instance of *maar* ‘only’ is locally redundant and can be silent at PF. In (41b) the head *maar* is deleted. In (41c), *maar* in the specifier is deleted.

- (42) Derivations of (41a-c):
 a. [... [_{maarP} [_{PP} *maar op één jongen*] [_{maar} *maar* [_{AP} *boos* [_{PP} ~~*maar op één jongen*~~] [...
 jongen] [...
 b. (42a) + PF deletion of second *maar*
 c. (42b) + PF deletion of first *maar*

As we have seen in (38a) and (40), a class 2 focus particle can move to the specifier of the higher focus particle leaving behind the constituent to which it was attached in the base structure. If the derivations in (42) are correct, a class 1 particle should also be able to do this. The result with identical doubling is ungrammatical, however, as illustrated in (43a), while the result without doubling is grammatical (43b).

- (43) a. *Hij is **maar** **maar** boos ~~**maar**~~ op één jongen geweest.
 he is only only angry only at one boy been
 b. Hij is **maar** ~~**maar**~~ boos ~~**maar**~~ op één jongen geweest.
 he is only only angry only at one boy been

The explanation of this contrast is straightforward if we take (41)/(42) into account. There we have seen that a focus particle can be deleted at PF in a specifier-head configuration where both the specifier and the head contains a particle. The crucial difference between (41) and (43) is that in (43) the specifier contains only a focus particle, such that the two identical focus particles are linearly adjacent. If we make the additional assumption that under such circumstances a haplology rule applies obligatorily, the ungrammaticality of (43a) follows.⁴⁰

The assumption that haplology effects occur in specifier head configurations with two identical elements is independently necessary. For example, in relative clauses in southern Dutch doubly filled comp dialects, SpecCP and C can both be filled if the relative pronoun in SpecCP and the complementizer in C are not homophonous, as in (44a). However, when the two elements are homophonous, one of the two has to disappear (44b).

- (44) a. de man die dat ik gezien heb
 the man who that I seen have
 b. het kind (*dat) dat ik gezien heb
 the child that that I seen have

Summarizing, I have argued that a focus particle can attach to any constituent in its base position. If the particle stays there, the sentence is ungrammatical. The particle has to move up to the specifier of another focus particle, optionally pied piping the constituent to which it was attached. This explains the distributional paradox. A combination [focus particle – constituent] can occur in derived positions, such as the lefthand part of the middle field and the clause initial position, but not in base position. A focus particle attached to a constituent obligatorily occurs with a second focus particle. This gives rise to doubling when the two particles are identical. This doubling can then be obscured by optional or obligatory deletion of one of the focus particles which is allowed because the content of the deleted focus particle is locally redundant. Focus particles in Dutch thus provide evidence in support of the Doubling and Deletion hypothesis presented in section 3. They both show overt doubling and the possibility of deletion of redundant material under local recoverability. This doubling conspiracy is a source of variation, in this case intralinguistic variation. At the surface, the variation is syntactic but it was shown above that the number of syntactic positions can be kept constant and thus the apparent syntactic variation can be reduced to variation in PF spell out.

6. The trigger of focus particle movement and doubling

The analysis presented so far does not yet answer the question why a second particle and movement to that particle is necessary. I would like to propose that movement to the second focus particle is required for full semantic interpretation. Focus particles are quantifiers. They are relations between two sets. For example, on one of the interpretations of the sentence in (45), *ook* ‘also’ is an inclusion or additive relation between [the books] and the set of other things that John has read.

- (45) Jan heeft ook de boeken gelezen.
 John has also the books read

Let us assume that the other focus particles can be analyzed as relations between two sets as well. If the two arguments that denote the two sets must be present in syntax, then a focus particle attached to a constituent such as DP or PP faces an interpretive problem. The constituent to which the particle is attached serves as its first argument, but since the particle is inside the DP or PP, it cannot find the second argument there. According to the Principle of Semantic Interpretation, dyadic relations require the following syntactic configuration:

- (46) Dyadic predication $Y(X,Z)$ iff X immediately c-commands Y, and Y immediately c-commands Z.

In many cases, this involves a Spec-Head-Complement configuration. If the focus particle is a head and its complement is its first argument, then there should be a

second argument in the specifier of the particle of the right semantic type, e.g. in (45) it should be a constituent that denotes the set of other things that John read.

Thus, if nothing happens, the focus particle will be left with only one argument and the structure will be uninterpretable. The structure will be saved if the focus particle can be provided with a second argument. This is achieved in two steps. First, a second focus particle is attached to TP. TP denotes the second set, in the case of (45) the set of things John read.⁴¹ In this stage, the lower focus particle has one argument, a DP or PP, and the higher focus particle also has one argument, TP. The lower focus particle now moves to the specifier of the higher particle. Here absorption takes place: the two focus particles interpretively become one and together express a relation between two arguments, the PP or DP, and TP.

7. The parallel between focus particles and negation

Interestingly, focus particles behave parallel to constituent negation in this respect.⁴² We have seen that sentences such as (37a), repeated here as (47a), are ungrammatical because the particle has to move up. If we replace the constituent with the focus particle by a negative constituent we also get an ungrammatical sentence (47b). Such sentences are good if the negative PP moves in front of the adjective, as in (47c).⁴³ In West-Flemish dialects, the negation *nie* ‘not’ optionally occurs in such cases, giving rise to doubling.

- (47) a. *Hij is boos [ook [PP op Marie]] geweest.
 he is angry also at Mary been
 b. *Hij is boos [PP op niemand] geweest.
 he is angry at nobody been
 c. Hij is [PP op niemand] (nie) boos geweest.
 he is at nobody not angry been
 ‘He has not been angry at anybody.’

The Doubling and Deletion hypothesis predicts that in addition to overt doubling and optional deletion of the negative head (West Flemish as in (47c)), there should also be a language type in which the negative part of the specifier can be deleted, again entirely parallel to focus particle doubling configurations. Such languages do indeed exist. Various Brabantish dialects spoken in the Belgian province of Antwerp have *iemand nie* lit. someone not, meaning ‘nobody’ and *ergens nie* lit. somewhere not, meaning nowhere (cf. SAND 2, map 59a). The sentences in (48) illustrate the parallel between deletion of a focus particle in the specifier of another focus particle and deletion of a negative morpheme in the specifier of another negative morpheme.

- (48) a. [Hij is [maarP [~~maar~~ op één jongen] [maar [boos geweest]]]].
 he is only at one boy only angry been
 ‘He has been angry at only one boy.’
 b. Hij heeft [nieP [~~n-~~iemand] [nie [gezien]]].
 he has no-one not seen
 ‘He has not seen anybody.’

The fact that both focus particles and the negative morpheme in a negative word can be deleted in this configuration suggests that they have the same structural status. Put differently, the orthographic convention to write words such as *niemand* ‘no one’ as one word may be misleading. In view of the accessibility for deletion of the n- part of

niemand and the lexical integrity condition which says that parts of words are not accessible to grammatical operations, *niemand* should be written as *n iemand*.⁴⁴ The fact that the variant *niemand ie*, with deletion of the initial *n-* of *nie*, is not attested, suggests that *nie* should not be analyzed as *n ie*.

Another interesting issue raised by the parallel in (48) is that the various PF deletion options in the case of negation correspond to particular geographic areas. In West Flemish we find optional deletion of *nie* ‘not’, in Standard Dutch we find obligatory deletion of *nie*, and in some Brabantish dialects we find optional deletion of *n-* in the *n*-word. For the different variants in focus particle doubling configurations (41), no correlations between variants and geographic distribution have been observed. The question is why negation would differ from focus particles in this respect. The tentative explanation I would like to propose for this difference is that negative sentences are much more frequent than sentences with focus particles and that the frequency of a syntactic phenomenon has to be above a certain threshold in order for it to be sensitive to sociolinguistic factors.⁴⁵

The fact that constituent negation and focus particles behave similarly in these configurations raises the question what they have in common semantically and syntactically. Semantically, if we take *n*-words to be negative quantifiers they face the same problem in their base position, namely that they lack the second argument needed for full semantic interpretation.

Focus particles and negation further have in common that they have a polarity feature [negative] or [positive]. An overview is given in (49).

- (49) a. Focus particles with a [negative] feature
 Class I elements: *maar* ‘only’ and *pas* ‘just’.
 Class II elements *alleen* ‘only’ and *slechts* ‘only’.
- b. Focus particles with a [positive] feature
 Class I elements: *al* ‘already’, *wel* ‘as many as’.
 Class II elements: *ook* ‘also’, *zelfs* ‘even’.

Focus particles with a negative feature license negative polarity items such as the verb *hoeven* ‘need’. This is illustrated in (50).

- (50) Negative focus particles: *maar* ‘only’, *alleen* ‘alone’, *slechts* ‘only’.
- a. Je hoeft *(niet) te bellen.
 you need not to call
 ‘You don’t have to call.’
- b. Je hoeft maar/alleen/slechts te bellen.
 you need only/alone/only to call
 ‘You only have to call.’

The positive focus particles cannot occur in the scope of negation.

- (51) Positive focus particles: *ook* ‘also’, *wel* ‘as many as’, *al* ‘already’
- a. Al tien boeken heeft Jan/*niemand al.
 already ten books has John/nobody already
- b. Wel tien boeken heeft Jan/*niemand wel.
 as many as ten books has John/nobody as many as
- c. Hij/*niemand heeft ook Jan gezien.
 he/nobody has also John seen

- d. Hij/*niemand heeft zelfs Jan gezien.
he/nobody has even John seen

As was stated above, *al* ‘already’ and *maar* ‘only’ are the focus particles that trigger movement of a focus particle that is attached to a constituent. If this movement is feature driven and if movement presupposes morphosyntactic agreement, we expect that only negative focus particles can move to the specifier of *maar* ‘only’ while only positive focus particles can move to the specifier of *al* ‘already’. This expectation is, however, not correct. In (52), the positive particle *ook* ‘also’ has moved to the specifier of the negative particle *maar* ‘only’.

- (52) Marie is nu ook maar boos ~~ook~~ op Jan.
Mary is now also only angry also at John.
‘Mary is now also angry at John.’

The features [positive] and [negative] are thus semantic features that do not take part in agreement relations that are necessary for movement.

It is also unlikely that an uninterpretable [focus] feature on the moving focus particle is responsible for focus particle movement. As we have seen in (43b), the higher focus particle and the focus particle moving to its specifier can be identical (in the case of (43b), both are *maar* ‘only’). It is hard to see how the lower particle can check the higher one if they both have an uninterpretable [focus] feature.

The remaining possibility is that there is an agreement relation between the uninterpretable focus feature of the higher particle and the interpretable focus feature of a focused element inside the complement of the lower focus particle, but that raises the question why the lower focus particle is present in the derivation at all. I conclude that focus particle movement in the focus particle doubling construction is not mediated by feature checking. Rather, the lower focus particle moves to the higher one for semantic reasons.

The feature content of the focus particles does play a role when it comes to deletion of a focus particle under local identity. As we have seen in (43), when the two particles are completely identical one of them can or must be deleted. When the two particles are not identical, only the lower focus particle can delete. This is illustrated in (53).

- (53) a. Marie is alleen (maar) boos op Jan geweest.
Mary is only (only) angry at John been
b. Marie is *(alleen) maar boos op Jan geweest.
Mary is only only angry at John been

This suggests that the features of *maar* ‘only’ are a proper subset of the features of *alleen* ‘only’, such that PF deletion of *maar* does not cause a recoverability problem while deletion of *alleen* ‘only’ does.

7. Conclusion

The central hypothesis of this paper is that syntactic doubling is necessary for full interpretation at LF, while deletion of locally redundant material is possible and sometimes necessary at PF. This was dubbed the Doubling and Deletion hypothesis (DaD). According to this hypothesis, syntactic doubling is a core property of the

syntax of natural language and in interaction with deletion an important source of cross-linguistic and intralinguistic variation.

In addition to doubling in dependency chains, two main types of syntactic doubling configurations were discussed. The first type involves monadic predication configurations, in which the two local arguments of a predicative head are formally identical. For such configurations, the DaD-hypothesis was shown to make precise predictions with respect to the typology of head marking, dependent marking and juxtaposition, and with respect to the properties of diachronic cycles such as the Jespersen cycle.

The second type of doubling configuration involves focus particles, which are analyzed as quantifiers, i.e. relations between two sets and therefore require two arguments in syntax. When they are attached to constituents such as DPs and PPs, they have only one argument, and doubling of the focus particle and movement of the lower particle to the higher one is necessary for full semantic interpretation. This was shown to resolve the distributional paradox known from the focus particle literature, and to explain the variation patterns found in Dutch focus particle constructions.

It was further shown that focus particles behave parallel to negation in this respect, which raises the question why variation in the spell out of negation is sensitive to sociolinguistic factors such as geographic location, while variation in spell out of focus particles does not seem to be sensitive to such factors. It was tentatively suggested that this is due to the higher relative frequency of negative sentences as compared to sentences with focus particles, under the assumption that a type of construction has to reach a certain frequency threshold for it to be prone to sociolinguistic differentiation.

The DaD-hypothesis defines a research program in that it predicts the existence of many other cases of hidden syntactic doubling. The program invites reconsideration of analyses of criterial movement proposed in the literature (e.g. focus negation *Wh*).⁴⁶ The DaD-hypothesis should be tested against diachronic cycles such as the Jespersen cycle, pro-drop and agreement cycles, and Preposition-Case cycles.

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NOTES

¹ For a cross-linguistic overview of syntactic doubling constructions and possible analyses see Barbiers (2008).

² I do not discuss reduplication, cases in which (part of) a morpheme is doubled to form a new, complex morpheme, as this seems to involve a phenomenon with different characteristics. Cf. Inkelas and Zoll (2005).

³ Cf. Barbiers et al (2008a).

⁴ Cf. Barbiers (1995).

⁵ The option [b] is ruled out as [a] is not recoverable from that PF-realization. Similarly for the option [a].

⁶ Chomsky (1995). The model of the mental grammar includes the following modules: Lexicon (a list of morphemes with their meanings and sound forms), Syntax (the module that contains the combinatorial rules), Logical Form (LF; the module that provides the semantic representation on the basis of the output structure from Syntax) and Phonological Form (PF; the module that spells out the syntactic structure phonologically).

⁷ E.g., Hale and Keyser (1993), Déchaine and Wiltschko (2002).

⁸ Cf. Barbiers (2005).

⁹ This issue has not been investigated systematically for the whole Dutch language area for PP Extraposition and focus particles, unlike verb cluster ordering. However, whereas we find ample claims in the literature about verb cluster orders that are typical for a particular geographical area before it was investigated systematically (cf. references cited in Barbiers et al 2008b), I am not aware of any such claims concerning PP Extraposition and focus particle patterns.

¹⁰ The claim that variability is a characteristic property of language that sets it apart from other cognitive modules is forcefully made in Evans and Levinson (2009). The question is, however, whether other cognitive modules have been studied in a sufficiently fine-grained way to conclude that they lack inherent variability. Evans and Levinson's claim that the importance of variability is not recognized in the generative framework is false in view of the immense body of comparative phonological and syntactic work that has been carried out by generative grammarians and the goal of generative grammar to provide a theory of language variation.

¹¹ Barbiers et al (2005, 2008b). For a description of the project see Barbiers and Bennis (2007) and Barbiers, Cornips and Kunst (2007).

¹² See Barbiers (2007) for a more precise analysis of the features of the indefinite determiner and ONE. See SAND I, map 80a, for the geographic distribution of this and related constructions.

¹³ The case feature of *hem* 'him', if it is one, is not doubled here. The hidden assumption w.r.t. the phrases in (8) is that the possessive pronoun doubles the immediately preceding constituent. Given cases like (8a-c) it is clear that it cannot be the other way around.

¹⁴ Cf. Weiß (2008) for similar constructions in varieties of German.

¹⁵ Cf. SAND I, map 16a for the geographic distribution of these variants.

¹⁶ Cf. Haegeman (1990), Van Riemsdijk (2002).

¹⁷ Cf. SAND II, maps 41b-43b for the geographic distribution of the periphrastic DO construction in declarative, imperative and interrogative clauses.

¹⁸ Cf. SAND I, maps 85a,b. For a full description and formal analysis of this variation, see Boef (2013).

¹⁹ Cf. SAND I.

²⁰ Cf. Barbiers, Koenenman and Lekakou (2009) for an analysis of Wh-doubling and Van Craenenbroeck and Van Koppen (2008) for an analysis of subject pronoun doubling along these lines.

²¹ Cf. Cinque (1999).

²² Cf. Frege (1892).

²³ Cf. Baker (1988).

²⁴ See the papers in Barbiers, Koenenman, Lekakou and van der Ham, eds. (2008a). In the language varieties discussed there, syntactic doubling usually involves at least one functional element. Doubling involving two lexical elements seems to be much more rare, the only case reported for these language varieties being lexical verb doubling in verb fronting constructions as we find it, e.g., in Spanish and Hungarian (cf. Vicente 2007).

²⁵ Cf. Kayne (1994).

²⁶ Movement from complement to specifier position violates the anti-locality condition of Grohman (2003). Explanations for empirical phenomena based on the anti-locality condition should be reconsidered if the hypothesis proposed here is correct.

²⁷ In this paper ‘subset’ should not be understood as proper subset. So the features of a morpheme are a subset of the features of another morpheme if the feature bundles of the two morphemes are identical or if the features of one morpheme are a proper subset of the features of the other morpheme.

²⁸ Cf. Barbiers (1995) for PP Extraposition and Barbiers (2005) for word order variation in verb clusters.

²⁹ Cf. Jespersen (1917).

³⁰ This scenario presupposes that the relation between a subject pronoun and a finite verb involves monadic predication. This has to be worked out technically, which cannot be done in the present paper due to limits of space.

³¹ This analysis was first presented at CGSW 18, 2003 at Durham. A squib version of this analysis appeared as Barbiers (2010) in De Vries and Zwart (eds).

³² The semantics of focus particles is more complex than can be discussed in this paper that concentrates on syntactic variation. For semantic analyses of focus particles see Rooth (1985, 1992), von Stechow 1991, Krifka 1992. Cf. Sudhoff (2010) for a comparison of these analyses. In the main text, I take the argument of a focus particles to be the constituent to which it is attached. This constituent may but need not coincide with the focus of the focus particle. The only requirement is that the focus has to be inside the argument of the focus particle.

³³ Cf. May (1985), Haegeman (1995), among others.

³⁴ Cf. Bayer (1996), Buring and Hartmann (2001), Kayne (2000), Bouma et al (2007), among many others.

³⁵ Contra Buring and Hartmann (2001). See below for a short discussion of the distributional paradox.

³⁶ Doubling of *ook* ‘also’ seems to be sometimes possible, as in (i).

- (i) Nu wil ik het ook weten ook.
 now want I it also know also
 ‘I won’t give up until I know it.’

Since examples of this type involve two instances of adverbial *ook* ‘also’, not combinations of adnominal or ad-adpositional and adverbial *ook* ‘also’, they are probably irrelevant for this paper, and I put them aside.

³⁷ See Bouma et al (2007) for a recent overview and references.

³⁸ Cf. Buring and Hartmann (2001).

³⁹ One could assume that even in this derivation the PP is pied piped by the focus particle, but spelled out in its base position and not in its landing site (cf. Bobaljik 2002 for such spell out options). However, if that were possible, we would expect it to be possible for the moved focus particle to be spelled out in its base position as well, contrary to fact.

⁴⁰ See Neeleman and Van de Koot (2006) for haplology rules. The obligatoriness of deletion of one of the particles also follows from Antisymmetry.

⁴¹ In order for this to be possible, the constituent containing the focus should be turned into a variable, either in semantics or by moving the constituent that contains the focus out of TP.

⁴² For the relation between negation, affirmation and focus see Laka (1990).

⁴³ Cf. Haegeman (1995).

⁴⁴ Cf. Lapointe (1980) for the Lexical Integrity Hypothesis.

⁴⁵ This explanation has to remain tentative in this paper because there are no frequency studies available, and also because there does not exist a systematic study of the geographic distribution of the different deletion patterns possible with focus particles.

⁴⁶ Cf. Rizzi (1991).