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Issues in the morphosyntax of *wh*-elements

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Chapter 1

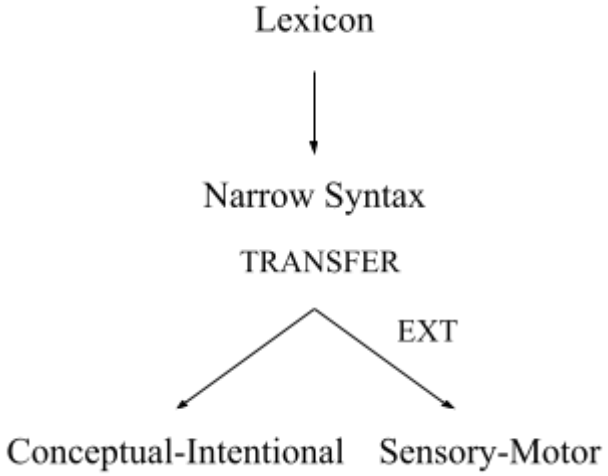
Introduction

This dissertation presents studies in the distribution of *wh*-elements in different languages and across different constructions. Descriptively, the term *wh*-element will be used to refer to items such as *who* or *what* — and their cross-linguistic equivalents — standardly categorized as DPs, that lack intrinsic descriptive content and often participate in the formation of a number of constructions across languages (e.g., Interrogatives, Headed Relatives, etc.). Hence the term *wh*-element will be used neutrally with respect to the particular construction in which such elements occur. The empirical focus throughout this work is placed on the *wh*-elements of Romance and Germanic languages, although Chapter 2 discusses data from other (non-)Indo-European languages that bear on questions about the properties that *wh*-elements can display. The main theoretical goal of this dissertation is to provide analyses for the lexical and morphosyntactic properties of *wh*-elements under a minimalist framework of generative syntax. The following Section outlines the main theoretical assumptions adopted in this work. In §1.2, I return to presenting in more detail the sort of theoretical and empirical issues addressed in this dissertation.

1.1 Theoretical framework

The studies presented in this dissertation are couched within the framework of the Minimalist Program (Chomsky 1995, *et seq*.), especially the more recent versions developed in Chomsky (2013, 2015, 2021) and Chomsky, Gallego and Ott (2019). The general model of grammar assumed in this work is the standard Y-model, as represented in (1).

(1)



Under this model, the derivation of a sentence begins by drawing elements — Lexical Items — from a repository — the Lexicon, which are subsequently assembled in a separate workspace (Narrow Syntax) via the operation Merge. Syntactic structures so assembled are then handed over from Narrow Syntax to the interfaces via the operation TRANSFER. In Chapter 4 I will use the term EXT(ernalization) when referring specifically to the portion of syntactic structure transferred to the Sensory-Motor interface. In line with standard assumptions made in Phase Theory (Chomsky 2000, 2001, 2008, Gallego 2010, Citko 2014), I moreover assume that TRANSFER does not take place at the end of the entire derivation; rather, TRANSFER takes place cyclically — at the completion of each computational domain, i.e., the phase. Importantly, syntactic representations are processed independently by the two systems with which Narrow Syntax interfaces: the Conceptual-Intentional (C-I) interface, essentially involved with the semantico-pragmatic aspects of language, and the Sensory-Motor (S-M) interface, responsible for instructing the vocal and gestural apparatuses on the basis of information received from the narrow syntactic component. Following Berwick and Chomsky (2011) among others, I will assume that S-M is the locus of much cross-linguistic variation (parameterization).

The nature of Lexical Items (and of the Lexicon more generally) is not well understood. While most would agree that Lexical Items need to be endowed with at least semantic features (in order to be interpreted at C-I), theories diverge upon the role played by other features. On the one hand, Early Insertion approaches (e.g., Manzini and Savoia 2011, 2018, Collins and Kayne 2020) postulate that Lexical Items are endowed with all their features, including phonological features, already in place during the syntactic derivation. Readjustment of features is not allowed under Early Insertion approaches once the narrow

syntactic derivation is completed. Under Late Insertion approaches such as Distributed Morphology (e.g., Halle and Marantz 1993, Arregi and Nevins 2012) and Nano-Syntax (e.g., Caha 2009, Starke 2009, Baunaz et al. 2018), on the other hand, Lexical Items are represented in the Narrow Syntax as abstract (bundles of) features, crucially deprived of phonological information. Such approaches allow for rearrangement of features after the narrow syntactic derivation — at S-M.[1] Moreover, at S-M the phonological matrix is added on the abstract features received from Narrow Syntax on the basis of language-specific mapping rules (hence Late Insertion approaches are also referred to as realizationist approaches).

In Chapter 3 I will adopt the assumption, in line with Late Insertion approaches, that the phonological matrix is superimposed post-syntactically onto the Lexical Items computed by Narrow Syntax. However, post-syntactic operations readjusting features will play no role in the present dissertation. The analyses proposed in other Chapters are compatible both with the idea that phonological information is part of Lexical Items prior to syntactic computation, and with the idea that such information is added post-syntactically. I will use the term *lexical entry* to refer to the bundle of features that comprise the objects computed by Narrow Syntax and realized at S-M, irrespective of whether those features are all present in the Lexicon or whether they are distributed between Lexicon and S-M. Similarly, I will use the term *lexicon* (lower-case), to refer to the collection of lexical entries.

A crucial aspect of the present framework is that the Merge operation is free and completely optional; that is, unlike previous versions of minimalist grammars (e.g., Chomsky 1995, 2000, 2001, 2008), Merge is no longer assumed to be a 'last resort', i.e., triggered by requirements of valuation and/or deletion of uninterpretable/edge features on Lexical Items. This version of Merge is more in line with the Strong Minimalist Thesis (SMT), a major guiding principle of minimalist inquiry, satisfied "to the extent that the structures of I-language are generated by the simplest operations" (Chomsky 2021: 12), barring strong empirical evidence to the contrary. A free-Merge system is intuitively simpler than a system requiring extra syntactic machinery to license applications of Merge (e.g., syntactic Agree); in fact, free Merge is the simplest combinatorial operation imaginable, recursively combining objects in a binary fashion with no linear order among them (Chomsky et al. 2019). Merge is

[1] For instance, the operation Impoverishment, assumed in Distributed Morphology, removes one or more features at S-M from the objects received from Narrow Syntax.

the sole structure-building operation,[2] which following Chomsky (2005 *et seq.*) comes in two varieties, depending on where the items to which Merge applies are located. A distinction can thus be made between Internal Merge (IM), an instance of Merge that applies to items already present in the syntactic workspace, and External Merge (EM), which on the other hand applies to items from outside the syntactic workspace (i.e., the Lexicon).

While Merge is free in the sense that it is syntactically untriggered, its application in the syntactic workspace can be constrained by different factors. One such factor is represented by 'third-factor' principles (in the sense of Chomsky 2005), essentially principles that are not specific the human language faculty, such as principles of computational efficiency like Minimal Search, the No Tampering Condition, the Inclusiveness Condition, and the ban against derivational look-ahead. Chomsky (2021) moreover argues that application of IM can be prevented by some Language-Specific Conditions, such as Θ-Theory (forcing application of EM in control configurations; see Chapter 5). Within Phase Theory, application of IM is prevented by the Phase Impenetrability Condition (PIC), namely the condition whereby items within a phase are inaccessible to subsequent Merge operations once that phase is dispatched to the interfaces.[3]

1.2 Questions and outline of the dissertation

The major issue that this dissertation attempts to address is how minimalist assumptions about free Merge can be reconciled with the empirical observation that *wh*-elements do not distribute freely across different syntactico-semantic environments. Rather, the

[2] I abstract away from the operation Pair-Merge, sometimes assumed to be involved in the construction of adjuncts (e.g., Chomsky 2004).

[3] The PIC has received different formulations depending on what kind of operations can take place across phase boundaries. Under a strong version of the PIC (e.g., Chomsky 2001), *no* operation can take place across phase boundaries once TRANSFER has taken place. The weaker version of the PIC (e.g., Chomsky et al. 2019) (which I will eventually adopt in Chapter 5) on the other hand allows Search to cross phase boundaries even after TRANSFER (for the purposes of, e.g., Agree); crucially, IM out of phase boundaries is still prohibited under this latter version of the PIC once TRANSFER has taken place.

morphophonological and morphosyntactic properties of *wh*-elements appear to vary according to the particular paradigm, or construction, in which they are merged.

To illustrate briefly, consider the distribution of English *what* and *who* in (2)-(3). In the Interrogatives in (2a) and (3a), *what* and *who* are both grammatical. However, *what* is not licensed in Headed Relatives (2b), unlike *who* (3b). At the same time, bare *who* becomes ungrammatical when the tense of the Headed Relative is non-finite ((3c); cf. the grammatical counterpart with pied-piping in (3d)).

(2) a. *What* did you do?
b. *The book *what* you read

(3) a. *Who* did you see?
b. The girl *who* you married.
c. *The girl *who* to marry.
d. The girl *with whom* to dance.

Under the assumption that Merge is free nothing in principle prevents the generation of the ungrammatical sentences in (2b) and (3c). In other words, *what* and *who* (or whatever underlies their features in the syntactic computation) should be able to undergo EM irrespective of the particular construction or morphosyntactic context in which they ultimately surface, provided that they can be interpreted at C-I. In fact, this is expected on the natural assumption that derivations lack any knowledge about the type of construction that is being derived. In line with minimalist assumptions, I take this to be desirable, and assume that (2b) and (3c) (as well as other comparable cases) can indeed be generated by Narrow Syntax. The source of ungrammaticality of *wh*-elements in particular morphosyntactic contexts will be argued to arise elsewhere, and specifically at the S-M interface. One part of this dissertation will therefore be concerned with formulating the relevant S-M conditions that constrain the overt distribution of *wh*-elements.

The following Chapters each aim at providing theoretical analyses for different empirical phenomena relating to the distribution of *wh*-elements.

Chapter 2 attempts to develop an analysis for two distributional properties of *wh*-elements that *prima facie* seem conflictual: (a) the availability of *wh*-elements across different constructions; and (b) their paradigmatic distribution. I argue that an account of property (a) can be minimally achieved if *wh*-elements have a lexical entry endowed with a

[wh]-feature that encodes an underspecified semantics. To account for property (b), the lexical entry is argued to bear an additional type of feature — a contextual feature — that is licensed in particular morphosyntactic environments. The contextual feature will be argued to be licensed at S-M under particular morphosyntactic conditions. Part of the Chapter will then be devoted to formulating the relevant licensing conditions in Interrogatives, Free Relatives, and Headed Relatives.

Chapter 3 focuses on the paradigmatic distribution of Italian *che* 'what' in Headed Relatives. The main paradigmatic property that the analysis developed in this Chapter attempts to capture is the restriction of relative *che* to direct case gaps. This property distinguishes relative *che* from interrogative *che* as well as other relativizers, which are instead compatible with oblique case gaps. The Chapter moreover discusses the restriction of relative *che* to finite environments, another property distinguishing relative *che* from interrogative *che*. While these properties have standardly been taken as evidence for the different categorial status of relative *che* (labeled as a C) on the one hand, and of interrogative *che* and other relativizers (labeled as DPs) on the other, I argue that there lacks sufficient empirical support for this categorial distinction. I thus argue that relative *che* is a DP, on a par with other interrogative and relative elements, and that its paradigmatic properties arise at S-M due to language-specific conditions on externalization. More specifically, the incompatibility of relative *che* with oblique gaps is argued to be due to the availability of the lexical entry for *cui* 'what.OBL', which replaces *che* in oblique contexts under the Elsewhere/Subset Principle (Kiparsky 1973, Halle 1997). The restriction to finite environments for relative *che* is argued to be part of a larger generalization that precludes bare DPs from occurring at the edge of Infinitival Relatives.

Chapter 4 develops an analysis for the distribution of relativizers in the Headed Relatives of English and Romance. It attempts to provide an account for the observation that that the overt distribution of relativizers is subject to different morphosyntactic conditions (e.g., obligatory pied-piping) depending on the kind of Headed Relative in which the *wh*-element is merged (i.e., tensed (non-)restrictive or infinitival), and of the source of variation between English and Romance. The analysis builds on Richards (2010) by arguing that the distribution arises at S-M due to a condition prohibiting the realization of multiple occurrences of the same feature (the Distinctness Condition). However, Richards's account faces some empirical difficulties, which I attempt to resolve by adopting a different set of assumptions than Richards'. I will therefore assume that the locality domain relevant for the computation of Distinctness, EXT, includes the whole phase (Bošković 2016), rather than

only its complement, as in standard Phase Theory (e.g., Chomsky 2001). I moreover argue that Distinctness in Romance (and in English, to some extent) is sensitive to φ-features as well as to categorial labels. I further extend the analysis to cover the distribution of 'complementizers' under their treatment as DPs.

Finally, Chapter 5 discusses two constructions that feature the multiple realization of a single *wh*-phrase: (i) *wh*-doubling in North Italian Varieties; and (ii) *wh*-copying in varieties of German and Dutch. Despite standard assumptions about the derivation of *wh*-copying, I will argue that IM is not involved in deriving these constructions. The main argument in favor of this assumption is empirical: under an IM derivation, the copies in the *wh*-chain are expected to be morphophonologically identical under the Copy Theory of Movement (Chomsky 1993), which is often not the case from a cross-linguistic perspective. The proposed analysis thus takes the overt *wh*-copies to be drawn from the Lexicon independently (i.e., via EM), giving a straightforward account for their often non-identical morphophonological shape. The unavailability of IM in these constructions is argued to arise as a consequence of the *wh*-phrases projecting their label at the edge of the v/C phase, leading to their freezing in those positions. The independently generated copies are then connected via Chomsky's (2021) rule of FormCopy, allowing them to be part of the same chain at C-I. The Chapter concludes with some remarks on language variation in the availability of (patterns of) *wh*-doubling/copying.

Chapter 2

On the paradigmatic distribution of *wh*-elements

2.1 Introduction

The main purpose of this Chapter is to shed light on the types of features encoded on *wh*-elements (i.e., their lexical entry) by developing an account for the following two distributional properties that such elements display: (i) their cross-constructional syncretisms, namely the fact that a particular morphophonological *wh*-form may surface across different syntactico-semantic environments (e.g., English *who*, available in Interrogatives and Headed Relatives); and (ii), their paradigmatic, or construction-specific, distribution. More specifically, I focus on the observation that *wh*-elements may either appear in some particular construction (e.g., Headed Relatives) with a morphophonologically specialized form (e.g., Italian relative *cui* 'what.OBL') or may be altogether absent from a paradigm (e.g., English **what* in Headed Relatives). These facts, along with the theoretical questions they raise, are discussed further below in §2.1.1.

In Section 2 I argue that an account of cross-constructional syncretisms can be minimally achieved if the lexical entry of *wh*-elements contains an underspecified semantics, encoded in the form of a [wh] feature, that interacts with the larger syntactic domain in which it is embedded (cf. Postma 1994, Manzini and Savoia 2003, Roussou 2020a, among others). Hence no feature specifying a particular semantic reading (e.g., interrogative, relative, etc.) needs to be directly encoded on the lexical entry of *wh*-elements.

This conclusion however clashes with the observation that *wh*-elements seem to fall into construction-specific paradigms. In Section 3 I therefore propose that the lexical entry of *wh*-elements may also encode features that specify the particular morphosyntactic context in which they can be licensed at the S-M interface. The rest of the Section will then be devoted to formulating the relevant licensing environment in Interrogatives, Free Relatives, and Headed Relatives.

2.1.1 Empirical landscape and theoretical questions

It is a well-known empirical observation that *wh*-elements can surface in different syntactico-semantic environments within and across different languages. Thus, for instance, English *what* may occur in Interrogative constructions with both an inquisitive (1a) and an echo interpretation (1b); it may occur in Free (i.e., headless) Relatives;[4] and it may also function as an exclamative marker (3), among others.

(1) a. *What* are you doing?
b. You said *what*?

(2) a. I love *what* I do.
b. *What* you are saying is wrong.

(3) *What* a beautiful day it is!

This distribution raises the question of how such cross-constructional syncretisms are to be captured from a theoretical point of view. In particular, the question arises as to how a *wh*-item is to be represented in the lexicon and at the interfaces. At least in principle, we might envisage two alternative hypotheses.

One hypothesis, which I will refer to as the *single-entry hypothesis*, takes the cross-constructional syncretism of *wh*-elements at face value, maintaining that the lexicon contains a single representation for a given *wh*-element underlying its cross-constructional availability (cf. Postma 1994, Manzini and Savoia 2003, Barbiers et al. 2010, Boef 2012, Hachem 2015, Roussou 2020a, Roussou and Vlachos 2022, among others). Specifically, the lexical entry would encode a rather underspecified semantics that is compatible with different syntactic environments. The specific semantic interpretation associated with a syncretic *wh*-form arises configurationally, i.e., under interaction with the syntactic context, and is crucially not encoded on the lexical entry of the *wh*-element itself. In (1)-(3), for instance, the

[4] I mostly discuss here the type of free relatives that Caponigro (2003) dubs 'plain free relatives', namely those argumental free relatives involving simplex *wh*-words (e.g., *what*). I therefore abstract away from *wh*-words in '-ever Free Relatives' (e.g., *whatever*), leaving open to feature research an account of their lexical entry.

lexical representation of *what* would not change depending on its reading as, e.g., an interrogative or free relative pronoun, according to this hypothesis.

Under an alternative hypothesis, which I will call *the multiple-entries hypothesis*, the lexicon may contain multiple entries for a given *wh*-element, each somehow specified for its availability in a particular construction (e.g., [*what* +Q], [what +FR], etc.). Although it was not explicitly formulated as such, this hypothesis is effectively taken by such early works as Katz and Postal (1964), Chomsky (1964), Baker (1970), among others, insofar as they treat *wh*-elements in Interrogative constructions as inherently endowed with interrogative semantics. More recently, the multiple-entries hypothesis is taken by some authors working under the cartographic framework (see, e.g., Backsai-Aktari and Dékány 2021, who assume that [+rel]/[+wh] features are relevant for clause-typing). This hypothesis is also standardly taken to account for the wide-spread syncretism between *wh*-elements in their function as, e.g., interrogative elements (taken to project DPs) (4), and their function as relative 'complementizers' (taken to project CPs) (5). I defer to Chapter 3 a discussion of this type of syncretism, focusing here on syncretisms among uncontroversial instances of *wh*-DPs.

(4) *Che* leggi?
What read-2S
'What are you reading?'

(5) Il libro *che* leggi.
The book what read-2S
'The book that you are reading.'

At least with respect to syncretisms involving *wh*-DPs, proponents of the single-entry hypothesis argue that the multiple-entries hypothesis lacks explanatory power insofar as it postulates a redundant lexicon. For instance, if *what* is taken to be inherently interrogative in (1) — i.e., if the interrogative reading associated with *what* in (1) is triggered by some intrinsic property of *what* —, then it becomes a purely accidental fact that the lexical entry for interrogative *what* is homophonous with the entry for *what* as a free relative pronoun in (2). Note that morphophonological syncretisms between interrogative and (free) relative pronouns are quite wide-spread cross-linguistically (cf., e.g., Smits 1989, Caponigro 2003, Bhat 2004, among others), casting doubt on the postulation of homophonous lexical entries. Such patterns of syncretisms moreover provide an empirical argument against the postulation of

construction-specific lexical features such as [+relative pronoun] (cf. Wiltschko 1998, Boef 2012, Hachem 2015). The rejection of such features is also theoretically motivated, given the ban against construction-specific statements in the grammar in generative theorizing (cf. Chomsky 1981: 7).

While the single-entry hypothesis is conceptually preferable over the multiple-entries hypothesis, I show that it faces some difficulties when considering the intra- and cross-linguistic distribution of *wh*-elements. There is in fact evidence pointing towards the conclusion that *wh*-elements can fall into construction-specific paradigms, at least in some languages. One type of evidence for the paradigmatic distribution of *wh*-elements is the observation that *wh*-elements might not surface in all environments in which they may be expected to do so with respect to both intra- and cross-linguistic considerations. This distribution raises the question of how the grammar can classify *wh*-elements into construction-specific paradigms under the assumption that the lexical entry of *wh*-elements contains an underspecified semantics and does not encode construction-specific features. Below I present some relevant cases. Though they are by no means exhaustive, they suffice to illustrate the general problem faced by the single-entry hypothesis.

As an illustration of the paradigmatic distribution of *wh*-elements, consider (standard) English *what*. While *what* may occur in Interrogatives (1) and in Free Relatives (2), it may not occur in Headed Relatives (6). Crucially, as is well known, Headed Relatives in English do not categorically reject *wh*-elements as relativizers, so that the unavailability of *what* in such environments cannot be imputed to a general ban against *wh*-elements.

(6) a. A book **what*/*which* you should read is Syntactic Structures.
b. The girl **what*/*who* John invited to the party is Mary.

Cross-linguistically, moreover, *what*-like elements are clearly available in Headed Relatives. This point can be illustrated with both the closely-related German *was* (7) and Dutch *wat* (8), and, more forcefully, with data like (9), from dialects/varieties of English where *what* can be licensed in Headed Relatives.

(7) Das Beste, *was* Microsoft heute tun kann, ist, Yahoo zu kaufen.
the best what Microsoft today do can is Yahoo to buy
'The best that Microsoft can do today is to buy Yahoo.'
German (Brandt and Fuß 2014: 301)

(8) Dat is het meisje *wat* die mensen heeft geropen.
That is the girl what those people have called
'That is the girl who called those people.'

Dutch (Boef 2012: 53)

(9) The girl *what*'s coming over.

Dialectal English (Edwards 1993: 228)

Based on the above considerations, (standard) English *what* may be said to be missing from the Headed Relative paradigm (which instead includes *which* and *who*). Besides showing a gap in the Headed Relative paradigm, English *what* is also absent from the Indefinite paradigm (10). The fact that *what* could in principle show up in the Indefinite paradigm is evidenced by the observation that *wh*-elements can function as indefinites in several languages (Haspelmath 1997, Bhat 2004), as illustrated by the German and Dutch cognate *was*/*wat* in its function as an indefinite pronoun (11)-(12).

(10) *I want to eat *what*. (cf. I want to eat *something*.)

(11) Ich habe *was* gefunden.
I have what found
'I have found something.'

(12) Jaan heeft *wat* gedaan.
John has what done
'John has done something.'

(Postma 1994: 187)

Interestingly, even in languages like German and Dutch, the availability of bare *wh*-elements in the Indefinite paradigm is subject to further restrictions. For instance, Dutch *wie* 'who' and *waar* 'where' cannot function as bare indefinites, thus differing from the German counterparts *wer* 'who' (13) and *wo* 'where' in this respect (14).

(13) a. Es hat *wer* geklingelt. *German*
It has who ringed-the-bell

'Somebody has ringed the bell.'

b. *Er heeft *wie* gebeld *Dutch*

'Somebody has ringed the bell'

(Postma 1994: 188)

(14) a. Lass uns *wo* hinfahren diesen Sommer. *German*

Let us where PART-drive this summer

'Let's go somewhere this summer.'

b. *Moet je nog *waar* heen? *Dutch*

must you still where LOC-ADV

'Do you still have to go somewhere?'

(adapted from Hachem 2015: 231)

Moreover, in both German and Dutch, the bare *wh*-adverbial *wann*/*waneer* 'when' cannot receive an indefinite interpretation.

(15) a. *Ich komme heute *wann* vorbei.

I come today when by

'I will drop by sometime today.'

b. *Ik zal vandaag *wanneer* langskomen.

I will today when by-come

'I will drop by sometime today.'

(adapted from Hachem 2015: 232)

Another interesting case illustrating the paradigmatic distribution of *wh*-elements comes from English *who*. For many speakers, *who* is ungrammatical in Free Relatives, irrespective of whether it surfaces in object (16a) or subject (16b) position (see, in particular, Patterson and Caponigro 2016; cf. Chomsky 2013: fn 44.). Once again, intra- and cross-linguistic considerations would lead one to expect *who* to be available in Free Relatives. In particular, Free Relatives in English formed with *what* are grammatical (cf. (2) above), as are Free Relatives formed with *who*-like elements in other languages, such as Italian (17), Spanish (18), and German (19) (from Patterson and Caponigro 2016: 342).

(16) a. *I love *who* I married.

b. ∗ *Who* Glenn married didn't make much money.

(17) Hanno premiato solo *chi* è arrivato primo.
have.3P award.PRF.3P only who is arrive.PRF first
'They gave an award only to the person who arrived first.'

(18) Le dí las gracias a *quién* me ayudó.
3S give.PST.1S DET thanks to who 1S help.PST.3S
'I thanked the person who helped me.'

(19) *Wer* diese Tat verübt hat, sollte nie wieder frei kommen.
who.NOM this crime commit.PRF.3S has, should never again free get
'The person/people who committed this crime should never be let free.'

A comparable situation can be observed in the Free Relatives of Italian. In this case, it is the *wh*-element *che* 'what' that is not available (20), at least not in the standard language.[5]

(20) a. *Amo *che* faccio.
love.1S what do.1S
'I love what I do.'
b. **Che* dici non ha senso.
what say.2S NEG has sense
'What you're saying doesn't make sense.'

[5] Caponigro (2003: 26) points out that some varieties of Italian license *che cosa* (lit. 'what thing'), a variant of *che*, in Free Relatives. I do not know whether *che* (without *cosa*) is allowed by these speakers in Free Relatives. Manzini (2012: 299) judges (i) as grammatical (her ex. (7)), which illustrates the possibility for variation in the use of free relative *che* in (non-standard) varieties of Italian ((i) is deviant in my own Italian).

(i) %Fai che ti pare.
Do what you likes
'Do as you like.'

Perhaps stronger evidence for the paradigmatic distribution of *wh*-elements comes from languages that make use of *wh*-elements that are clearly construction-specific. Such *wh*-elements involve a specialized morphology that is restricted to certain syntactico-semantic environments. This is the case of, e.g., Italian *cui* 'what.OBL', Hungarian *amit* 'what', etc., elements used exclusively in Headed Relative clauses (see de Vries 2002: Chapter 5 for a cross-linguistic survey of languages that make use of specialized relativizers). In (21), for instance, while Italian *chi* 'who' may function as an interrogative (21a) or a free relative pronoun (21b), it cannot be employed in Headed Relatives (21b), which require *cui* (with oblique case gaps; cf. Chapter 3 for further discussion on *cui*). Conversely, *cui* may not occur in either Interrogatives (21a) or Free Relatives in present-day Italian (21b).

(21) a. A *chi*/**cui* hai dato il libro? (interrogative 'who' = **chi**)
To who have.2S given the book
'Who did you give the book to?'

b. Gianni parla solo con *chi*/**cui* vuole parlare (free relative 'who' = **chi**)
G. speaks only with who wants speak-INF
'Gianni speaks only to those he wants to speak with'

c. L'uomo a *cui*/**chi* hai dato il libro (headed relative 'who' = **cui**)
The man to who have.2S given the book
'The man to whom you gave the book.'

Similarly, Slovenian has different morphophonological forms for the element corresponding to English *what* depending on the particular construction in which it is used: Interrogatives require *kaj* (22a), whereas Free Relatives (22b) and Light-Headed Relatives (22c) require *kar* (adapted from Šimík 2018: ex. (7))).

(22) a. Vem, *kaj*/**kar* je Maja skuhala.
Know.1SG what AUX.3S Maja cooked
'I know what Maja cooked.'

b. Pojdem sem, *kar*/**kaj* je Maja skuhala.
Ate AUX.1S what AUX.3S Maja cooked
'I ate what Maja cooked.'

c. Pojdem sem vse / nekaj / tisto, *kar*/**kaj* je Maja skuhala.
Ate AUX.1S everything / something / that what AUX.3S Maja cooked
'I ate everything / something / that thing that Maria cooked.'

The above data raise the question of how the paradigmatic distribution of *wh*-elements is to be captured, in view of the theoretical ban against construction-specific lexical features. Assuming that the lexicon of, e.g., English contains single (i.e., semantically unspecified) entries for *what* and *who,* there is no obvious semantic incompatibility between these items and Headed Relatives and Free Relatives, respectively. Assuming further that Merge is free (cf. §1.1.1), the question arises as to what property of the grammar prevents the licensing of some *wh*-elements in particular morphosyntactic contexts.

2.2 Cross-constructional syncretisms and the lexical entry of *wh*-elements

This Section addresses the cross-constructional syncretisms of *wh*-elements. In particular, we would like to make explicit what lexical properties *wh*-elements possess such that they can occur in different syntactic environments. I essentially side with proponents of the single-entry hypothesis in assuming that this property amounts to an underspecification of the semantics of *wh*-elements (Postma 1994, Manzini and Savoia 2003, Roussou 2020a, among others). One argument in favor of this hypothesis is conceptual: the single-entry hypothesis is favored on minimalist grounds, since it reduces the size of the lexicon and avoids postulating construction-specific lexical features (cf. Wiltschko 1998). Another argument is empirical: cross-constructional syncretisms of *wh*-elements are wide-spread across languages. In the next section (§2.2.1), I further discuss some empirical arguments to the effect that *wh*-elements lack intrinsic semantic specifications, after which I make a first proposal about the lexical entry of *wh*-elements (§2.2.2).

2.2.1 Wh-elements as open variables

One of the first researchers to argue that *wh*-elements lack intrinsic quantificational force is

Nishigauchi (1990).[6] He develops an analysis of Japanese *wh*-words that is based on Heim's (1982) theory of indefinites, which I briefly summarize below.

According to Heim (1982), indefinites are devoid of any intrinsic quantificational force and behave as free variables at the interpretive interface. In order to acquire their interpretation, indefinites must be bound in one of two ways. One such way is via binding by elements carrying quantificational force of their own, such as adverbs of quantification. To illustrate, consider the sentences in (23a) and (24a) and their respective logical paraphrases in (23b) and (24b). In (23), 'a man' and 'a donkey' are interpreted in the scope of the universal quantifier, whose quantificational force is provided by the adverb 'always'. In (24), 'a cat' instead acquires existential force as it falls within the scope of the adverb 'sometimes'.

(23) a. If a man owns a donkey, he always beats it.
b. For all x [x a man] and for all y [y a donkey], such that x owns y, x beats y.

(24) a. Sometimes, if a cat falls from the fifth floor, it survives.
b. There exists x [x a cat] such that x survives after falling from the fifth floor.

When the variable introduced by the indefinite cannot be bound by quantifiers (as it may be the case if none are overt) Heim proposes that the indefinite gets bound by a non-overt existential quantifier, introduced as part of a rule of existential closure (see Heim 1982 for details). Existential closure thus ensures that the variable introduced by 'a cat' in (24) can be bound existentially (cf. Diesing 1992 for a modification of Heim's theory).

(25) a. A cat was at the door. It wanted to be fed.
b. There exists x, [x a cat], such that x was at the door and wanted to be fed.
(Heim 1982: 166)

Nishigauchi (1990) argues that Heim's (1982) theory can be transposed to the domain of *wh*-elements in Japanese in order to account for their distribution. The *wh*-elements of Japanese are thus assumed to introduce free variables that are then bound by various operators carrying quantificational force at the interpretive interface. In the following

[6] Nishigauchi's (1990) insight is partly inspired by Kuroda's (1965) treatment of Japanese *wh*-words as 'indeterminate pronouns'.

examples, for instance, the *wh*-element *dare* 'who' acquires different readings depending on the particular operator that binds it. In (26a), *dare* receives an interrogative interpretation as it is bound by the operator *ka* occupying a sentence-peripheral position; in (26b), *dare* is instead read in the scope of the operator *mo*, thus receiving universal quantification; in (26c), *dare* receives an existential interpretation by virtue of *ka* occupying a phrase-internal position.[7] In short, *dare* (as well as other Japanese *wh*-elements) behaves like a Heiman indefinite at C-I: it is a variable construed with a binding operator.

(26) a. *Dare*-ga ki-masu *ka*
who-N come Q
'Who's coming?'

b. *Dare*-ga ki-te *mo*, boku wa aw-a-nai.
who-N come Q, I T meet-want
'For all x, if x comes. I want to meet (x).' Or
'Whoever comes in, I will mit (him).'

c. *Dare-ka*-kara henna tegami-ga todoi-ta.
Who-Q-from strange letter-N arrived
'A strange letter came from somebody.'

A similar distribution of *wh*-words suggesting their lack of intrinsic quantificational force is found in other languages, such as Mandarin Chinese (27), as argued by Cheng (1991) extending Nishigauchi's (1990) analysis. Similarly to Japanese, in (27) the *wh*-element *sheme* 'what' acquires an interrogative reading when it is in the scope of an interrogative operator; it acquires an existential reading in yes-no questions (among other affective contexts; cf. Cheng 1991: 113ff.) (27b); and it acquires a universal reading when it falls under the scope of the adverb *dou* 'all' (27c).

(27) a. hufei chi-le *sheme* (*ne*)
Hufei eat-ASP what Q_{WH}
'What did Hufei eat?'

b. qiaofong mai-le *sheme ma*

[7] On a formal treatment of the cross-linguistic syncretisms between interrogative and existential particles (among others), see Mitrović (2021).

Qiaofong buy-ASP what Q_{YN}
'Did Qiaofong buy anything?'

c. botong *sheme dou* chi
Botong what all eat
'As for Botong, he eats everything.'

Postma (1994) also argues, independently of Nishigauchi (1990), that *wh*-words should be analyzed as Heimian indefinites, that is, as open variables that acquire their readings configurationally. His main empirical argument comes from the behavior of *wh*-words in languages like Dutch and German, where elements such as *wat* can acquire an interrogative or indefinite interpretation. In this case, the different readings are disambiguated syntactically. The interrogative reading is associated with movement of *wat* to a left-peripheral position (28a). When *wat* stays in situ, instead, it is interpreted existentially (28b).

(28) a. *Wat* heb je gedaan?
What have you done?

b. Jan heeft *wat* gedaan.
John has what done
'John has done something.'

In sum, according to Postma (1994), the interrogative and indefinite readings of *wat* are not lexically encoded as such: they are the result of the interaction between the semantic properties of *wat* (an open variable) and the syntactic structure in which it occurs.

Barbiers et al. (2010) note that Dutch *wat* can moreover occur as an indefinite determiner (29a) and as a relativizer (29b).

(29) a. Jan heeft *wat* boterhammen gegeten.
Jan has wat sandwiches eaten
'Jan has eaten some sandwiches.'

b. Alles *wat* ik ooit dacht te weten.
everything wat I ever thought to know
'Everything I thought I knew.'

They follow Postma (1994) in the assumption that the lexicon of Dutch contains a single instance of *wat*, whose interpretation is determined contextually. They (p. 7) moreover suggest that "[f]or *wat* to appear in such a variety of contexts, it must be rather unspecified". Boef (2012: ch. 4) claims that it is precisely because of its featurally underspecified lexical entry that a pronoun can show a cross-constructional syncretic distribution (in her terms, that it behaves as a "multipurpose pronoun"; see also Hachem 2015).

That *wh*-elements lack semantic specification can also be observed in languages like Italian, as illustrated in (30) and (31), where the *wh*-element *chi* 'who' acquires different interpretations. Specifically, in the Free Relative in (30a), *chi* is interpreted as a definite description, as in the paraphrase in (30b); in the Existential Free Relative (also known as Modal/Irrealis Free Relatives or indefinite constructions in the literature; cf. Caponigro 2003, Šimík 2011) in (31a), *chi* is instead interpreted in the scope of an existential quantifier, as in the paraphrase in (31b)

(30) a. Amo *chi* ho sposato.
love.1S who have.1S married
(lit.) 'I love who I married.'

b. Amo *la persona* che ho sposato.
love.1S the person that I married
'I love the person I married.'

(31) a. Ho con *chi* parlare quando sono triste.
have.1S with who speak-INF when am sad
'I have somebody to talk to when I am sad.'

b. Ho *qualcuno* con cui parlare quando sono triste.
have.1S somebody with whom speak-INF when am sad
'I have somebody to talk to when I am sad.'

(Caponigro 2003: 86)

2.2.2 Wh-items in the lexicon

The facts discussed above indicate that the *wh*-elements of various languages can lexicalize an underspecified core semantics that is compatible with multiple syntactic environments.[8] The natural assumption that suggests itself is that the lexical entry for *wh*-elements must at least encode such semantics. I take this to be the case, and assume that such semantics is encoded in the form of a [wh] feature. Taking the standard position that *wh*-elements project DPs, I moreover assume that the [wh] feature corresponds to a particular value associated with the D category. This value, I suggest, is what distinguishes *wh*-elements from other exponents of the D category, such as definite determiners, at C-I (which may perhaps be valued as [ι] or [σ], expressing, e.g., uniqueness and/or maximality).

Apart from the [wh]-feature, I assume further that *wh*-elements may be endowed with φ-features,[9] which encode such familiar specifications as gender, number, person and animacy (cf. Déchaine and Wiltschko 2002). The effects of specifying values for φ-features can be observed at both the S-M and C-I interfaces in different languages. For instance, Italian *quale* 'which (one)' can be morphologically plural, i.e., *quali* 'which (ones)'; in German, *wer* 'who' is morphologically masculine, as shown by the pair in (32), where the bound interpretation of the feminine pronoun *ihren* 'her' is excluded.

(32) a. *Wer*$_i$ hat seinen$_i$ Mantel verloren?
Who has his coat lost
'Who lost his coat?'

b. *Wer*$_i$ hat ihren$_{k/*i}$ Mantel verloren?
Who has her coat lost
'Who lost her coat?'

German (Fanselow et al. 2005: 41)

[8] This assumption is in line with the hypothesis expressed in the semantic literature to the effect that "the ordinary semantics of the *wh*-phrase is in fact undefined" (Beck 2006: 12) apart from introducing sets of alternatives in the sense of Rooth (1992).

[9] At least in the case of nominal *wh*-elements. I abstract away from the internal featural composition of *wh*-adverbs such as *where* and *how* in this dissertation.

At C-I, I assume that some φ-features may act as restrictors on the range of the variable introduced by *wh*-elements (e.g., Heim and Kratzer 1998: 244, Heim 2008). This is particularly the case of the animacy feature, whose specification as [human] restricts the range of the variable to human entities.

Given these assumptions, the lexical entry for *wh*-items like *what* and *who* may be minimally represented as in (33) and (34), respectively.[10]

(33) [$_{DP}$ *what* D: [wh]; φ: [ø]]

(34) [$_{DP}$ *who* D: [wh]; φ: [human]]

In the next section, I address the question of what makes *wh*-elements fall into construction-specific paradigms. I argue that such entries as those in (33)-(34) are insufficient to account for the paradigmatic distribution of *wh*-elements, and that they must therefore be enriched with contextual features — interpretable only at S-M — specifying their licensing environment.

[10] Note that *what* is not specified as [-human], contrary to what is sometimes assumed in the literature. This is because the restriction of *what*-like elements is actually undefined, as suggested by the possibility for *what* to bind both [+human] and [-human] entities (cf. (i)). The same facts obtain in French (Manzini 2014b: 92) and Italian (Rugna 2022: 18; cf. §3.3).

(i) Speaker A: *What* did you see?
Speaker B: A man / A bear

In some languages, it is apparently possible for a *what*-like element to acquire adverbial interpretations (e.g., *why*) under certain circumstances, as in German (ii) (from Munaro and Obenauer 1999: 187). See Munaro and Obenauer (1999); Hachem (2015: §7.3.3.).

(ii) *Was* rennst du so schnell?
What run you so fast
'Why are you running so fast?'

2.3 On what makes wh-elements fall into construction-specific paradigms

In the previous section I argued that the lexical entry of *wh*-elements must include a [wh]-feature, identified with an underspecified semantics, along with a restrictor on the range of possible values that the *wh*-element can denote. Crucially, the ultimate interpretation that a *wh*-element acquires at C-I is obtained configurationally, and is not encoded on the lexical entry as such. This characterization of *wh*-elements therefore allows us to maintain a non-redundant lexicon that moreover avoids the postulation of construction-specific features. However, this characterization of wh-elements raises a problem: it begs the question why *wh*-elements should fall into construction-specific paradigms (cf. §2.1.1).

There may naturally be different conspiring factors for this state of affairs. For instance, it seems to be a robust empirical generalization that *why*-like elements cannot occur in Free Relatives, as illustrated by English (35a), Italian (35b), and Polish (35b) (examples taken from Caponigro 2003: 23-9).

(35) a. *I did it *why* you did it

b. #L'ho fatto *perché* lo hai fatto tu
it-have.1S done why it have.2S done you
'I did it because you did it.'
(cannot mean: 'I did it for the same reason why you did it.')

c. *Zrobiłem to *dlaczego* ty to zrobiłeś
did.1S it for-what/why you it did.2S
('I did it for the same reason why you did it.')

In this case, there may well be semantic reasons constraining the distribution of such *wh*-elements (see Cecchetto and Donati 2012 for a proposal). In the absence of such robust cross-linguistic generalizations, it is nonetheless unclear what constrains the distribution of *wh*-elements across different syntactico-semantic environments. Here I propose that the lexicalization of *wh*-elements may make reference to an additional piece of information, besides the [wh]-feature and its restrictor. This seems to be virtually necessary in the case of construction-specific *wh*-elements, such as Italian *cui* or Slovene *kar* (cf. §2.1.1). In other words, it seems to be an inescapable conclusion that such items require the lexical entries in (36)-(37), with the [+HR]/[+FR] features referring to some particular licensing environment

(to be better defined below) found in Headed Relatives and Free Relatives, respectively. If this were not the case, we would expect *cui* and *kar* to show up in, e.g., Interrogatives, contrary to fact.

(36) $[_{DP}$ *cui* D: [wh], φ: [ø], +HR]

(37) $[_{DP}$ *kar* D: [wh], φ: [ø], +FR]

My claim is that such licensing information characterizes *wh*-elements more generally, i.e., even in the absence of specialized morphology. It is the specification of this information, encoded on the lexical entry of a *wh*-element, that makes *wh*-elements fall into construction-specific paradigms. This analysis would thus account for those *wh*-elements that show a limited cross-constructional distribution, such as English *what* (unavailable in Headed Relatives) and *who* (unavailable in Free Relatives), as in the entries in (38)-(39).

(38) $[_{DP}$ *what* D: [wh], φ: [ø], +Q/+FR]

(39) $[_{DP}$ *who* D: [wh], φ: [human], +Q/+HR]

However, the above entries are clearly problematic insofar as [+Q]/[+FR]/[+HR] refer to constructions, whose notion is unavailable to the grammar. The question that arises, then, is what features such as [+Q]/[+FR]/[+HR] amount to. I propose to treat such features as contextual restrictions on the morphophonological licensing of *wh*-elements. More specifically, I propose that S-M can license the entry for a *wh*-element only if the morphosyntactic environment meets the particular requirements imposed by the contextual restrictions. In the next sections, I sketch a possible way in which each of these restrictions may be obtained.

2.3.1 On [+Q]

The [+Q]-feature may be assumed to be licensed by an interrogative operator (Q-operator). More specifically, I assume that the lexicalization of *wh*-elements specified as [+Q] may be licensed if a Q-operator is present in the portion of syntactic structure that is accessible at S-M. Note that [+Q] on *wh*-elements refers to a morphosyntactic contextual feature, i.e., it

does not determine its interpretation, which is ultimately due to the presence of the Q-operator at C-I.

I assume further, as is standard, that the Q-operator is part of the left periphery of the clause, perhaps encoded as a value on C (e.g., [C: [Q]]). In languages like Japanese, Tlingit and others, the Q-operator may be overtly manifested as a particle (cf. (40a) and (40b)). In languages like English and Italian, among other languages, the Q-operator is covert, though its effects are present at both C-I (triggering the interrogative semantics; cf. Dayal 2017 for recent discussion) and at S-M (in the form of, e.g., a specific prosodic contour, T-to-C movement, etc.; cf. also Bruening 2007: 143 for pertinent remarks).

(40) a. Dare-ga ki-masu *ka*
who-N come Q
'Who's coming?'

Japanese (Nishigauchi 1990: 18)

b. Wáa *sá* sh tudinookw i éesh?
how Q he.feels your father
'How is your father feeling?'

Tlingit (Cable 2010: 1)

I therefore propose that *wh*-elements such as *what* can be licensed in Interrogatives not only because of their underspecified semantics, 'rescued' by the Q operator (Beck 2006: 12), but also because they meet the contextual specification that is part of their lexical entry (cf. (41)). If the specification were not met, the item could not be licensed, as I assume is the case for specialized *wh*-elements such as Italian *cui* (cf. (41b)).

(41) a. $[_{CP}\,[_{DP}$ *what* D: [wh], φ: [ø], **+Q**/+FR] C: [**Q**] …] → *what* licensed at S-M
b. $[_{CP}\,[_{DP}$ *cui* D: [wh], φ: [ø], +HR] C: [Q] …] → *cui* crashes at S-M

2.3.2 On [+FR]

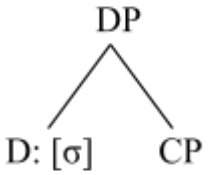
Similarly to what I take to be case for [+Q], I assume that [+FR] refers to the presence of a structurally present semantic operator, which I dub as σ following Hinterwimmer (2008) (cf. Caponigro's 2003 δ). Crucially, I assume that σ is involved in triggering the reading of Free

Relatives such as (42a) as definite descriptions at C-I, informally as in the paraphrase in (42b) (Jacobson 1995; cf. Šimík 2018 for recent discussion on the semantics of Free Relatives).

(42) a. I ordered what he ordered for dessert.
b. I ordered the thing he ordered for dessert.

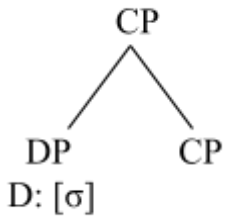
On the syntactic side, I assume that σ projects a DP. The presence of the σ-operator is compatible with different competing analyses of Free Relatives that assume the presence of a D-layer in the structure of such constructions. For instance, it is compatible with accounts such as those of Groos and van Riemsdijk (1981), Caponigro (2002), Citko (2004), among others, which assume a structure of Free Relatives along the lines of (43), where a DP selects the CP of the Free Relative.

(43)



It is also compatible with the account in Caponigro (2003), where σ (δ, in his terms) is included in a left-peripheral projection in the CP-layer of the Free Relative, as in (44).

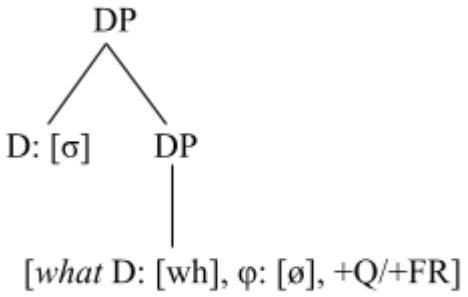
(44)



The presence of a DP-projecting σ-operator can also be made compatible with more recent accounts that assume special syntactic processes to derive the DP-like distribution of Free Relatives, such as Donati (2006), Donato and Cecchetto (2011) and Ott (2011). Without entering into details, Donati and Cecchetto argue that what differentiates Free Relatives from other *wh*-clauses, such as Interrogatives, is the fact that in the former type of construction the *wh*-element can assign its label to the entire CP, in a process they dub relabeling. In Ott's

(2011) proposal, the DP-like distribution of Free Relatives is obtained under a phase-based framework (e.g., Chomsky 2001, 2008) by assuming that the C-head of the Free Relative is 'removed' from the computation after the syntactic structure is transferred to the interfaces, thereby leaving only the *wh*-DP at the next phase. I refer the reader to the cited works for further details. Under such accounts, where no DP other than the *wh*-element is involved, σ could be assumed to undergo Merge directly with the *wh*-DP, forming a complex syntactic object with the underlying structure illustrated in (45).[11]

(45)



Some empirical support for the structure in (45) comes from the Greek data in (46), where the determiner *o-* is prefixed to the *wh*-elements *pjus* 'who' and *pja* 'what' (these unprefixed *wh*-forms are otherwise available in the Interrogative paradigm, among others; cf. Roussou and Vlachos 2022 fo recent discussion).

(46) a. ðjaleksa *opjus* protines
chose.1S who.M.PL recommended.2S
'I chose who you recommended.'

b. ðjaleksa *opja* protines
chose.1S what.N.PL recommended.2S
'I chose what you recommended.'

Greek (Daskalaki 2020: 282)

[11] To be precise, the structure in (45) would have to be treated as atomic under Donati and Cecchetto's, proposal, since they do not allow for relabeling by phrases. I leave open the question of how such atomicity could be obtained. Under Ott's (2011) proposal, there are no requirements on the phrasal status of the *wh*-element.

As evidence for the fact that *o-* in Greek directly contributes to the semantics of Free Relatives in (46) — and that it thus lexicalizes σ under the present approach —, Daskalaki (2020) shows how *wh*-elements prefixed with the determiner *o-* fail to introduce Irrealis Free Relatives (47). One of the distinctive characteristics of Irrealis Free Relatives (among others) is that they cannot be paraphrased by a definite description (recall the contrast between (30) and (31) in §2.1). Crucially, Irrealis Free Relatives in Greek must be introduced by bare *wh*-elements (i.e., those unprefixed by *o-*), as shown by the contrast in (47), suggesting the direct implication of *o-* in the semantics of Free Relatives like (46).[12]

(47)	a.	*ðen	exo	se	*opjon*	na	miliso
		NEG	have.1S	to	who	SBJV	talk.1S
	b.	ðen	exo	se	*pjon*	na	miliso
		NEG	have.1S	to	who	SBJV	talk.1S
		intended: 'I don't have anyone to talk to.'					

The above data suggest that σ can be lexicalized in some languages and that σ can Merge with *wh*-items directly (i.e., without the mediation of CP). Given these considerations, I will therefore assume that σ may either undergo Merge with CP or with the *wh*-DP, leaving open the consequences of this assumption for the semantic analysis of Free Relatives. What is crucial for our purposes is that S-M can make reference to the context of Free Relatives in order to license [+FR]-*wh*-elements. This result can be achieved if reference is made to a structurally present σ-operator that is responsible for the definite reading of Free Relatives at C-I.

If this is on the right track, then we can understand the unavailability of such items as English *who* and Italian *che* 'what' in Free Relatives by assuming that their lexical entries do not specify σ as a possible licensing environment. This is illustrated in the following representations (I assume for simplicity that the σ-operator selects the CP of the Free Relative, though, as noted, this analytical choice is not crucial for our present concerns).

[12] Giannakidou and Cheng (2006) also assume that *o-* contributes to the semantics of Free Relatives (in their terms, as the lexicalization of an iota operator, following Jacobson 1995). However, in their analysis, *o-* takes the entire CP projected by the Free Relative as a complement, rather than just the *wh*-element.

(48) a. *I love *who* I married.

b. I love [$_{DP}$ D: [σ] [$_{CP}$ [$_{DP}$ *who* D: [wh], φ: [human], +Q/+HR] C …] → *who* crashes at S-M

(49) a. I love *what* I do.

b. I love [$_{DP}$ D: [**σ**] [$_{CP}$ [$_{DP}$ *what* D: [wh], φ: [ø], +Q/+**FR**] C …] → *what* licensed at S-M

(50) a. *Amo *che* faccio.
love.1S what do.1S
'I love what I do.'

b. Amo [$_{DP}$ D: [σ] [$_{CP}$ [$_{DP}$ *che* D: [wh], φ: [ø], +Q] C …] → *che* crashes at S-M

(51) a. Amo *chi* ho sposato
love.1S who have.1S married
(lit.) 'I love who I married.'

b. Amo [$_{DP}$ D: [**σ**] [$_{CP}$ [$_{DP}$ *chi* D: [wh], φ: [human], +Q/+**FR**] C …] → *chi* licensed at S-M

As noted more than once, the licensing of these *wh*-elements is ultimately to be warranted at S-M, since there is no obvious semantic incompatibility between the lexical entries of *who* and *che* in Free Relatives. This is also suggested by the fact that these items can be licensed in the Free Relatives of some dialects/varieties of English and Italian, respectively (cf. §2.1.1). This very cross-linguistic variation can moreover be straightforwardly accounted for under the present analysis by assuming that in the relevant dialects/varieties *who* and *che* do specify [+FR] (i.e., making reference to the σ-operator) as a possible licensing morphosyntactic environment.

2.3.3 On [+HR]

In this section, I address the issue of the [+HR] feature, namely how S-M can identify the environment of Headed Relatives in order to license *wh*-elements endowed with [+HR]. I first (in §2.3.3.1) offer a brief description of some aspects of the major formal analyses of Headed

Relatives that will be relevant for the discussion.[13] I then proceed to consider three hypotheses as to the nature of [+HR]. In §2.3.3.2. I discuss whether [+HR] could be licensed via a D-operator embedding the *wh*-element. In §2.3.3.3 I address the question of whether [+HR] could be tied to one of either the Raising or Matching analyses of Headed Relatives. After providing a negative answer to both of these questions, in §2.3.3.4 I consider a more general alternative where [+HR] is licensed by the presence of an antecedent.

2.3.3.1 Analyses of Headed Relatives

The different analyses of Headed Relatives can be classified upon whether or not they postulate the presence of a representation of the antecedent within the relative clause — specifically in the gap position —, and upon the specific assumptions about the nature of the relativizing *wh*-element (i.e., pronoun *vs*. determiner). A distinction can thus be made between Head External Analyses (HEA) and Head Internal Analyses (HIA).

The HEA — the more traditional class of analyses (e.g., Chomsky 1977, Jackendoff 1977; see, more recently, Boef 2012, Webelhuth et al. 2019) — assumes that Headed Relatives contain a single representation of the antecedent that is generated in its surface position.[14] Moreover, the relativizer is taken to be a bona fide pronoun, as in traditional characterizations of relativizers. The antecedent is then connected to the relativizer via a semantic rule of predication whereby they come to share the same index at C-I (cf. Chomsky 1982: fn. 11; Heim and Kratzer 1998).

Under the HIA, on the other hand, there are multiple representations of the antecedent. One representation of the antecedent is the one found in its surface position; the other representation is the one postulated as a complement of the relativizer (assumed to account for connectivity/reconstructions effects; see below). The relativizer thus syntactically behaves as a determiner taking a NP complement. The HIA can be further subdivided in the Raising analysis (e.g., Schachter 1973, Kayne 1994, Bianchi 1999) and the Matching analysis (e.g., Chomsky 1965, Sauerland 1998, Citko 2001, Douglas 2016, Salzmann 2017). Under both

[13] See Salzmann (2017), Cinque (2020) for recent comprehensive overviews of formal analyses of Headed Relatives.

[14] In traditional versions of the HEA, the antecedent is generated outside of the relative clause, though see Boef (2012) for a version of the HEA where the antecedent is generated within the relative clause as part of a projection of the CP-layer.

analyses, the phrase formed by [*wh*-element + NP] moves to the CP-layer of the relative clause. The crucial difference between Raising and Matching are the syntactic means by which the overt 'head' of the relative (i.e., the antecedent) reaches its surface position. The Raising analysis postulates Internal Merge of the 'head' from the CP of the relative clause to its final landing site, whereas the Matching analysis assumes that the 'head' is directly generated in its surface position (i.e., via External Merge). Under both analyses, some S-M condition is then assumed to prevent the non-pronunciation of the innermost representation of the antecedent, thereby 'stranding' the relativizer. Specifically, under Raising, such non-pronunciation is licensed by whatever mechanism prevents copies in non-head positions in A'-chains to be overtly realized. Under the Matching analysis, the non-pronunciation is instead licensed on the basis of identity between the two representations of the 'head' of the relative — essentially as a form of obligatory ellipsis. The different analyses are roughly illustrated in (53) for the Headed Relative in (52).

(52) The man *who* John saw.

(53) a. $[_{DP}$ The man $[_{CP}$ $[_{DP}$ who$]_j$ John saw <who$>_j]$ (HEA)

b. $[_{DP}$ The man$_k$ $[_{CP}$ $[_{DP}$ who <man$>_k]_j$ John saw <who man$>_j]$ (Raising)

c. $[_{DP}$ The man $[_{CP}$ $[_{DP}$ who] <man$>]_j$ John saw <who man$>_j]$ (Matching)

I will not rehearse here in detail the arguments in favor or against the above analyses of Headed Relatives, which are mostly orthogonal to the main issue at hand, i.e., how S-M can license [+HR] *wh*-elements. However, let me point out that the main point of contention among the different analyses concerns connectivity/reconstruction effects, i.e., the observation that the antecedent seems to require interpretation in the gap position within the relative clause, as in (54), where the anaphor 'reconstructs' under Condition A.

(54) The picture of himself$_i$ that John$_i$ likes best.

The major argument in favor of the HIA analyses is that by postulating an internal representation of the antecedent, they can easily accommodate for such effects, which on the other hand are assumed to pose a problem for the HEA (though see Boef 2012, Webelhuth et al. 2019). Moreover, within the HIA, the Matching analysis has been argued to have a better handle than the Raising analysis of anti-reconstruction effects, namely cases in which

reconstruction of the antecedent in gap position is assumed to be prohibited, as in (55), where reconstruction would lead to a violation of Condition C (Salzmann 2017: 134ff.).

(55) I have a report on Bob'$_i$s division he$_i$ won't like.

2.3.3.2 Hypothesis: [+HR] licensed by a D-operator

A potential hypothesis regarding the nature of [+HR] capitalizes on the observation that *wh*-relativizers can manifest definite morphology, as evidenced by Italian *la quale* (lit.) 'the which' in (56), Greek *o opios* (lit.) 'the who' in (57), and Hungarian *aki* (lit.) 'the who' in (58), among other languages.

(56) La ragazza con *la quale* Gianni ballava è Maria.
The girl with the which Gianni danced is Mary
'The girl Gianni danced with is Mary.'

(57) O fititis *o opios* pire to vravio.
the student the who took-3S the prize
"the student who took the prize"
Greek (Roussou and Vlachos 2022: 4)

(58) szűz leánynak, *aki* csodálatos fiút tart az ölében.
virgin girl the.who wonderful son.ACC holds the lap.POSS.IN
'of a virgin girl, who is holding a wonderful son in her lap.'
Hungarian (Backsai-Aktari and Dékány 2021: 41)

The question therefore arises as to whether [+HR]-*wh*-elements can be licensed by a structurally present, though perhaps covert, D-operator, similarly to what I assumed to be the case for [+Q] (licensed by the Q-operator) and [+FR] (licensed by the σ-operator) in previous Sections. However, there are reasons to suspect that this hypothesis is on the wrong track. Some authors (e.g., Bianchi 1999: 80ff.; cf. Daskalaki 2020) have explicitly argued that definite morphology on relativizers does not bear any semantic import. In other words, the D

morpheme *la* 'the', for instance, selecting for the *wh*-element *quale* in (56), can be taken to be expletive/semantically inert.

One argument that can be made for the expletive status of definite morphology on relativizers comes from an argument Cinque (2008b) makes for the generally indefinite character of the internal representation of the relative 'head' (Cinque 2008b assumes a mixed Raising/Matching analysis; cf. Cinque 2020). As Cinque discusses, some constructions in Italian feature nominals that must be necessarily indefinite, as *genio* 'genius' in (59a). However, when such nominals figure as antecedents of Headed Relatives, they can be selected by a definite determiner, as in (59b).

(59) a. Pensava di essere *un*/**il*/**0 genio* incompreso.
He.thought he was a/the/0 genius undiscovered
'He thought he was an undiscovered genius.'

b. Non era *il genio* incompreso che pensava di essere.
not he.was the genius undiscovered that he thought to be
'He wasn't the undiscovered genius that he thought he was.'

A possible way in which the facts above can be accounted for is to assume (in line with Cinque 2008b) that the element in the gap position in (59b) is indefinite (or at least, non-definite), comparably to (59a). Although Cinque's examples involve the non-definite relativizer *che* 'what', we can show that the same conclusion carries over to cases involving the morphologically definite relativizer *il quale* 'the which', as in (60). Crucially, if *il quale* were semantically definite, then we would expect (60b) to be ungrammatical on the assumption that the gap must be non-definite in such cases, on a par with (60a) and (60b) (I am assuming, as is standard, that *wh*-phrases like *il quale* undergo Internal Merge from the gap position to the CP-layer of the relative clause; e.g., Chomsky 1977, Cinque 1982).

(60) a. Pensavano di discutere con un/**il/**0 genio incompreso.
they.thought to discuss with a/the/0 genius undiscovered
'They thought they were discussing with an undiscovered genius.'

b. Non era il genio incompreso con il quale pensavano di discutere.
not he.was the genius undiscovered with the which they thought to discuss
'He wasn't the undiscovered genius they thought they were discussing with.'

A perhaps stronger piece of evidence in favor of the assumption that definite morphology on *wh*-relativizers is expletive comes from the agreement facts of Hungarian discussed in Bianchi (1999: 82f.). In Hungarian, verbal morphology can show agreement with the definiteness of its DP direct object, as shown in the contrast (61).

(61) a. Akart egy könyvet / * a könyvet.
he wanted$_{indef}$ a book / * the book
b. Akarta a könyvet / * egy könyvet.
he wanted$_{def}$ the book/ * a book

Despite the fact that relative clauses are introduced by morphologically definite relativizers (*a* 'the' + *wh*-element), verbal morphology in the relative clause must be indefinite in the general case in Hungarian (see the contrast between (62) and (63)).

(62) a. egy könyv amit akart
a book which he wanted$_{indef}$
b. a könyv amit akart
the book which he wanted$_{indef}$

(63) a. *egy könyv amit akarta
a book which he wanted$_{def}$
b. *a könyv amit akarta
the book which he wanted$_{def}$

The above empirical observations then suggest that D morphology on *wh*-relativizers is expletive.[15] However, this conclusion does not in principle exclude the hypothesis whereby an expletive D is syntactically present on relativizers, even if covertly in cases such as English *which* and Italian *cui*, and that it is the presence of this expletive D that licenses the [+HR]-feature on *wh*-elements at S-M. In other words, we might envisage a syntactic representation like (64) for elements like *cui* and *who*, with the lack of values (ø) on the highest D signaling its expletive status.

[15] This is also in line with the standard semantic treatment of relativizers as semantically vacuous (Heim and Kratzer 1998).

(64) $[_{DP}$ [D: [ø]] $[_{DP}$ *cui* D: [wh], φ: [ø], +HR]]

(65) $[_{DP}$ [D: [ø]] $[_{DP}$ *who* D: [wh], φ: [human], +HR]]

This solution seems stipulative, however. It is unclear why a semantically inert D would be required to undergo Merge with *wh*-elements in Headed Relatives. Unlike the Q and σ operators, this D does not seem to contribute to a particular interpretation of *wh*-elements, so that its presence in Headed Relatives cannot be enforced by requirements of interpretation at C-I. I will therefore make the null hypothesis that relativizers do not undergo Merge with an expletive D in the general case, and consequently dismiss the hypothesis whereby the [+HR]-feature is licensed by a D-operator.[16]

2.3.3.3 Hypothesis: [+HR] licensed by Raising/Matching

Another potential account for the observation that *wh*-elements can fall into the Headed Relative paradigm might be to assume that S-M licenses the [+HR]-feature depending on whether the internal representation of the antecedent has undergone Raising or Matching (or both). This hypothesis has been expressed in various forms in literature. Thus for instance Kayne (1994: 154, fn. 12) suggests that relative *who* is a form of *which* in agreement with a [+human] head that raises to its specifier.[17] Bianchi (1999: 80) essentially supports this treatment of relative *who* by further noting that the morphological effects of movement on the surface realization of a DP can be observed in other environments, as in, e.g., the split

[16] One question that arises is how relativizers such as Italian *il quale*, Hungarian *amit* etc. that do show overt definite morphology are formed. More specifically, why should the bare forms *quale* and *mit* be selected by an expletive D in Headed Relatives, if such D is not involved in their interpretation? I suggest treating definite morphology as a part of the lexical entry of the relevant relativizer, rather than as its own Lexical Item independently drawn from the Lexicon and EM-ed with the bare forms. In other words, while *il quale* and *amit* as a whole bear the [+HR]-feature, *quale* and *mit* do not. Such definite morphology can then be synchronically characterized as due purely to externalization requirements demanded by the Headed Relative context (cf. Bianchi 1999: 103-4 for the assumption that such Ds are merely agreement markers expressing gender features in Romance).

[17] This would in turn offer an account for why *who* can take a nominal complement in Headed Relatives under the Raising analysis, but not in interrogatives, e.g. **who man did you see?*.

topicalization construction in (66), where the morphology of the determiner *no* is assumed to shift into a pronominal one because of movement of its NP complement.

(66) a. I have *no* inspiration
b. Inspiration have I *none* <inspiration>

(Bianchi 1999: 76)

More recently, Kayne (2019: 2) suggests that "relative pronouns […] are to be thought of as stranded determiners, i.e. as determiners that, in the general case, have lost their associated NP, either by movement, as in the raising analysis of relative clauses, or by deletion, as in the matching analysis." Some researchers have in fact proposed analyses concerning the distribution of relativizers that capitalize on Raising (Kato and Nunes 2009), Matching (Pankau 2018) or both (Poletto and Sanfelici 2019) as loci of explanation for their morphophonological shape. For instance, Poletto and Sanfelici (2019: 193f.) suggest that the Old Italian relativizer *che* (a DP in their analysis) may spell out as *cui* after movement or deletion of its NP complement, as I sketch in (67).

(67) a. ho affidato l'incarico [a *che* studente]
I have assigned the task [to what student]
b. Lo studente$_k$ [a *che* <studente>$_k$]$_j$ ho affidato l'incarico <[a che studente]$_j$> (Raising)
c. Lo studente [a *che* <studente>]$_j$ ho affidato l'incarico <[a che studente]$_j$> (Matching)
d. Lo studente a *cui* ho affidato l'incarico
(Raising/Matching-triggered allomorphy)

The assumption that [+HR]-*wh*-elements are licensed due to either Raising or Matching faces some challenges, however. First, the licensing-by-Raising analysis faces the issue of how to account for cases of anti-reconstruction, where [+HR]-*wh*-elements are available, as in (68). Insofar as anti-reconstruction effects are a problem for Raising, cases like (68) would require the licensing-by-Matching analysis to license the [+HR]-feature on *cui*.

(68) *Il successo dei suoi$_i$ figli su *cui* [ogni genitore]$_i$ conta …
the success of his children on which every parent counts …

(Cinque 2020: 44)

More problematic cases for the hypothesis that [+HR] can be licensed via either Raising or Matching involve non-restrictive, or appositive, relatives. Several authors have argued that Raising is not available in appositives, as evidenced by the lack of reconstruction effects in this type of relative (cf. Cinque 2020: 178ff. and references cited therein), as in (69) (taken from Cinque 2020: 179).

(69) a. #Mary found a picture of himself, which Tom admitted painting.
b. #Colby returned the recommendations of each other, which Mary and Susan promptly mailed in to Harvard.
c. *Peter liked some pictures of each other, which (by the way) they acquired yesterday.

Moreover, appositives like (70), where the NP complement of the *wh*-element is non-identical to its NP antecedent, and (71), where the antecedent is of a different category altogether that the NP complement, cast serious doubt on the availability of Raising in this type of relatives (cf. Bianchi 1999: 151f.).

(70) a. Ha raggiunto la fama con Il giardino dei Finzi-Contini, *il quale romanzo* ha poi anche avuto una riduzione cinematografica.
He became famous with Il giardino dei Finzi-Contini, *which novel* was then also made into a film.
(Cinque 2008: 16)
b. Mark belongs to the Knights of Columbus, *which organization* has been condemned by the Jewish Defense League.
(Cinque 2008a: 28, citing McCawley 1981)

(71) a. Carlo lavora troppo poco. *La qual cosa* verrà certamente notata.
C. works too little. Which thing will certainly be noticed
(Cinque 1988: 467)
b. Oxygen and fire are related, *which fact* I long ago pointed out.
(Fabb 1990: 75)

The cases in (70)-(71) are also problematic for the assumption that [+HR] is licensed by Matching, at least insofar as Matching leads to deletion/non-pronunciation of the internal representation of the antecedent. This point can likewise be made with the following examples, where the complement of [+HR]-*wh*-elements, identical to the antecedent in these types of appositives, can be retained (cf. (72)-(73))[18]. The fact that the relativizer must still belong to the Headed Relative paradigm (Italian *il quale* vs. *quale* in (72), English *which* vs. *what* in (73)), despite the non-deletion of its nominal complement, suggests that S-M does not license [+HR] via Matching.

(72) Questo farmaco, co*l quale farmaco*/*con *quale farmaco* il Ministero intende iniziare la sperimentazione, è il frutto di molti anni di lavoro.
This medicine, with which medicine the Ministery intends to begin the experiment, is the result of many years' work

(adapted from Cinque 2008a: 16)

(73) a. The French procured allies, *which allies* proved of the utmost importance.
(Cinque 2008a, citing Poustma 1916)

b. *The French procured allies, *what allies* proved of the utmost importance.

Given the above considerations, I exclude that the [+HR]-feature is licensed at S-M on the basis of either Raising or Matching. Of course, this conclusion is not an argument against the Raising or Matching analyses as syntactic analyses of Headed Relatives. My claim is just that Raising or Matching cannot sufficiently account for the observation that *wh*-elements fall into the Headed Relative paradigm.

2.3.3.4 Hypothesis: [+HR] licensed by the antecedent

A more promising course of action, I believe, is to assume that the [+HR]-feature refers to the presence of an antecedent. The presence of an antecedent is a good candidate for the licensing of the [+HR]-feature as it can sufficiently distinguish between Interrogative and Free Relative environments, among others, as well as generalize over different types of Headed Relatives

[18] See Cinque (2008a), who dubs this type of appositive 'non-integrated' due to some syntactico-semantic properties distinguishing it from the 'integrated' kind (cf. del Gobbo 2017).

(e.g., restrictive vs. non-restrictive). That the [+HR] specification makes reference to an antecedent, rather than to the presence of any DP in the structure, is evidenced by such Free Relatives as Italian (74), where the [+HR]-element *cui* is excluded.

(74) Ho dato il premio a **cui*/*chi* se lo è meritato.
Have.1S given the award to whom REFL it is deserved
'I gave the award to those who deserved it.'

The question that arises is how the notion of 'antecedent', which is strictly connected to that of binding/coreference, can be made accessible to the S-M interface. Part of the problem has to do with the Inclusiveness Condition, which prevents the introduction of properties not intrinsic to Lexical Items into the narrow syntactic derivation (Chomsky 1995, Chomsky et al. 2019). This thus casts out of the derivation 'extraneous' objects assumed under previous frameworks (e.g,. Chomsky 1981), such as bar-levels, traces, and, crucially for our purposes, indexes. Furthermore, under the standard Y-model of grammar, the C-I and S-M interfaces are assumed to work independently of one another, so that the S-M interface cannot directly probe into representations available at C-I (see Chomsky 1995: 219f).

One possible solution to this issue, which I explored in Rugna (2022), is to exploit the (Reverse) Agree operation (Zeijlstra 2012, Bjorkman and Zeijlstra 2019). Without entering into the details of that analysis, the essence of the proposal there is that if Agree can be invoked as a means of establishing a dependency between the antecedent and the relativizer,[19] and if S-M recognizes whether Agree has taken place or not, then, by assumption, [+HR]-*wh*-elements can be licensed just in case Agree has taken place (see also Brandt and Fuß 2014, Furuya 2017; cf. Rooryck and Vanden Wyngaerd 2011 for a similar proposal applied to the empirical domain of reflexives). Assuming further that Agree is a different operation than DP-internal Concord (Chomsky 2001: fn. 6; Norris 2014, Baier 2015, among others), this analysis can account for the contrast in (75). In particular, the [+HR]-feature of *cui* can be licensed under Agree with the antecedent in (75b), though not in the Interrogative in (75a), where no antecedent is present and hence no Agree relation can take place.

[19] The dependency established in DP-binding has been captured via (syntactic) Agree by various researchers, e.g., Kratzer (2009), Reuland (2011), Wurmbrand (2012), Landau (2015), among several others.

(75) a. *Di *cui*$_{[+HR]}$ uomo parli?
Of what man speak.2S
'What man are you talking about?'

b. L' uomo di *cui*$_{[+HR]}$ parli è Gianni.
The man of what speak.2S is G.
'The man you are talking about is Gianni.'

One question that arises is why Agree between the *wh*-element *cui* and the NP *uomo* 'man' should take place in (75b), though not in (75a). The intuition that I would like to pursue here is that the type of Agree connecting relativizers to their antecedent should be conceived of as a general operation by which elements come to be part of the same chain — i.e., as part of the same discontinuous object. In cases like (75a), the *wh*-determiner and the nominal complement both belong to the same DP phrase; hence no chain relation is established between them. In cases like (75b), on the other hand, the NP 'head' of the relative requires to be somehow connected to the relativizer, so that it can receive an interpretation in the gap position. If such a connection is established via some form of Agree, as I am suggesting, then the contrast between (75a) and (75b) in the application of Agree between the *wh*-element and the NP can follow straightforwardly.

Although Agree is in current practice thought of as an asymmetric valuation operation between two independently merged elements — i.e., a (valued) Probe and a (unvalued) Goal —, note that in the original formulation in Chomsky (2000: 122), Agree is stated simply on the basis of identity in some feature of the probe-goal pair.[20] In this sense, Agree between the

[20] As Chomsky (2000: 122) states: "Matching is a relation that holds of a probe P and a goal G. Not every matching pair induces Agree. To do so, G must (at least) be in the domain D(P) of P and satisfy locality conditions. The simplest assumptions for the probe-goal system are shown in [i].

(i) a. Matching is feature identity.
b. D(P) is the sister of P.
c. Locality reduces to closest c-command.

Thus, D(P) is the c-command domain of P, and a matching feature G is closest to P if there is no G' in D(P) matching P such that G is in D(G')".
Hence no requirements of (un)interpretability/(un)valuation are demanded on the Probe-Goal pair under this formulation of Agree (Manzini and Savoia 2018: 9ff.).

antecedent and the relativizer is essentially a weak form of the Matching operation postulated as part of the Matching analysis: it establishes a connection between different elements of the syntactic workspace, though it crucially lacks the further intrinsic requirement that the internal representation of the antecedent be deleted at S-M.

Rather than Agree, then, we might call this general operation connecting elements in a chain 'FormCopy' (FC), following Chomsky (2021) (cf. Chapter 5 for further discussion). FC is a non-structure building operation that applies between two objects in the syntactic workspace; it is subject to locality constraints (c-command, minimality); and, I assume, it is mapped at both C-I and S-M — i.e., the application of FC can be interpreted at both interfaces. I moreover assume that, as any other operation, FC is optional, applying when it can. As such, it is not strictly limited to conditions of featural identity between the members of the copy-pair. Whether the application of FC can be licensed, i.e., whether elements can indeed be interpreted as part of the same chain is a matter that must ultimately be established at the interfaces (in line with the SMT). I therefore propose that FC between the antecedent and the relativizer (or relativizing phrase) takes place in the syntactic workspace and is mapped at both C-I — licensing their coindexation — and at S-M — licensing the [+HR]-feature on *wh*-elements.

I would moreover like to suggest that the licensing of [+HR] via FC is compatible with both the HEA and the HIA of Headed Relatives. As Chomsky (2021) discusses, the application of FC is fundamentally blind to previous derivational stages (what he calls the Markovian property of derivations). In other words, the syntactic workspace keeps no record of whether two items X and Y are drawn independently from the Lexicon, or whether they are related via IM. The operation FC has therefore no way of distinguishing elements generated via IM or EM — potentially applying to both. Antecedent and relativizer can thus be connected via FC, irrespective of whether they are copies generated via Internal Merge (as in the Raising analysis) or whether they are generated independently via External Merge (as in the Matching and the HEA). The licensing of the [+HR]-feature via FC can then be sketched as in (77) under the HEA and the HIA (78) of the Headed Relative in (76).[21]

(76) The man *who* John saw.

[21] I assume for reasons of consistency with the analysis to be developed in Chapter 4 that the external representation of the antecedent is part of the relative clause (as in, e.g., Kayne 1994, Bianchi 1999, Boef 2012), though little hinges on this for our present concerns.

(77) a. $[_{CP}\,[_{NP}\,\text{man}]\,[_{DP}\,\text{who}]_j\,\text{C}\,[\text{John}\,[_{vP}\,\text{saw}\,[_{DP}\,\text{who}]_j]$ → FORMCOPY

b. <man, who_{+HR}> → Copy-pair mapped at S-M, licensing [+HR]

(78) a. $[_{CP}\,[_{NP}\,\text{man}]_{(k)}\,[_{DP}\,\text{who}\,[_{NP}\,\text{man}]_{(k)}]_j\,\text{C}\,[\text{John saw}\,t_j]]$ → FORMCOPY

b. <man, <who_{+HR}, man>> → Copy-pair mapped at S-M, licensing [+HR]

Under the present characterization of FC, we can moreover make sense of the licensing on the [+HR]-feature in the case of appositives like (70) and (71) above, where there is no strict featural identity between the relativizing phrase and its antecedent. Assuming that FC is not subject to conditions on featural identity, nothing in principle prevents its application between non-identical phrases in the Narrow Syntax. Despite the featural/categorial non-identity between the relativizing phrase and its antecedent, then, these can be connected, provided that they can receive an interpretation at C-I.

2.4 Concluding remarks

This Chapter attempted to shed some light on the lexical entry of *wh*-elements by arguing that they minimally include a [wh]-feature, encoding an underspecified semantics. *Wh*-elements thus come to function essentially as an open variable, whose ultimate reading is established at the C-I interface on the basis of the particular operator that binds it. Note that the semantic underspecification of *wh*-elements is especially warranted by their function as relativizers in Headed Relatives, where they do not appear to make a particular semantic contribution other than acting as variables bound by their antecedent. The lexical entry of (nominal) *wh*-elements may moreover include φ-features, which act as restrictor on the range of the variable.

This minimal characterization has the conceptual advantage of maintaining a single lexical entry for *wh*-elements that show a cross-constructional distribution, thereby reducing the size of the lexicon and avoiding the postulation of construction–specific features. Thus, a

wh-element like English *who* is represented in Narrow Syntax with the same exact features in Interrogatives as it is in Headed Relatives. This treatment moreover finds empirical support, given the wide-spread cross-constructional syncretisms that *wh*-elements display.

Despite their frequent availability across multiple syntactico-semantic environments, *wh*-elements are also subject to a paradigmatic distribution. To account for this property, the lexical entries of various *wh*-elements have thus been argued to be endowed with contextual features. In line with the SMT, I argued that such features are exclusively licensed at the S-M interface; they are moreover idiosyncratically associated with each particular *wh*-element, within and across different languages. I then attempted to formulate the relevant licensing conditions for the contexts of Interrogatives, Free and Headed Relatives, proposing that they can be individuated in the structural presence of a Q-operator, a σ-operator, and an antecedent respectively. These elements have been assumed to be part of Narrow Syntax as they can be taken to contribute directly to the semantic interpretation of *wh*-elements in their relevant functions. However, this Chapter did not seek to offer a detailed analysis of the functioning of the licensing mechanism operating at S-M, nor did it discuss the licensing environments of *wh*-elements in other contexts, such as Indefinite and Exclamative constructions, Universal Free Relatives (of the *wh+ever* type) and Correlatives, among others. These and related matters are left open to future inquiry.

Chapter 3

On Italian relative *che*

3.1 Introduction

This chapter will be concerned with an account of the morphosyntactic paradigmatic properties of Italian *che* 'what'. Italian *che* is one of those *wh*-elements that shows cross-constructional syncretisms (cf. Chapter 2): among other constructions, it can occur in Interrogatives and Headed Relative clauses. It is well known, however, that these uses of *che* do not share the same distribution. The distribution of interrogative *che* (che_{+Q}) and relative *che* (che_{+REL}) essentially varies along the two dimensions of finiteness and case. More specifically, che_{+Q} can appear in both finite (1a) and non-finite clauses (1b); it can be embedded under prepositions — i.e., it licenses direct as well as oblique case gaps (1c);[22] and it can also function as a determiner taking a nominal complement (1d).

[22] Interrogatives with *che* seem to be degraded when *che* is moved from the external argument position, as in (i). In these cases, the *wh*-phrase (*che*) *cosa* (lit. '(what) thing') is selected (ii) (Leonardo Savoia, p.c., Serena Crocchi, p.c.). Note that this issue does not concern the availability of nominative case for che_{+Q}, which it can bear (provided that che_{+Q} is moved from the internal argument position, as in *che succede?* 'what happens?'). Note further that (*che*) *cosa* and *che* are otherwise in free distribution in interrogatives in Standard Italian. I leave this puzzling asymmetry for future research, referring the reader to Rizzi (2020) for discussion concerning the structural differences between che_{+Q} and (*che*) *cosa* (cf. also Cecchetto and Donati 2015 for an alternative view).

(i) ??Che tira la carrozza?
What pulls the carriage?
'What is pulling the carriage?'

(ii) Che cosa tira la carrozza?
What thing pulls the carriage?
'What is pulling the carriage?'

(1) a. *Che* fai?
What do-2SG
'What are you doing?'

b. *Che* fare?
What do-INF
'What to do?'

c. *Di che* parli?
Of what speak-2SG
'What are you talking about?'

d. *Che libri* leggi?
What books read-2SG
'What books do you read?'

On the other hand, *che*$_{+REL}$ can appear only in finite clauses (2a), and is incompatible with oblique case gaps (2c). In infinitival clauses, *che*$_{+REL}$ is replaced by the prepositional complementizer *da* (2b). For oblique gaps in Headed Relatives, Italian makes use of two morphophonologically specialized *wh*-phrases: *cui* 'what.OBL' and Det + *qual*- 'the which', the latter showing agreement for number (on both Det and *qual*-) and gender (only on Det) with the antecedent.[23]

(2) a. L' uomo *che* hai sposato
The man what have-2S married
'The man you married.'

b. L'uomo **che* / da sposare
The man what/from marry-INF
'The man to marry.'

c. L'uomo *di che / di cui / del quale parli
The man of what / of what-OBL / of-the which speak-2S
'The man you are talking about.'

[23] See Cinque (1978, 1982, 2008) for further details on the distribution of relativizers in Italian.

Despite their syncretic morphophonological basis, the standard analysis has taken the different morphosyntactic properties of *che*$_{+Q}$ and *che*$_{+REL}$ to be evidence for their distinct categorial status. In particular, whereas *che*$_{+Q}$ is assumed to project a D(P), *che*$_{+REL}$ is taken to be a C, a functional head intrinsically specified for finiteness and other 'clause-typing' (Cheng 1991) properties (or Force, in the sense of Chomsky 1995, Rizzi 1997). Accordingly, *che*$_{+REL}$ is a version of C that is specified as [+finite], *da* in (2b) as [-finite], etc. The assumption that *che* belongs to the C category is also standardly made for its function as a sentential complementizer, as in (3a). In this use, too, *che* is not licensed if the clause in which it appears is non-finite, as shown by the ungrammaticality of (3b) (cf. the grammatical (3c) with the prepositional complementizer *di* 'of').

(3) a. Penso *che* andrò in vacanza
Think-1SG what go-FUT-1SG in vacation
'I think that I'll go on vacation.'

b. *Penso *che* andare in vacanza
Think-1SG what go-INF in vacation

c. Penso di andare in vacanza
Think-1SG of go-INF in vacation
'I'm thinking of going on vacation.'

The restriction to finite clauses has thus constituted a pivotal argument for the treatment of *che*$_{+REL}$ (as well as of English relative *that*, French relative *que*, etc.) as instantions of the same functional category — C — to the exclusion of its uncontroversially pronominal counterpart (cf. Bresnan 1970, Kayne 1976, Cinque 1978, 1982). The hypothesis whereby *che*$_{+Q}$ and *che*$_{+REL}$ (and their cross-linguistic equivalents) are categorially distinct elements will be henceforth referred to as the *C hypothesis*.

While the C hypothesis has essentially remained unchallenged for several years, the debate over the categorial status of (relative) complementizers has recently been revitalized (e.g., Manzini and Savoia 2003, Kato and Nunes 2009, Sportiche 2011, Kayne 2014, Rinke and Aßmann 2017, Baunaz and Lander 2018, Poletto and Sanfelici 2018, Roussou 2020a, among others). The main point of contention is that the C hypothesis offers no insight into the syncretism between complementizers and their DP counterparts. Thus the syncretism between *che*$_{+Q}$ and *che*$_{+REL}$, for instance, is argued to require a synchronic explanation, which should not be reduced to either cross-categorial homophony or to the result of grammaticalization

(cf. Roberts and Roussou 2003, van Gelderen 2009, Poletto and Sanfelici 2018, 2019, Roussou 2020b).

The rejection of the D/C dichotomy is explicitly argued for in Manzini and Savoia (2003) (and further elaborated in subsequent work: Manzini and Savoia 2005, 2011, Manzini 2012, 2014a). These authors propose that there is a single *che* in the Italian lexicon, of category D. Along similar lines, Kayne (2014) has recently reverted his previous (1976) perspective, arguing that the distinction between pronominal elements (DPs) and complementizers (Cs) is not empirically warranted with respect to the analysis of English *that* (cf. Poletto and Sanfelici 2018 on Old Italian varieties; see §3.2 for further discussion). The hypothesis defended by this line of research that che_{+Q} and che_{+REL} are categorially non-distinct will be referred to as the *D hypothesis*.

One advantage of the D hypothesis over the C hypothesis is that it can account for the syncretism between che_{+Q} and che_{+REL} in a simple and appealing way. Plainly, the syncretism is straightforward if che_{+Q} and che_{+REL} are really one and the same element. However, the D hypothesis also effectively reinstates the issue of their different morphosyntactic distribution. Two problems in particular remain unaddressed under the D hypothesis, namely: (i) the inability of che_{+REL} to license oblique gaps, as opposed to che_{+Q} (henceforth, *the case problem*),[24] and (ii) the restriction to finite contexts for che_{+REL} (henceforth, *the finiteness problem*).

In this Chapter, I attempt to work out a solution to these problems under the D hypothesis (cf. Rugna 2022). In Section 2, I discuss the empirical properties standardly

[24] As is well known, oblique case in Italian (as in Romance) is expressed via embedding under PPs in the general case. The case problem might therefore have to do with the pied-piping of PPs (Italian lacks P-stranding) rather than with the oblique case of the gap. This is also suggested by the comparison with English $that_{+REL}$, which is compatible with oblique gaps but cannot pied-pipe PPs. The question therefore arises as to whether che_{+REL} is incompatible with Ps rather than with oblique gaps. The data in (i) indicate that the case problem really has to do with the oblique case of the gap, rather than with the pied-piping of PPs. In particular, a stylistic variant of (ia) allows for P-dropping, as in (ib). Crucially, P-dropping is only licensed with *cui*; che_{+REL} is still ungrammatical, despite the absence of a pied-pipe PP, suggesting that the problem lies with the case of the gap.

(i) a. Lo scienziato *a cui*/**che* diedero il premio Nobel
The scientist to whom they gave the Nobel prize
b. Lo scienziato *cui*/**che* diedero il premio Nobel

assumed as diagnostics for the D/C dichotomy. I show that these properties are not reliable diagnostics for determining the categorial status of Italian *che*$_{+REL}$. I further discuss the D hypothesis of Manzini and Savoia and conclude that it leaves unanswered the case and finiteness problems.

In Section 3, I address the case problem. The solution I propose is that the realization of *che*$_{+REL}$ in oblique contexts is blocked at the mapping with phonology (S-M) by the more specific *cui* under some form of the Elsewhere Principle (Kiparsky 1973).

In Section 4, I address the finiteness problem, which I include within the larger issue of the conditions that prohibit bare DPs from occurring at the edge of infinitival relative. Thus I argue that the finiteness problem is more general than previously acknowledged. While I defer a full-fledged analysis to Chapter 4, here I sketch a possible treatment for this generalization under a filtering mechanism concerned with morphosyntactic haplology (i.e., identity avoidance) at the S-M interface, as in Richards (2010).

Finally, Section 5 draws some conclusions.

3.2 Relative pronouns *vs* complementizers

3.2.1 On the differences between pronouns and relative complementizers

It is standardly assumed that relativizers can belong to different morphosyntactic categories. Thus for instance English relative *who* and *which* are assumed to be DPs, whereas relative *that* spells out the category C (to which sentential complementizers are also standardly assumed to belong). This is the position I refer to as the C hypothesis, which is motivated on the basis of four empirical properties that are assumed to classify relativizers into pronominal elements (DPs) and relative complementizers (Cs) (with arguments tracing back to Jespersen 1924, Klima 1964, Kayne 1975, 1976): (a) animacy restrictions (b) case-marking; (c) compatibility with prepositions; and (d) sensitivity to the finiteness of the clause.

Examples (4)-(7) illustrate these properties for English. (4) shows that the animacy restriction applies to relative pronouns *who* and *which*, but not to *that*; (5) shows that pronoun *who* can be case-marked, unlike *that*; (6) shows that *who* and *which* can be embedded under Ps, in contrast to *that*; and (7) shows that *wh*-pronouns can be licensed in infinitival contexts,

unlike *that*. The different morphosyntactic behavior of *who* and *which* on the one hand and of *that* on the other is thus explained away as a difference in categorial status, according to this standard position.

(4) a. The man *which / who / that John saw
b. The table which / *who / that John broke

(5) The man whose wife / *that's wife John saw

(6) a. The man with whom / *with that John spoke
b. The chair on which / *on that John sat

(7) a. The man with whom to speak
b. *The man that (to) see

Insofar as properties (a-d) are real diagnostics for determining whether a given element is a D(P) or a C, however, it is never made quite explicit (to the best of my knowledge) how these properties should theoretically follow from a difference in categorial status. In other words, it is unclear why D elements should be subject to a different syntax vis-à-vis C elements. It is nonetheless implicit in the literature that the distribution of properties (a-d) is related to the assumption that Cs are functional heads strictly connected with the TP-layer of the sentence. This strict connection would then render C elements incompatible with properties (a-c), the hallmark of (pro-)nominal elements; on the other hand, Cs would be intrinsically specified for finiteness, and therefore display property (d).

Be that as it may, properties (a-c) have been challenged as diagnostics for the D/C dichotomy on empirical grounds (cf. van der Auwera 1985, Kayne 2014, Poletto and Sanfelici 2018). Kayne (2014) argues that, contrary to standard assumptions, English *that* does in fact show sensitivity to animacy (property (a)) in some contexts. In the following cleft sentences, for instance, Kayne reports that grammaticality drastically improves when *that* is preceded by a non-human antecedent, as in (8b), as opposed to (8a), which he finds deviant.

(8) a. (Do you know Mary?) Yes, in fact it was Mary who/*?that got me interested in linguistics in the first place.
b. (Have you read this book?) Yes, in fact it was this book that got me

interested in linguistics in the first place.

Furthermore, Kayne (2014) claims that a similar contrast can be observed in non-restrictive relatives, where, at least in his variety, *that* is marginally acceptable (or, at any rate, much more acceptable than zero) with a non-human antecedent (9a); on the other hand, *that* preceded by a human antecedent (9b) is ruled out categorially.

(9) a. Your last paper, *(?that) I've been meaning to reread for a while now, is really good.
b. *Your oldest friend, that I've been meaning to talk to for a while now, is really smart.

Kayne (2014) moreover argues that case-marking (property (b)) cannot be taken as a strong categorial diagnostics for English *that*, given that: (i) the relative pronoun *which* cannot bear case-marking either (10); (ii) some speakers do accept *that* with case-marking (11); and (iii) case-marking on *that* is prohibited also when *that* functions as a regular (i.e., non-relative) demonstrative (cf. (12a) and (12b)).

(10) *The book which's first chapter is so well-known.

(11) a. %This is the pencils that's leads aren't broken.
b. %This is the pencil that's lead you broke.

(12) a. *That's importance is undeniable.
b. Its importance is undeniable.

Compatibility with prepositions (property (c)) was already argued by van der Auwera (1985) not to constitute a robust categorial diagnostics with respect to relativizers (cf. also Kayne 2014: §5). This can be shown with the Dutch data in (13). In particular, while the Dutch demonstrative-related pronoun (d-pronoun) *die* is uncontroversially a relative pronoun (i.e., a DP) (13a), it can neither pied-pipe a preposition (13b) nor leave it stranded in its base position (13c).

(13) a. De man *die* me zag liep weg.

the man who me saw ran away

b. *De man *aan die* ik het boek gaf liep weg.
the man to whom I the book gave ran away

c. *De man *die* ik het boek *aan* gaf liep weg.
The man who I the book to gave ran away

Dutch (van der Auwera 1985: 152)

These facts thus strongly indicate that the incompatibility of relativizers with Ps cannot be taken as a strong argument in favor of their status as Cs: uncontroversially pronominal elements may also be subject to this restriction.[25]

Poletto and Sanfelici (2018) also argue, with data from Old Italian varieties, that relativizers can show a mixed behavior with respect to properties (a-c). For instance, the Old Ligurian relativizer *che* falls into the C category according to property (c) (given its incompatibility with Ps), while at the same time this element showed sensitivity to the animacy of the antecedent in subject relatives, thus behaving as a DP with respect to property (a). As shown in (14), the agreeing relativizer *chi* was employed with a [+human] extracted subject (14a); otherwise, the default form *che* (also used as a sentential complementizer) was selected (14b).

(14) a. questa femena *chi* m' à spanyunto questo inguento adosso
this woman REL CL.1S.ACC has spread this unguent on.me
'This woman that spread this unguent on me'.

[25] In German, d-pronouns are compatible with Ps (i).

(i) Der Mann mit dem wir gesprochen haben
the man with whom.DAT we spoken have
'The man with whom we spoke.'

German d-pronouns also differ from Dutch d-pronouns (and English *that*) in that the former, though not the latter, show overt morphological case. On the basis of these observations, Kayne (2014) suggests that the demonstrative-related pronouns in (at least) West German can be the object of Ps only if that d-pronoun has morphological case. However, there remain several open questions about how to capture this generalization. See Chapter 4 for my own analysis of the incompatibility of *that* with pied-piped Ps.

b. receveyva tuto zo *che* era dayto a Criste
received-3S all that REL was given to Christ
'He received all that was given to Christ'
Old Ligurian (Poletto and Sanfelici 2018: 275)

Conversely, Poletto and Sanfelici (2018) show how an element generally labeled as a DP, *qual-* 'which', could remain uninflected in relative constructions. This is the case of Old Neapolitan, where *quale* remained invariable regardless of the properties of its antecedent, as illustrated in (15) (from Poletto and Sanfelici 2018: 281).

(15) a. Amico *quale* te si'[…]
friend REL you are
'Friend that you are […]'
b. Haverno facte cose *quale* mai tentarono fare
have-3PL done things REL never tried do
'They did things that they never tried to do'

Old Neapolitan *quale* is comparable to Italian *che*$_{+REL}$ in being invariant, even though the latter is standardly taken to be a C. In fact, it can be argued that properties (a-c) are inconclusive for determining the categorial status of relativizers even in Italian. The distribution between *che*$_{+REL}$ and the relative pronoun *cui*, for instance, only differs with respect to the case of the gap in the relative clause. As shown in (16)-(17), neither *che* nor *cui* display property (a), i.e., restrictions to animacy.

(16) a. L'uomo che Gianni vede
The man what G. sees
'The man who Gianni saw.'
b. L'uomo con cui Gianni parla
The man with what.OBL G. speaks
'The man with whom Gianni speaks.'

(17) a. Il libro che Gianni legge
The book what G. reads
'The book that Gianni reads.'

b. Il libro su cui Gianni studia
The book on what.OBL G. studies
'The book from which Gianni studies.'

With regards to property (b) (i.e., case-marking), it is possible to consider *cui* to be marked as an oblique. This is suggested by its distribution and by the affix *–ui*, which could mark non-nominative case in older stages of the language (cf. *egli* 'he.NOM' vs. *lui* 'he.ACC/OBL'; see Benincà 2010 on some uses of *cui* in Old Italian; cf. Poletto and Sanfelici 2019). While *cui* is pronominal according to property (b), it cannot be excluded that it is simply an oblique form of *che*$_{+REL}$ (as traditional (pre-generativist) grammars would have it). This assumption might then offer a rather straightforward account for the distribution of *che*$_{+REL}$ vs. *cui* in modern Standard Italian. Specifically, the incompatibility of *che*$_{+REL}$ with Ps (property (c)) could be attributed to the fact that Italian has a more specific element (*cui*), which would block the spell-out of *che*$_{+REL}$ with oblique case gaps, along the lines of the Elsewhere/Subset Principle (Kiparsky 1973, Halle 1997).[26] This is essentially what I will propose in Section 3.

Furthermore, as pointed out in Roussou (2020a: fn. 2), compatibility of Ps with purported C elements seems to be subject to cross-linguistic variation. The following example from Italian featuring sentential *che* is a case in point:

(18) Gianni era favorevole a che ti sposassi
Gianni was favorable to what CL.2SG married-SUBJ-2SG
'Gianni was in favor of you getting married.'

Note however that this possibility is restricted to just the preposition *a* 'to' in Italian, which suggests that it is an idiosyncratic lexical rule rather than a generalized property. Still, the fact

[26] Subset Principle (Halle 1997):

> The phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

that it is possible at all to combine prepositions with elements standardly labeled as C indicates that property (c) cannot be used as a reliable categorial diagnostics.[27]

Let me also point out that the C hypothesis, while compatible with data like (2c) or (19a) below, does not necessarily force the empirical facts. Even maintaining that che$_{+REL}$ is a C, it would be unclear why *che* could not lexicalize both a relative DP and C, as in (19b) (where C is silent). Hence, the incompatibility of Ps with *che*$_{+REL}$ (or equivalent) does not necessarily speak in favor of c*he*$_{+REL}$ belonging to the category C: something additional would need to to be said to account for the unavailability of sentences like (19a).

(19) a. *L'uomo con che parlo spesso
The man with what speak-1SG often
'The man I often speak with.'
b. L'uomo [$_{CP}$ [$_{PP}$ con che] [$_{C}$ <che> [parlo spesso]]]

The empirical evidence thus does not offer conclusive support for the argument that properties (a-c) cut across Ds and Cs. What about property (d)? Sensitivity to finiteness *prima facie* appears to be a real discriminating property of elements standardly labeled as Cs. Consider the sentences in (20). In the infinitival relative (20a), *che* cannot be licensed, as opposed to *che* in the interrogative (20b) or *cui* in (20c).

(20) a. *L'uomo che vedere
The man what see-INF
'The man to see.'
b. Non sa che fare
NEG know.3SG what do.INF
'He/she doesn't know what to do.'
c. L'uomo a cui affidarsi
The man to what.OBL rely-INF-REFL

[27] Consider also the fact that in Italian the sentential complementizer *che* can be combined with the preposition *da* 'from' to generate the temporal conjunction *dacché* (also written as *da che*) 'since':

(i) Non abbiamo più visto Gianni dacché si è sposato
Not have.2PL more seen G. since he REFL be.3SG married
'We haven't seen Gianni since he got married'.

'The man to rely on.'

It is in particular the restriction to finite environments that has bolstered the hypothesis that elements such as *che*$_{+REL}$ instantiate elements of a different categorial nature than, e.g., their interrogative counterparts (cf. Kayne 1976, Cinque 1978, 1981). The standard reasoning is that if *che*$_{+REL}$ were a pronoun like *che*$_{+Q}$ or *cui*, it would remain unexplained why its distribution is constrained by the finiteness of the clause, since pronouns do not seem to be subject to such a constraint.

There are reasons, however, for being skeptical about a strict correlation between complementizers and finiteness. First, consider the data in (21), from Paulilàtino (Sardinia), which features inflected infinitives. In (21a), the prepositional complementizer *dɛ* is compatible with both the inflected and the non-inflected infinitive. However, in (21b) *ki* (also used as a finite sentential complementizer) is also compatible with the inflected infinitive. These data then suggest that, whatever categorial status we attribute to elements like *ki*/*che*, these elements are not sensitive to the finiteness of the clause, but rather to the expression of nominal properties on T (i.e., its inflection).[28]

(21) a. … innantis dɛ ˈɛnn-ɛrɛ-(nɛ) ˈiɛɛɔɛɔ
… before to come-INF-(3PL) they
b. … innantis ki ˈɛnn-ɛrɛ-nɛ ˈiɛɛɔɛɔ
… before that come-INF-3PL they
'… before they came'

Paulilàtino (Manzini 2012: 311)

[28] Manzini and Savoia (2011) derive the incompatibility of *ki* with the non-inflected infinitive from the assumption that *ki* is a DP seeking a propositional variable, while the non-inflected infinitive defines an open predicate, rather than a proposition. This account cannot be extended to elements like *che*$_{+REL}$, however, if these elements seek argumental variables (see §3.2.2). I leave open the issue of determining whether the analysis to be developed to account for the finiteness restriction of *che*$_{+REL}$ could be extended to sentential *che*. If Kayne's (2014) analysis of complementation as relativization is on the right track, then the finiteness restriction of sentential *che* might fall under the same generalization against bare DPs at the edge of infinitival relatives. See also Roussou (2010) for relevant discussion.

Second, as Manzini and Savoia (2005: 489) discuss, there are contexts in Italian that can license the relativizer *che* in non-finite environments. This is the case of light-headed relatives with an interrogative interpretation (22). If *che* were specified as a [+finite] C, one would counterfactually predict the use of *che* in (22) to be ungrammatical.

(22) ?Non sa quello che dire
NEG knows that what say-INF
'He doesn't know what to say'

Third, it is not the case that pronominal elements do not show sensitivity to the finiteness of the clause. For instance, some very formal registers of Italian allow the use of Det + *qual-* 'the which' in restrictive Headed Relatives with direct case gaps,[29] provided that the verb in the relative clause is in the subjunctive mood (23a) (cf. Cinque 1978, 1982). Indeed, use of the indicative mood leads to severe deviance if Det + *qual-* is employed in such restrictive relatives (23b).

(23) a. I cittadini i quali abbiano riscontrato problemi…
The citizens the which have-SUBJ-2SG found problems
'The citizens who might have had problems…'

b. ??/* I cittadini i quali hanno riscontrato problemi…
The citizens the which have-IND-2SG found problems
'The citizens who might have had problems…'

The contrast in (23) points towards the conclusion that pronominal elements, too, can be sensitive to the finiteness of the clause. In this particular case, Det + *qual-* would be sensitive to the mood specification on T.

Finally, in languages such as French or English *wh*-pronouns cannot be licensed in infinitival relatives unless they respect certain morphosyntactic requirements: they cannot occupy the edge of the relative as bare DPs, but must be either non-overt or embedded within larger phrases (cf. (24)-(26)).

[29] This option is otherwise not allowed in less formal registers (cf. Chapter 4 for discussion and analysis).

(24) a. A man (*who) to marry.
b. A show (*which) to enjoy.

(25) a. *A man whom to dance with.
b. *A brush which to paint with.

(26) a. A man with whom to dance.
b. A brush with which to paint.

This asymmetry is well-known and has been extensively discussed in the literature (see references cited in §3.4). What is not recognized, however, is that the alleged relative 'complementizers' are barred under the same conditions that bar pronominal elements. Suppose that *che*$_{+REL}$ projects a DP. If so, its restriction to finite environments should not come as a surprise given the comparable restriction of other bare DPs at the edge of infinitival relatives. As I argue in section 4, an account of *che*$_{+REL}$'s restriction to finite clauses should be amenable to the same treatment, whichever it may be, that is offered to account for cases such as (24)-(26). The assumption that *che*$_{+REL}$ is specified as [+finite] does not help achieve a comprehensive generalization of the factors that preclude bare DPs from occurring at the edge of infinitival relatives.

All of the above then suggests that property (d) cannot ascertain whether a given element belongs to C or D. These considerations aside, it seems clear that in Headed Relatives *che*$_{+REL}$ is restricted to finite contexts. The question that arises (to be partially addressed in §3.4 and, more fully, in Chapter 4) is why this should be the case if *che*$_{+REL}$ is not a [+finite] C.

3.2.2 The D Hypothesis

In the previous section I argued that the categorial distinction between pronominal elements and relative complementizers rests on dubious empirical premises (cf. Kayne 2014, Poletto and Sanfelici 2018). There is another empirical aspect of the C hypothesis that has been subject to criticism in recent years (see Manzini and Savoia 2003 among others), namely that this hypothesis falls short of accounting for the systematic syncretism between pronominal

elements and the purported C elements across Indo-European.[30] In particular, it can be argued that the C hypothesis lacks explanatory value insofar as such syncretism is treated in terms of cross-categorial homophony or as the result of grammaticalization (cf. Manzini and Savoia 2011, Baunaz and Lander 2018). Moreover, the question arises as to why a functional specification that can host verbs (in, e.g., V2, T-to-C movement, etc.) would need to be lexicalized via an independently available pronominal element (Manzini and Savoia 2011: 14-5). It is uncontroversial that che_{+Q} as well as relative pronouns and their equivalents in *wh*-movement languages undergo Internal Merge to the CP-layer of the sentence. If che_{+REL} is assumed to belong to a non-nominal category subject to different syntactic operations, our theory would be missing an overarching generalization.

Manzini and Savoia (2003 *et seq.*) among others criticize this aspect of the C hypothesis. They take the syncretism between the different uses of *che* at face value, treating *che* as the very same lexical item in every context in which it appears. In particular, *che* is taken to be a DP capable of introducing a variable at C-I, essentially on a par with a lambda operator (cf. Arsenijević 2009 and Chapter 2). The different uses of *che* would arise according to the type of variable that *che* can bind. Specifically, *che* as an interrogative or relative element introduces a variable that ranges over individuals;[31] as a sentential complementizer, *che* introduces a variable that ranges over propositions/possible worlds. This analysis has as an effect that there can now be a single *che* in the lexicon, with its interpretation being contextually determined (along the lines of what has been argued to be the case for other *wh*-elements under the single-entry hypothesis discussed in Chapter 2).

The D hypothesis defended in Manzini and Savoia (2003 *et seq*.) is intuitively preferable over the C hypothesis on grounds of simplicity and explanatory power. As it stands, however, it is problematic in that it leaves unaddressed the case and finiteness problems mentioned in section 1 (cf. fn. 27). Nonetheless, given the empirical problems faced by the C hypothesis, I will attempt to solve these issues under some form of the D hypothesis. In line with Manzini and Savoia, I assume that che_{+Q} and che_{+REL} share the very same lexical entry, licensed in both Interrogative and Headed Relative contexts (on the assumption that

[30] The same correlation is observed in the Northwest Caucasian language Adyghe (Caponigro and Polisnky 2008).

[31] Manzini and Savoia (2003) suggest that che_{+REL} introduces a propositional variable, just as *che* does in complement clauses. This position is revised in Manzini and Savoia (2005: 485).

wh-elements bear contextual specifications, and how these may be formally captured, see Chapter 2).

The major point of departure I take from Manzini and Savoia's proposal is that I assume that the information contained in lexical entries is distributed across different modules of the grammar (along the lines of Late Insertion approaches). I thus argue that *wh*-elements like *che* and the relativizer *cui* are featurally indistinguishable in the pre-syntactic Lexicon and under the manipulation of the narrow syntactic component. In other words, che_{+Q}, che_{+REL} and *cui* are structurally identical prior to TRANSFER — the operation that hands over the syntactic structure to the interfaces (Chomsky et al. 2019). However, after TRANSFER, and specifically at S-M, the same feature-bundle underlying the lexical entries for *che* and *cui* may be assigned different phonological exponents depending on the surrounding morphosyntactic context, which I argue is the case with the oblique forms of che_{+Q} and che_{+REL}(/ke/ vs /kui/).

3.3. On the case problem

This section addresses the case problem, i.e., the inability of che_{+REL} to license oblique case gaps, under the assumption that it is a DP. The case problem for Italian essentially boils down to the pattern in (27)-(28):

(27) Di che / *di cui / *del quale parli?
Of what / of what.OBL / of-the.MASC.SG which.MASC.SG speak.2S
'What are you talking about?'

(28) L'uomo *di che / di cui / del quale parli.
The man of what / of what.OBL / of-the.MASC.PL which.MASC.PL speak.2S
'The man you are talking about.'

There are in fact two sides to this issue. On the one hand, we may wonder why che_{+Q} may be embedded under prepositions/license oblique gaps, while che_{+REL} may not. On the other hand, we may also ask why *cui* 'what.OBL' or Det + *qual-* 'the which' cannot occur at all in Interrogatives. As discussed in Chapter 2, such issues are particularly acute in a generative

theory of grammar, since it is not at all clear why *wh*-elements should fall into construction-specific paradigms if the grammar is not driven by the notion of 'construction' (Chomsky 1981: 7). Moreover, abstracting away from the categorial status of che_{+REL}, relative and interrogative *wh*-elements have long been assumed to be subject to the same syntax (Chomsky 1977). It should therefore come as a surprise that empirically there exist such specialized *wh*-elements as, e.g., Italian *cui*.

The case problem can therefore be included within the broader issue of why *wh*-elements show paradigmatic morphosyntactic properties (which issue includes, among others, the finiteness problem). Note in this regard that the C hypothesis would have to treat the incompatibility of che_{+REL} with oblique gaps independently from the unavailability of *cui* in Interrogatives. Under the D hypothesis, these issues may potentially be amenable to a unifying treatment, which I attempt to develop below. Before doing so, however, let me first summarize a few core assumptions regarding the structure of *wh*-elements made in the previous Chapter.

As argued in Chapter 2, I assume that *wh*-elements do not bear any specification as to the syntactic environment in which they are to be inserted (via features such as e.g. [+interrogative] or [+relative]). This assumption is motivated, among others, by the theoretical desideratum of avoiding construction-specific statements in the grammar (cf. Wiltschko 1998). Moreover, the specific interpretation associated with *wh*-elements across different constructions is acquired at C-I via various operators independently merged in the narrow syntactic derivation (e.g. Q, σ, etc.). I thus make the null hypothesis that *wh*-DPs are structurally/featurally identical across different syntactico-semantic environments. In particular, I take the internal composition of nominal *wh*-elements to be as illustrated in (29). Thus the D-head encodes the *wh*-feature, which is what gives *wh*-elements their semantic flavor at C-I. I assume that they are essentially interpreted as variables in the sense of Nishigauchi (1990) and Postma (1994) among others. The other ingredient of *wh*-elements, the φ-features, may be specified so as to contribute to the restriction of the range of the variable (e.g., Heim and Kratzer 1998: 244, Heim 2008).

(29) $[_{DP}$ D: [wh], φ: [...]]

While the structure in (29) is shared among *wh*-elements in different constructions (modulo the values for φ-features),[32] the empirical evidence shows that *wh*-elements can be different from a morphophonological point of view in, e.g., Interrogative (che_{+Q}) vs. Headed Relative constructions (*cui*). The question that arises is how the grammar can classify *wh*-DPs into construction-specific paradigms. In Chapter 2 I proposed that the lexical entry for *wh*-elements, besides making reference to the structure in (29), must also contain some contextual specification for the licensing environment at S-M, e.g., [+Q], [+HR], etc. These features crucially do not refer to either construction-specific features or to intrinsic quantificational semantics, but rather to items present in the surrounding morphosyntactic environment. More specifically, [+Q] on *wh*-DPs is licensed if the syntactic representation transferred to S-M contains a Q operator, whereas [+HR] is licensed in the presence of an antecedent (see §2.3.1 and §2.3.3 for details). Given these assumptions, the lexical entries for *che* and *cui* may provisionally be stated as in (30).

(30) a. $[_{DP}$ *che* D: [wh], φ: [ø], +Q/+HR/…]
b. $[_{DP}$ *cui* D: [wh], φ: [ø], +HR]

Abstracting away from their different contextual specifications, the items in (30) share an identical structural composition. Note that *che* and *cui* are assumed to bear no specifications for φ-features (φ: [ø]). This assumption is supported by the following two observations: (i) che_{+REL} and *cui* are compatible with both human and non-human antecedents (cf. (16)-(17) *supra*); and (ii) che_{+Q} can range over [±human] entities, as shown by (31), where che_{+Q} can merge with both human and non-human lexical restrictions, and (32), where the value for the variable introduced by Speaker A's question can be provided by either human or non-human entities.

(31) a. Che libri hai scelto?
What books have.2SG chosen
'Which books did you choose?'

b. Che studente hai esaminato?

[32] One exception, to be discussed below, is the case of *which*-like elements like *quale*, which I assume carry an additional feature in their structural composition specifying their status as D-linked elements.

What student have.2SG examined
'Which student did you examine?'

(32) Speaker A: Che vedi?
What see.2SG
'What do you see?'
Speaker B: Un uomo / Un orso
A man / A bear

The entries in (30) can then offer a partial account for the asymmetries noted in (27)-(28) with respect to the distribution of *che* and *cui*. In particular, if *cui* lacks the [+Q] specification, it will be prevented from occurring in Interrogatives, accounting for its ungrammaticality in (27). On the other hand, since *che* is specified for both [+Q] and [+HR] contexts (among others), it will be licensed in both Interrogatives and Headed Relatives. However, the lexical entries in (30) are insufficient to give a full account for the case problem — as they stand, they counterfactually predict that *che* may freely alternate with *cui* in Headed Relatives. This is because the two entries are not sufficiently differentiated in the Headed Relative context, so that either could in principle be selected without apparent consequences for either S-M or C-I. Some headway towards the resolution of the case problem may nonetheless be made by making a few fairly natural assumptions, to which I now turn.

First, I assume that the lexical entry for *cui*, unlike that of *che*, contains the further specification that it be licensed in oblique contexts, as indicated by [+OBL] in (33). This is evidenced by the fact that *cui* can occur only with oblique gaps (34), whereas *che* (at least in Interrogatives in Standard Italian) can in principle occur with both direct and oblique case gaps (cf. (1)).

(33) a. [$_{DP}$ *che* D: [wh], φ: [ø], +Q/+HR/…]
b. [$_{DP}$ *cui* D: [wh], φ: [ø], +OBL, +HR]

(34) a. L'uomo *che*/**cui* ha sposato Maria è Gianni.
The man what/what.OBL has married Maria is Gianni.
'The man who married Maria is Gianni.'
b. È un libro *che*/**cui* lessi con piacere.
It-is a book what/what.OBL read.1S with pleasure

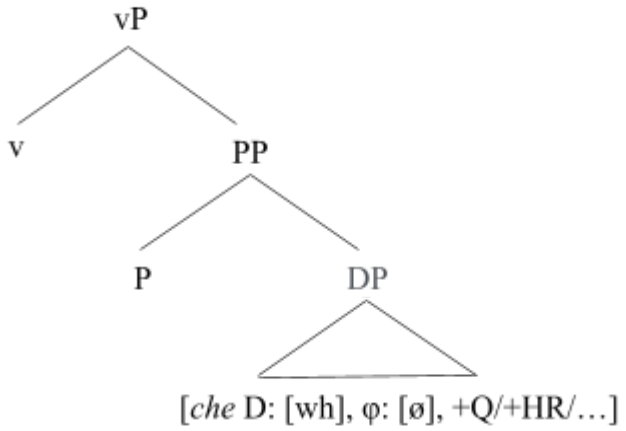
'That's a book I read with pleasure.'

Second, I assume that some form of the Elsewhere Principle (Kiparsky 1973) plays a role at the S-M interface. In general terms, the Elsewhere Principle states that a more specific rule apply over a more general one. For the case at hand, this means that the licensing of the lexical entry for *cui* will always take precedence over the lexical entry for *che* in oblique contexts, since the former, though not the latter, carries the [+OBL] specification. *Cui* is thus rendered more specific than *che*, and, by the Elsewhere Principle, could block the licensing of *che* in oblique contexts.

One problem that arises, however, is that the blocking effect cannot be enforced without further assumptions if *che* and *cui* were distinct items in the pre-syntactic Lexicon — that is, with their phonological matrixes and contextual specifications already in place prior to the syntactic computation. The system, as it stands, still predicts free alternation between *che* and *cui* in Headed Relatives. Consider why. Recall that a fundamental property of minimalist grammars is that derivational look-ahead and back-tracking are barred under natural principles of computational efficiency (e.g., resource minimization). Suppose, then, that the derivation were to construct a clause with an open variable (i.e., a *wh*-element) carrying oblique case. Given the ban against look-ahead, the derivation has no access to future stages of the derivation; hence, at first Merge — within the vP — the features [+Q]/[+HR] cannot be licensed. This licensing must take place later on, when either the Q operator or an antecedent is merged in the structure (licensing [+Q] and [+HR], respectively). If this line of reasoning is on the right track, then both the entries in (33) can potentially undergo External Merge (EM) in the syntactic derivation directly from the Lexicon (or, alternatively, from some previous syntactic workspace), as their licensing environment cannot be established at first Merge.

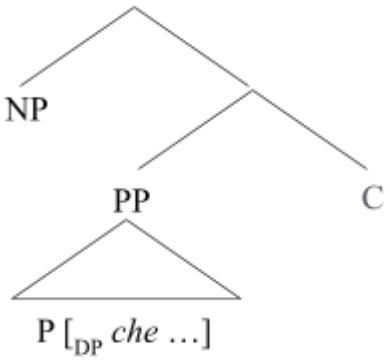
Suppose, for concreteness, that the syntactic derivation were to draw the entry for *che* in (33a), embedding it under a PP within the v-phase, as in (35).

(35)



Suppose further that the PP in (35) undergoes IM onto the edge of a Headed Relative (cf. (36)).

(36)



At this point, however, nothing seems to go wrong with the lexical entry for *che*, which may be licensed at both C-I (as a variable bound by the antecedent) and at S-M (via the presence of an antecedent, licensing its [+HR] feature, and the lack of specifications for case).

Therefore, blocking by *cui* cannot take place in (35)-(36) without invoking either derivational look-ahead or back-tracking. Specifically, look-ahead might inform the derivation that an antecedent will be merged higher up in the structure, thus preventing EM of *che* in (35) and drawing *cui* from the pre-syntactic Lexicon instead. Alternatively, (36) is ruled out if S-M can somehow be informed that a more specific entry (*cui*) is available in the Lexicon. However, if the entries for *che* and *cui* are distinct in the pre-syntactic Lexicon, this solution would require some amount of back-tracking, so that the derivation might go back to the first-Merge position (i.e., (35)) and replace *che* with *cui*, in clear violation of minimalist principles.

To overcome these problems I assume, in line with Late Insertion approaches such as Distributed Morphology (Halle and Marantz 1993, Arregi and Nevins 2012) and Nano-Syntax (Caha 2009, Starke 2009, Baunaz et al. 2018), that the information contained in lexical entries is distributed across different modules of the grammar. In particular, I assume that the pre-syntactic Lexicon and (by the Inclusiveness Condition) the syntactic derivation, contain abstract (bundles of) features, which are associated with phonological information only after TRANSFER — specifically, at S-M. I therefore propose that the entries for the *wh*-elements *che* and *cui* are as in (37). These entries state that the phonological exponents /ke/ and /kui/ are mapped onto the structure of a *wh*-DP, with no specifications for φ-features, if the licensing specifications (e.g., [+OBL], [+HR]) can be satisfied by the morphosyntactic context.

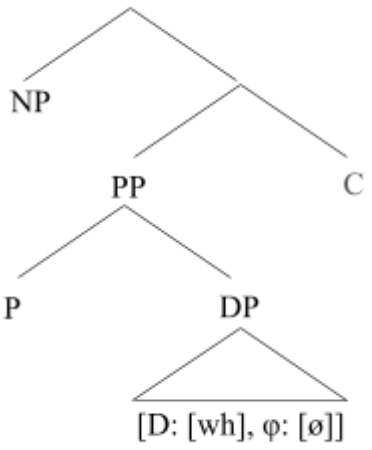
(37) a. [D: [wh], φ: [ø]] ↔ /ke/ +Q/+HR/…

b. [D: [wh], φ: [ø]] ↔ /kui/ +OBL, +HR

With the entries in (37) now in place, the derivation need not look ahead in order to decide whether to draw either *che* or *cui* from the pre-syntactic Lexicon, for the pre-syntactic Lexicon now contains just the abstract features ([D: [wh], φ: [ø]]) that underlie both /ke/ and /kui/. The specific exponent assigned to such features can then be decided later on, at S-M, on the basis of the contextual specifications on each entry.

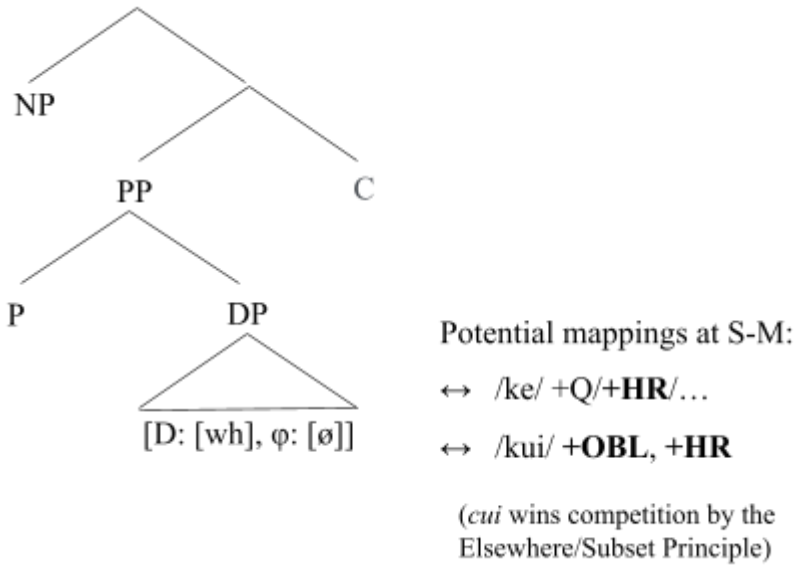
Consider then the structure in (38), which illustrates the configuration of the edge of a relative clause with an oblique *wh*-DP.

(38)



At S-M, both the entries for *che* and *cui* in (37) may in principle realize the structure of the *wh*-DP in (38), since they are both compatible with its features and both meet the [+HR] contextual restriction. However, the entry for *cui* bears the further restriction that it be realized in oblique contexts. Suppose that [+OBL] is licensed at S-M by virtue of a structurally present, c-commanding P (or K). If so, by being more specific, the entry in (37b) will win competition over the one in (37a) in the configuration in (38). The case problem for Italian *che* can thus be solved under the Elsewhere/Subset Principle (cf. (39)).

(39)



The hypothesis that *cui* blocks realization of *che* in oblique contexts raises the question of why *cui* does not block realization of Det + *qual* 'the which' in the same contexts. As mentioned in previous sections, Det + *qual* can be grammatical with both direct and oblique cases (cf. the restrictive relatives in (40) and the appositive relatives in (41)). This distribution indicates that Det + *qual*- isn't specified for case, just like *che*. Therefore, by the Elsewhere Principle *cui* should block realization of Det + *qual* in oblique contexts, since more specific. This is not the case, however: *cui* and Det + *qual*- are in free distribution in oblique contexts (cf. (28) *supra*).[33]

[33] This is abstracting away from differences in register. At least in my own idiolect, Det + *qual*- belongs to a slightly more formal register than *cui* in oblique contexts.

(40) a. I cittadini i quali abbiano riscontrato problemi…
The citizens the which have.SUBJ.2SG found problems
'The citizens who might have had problems…'

b. Una malattia contro la quale lotta da anni
A sickness against the which fight.3SG since years
'A sickness that he's been fighting for years.'

(41) a. L'uomo, il quale Gianni disprezza …
The man, the which G. despises …
The man, who Gianni despises …

b. Le nuove proposte, sulle quali il governo lavora da mesi …
The new proposals, on-the which the government works from months
'The new proposals, on which the government has been working for months…'

To understand why *cui* does not give rise to the blocking of Det + *qual-* in Headed Relatives, it may be sufficient to make the natural assumption that these two *wh*-DPs have a different featural composition. In particular, suppose that *qual-* has an additional feature that encodes its D(iscourse)-linked (Pesetsky 1987) character, i.e., specifying that its range is restricted to a contextually salient set of entities. Note that this is justified by the observation that *qual-* realizes an inherently D-linked element in Interrogatives (as does English *which*, German *welch-*, etc). If this particular semantics is encoded as a feature on the structure of *which*-like *wh*-elements, it could be assumed that this structure is realized via specialized exponents in +HR contexts, as in the entries in (42) (cf. also fn. 16 in Chapter 2).

(42) a. [D: [wh], D-linked, φ: [MASC, SG]] ↔ /il k^wale/ +HR
b. [D: [wh], D-linked, φ: [FEM, PL]] ↔ /le k^wali/ +HR
…

If the assumption that Det + *qual-* is structurally different from *cui* (and hence from *che*) is on the right track, then Det + *qual-* would not be in competition with *cui* (nor with *che*). Thus, the solution to the case problem proposed above can be maintained.

3.4 On the finiteness problem

In the previous section I argued that *che*$_{+\text{REL}}$ is a DP, structurally identical to *che*$_{+\text{Q}}$ and *cui* in the narrow syntactic derivation. This hypothesis seemingly exacerbates the finiteness problem — i.e., the issue of why *che*$_{+\text{REL}}$ is restricted to finite contexts, whereas e.g. *che*$_{+\text{Q}}$ and *cui* are not. The question therefore arises as to why the same *wh*-DP should show restriction to finiteness in some syntactic environments but not in others. A full-fledged analysis of this issue will be offered in Chapter 4, where further aspects of the distribution of relativizers in English and Romance are considered. The point I want to stress in this section is that the finiteness problem does not affect just *che*$_{+\text{REL}}$ or other relative 'complementizers' across languages, but generally affects DPs under the same conditions. Seen from this perspective, *che*$_{+\text{REL}}$ is not very special with respect to the restriction to finite environments; in fact, one would expect the unavailability of *che*$_{+\text{REL}}$ in infinitival relatives to be the case.

As mentioned in §3.2, bare *wh*-elements are generally excluded in the infinitival relatives of French and English. The situation of Italian mirrors the one observed in English and French; see (43)-(46), adapted from Sportiche (2011: 100-1).[34] Note that sentences such as (43) become grammatical when the *wh*-DP is embedded within a larger phrase, as in (46). Note further that the preposition in an English relative must be pied-piped along with the *wh*-DP to the clausal edge (cf. the contrast in (46c) and (46d)).

(43) a. *un uomo *che*/*il quale* invitare.
b. *un homme *qui* inviter.
c. *a man *who* to invite.

(44) a. *qualcosa *che*/*la quale* fare.
b. *quelque chose *quoi* faire.
c. *something *which* to do.

[34] In Italian, infinitival relatives with Det + *qual*- are ungrammatical in the unmarked case. However, there is also stylistically more marked construction that allows use of bare Det + *qual* in infinitival relatives. I return in Chapter 4 to a discussion of these cases.

(45) a. *il momento *quando* dormire.
b. *le moment *quand* dormir.
c. *the moment *when* to sleep.

(46) a. un bambino *di cui*/*del quale* parlare.
b. un enfant *de qui* parler.
c. a child *of whom* to speak.
d. *a child *whom* to speak *of*.

The generalization that can be gleaned from (41)-(44) is that bare *wh*-DPs cannot sit at the edge of infinitival relatives. If we take *che*$_{+\text{REL}}$ to be a DP, we can therefore reframe the finiteness problem as the issue of what grammatical factor(s) is responsible for barring bare DPs from occurring in such positions.

This issue has extensively been debated in the literature (e.g., Kayne 1976, Chomsky 1977, Hasegawa 1998, Law 2000, Pesetsky and Torrego 2006, Richards 2010, Sportiche 2011, Douglas 2016, among several others). To my knowledge, however, there still lacks consensus over which account is best suited to handle these facts. The classical analytical treatment of the ban against bare DPs in infinitival relatives involved stipulative surface filters contextualized for infinitival complements, which were designed to obligatorily delete *wh*-phrases up to 'recoverability' (Chomsky 1980: 20ff.). Such filters allowed PPs to be spelled out in infinitival relatives, since unrecoverable by assumption, while DPs had to undergo obligatory deletion because their contents could be retrieved from the relative head, again by assumption.

Without entering into the details of this analysis and its problems, the intuition that I would like to maintain is that the ungrammaticality of bare DPs in infinitival relatives is regulated by a filtering mechanism of sorts, rather than by narrow syntactic processes, in line with the Strong Minimalist Thesis (on these points, see further Chapter 4). One way of characterizing this filtering mechanism within current minimalist theorizing would be to appeal to interface conditions. Two questions are still crucial at this point: (i) why are bare DPs unlicensed at the edge of infinitival relatives? and (ii) why is this filter contextualized for infinitival relatives, i.e., why does it operate in infinitival but not in tensed relatives? In Chapter 4 I will propose to frame these issues within a class of constraints concerned with identity avoidance; more specifically, I will build on Richards' (2010) Distinctness Theory.

The gist of the proposal to be developed is that a configuration will be ruled out at S-M whenever conditions of featural identity arise, — in particular, when such features are too locally adjacent.

Deferring to Chapter 4 a more formal treatment, suppose for now that structural properties of infinitival relatives (unlike those of tensed relatives) make it so that the *wh*-DP at its edge is too locally adjacent to the external determiner. In this case, Richards (2010) proposes that the identity in categorial features between the relativizer and the external determiner causes the derivation to crash, as illustrated in (47b) for the sentence in (47a).

(47) a. *The man *whom* to see.

b. [**DP** the man [CP [**DP** whom] C [to see]]] → <DP, DP> ruled out at S-M

On the other hand, a *wh*-element with a pied-piped P is allowed to occur in an infinitival relative like (48a) because Ps cause *wh*-elements to be sufficiently distinct from the external determiner (cf. (48b). In other words, the identity conditions do not arise in these contexts (see Chapter 4 for details).

(48) a. The man *with whom* to dance.

b. [DP the man [CP [**PP** [P with [DP whom]]] C [to dance]]]

The finiteness problem may then receive a straightforward account under Richards (2010) whilst maintaining the D hypothesis for Italian *che*. Suppose that Italian infinitival relatives are in relevant aspects identical to those of English. If so, the ungrammaticality of (49)-(50) can be derived from the same conditions that bar (47) in English, i.e., the structures contain two elements with identical categorial features that are too locally adjacent. Consequently, they are filtered out at S-M (cf. (47b) and (48b)).

(49) a. *L'uomo *che* vedere.
The man what see.INF
'The man to see.'

b. [**DP** l'uomo [CP [**DP** che] C [vedere]]] → <DP, DP> ruled out at S-M

(50) a. *L'uomo *il quale* vedere.
The man the which see.INF

'The man to see.'

b. [**DP** l'uomo [CP [**DP** il quale] C [vedere]]] → <DP, DP> ruled out at S-M

Similarly, the grammaticality of (51)-(52) is amenable to that of (48): the *wh*-DPs *cui* and *Det + qual-* are embedded under a PP, which makes the *wh*-DPs sufficiently distinct vis-à-vis the external determiner *l*(*o*) 'the'.

(51) a. L'uomo a cui affidarsi.
'The man to rely on.'

b. [**DP** l'uomo [CP [**PP** [P a [DP cui]]] C [affidarsi]]]

(52) a. L'uomo al quale affidarsi.
'The man to rely on.'

b. [**DP** l'uomo [CP [**PP** [P a [DP il quale]]] C [affidarsi]]]

Under this account, it is therefore immediately clear why *che*$_{+REL}$ is barred from the edge of the CP, while *che*$_{+Q}$ is not: the former is ruled out under identity with a categorially identical determiner, which is absent in interrogative contexts (53).

(53) a. Che fare?
What do-INF
'What to do?'

b. Non so che mangiare.
NEG know.1S what eat-INF
'I don't know what to eat.'

It remains to be explained under this type of analysis why *che*$_{+REL}$ is licensed in tensed relatives. I discuss this issue in the next Chapter, where it will be proposed, in line with Richards (2010), that the phasehood properties of tensed relatives cause the relativizer and the external determiner not to be locally adjacent. The crucial point I wished to make in this section is that the account of the finiteness problem in terms of the C hypothesis is not warranted, given the empirical generalization that underlies the distribution of bare DPs in infinitival relatives.

3.5 Concluding remarks

This Chapter discussed the restriction to finiteness and case for *che*$_{+REL}$ under the D hypothesis. I argued that such restrictions, while constituting the central argument in favor of the C hypothesis, can be accounted for under the assumption that *che*$_{+REL}$ is a DP, on a par with other interrogative and relative *wh*-elements.

The unavailability of *che*$_{+REL}$ was argued to arise due to the blocking by the lexical entry for *cui* 'what.OBL' at S-M under the Elsewhere/Subset Principle. More specifically, I argued that *che*$_{+REL}$ shares an identical syntactic structure with *che*$_{+Q}$ and *cui* (they are all DPs encoding the *wh*-feature and lack of intrinsic specifications for φ-features). While this could in principle make *che*$_{+REL}$ available for oblique contexts, I argued that Italian contains a more specific lexical entry (*cui*), which besides containing the specification for [+HR] contexts (cf. Chapter 1), is also specified for oblique contexts. By being more specific, *cui* thus blocks insertion of *che*$_{+REL}$ with oblique case gaps. Clearly, however, such a language-particular analysis cannot be extended to account for the incompatibility of Ps with relativizers in others languages, like English *that*, where other explanations must be sought under the D hypothesis (see Kayne 2014; Seppänen 1997; cf. Chapter 4 for another potential treatment of the unavailability of *that* with P pied-piping).

This Chapter also showed that the restriction to finite environments is not unique to *che*$_{+REL}$ or other relative complementizers, but generally applies to bare DPs that occur at the edge of Infinitival Relatives. As such, the problem of the unavailability of *che*$_{+REL}$ in Infinitival Relatives can (and should) be treated as another instance of the larger issue of what precludes bare DPs from occurring in such positions. Under this generalization, the argument that *che*$_{+REL}$ is a C becomes less than compelling. In the next Chapter, I turn to a more formal analysis that seeks to capture this restriction of *che*$_{+REL}$, along with other distributional facts of relativizers in Romance and English.

Chapter 4

On the distribution of relativizers in English and Romance

4.1 Introduction

In this dissertation we have adopted the hypothesis, in line with the Strong Minimalist Thesis, that Merge applies freely in Narrow Syntax (e.g., Chomsky et al. 2019). Whether the output of Merge is ultimately licensed is established at the Conceptual-Intentional (C-I) and Sensory-Motor (S-M) interfaces. From this perspective, we can understand the distribution of a particular set of elements by placing its licensing conditions outside of Narrow Syntax.

Questions abound about the mapping from Narrow Syntax to the interfaces (TRANSFER). Focusing on the morphophonological component, questions arise as to the nature of the operations and the representations that they bleed and/or feed (e.g., Halle and Marantz 1993, Manzini and Savoia 2011, 2018). For instance, it is unclear what is the structural domain of externalization (EXT; Chomsky et al. 2019; cf. the Spell-Out operation of earlier models), i.e., whether the structure handed over from Narrow Syntax to S-M includes the specifier of the phase head (e.g., Bošković 2016) or only the complement (e.g., Chomsky 2001). It also remains a matter of dispute how to formalize the relevant locality domains for morphophonological operations, i.e., whether such operations strictly adhere to the syntactic cycle/phase (e.g., Fox and Pesetsky 2005), or whether they rather apply to global representations (e.g., Cheng and Downing 2016). More generally, there is a lack of consensus on the formal implementation of the licensing conditions of syntactic objects.

Against this backdrop, the present Chapter analyzes the distribution of Romance and English relativizers in order to shed light on issues of externalization. The study of the distribution of relativizers is relevant in this regard as it requires a precise characterization of the interaction between Narrow Syntax and the S-M interface as well as a formalization of the licensing conditions that apply after TRANSFER. More concretely, this Chapter seeks to develop a formal account of the sort of asymmetries in (1)-(4) with respect to the distribution of relativizers (cf. the finiteness problem discussed in the previous Chapter) and of the source

of variation between English and Romance (note, in particular, the contrast between (1a) and (3a) with respect to the availability of relativizers with direct case gaps; see Section 2 for further empirical details and discussion).

(1) a. The woman (*who*)/(*that*) John married.
b. The woman (*whom*)/(*that*) John danced with.

(2) a. The woman (**who*)/(**that*) to marry.
b. The woman (**who*)/(**that*) to dance with. (cf. The woman *with whom* to dance.)

(3) a. La donna **la quale*/*che* Gianni ha sposato.
The woman the which/what G. has married
'The woman Gianni has married.'

b. La donna *con la quale*/*cui* Gianni ha ballato.
The woman with the which/what.OBL G. has danced
'The woman with whom Gianni has danced.'

(4) a. La donna **la quale*/**che* sposare.
The woman the which/what marry.INF
'The woman to marry.'

b. La donna *con la quale*/*cui* ballare.
The woman with the which/what.OBL dance.INF
'The woman with whom to dance.'

While asymmetries like those in (1)-(4) were amply debated during the Government and Binding era (e.g., Chomsky and Lasnik 1977, Cinque 1978, 1982), there still lacks a comprehensive analysis of the distributions of relativizers from a minimalist standpoint. The assumption that Merge operates freely raises the issue why an object either may appear overtly in some particular domain or must be completely ruled out in others. This is the situation, for instance, of the distribution of relativizers in Infinitival Relatives (cf. (5)-(6)). (5a) represents the structure generated by Narrow Syntax via free iteration of Merge

(irrelevant details omitted). The DP at the clausal edge should be expected to be at least marginally available in the externalized content, contrary to what we observe (cf. (5b)). On the other hand, the same DP (*mutatis mutandis*) is allowed to occur under pied-piping (6b), and only under pied-piping (cf. the unavailability of P-stranding in (2b)).

(5) a. $[_{NP}\ N\ [_{CP}\ [_{DP}\ \textit{who}]_k\ C\ [_{TP}\ [T_{\text{-inf}}[\ \ldots\ <DP>_k]]]]$

b. man (**who*) to see

(6) a. $[_{NP}\ N\ [_{CP}\ [_{PP}\ P\ \textit{with}\ [_{DP}\ \textit{whom}]]]_k\ C\ [_{TP}\ [T_{\text{-inf}}[\ \ldots\ <[_{PP}\ P\ [DP]]>_k\ ]]]]$

b. man *with whom* to play

Contrasts of this sort are difficult to relate to the classical account in terms of deletion up to 'recoverability' (Bianchi 1999: 158f.). For starters, the notion of recoverability has as well-known never been formulated properly. The relevant literature (e.g., Chomsky 1980 and references cited therein) seems to imply recoverability of semantic (rather than, e.g., morphosyntactic) content under a sufficiently local antecedent. A problem with this characterization of recoverability was noted in Pesetsky (1998) and pertains to cases like (7). Under a 'recoverability' account, the complex *wh*-DP in (7) is expected to undergo externalization given the semantic contribution (and hence irrecoverability) of its pied-piped NP complement, contrary to the severe ungrammaticality that it gives rise to. In fact, it is unclear why the C-I interface should be involved at all in governing the overt distribution of relativizers — a task that should reasonably be left to S-M to handle (cf. Landau 2006). It is perhaps even less clear how cross-linguistic variation is to be captured under this approach.

(7) a. *A man *whose daughter* to marry

b. *Find me someone *whose mother* to invite to the conference.

(Pesetsky 1998: fn. 7)

As foreshadowed in §3.4, here I attempt to capture the type of asymmetries in (1)-(4) (and further data to be presented in Section 2) under a class of constraints concerned with identity avoidance. Such constraints, originally proposed in the context of phonological theory (cf. the Obligatory Contour Principle; Leben 1973), have in recent years been applied to account for a range of morphosyntactic issues (e.g., van Riemsdijk 2008, Richards 2010, Neeleman and van de Koot 2017; see also the collection of papers in Nasukawa and van Riemsdijk 2014). In

particular, I will build on Richards (2010). The underlying intuition that I share with Richards (2010) is that the distribution of relativizers is conditioned by whether certain morphosyntactic features are found in too local a relation at EXT. However, I argue for a modification of Richards' proposal which crucially adopts Bošković's (2016) formulation of EXT as containing the edge of the phase as well as its complement. I moreover extend the analysis to cover the distribution of so-called 'complementizers' under their treatment as DPs (e.g., Manzini and Savoia 2003, Kayne 2014; see Chapter 3). This extension seeks to achieve a comprehensive analysis of the distribution of all relativizers, along with providing a formal analysis of the finiteness problem discussed in the previous Chapter (namely, the issue of how to account for the unavailability of elements traditionally classified as complementizers in Infinitival Relatives under their treatment as DPs).

The present Chapter is structured as follows. Section 2 describes the distribution of relativizers in Romance and English and formulates the generalizations to be captured. Section 3 discusses some recent minimalist analyses of the phenomenon (Gallego 2007, Richards 2010) and argues that they face empirical difficulties. Section 4 aims at deriving the relevant generalizations by modifying Richards' (2010) analysis. Finally, Section 5 concludes the discussion.

4.2 Empirical landscape and theoretical questions

This section describes the distribution of relativizers in English and Romance and formulates the generalizations to be captured by any formal analysis. Descriptively, I use the term 'relativizer' to refer to any element that can occur at the edge of relative clauses; this includes elements traditionally labeled as 'relative pronouns' and 'relative complementizers' alike. I make a terminological distinction based on whether relativizers show restrictions to φ-features. Relativizers that do show restrictions to φ-features will be referred to as 'φ-inflected relativizers'. These include the Romance phrase 'Det + which' (e.g., Spanish *el cual*, Italian *il quale*, French *lequel*), which is inflected for the gender and number of the

antecedent NP,[35] and relativizers such as Spanish *quien*, French *qui*, and English *who* and *which*, which can be characterized as inflected for the animacy feature of the antecedent.[36] Non-inflected relativizers on the other hand include elements traditionally labeled as relative complementizers, e.g. Romance *che*/*que* 'what' and English *that*. In English, relativizers might also be zero (Ø), i.e., non-overt, under certain circumstances.[37] Finally, relativizers may be realized as bare (i.e., with no accompanying element), or they may be embedded within larger phrases (such as under PP/KP pied-piping).

4.2.1 Main data

As shown in (1)-(2), repeated below as (8)-(9), bare relativizers are optional in English Restrictive Tensed Relatives, while they are barred in Infinitival Relatives unless they are embedded within a larger constituent (notice the pied-piping requirement in (9b)). Note that in English bare φ-inflected (*who*/*which*) and non-inflected (*that*) relativizers are subject to a similar distribution in Restrictive Tensed Relatives — where both types of relativizers can be bare — and in Infinitival Relatives — where they are both barred when bare. However,

---

[35] In 'Det + which', the determiner expresses both gender and number, while the 'which' part expresses only number. E.g.:

(i) a. El hombre, *el cual*…
The man the.MASC.SG which-SG
b. Las mujeres, *las cuales*…
The women the.FEM.PL which-PL

[36] As well known, French *qui* differs from Spanish *quien* (and English *who*) in that it is restricted to [+human] antecedents only in oblique contexts. When bare, *qui* is necessarily nominative and does not show any restriction to the animacy of the antecedent.

[37] I put aside here the so-called anti-that-trace effects under subject relativization, namely the ban against Ø-relativization in cases like (i), whose discussion raises complications that would lead us too far astray. See Douglas (2017) for recent discussion.

(i) He's the man *(*who/that*) did it.

pied-piping of larger phrases must involve φ-inflected relativizers and cannot involve Ø- or *that*-relativization (cf. (8c)).

(8) a. The woman (*who*)/(*that*) John married.
b. The woman (*whom*)/(*that*) John danced with.
c. The woman *with* *(*whom*)/(**that*) John danced.

(9) a. The woman (**who*)/(**that*) to marry.
b. The woman (**who*)/(**that*) to dance with (cf. The woman *with whom* to dance).

In Romance, on the other hand, only the non-inflected relativizer *che*/*que* can be bare at the edge of Restrictive Tensed Relatives (cf. (10a), (11a) and (12a)). Relativizers inflected for φ-features must be embedded within larger phrases (cf. (10b), (11b) and (12b)), and cannot be bare at the edge of Restrictive Tensed Relatives.[38]

(10) a. La donna (**la quale*) / *(*che*) Gianni ha sposato.
The woman the.FEM.SG which-SG / what G. has married
'The woman who Gianni married'
b. La donna *con la quale* Gianni ballava.
The woman with the.FEM.SG which-SG G. danced
'The woman Gianni danced with'

Italian

[38] This is so at least in the standard languages. In certain formal registers (at least in Italian and French) the relativizer 'Det + which' can be bare at the edge of Restrictive Tensed and Infinitival Relatives, as in (i)-(ii).

(i) I cittadini i quali abbiano riscontrato problemi…
'The citizens who might have had problems…'

(ii) ?Cercavo una ragazza la quale poter invitare alla cerimonia di inaugurazione
'I was looking for a girl to be able to invite to the inauguration ceremony'

(Cinque 1982: 282)

(11) a. La mujer (**la cual*) / (**quien*) / *(*que*) vio a Juan.
The woman the.FEM.SG which-SG / who / what saw to J.
'The woman who saw Juan'

b. La mujer con *la cual* / *quien* Juan bailaba.
The woman with the.FEM.SG which-SG / who J. danced
'The woman Juan danced with'

Spanish

(12) a. La fille (**laquelle*) / (**qui*) / *(*que*) tu connais.
the girl the.FEM.SG which-SG who what you know
'The girl you know'

b. La fille avec *laquelle* / *qui* tu danses.
the girl with the.FEM.SG which-SG who you dance
'The girl you dance with'

French (adapted from Sportiche 2011: 86-7)

In Infinitival Relatives, Italian and French pattern with English in barring bare relativizers (cf. (13a-b)), while Spanish seems to license the non-inflected relativizer *que* (cf. (13c), adapted from Táboas 1995: ex. (2)). As in English, φ-inflected relativizers are grammatical under pied-piping in Romance, as illustrated in (14)-(16).

(13) a. *Cerco un libro (*il quale) / (*che) / da leggere.* (*Italian*)
b. *Je cherche un livre* (**lequel*) / *(*que) / à lire.* (*French*)
c. *Busco un libro* (**el cual*) / *que / para leer.* (*Spanish*)
look-for.1S a book the which / what / to read-INF
'I'm looking for a book to read.'

(14) Una ragazza *con la quale* ballare.
A girl with the which dance-INF
'A girl with whom to dance.'

Italian

(15) Esta asociación encontrará personas a *las cuales*/*quienes* convencer.
this association will-find persons to the which/whom convince-INF

'This association will find people to convince.'

Spanish (adapted from Táboas 1995: ex. (10))

(16) Un enfant de *qui* parler.
a child of whom to speak

French (Sportiche 2011: ex. (31f))

In Appositive Tensed Relatives, the distribution of relativizers follows a different pattern in both English and Romance. In particular, English bars Ø-relativization and the use of the non-inflected relativizer *that* (Chomsky and Lasnik 1977: fn. 46), as shown in (17).[39]

(17) a. The man, *(*who*) / (**that*) John saw…
b. This book, *(*which*)/(**that*) I read thoroughly, ...

In Romance Appositive Tensed Relatives, unlike Restrictive Tensed Relatives, φ-inflected relativizers can be bare, at least when it comes to 'Det + which' and Spanish *quien* 'who' (cf. (18)-(20).[40] These can be used alongside the non-inflected relativizer.

(18) La donna, *la quale* / *che* Gianni ha sposato…
The woman the-FEM.SG which-SG / what G. has married
'The woman, who Gianni married…'

Italian

(19) El autor, ?*el cual* / *quien* / *que* escribió la obra enfermo…

[39] As discussed in §3.2.1, Kayne (2014) finds *that* in appositive relative to be marginally acceptable with non-human antecedents. Kayne (2019: fn. 7) reports that "non-restrictive relative *that* with a human antecedent is accepted fairly widely in Scotland. What the key parameter(s) might be remains to be discovered." I focus here on an analysis of the judgements in (17), which to the best of my knowledge seem to be rather standard in the literature (cf. Chomsky and Lasnik 1977: fn. 46; Bianchi 1999: 158).

[40] The fact that French bare *qui* 'who' remains unavailable in (20) might be independently connected to the fact that bare *qui* necessarily carries nominative case in Headed Relatives. However, the present discussion abstracts away from the proper analysis of French *qui.* See Sportiche (2011), Manzini (2014b) for recent discussion and analysis of French *qui*.

The author the.MASC.SG which-SG / who / what wrote the play ill
'The author, who wrote the play while ill…'

Spanish (adapted from Brucart 1992: exx. (13a) and (17d))

(20) La voisine de ces hommes, ?*laquelle* / **qui* / *que* / je connais…
the neighbor of these men the which / who / what I know
'The neighbor of these men, who I know…'

French (adapted from Sportiche 2011: 91, ex. (17b))

Pied-piping remains available with φ-inflected relativizers (cf. (21)-(22)).

(21) La ragazza, *con la quale* Gianni ha parlato…
The girl, with the which G. has spoken
'The girl, with whom John spoke…"

(22) El autor, *al cual* /*quien* entregamos el primer premio, ...
The author, to-the which.MASC-SG /whom we gave the first prize, …
'The author, to whom we gave the first prize…'

Spanish (adapted from Brucart 1992: exx. (13c) and (17e))

4.2.2 Generalizations and theoretical questions

The relevant descriptive generalizations can be summarized as follows.

(23) *Generalizations on the distribution of relativizers in Romance:*

a. Relativizers inflected for φ-features cannot be bare at the edge of Restrictive Tensed Relatives. The non-inflected relativizer must be employed in these cases.
b. All relativizers may occur in Appositive Tensed Relatives (whether bare or embedded within larger phrases).
c. All relativizers are barred from being bare in Infinitival Relatives (with the exception of Spanish *que*).

d. Relativizers inflected for φ-features may occur under pied-piping in Restrictive Tensed Relatives, Appositive Tensed Relatives, and Infinitival Relatives.

(24) *Generalizations on the distribution of relativizers in English:*

a. All relativizers may be bare at the edge of Restrictive Tensed Relatives. Ø-relativization is available.
b. Only φ-inflected relativizers may occur in Appositive Tensed Relatives.
c. All relativizers are barred from occurring bare in Infinitival Relatives.
d. Relativizers inflected for φ-features may occur under pied-piping in Restrictive Tensed Relatives, Appositive Tensed Relatives, and Infinitival Relatives.

As can be noted, Romance and English share generalizations c and d (abstracting away from Spanish *que*). Where Romance and English differ is in the distribution of relativizers in Restrictive Tensed Relatives and Appositive Tensed Relatives. This distribution raises several questions. In this Chapter, I attempt to address the following:

(A) Why does Romance, but not English, bar bare φ-inflected relativizers the edge of Restrictive Tensed Relatives?
(B) Why is the ban against bare φ-inflected relativizers lifted in Romance Appositive Tensed Relatives?
(C) Why are φ-inflected relativizers the only option in English Appositive Tensed Relatives, but not in Romance?
(D) Why are bare relativizers barred in Infinitival Relatives in both English and Romance (with the exception of Spanish *que*)?
(E) Why can φ-inflected relativizers occur freely under pied-piping?

Before proposing our own answers to the above questions in Section 4, the following section discusses some recent minimalist analyses of the distribution of relativizers in English and Romance and evaluates how well they fare with respect to such issues.

4.3 Previous minimalist analyses

4.3.1 Gallego (2007)

Gallego (2007) develops an analysis of the distribution of relativizers in English and Romance based on Pesetsky and Torrego (2001). I will not discuss here all aspects of Gallego's analysis of Headed Relatives, focusing instead only on those that are strictly relevant for an account of the distribution of relativizers.

The major claim of Gallego (2007) is that the distribution of relativizers is related to Case assignment, which under his assumptions is a narrow syntactic operation. In particular, Case corresponds to an instance of T in Pesetsky and Torrego's (2001) framework, borne amongst other categories by D and C as an uninterpretable feature, notated as [*u*T]. In this system, [*u*T] on C can be deleted via checking with an analogous T-feature. Checking may be done via either T itself (under T-to-C movement), via complementizers (assumed to be a form of T), via (subject) DPs (whose [*u*T] can check C's [*u*T] in Pesetsky and Torrego's system), or via P (P also assumed to be a form of T in being able to assign Case). Moreover, Gallego proposes that besides requiring checking of [*u*T], C also bears an uninterpretable relative feature ([*u*Rel]) that must be checked via an interpretable instance of the same feature ([*i*Rel]) borne by relativizers.

In the case of object relatives, it is assumed that object DPs can only delete [*u*Rel] as their own [*u*T] has already been deleted within the v-phase; [*u*T] on C is deleted via the subject DP in SpecTP in these cases. This is roughly illustrated in (25) (irrelevant details omitted):

(25) a. The man who Mary kissed.

b. $[C_{[uRel]\,[uT]}\,[_{TP}\,[_{DP}\,Mary_{[uT]}]\,T\,[...\,kissed\,[_{DP}\,\textit{who}_{[iRel]}]\,]]]$

c. $man\,[[_{DP}\,who_{[iRel]}]_k\,[_{DP}\,Mary_{\sout{[uT]}}]_j\,C_{\sout{[uRel]}\sout{[uT]}}\,[_{TP}\,t_j\,T\,[...\,kissed\,<[_{DP}\,\textit{who}_{[iRel]}]>_k\,]]$

On the other hand, φ-inflected subject relativizers in English Restrictive Tensed Relatives are a means of deleting both of C's uninterpretable features ([*u*T] and [*u*Rel]) (cf. (26)).

(26) a. The man who kissed Mary.

b. $[C_{[u\text{Rel}]\,[u\text{T}]}\,[[_{\text{DP}}\ \textit{who}_{[i\text{Rel}]\,[u\text{T}]}]\ \text{T}\ [...]]]$

c. $\text{man}\ [[_{\text{DP}}\ \text{who}_{[i\text{Rel}]\ \sout{[u\text{T}]}}]_j\ C_{\sout{[u\text{Rel}]}\ \sout{[u\text{T}]}}\ [<[_{\text{DP}}\ \text{who}_{[i\text{Rel}]\,[u\text{T}]}]>_j\ \text{T}\ [...]]]$

In order to account for the lack of bare φ-inflected relativizers in the Restrictive Tensed Relatives of Romance, Gallego (2007) proposes that in Romance TP constitutes a strong phase. This is assumed to cause the [*u*T] on DPs to be deleted within the TP. Hence, [*u*T] on C cannot be checked via SpecTP in Romance, and object DPs are likewise useless having had their Case-feature deleted within the vP. Gallego thus assumes that C's [*u*T] in Romance can only be checked via T itself (spelled out as a complementizer, in line with Pesetsky and Torrego's assumption that complementizers are a form of T), or via P.

Without delving into the technical problems with this system, let us note, first, that it is unclear under this approach why, in the case of object relatives, C's [*u*T] cannot be deleted by merging a complementizer, itself an instance of T in Gallego's (2007) framework (as indeed acknowledged for cases like (27a) by Gallego 2007: 84). In other words, we would expect sentences (27a)-(28a) to be grammatical under their respective analyses in (27b)-(28b).

(27) a. **The man who that Mary kissed*

b. $[_{\text{DP}}\ \text{the}\ [_{\text{NP}}\ \text{man}\ [_{\text{CP}}\ [_{\text{DP}}\ \text{who}_{[i\text{Rel}]}]_j\ [_{\text{T}}\ \text{that}_{\sout{[u\text{T}]}}]_k\ C_{\sout{[u\text{Rel}]}\sout{[u\text{T}]}}\ [...\ t_k\ ...\ t_j]]]]$

(28) a. **L'uomo il quale che Maria ha baciato*

b. $[_{\text{DP}}\ \text{il}\ [_{\text{NP}}\ \text{uomo}\ [_{\text{CP}}\ [_{\text{DP}}\ \text{il quale}_{[i\text{Rel}]}]_j\ [_{\text{T}}\ \text{che}_{\sout{[u\text{T}]}}]_k\ C_{\sout{[u\text{Rel}]}\sout{[u\text{T}]}}[...\ t_k\ ...\ t_j]]]]$

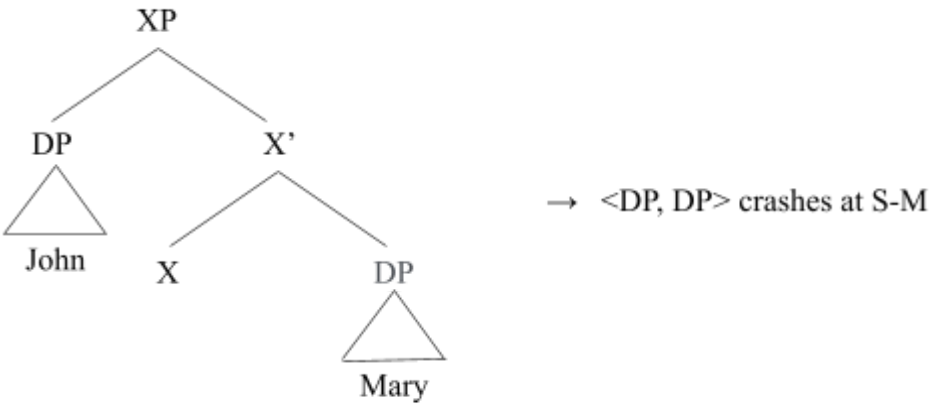
Perhaps more seriously, the assumption that T is a strong phase in Romance would lead to the prediction that the distribution of φ-inflected relativizers should pattern alike in both Restrictive Tensed Relatives and Appositive Tensed Relatives (which Gallego 2007 does not discuss). In other words, if φ-inflected relativizers cannot be attracted to check C's [*u*T] in Romance Restrictive Tensed Relatives because their own [*u*T] feature has already been deleted within the TP, then we would expect the same conclusion to carry over to Appositive Tensed Relatives. But this prediction is not borne out: as discussed in Section 2, φ-inflected relativizers can be bare at the edge of Romance Appositive Tensed Relatives.

4.3.2 Richards (2010)

Richards (2010) develops a theory concerned with morphosyntactic identity avoidance. The gist of his proposal is that the derivation of a sentence crashes if a linearization statement containing two non-distinct elements, i.e., of the form <α, α>, is generated. The ban against such linearization statements is assumed to arise in order to avoid conflicting instructions for the Linear Correspondence Axiom (LCA; Kayne 1994), under which a node A linearly precedes a node B if and only if A asymmetrically c-commands B.

More specifically, Richards (2010) argues that in a configuration such as (29) below the two DPs may in principle be related by a linearization statement given their asymmetric c-command relation. However, this would require some mechanism whereby the linearization process can distinguish the two DPs (via, e.g., indices and/or the content and/or position of the two DPs in the tree), as the linearization statement <DP, DP> would otherwise give rise to the conflicting instructions that DP both follows and precedes itself. Barring such richer mechanisms of distinguishing identical nodes in a tree, Richards assumes that the linearization statement <DP, DP> crashes at S-M.

(29)



The condition whereby the generation of <α, α> causes the derivation to crash is referred to as 'Distinctness', and is formulated as in (30).

(30) *Distinctness* (Richards 2010: 5)

If a linearization statement <α, α> is generated, the derivation crashes.

What α amounts to for the computation of Distinctness is language-particular, and may therefore be subject to parametric variation. For English and French, Richards assumes that α may simply amount to a syntactic label (i.e., X(P)), although, as he stresses (p. 6), Distinctness may be sensitive to further morphosyntactic specifications.

Importantly, however, the ban on such non-distinct linearization statements is sensitive to locality conditions. In particular, <α, α> is barred whenever it is part of the same EXT (or Spell-Out, in Richards' terminology) domain. Richards moreover follows the standard assumption that the domain of EXT includes the complement — and only the complement — of a (strong) phase head (Chomsky 2001). Consequently, under Richards' approach, two non-distinct labels in English cannot be part of the complement of the phase head when this is transferred to the interfaces. The only way for two non-distinct labels to be linearized is if they are separated by an intervening phase head, which would cause the two labels to be part of distinct EXT domains. Finally, Richards takes CP, v*P, PP and KP to be strong phases, but crucially not DP.

Assuming that Infinitival Relatives do not contain intervening phase boundaries, Richards accounts for the ungrammaticality of Infinitival Relatives with bare relativizers in English (31a) and Romance (32a) with the underlying analyses in (31b) and (32b)). Specifically, the crash is caused by the presence of two DPs within the same EXT domain (graphically represented via underlining in the representations below).

(31) a. *The man whom to marry.

b. $[_{DP}$ the man $[_{CP}$ $[_{DP}$ whom] C [to marry]]]→ <DP, DP> crashes at S-M

(32) a. *L'uomo il quale sposare.

b. $[_{DP}$ l'uomo $[_{CP}$ $[_{DP}$ il quale] C [sposare]]] → <DP, DP> crashes at S-M

The possibility of spelling out the *wh*-DP under pied-piping is accounted for assuming that P is a phase head, which thus separates the *wh*-DP from the upper DP, as in (33) (strong phase heads are boldfaced in the representations below). The impossibility of P-stranding with an overt *wh*-DP in English Infinitival Relatives is therefore straightforwardly captured under Richards' account (cf. (34)).

(33) a. The man with whom to speak.

b. $[_{DP}$ the man $[_{CP}$ $[_{PP}$ [**P** with $[_{DP}$ whom]]] C [to speak]]] → no Distinctness

(34) a. *The man whom to speak with.

b. [$_{DP}$ the man [$_{CP}$ [$_{DP}$ whom]$_j$ C [to speak [$_{PP}$ with t_j]]]] → <DP, DP> crashes

Bare *wh*-elements are on the other hand licensed at the edge Restrictive Tensed Relatives in English (cf. Section 2). In order to account for this distributional asymmetry, Richards follows Bianchi (1999) in assuming that in Restrictive Tensed Relatives the *wh*-DP is separated from the external DP by an intervening functional head — Force, in Bianchi's (1999) terms. By assuming that this head is a strong phase head, Richards accounts for the availability of bare *wh*-DPs in English Restrictive Tensed Relatives: the *wh*-DP is linearized in a different Spell-Out domain from the external DP (cf. (35)). Note that for Richards it is irrelevant whether the NP reaches SpecForceP via Internal Merge (e.g., Bianchi 1999), whether it is externally merged there (e.g., Boef 2013), or whether it is merged outside the relative clause altogether (as in the traditional 'head-external' analysis, e.g., Chomsky 1977). What is crucial for capturing the distributional asymmetry of relativizers in Restrictive Tensed Relatives and Infinitival Relatives is that the external D and the relativizer are not part of the same EXT domain in Restrictive Tensed Relatives.

(35) a. The man whom I invited.

b. [$_{DP}$ the [$_{ForceP}$ [$_{NP}$ man] **Force** [$_{TopicP}$ [$_{DP}$ whom] Topic [I invited]]] → no Distinctness

This proposal is in line with the framework adopted in this dissertation, as the distribution is derived not by conditions on Merge but rather on the interfaces, specifically S-M. An advantage of Richards' analysis is that it can offer a simple account of cross- and intra-linguistic variation by assuming that languages can have different settings for the parameter that dictates which features count as relevant for Distinctness. For instance, the fact that comparable sentences as the one in (32) can be grammatical in formal registers of Italian (cf. fn. 38) may be accounted for by assuming that in such registers D does not enter into the computation of Distinctness. Note that this is also in line with recent views on parametric variation, whose locus is identified in the externalization component of grammar (e.g., Berwick and Chomsky 2011) (see also Section 4).

However, as it stands, Richards' (2010) solution does not cover the full range of distribution described in Section 2. For instance, Richards does not discuss Appositive Tensed

Relatives, and it remains unclear what should rule out Ø-/*that*-relativization in English in these cases.[41] Furthermore, Richards does not discuss the case of Romance Restrictive Tensed Relatives, which in fact remain unaccounted for under his approach. Specifically, assuming that *wh*-DPs are ruled out in Infinitival Relatives because of categorial Distinctness, the question arises why only the non-inflected relativizer can be bare at the edge of Romance Restrictive Tensed Relatives. While the availability of *che*/*que*/*that* can be accounted for under the standard hypothesis that such elements are Cs,[42] it remains unclear under Richards account what should rule out the presence of φ-inflected relativizers in cases like (36)-(37).

(36) a. *El autor quien escribió la obra.
The author who wrote the play
'The author who wrote the play.'

b. $[_{DP}$ el $[_{ForceP}$ $[_{NP}$ autor] **Force** $[_{TopicP}$ $[_{DP}$ quien] Topic [escribió la obra]]]

(37) a. *L' uomo il quale Gianni ha visto.
The man the which G. has seen
'The man who Gianni saw.'

b. $[_{DP}$ il $[_{ForceP}$ $[_{NP}$ uomo] **Force** $[_{TopicP}$ $[_{DP}$ il quale] Topic [Gianni ha visto]]]

4.4 The proposal

I adopt the hypothesis that Merge operates freely. As a consequence, the unattested occurrences of relativizers must be filtered out at the interfaces. I dismiss the possibility that the crash arises at C-I (via, e.g., labeling), as that would entail a difference in the semantico-pragmatic properties of relativizers and/or relative clauses of English on the one hand and those of Romance on the other (a difference which does not seem to have ever been detected).

[41] To the best of my knowledge, these remain in fact open questions in the literature. We return to a potential solution in Section 4.

[42] Which would however raise further questions, such as how to account for the availability of Spanish *que* in Infinitival Relatives.

This leaves S-M as the locus of the problem. If this is on the right track, then the question that arises is what sort of constraint could hold at S-M such that it rules out relativizers from being overtly realized under certain circumstances. I follow Richards (2010) in assuming that the kind of distribution discussed in Section 2 should be treated as an instance of identity avoidance — or morphosyntactic haplology. In other words, I assume that the empirical facts are captured under some form of Distinctness holding of identical morphosyntactic features. Contrary to Richards (2010), however, I will crucially assume that the portion of structure handed over from Narrow Syntax to the S-M interface — EXT — includes the entire phase (Bošković 2016), rather than just its complement. In line with Richards, I assume that the set of strong phase heads includes (finite) C, and P (or K), though crucially not D. I further propose, expanding on Richards on this point, that in Romance (and in English, to some extent) Distinctness is sensitive to φ as well as D. Moreover, I suggest that this type of featural anti-locality (Distinctness) arises not because it causes a problem for linearization, but rather because it is conditioned by general principles of economy (e.g., by some statement of the form 'externalize as few occurrences of a feature as possible'). What feature counts as relevant for the computation of Distinctness is established at the S-M interface, according to language-particular rules.

Assuming that the distribution is due to morphosyntactic haplology, we are now faced with the following two questions: (a) what is the offending feature; and (b) where (i.e., in what locality domain) do the occurrences of the same feature cause the derivation to crash, and where do they not? As discussed in Section 3.2, Richards' answers to these questions are difficult to extend to the full range of distribution described in Section 2. For instance, assuming that the offending feature is the categorial label, and that the statement <D, D> is barred when it is part of the same EXT domain (namely, the complement of the phase head under Richards' assumptions), then the question arises why bare φ-inflected relativizers may be licensed in Restrictive Tensed Relatives in English, though not in Romance (cf. (38)-(39), with the analysis based on Richards 2010; see §4.3.2; as in the representations above, underlining represents the relevant EXT domain whereas boldfaced categories represent phase heads).

(38) a. The man who John saw.

b. [$_{DP}$ the [$_{ForceP}$ [$_{NP}$ man] **Force** [$_{TopicP}$ [$_{DP}$ whom] [Topic [John saw]]]]

(39) a. *L' uomo il quale Gianni ha visto.

The man the which G. has seen

'The man who Gianni saw.'

b. [$_{DP}$ il [$_{ForceP}$ [$_{NP}$ uomo] **Force** [$_{TopicP}$ [$_{DP}$ il quale] [Topic [Gianni ha visto]]]]

One way in which the above asymmetry could be obtained would be to appeal to a difference in landing site for the relativizer in Romance vs. English. For instance, the relativizer could undergo Internal Merge to the edge of the phase head in Romance, as in (40), whereas in English the relativizer would target the specifier of the *complement* of the phase head, as in (41). Thus the sequence <D, D> would be part of the same EXT domain in Romance Restrictive Tensed Relatives (causing a violation of Distinctness), though not in English, where the sequence is separated by an intervening phase head (as in Richards 2010).

(40) [$_{DP}$ D [$_{CP}$ [$_{NP}$ N] [$_{DP}$ *wh*]] **C** …]] (hypothetical *wh*-movement in Romance)

(41) [$_{DP}$ D [$_{C1P}$ [$_{NP}$ N] **C1** [$_{C2P}$ [$_{DP}$ *wh*] C2 …]]]] (hypothetical *wh*-movement in English)

While this analysis could in principle derive some of the observed asymmetries between English and Romance Restrictive Tensed Relatives, I nonetheless reject it as it essentially rests on a stipulation. Assuming that there is no structural difference in the landing site of the relativizer between Romance and English, it then follows that the D-feature is not involved in triggering Distinctness in Romance (as in English) Restrictive Tensed Relatives. This conclusion is independently enforced under the present treatment of non-inflected relativizers as DPs, given that *que*/*che*/*that* is clearly available as a bare relativizer in Restrictive Tensed Relatives. This is not to say that the D-feature cannot be involved in the computation of Distinctness in Romance. In fact, I will assume with Richards (2010) that D causes Distinctness in Infinitival Relatives, as will be discussed below.

The approach that I would like to pursue here to shed light on the English/Romance distributional asymmetry in Restrictive Tensed Relatives capitalizes on the observation that bare relativizers are barred in Romance Restrictive Tensed Relatives when they bear specifications for φ-features (e.g., 'Det + which', Sp. *quien* 'who'; cf. Section 2). This suggests another potential candidate as a trigger for Distinctness, namely φ. Suppose, then, that Distinctness can be sensitive to identity in φ-features — in particular, those expressed by the antecedent NP and their corresponding occurrences borne by the relativizer (cf. (42)-(43)).

(42) a. *L'*uomo*$_{[\varphi:\ \text{MASC, SG}]}$ *il quale*$_{[\varphi:\ \text{MASC, SG}]}$ Gianni vide.

b. *El *autor*$_{[\varphi:\ \text{HUMAN}]}$ *quien*$_{[\varphi:\ \text{HUMAN}]}$ escribió la obra.

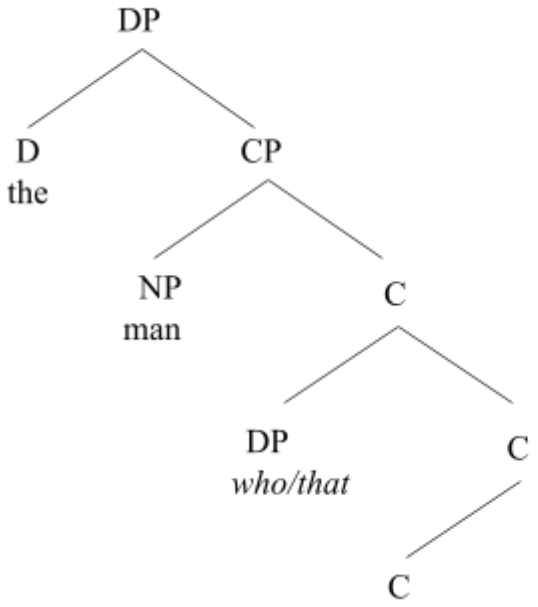
(43) a. L'*uomo*$_{[\varphi:\ \text{MASC, SG}]}$ *che*$_{[\varphi:\ \emptyset]}$ Gianni vide.

b. El *autor*$_{[\varphi:\ \text{HUMAN}]}$ *que*$_{[\varphi:\ \emptyset]}$ escribió la obra.

If identity in φ-features between the antecedent and the relativizer is what is responsible for the asymmetry in cases like (42)-(43), then the conclusion we are forced to draw in light of the previous discussion is that the antecedent NP must be within the same EXT domain as the relativizer in Restrictive Tensed Relatives *to the exclusion of the external D* (which does not not trigger Distinctness, as suggested by the grammaticality of (43)).

The question that arises at this point is how the external D can be left out of the EXT domain that includes the antecedent NP and the relativizer in Restrictive Tensed Relatives. To solve this issue I will make the following two assumptions. The first assumption has to do with the structural configuration of Restrictive Tensed Relatives, and specifically with the position of the antecedent NP within the relative clause. In line with Kayne (1994), Bianchi (1999), and Richards (2010) among others, I take it that the nominal head is part of the relative clause itself, rather than being external to it, as illustrated in (44). Note that it is irrelevant at this point whether the NP and the internal DP are specifiers of distinct C-heads (as in, e.g., Bianchi 1999) or whether they are specifiers of the same C-head, as I assume for simplicity to be the case. It is also irrelevant whether the NP reaches its surface position via Internal or External Merge. These details aside, the configuration in (44) is pretty much in line with what Bianchi (1999) and others assume to be the structure of relative clauses — the crucial point being that the antecedent NP is part of the same clause that includes the relativizer.

(44)



The second assumption that I make to shed light on why the external DP is part of a different EXT domain than both the NP antecedent and the relativizer has to do with how phases are externalized. Note that standard Phase Theory (Chomsky 2000, 2001, 2008) raises some issues from our perspective. Recall that the standard phase-theoretic assumption is that, at some point during the derivation, a portion of the generated syntactic structure is subject to TRANSFER to the interfaces — a portion crucially including either only the complement of the phase head or, if there are no higher phase heads, whatever material is still part of the narrow syntactic workspace (the case of, e.g., the edge of matrix clauses).[43] For instance, when applied to a structure like (44), this assumption will cause the external DP, the antecedent NP and the internal DP to be transferred together, i.e., to be part of the same EXT domain. However, under the assumption that categorial identity within the same EXT domain causes a crash at S-M, we would expect all bare relativizers to be ruled out in Restrictive Tensed Relatives (as they are in Infinitival Relatives). For this reason, I follow Bošković's

[43] There are different hypotheses about the exact point at which TRANSFER applies. Chomsky (2000) assumes that TRANSFER of the complement of the phase head applies as soon as the phase head of the current phase is merged, whereas for Chomsky (2001) TRANSFER takes place at the merger of the phase head of the next phase up. Since this distinction is immaterial for our present concerns, I will not dwell on it further.

(2016) proposal that the domain of EXT includes the whole phase (i.e., the edge as well as the complement), as indicated via underlining in the representations below (cf. (45)).

(45) $[_{DP}$ D $[_{\underline{CP}}$ $[_{\underline{NP}}$ *antecedent*$]$ $[_{\underline{DP}}$ *relativizer*$]$ **C** …$]]$

Thi system of externalization, coupled with the structure in (44), can then capture the distribution of relativizers in English and Romance Restrictive Tensed Relatives, as I will now show.

In Romance Restrictive Tensed Relatives, the φ-features of N and those of the *wh*-DP end up being in the same EXT domain in (46). Under the assumption made above that identical φ-features are relevant for Distinctness in Romance, their being in the same EXT domain will cause (46) to crash.

(46) a. *La ragazza *la quale* Gianni ha invitato a cena.
the girl the which G. has invited to dinner
'The girl who John invited over for dinner.'

b. $[_{DP}$ la $[_{\underline{CP}}$ $[_{\underline{NP}}$ ragazza$_{+\varphi}$$]$ $[_{\underline{DP}}$ la quale$_{+\varphi}$$]$ **C** …$]]$ → <φ, φ> crashes at S-M

On the other hand, the availability of φ-inflected relativizers under pied-piping follows from the assumption that Ps are phase heads and as such constitute their own EXT domain (cf. (47)).

(47) a. La ragazza *con la quale* Gianni ha ballato.
the girl with the which G. has danced
'The girl with whom G. has danced.'

b. $[_{DP}$ la $[_{CP}$ $[_{NP}$ ragazza$_{+\varphi}$$]$ $[_{\underline{PP}}$ **P con** la quale$_{+\varphi}$$]$ C …$]]$ → no Distinctness

The availability of non-inflected relativizers in Restrictive Tensed Relatives also follows straightforwardly from the proposed analysis, as such elements do not express φ-features (cf. (48)).

(48) a. La ragazza che Gianni ha invitato a cena.
The girl what G. has invited to dinner
'The girl John invited over for dinner.'

b. $[_{DP}$ la $[_{CP}\ [_{NP}$ ragazza$_{+\varphi}]\ [_{DP}$ che$]$ **C** …$]] \rightarrow$ no Distinctness

In English Restrictive Tensed Relatives, contrary to Romance Restrictive Tensed Relatives, identity in φ-features between N and the relativizer does not cause the derivation to crash (as an idiosyncratic, S-M-specific property of (varieties of) English). Moreover, the relativizer is not part of the same EXT domain of the external D. All bare relativizers may therefore be spelled-out (cf. (49)-(51)).

(49) a. The girl who John invited for dinner.

b. $[_{DP}$ the $[_{CP}\ [_{NP}$ girl$_{+\varphi}]\ [_{DP}$ who$_{+\varphi}]$ **C** …$]] \rightarrow$ no Distinctness

(50) a. The table which John broke.

b. $[_{DP}$ the $[_{CP}\ [_{NP}$ table$_{+\varphi}]\ [_{DP}$ which$_{+\varphi}]$ **C** …$]] \rightarrow$ no Distinctness

(51) a. The girl (that) John invited for dinner

b. $[_{DP}$ the $[_{CP}\ [_{NP}$ girl$_{+\varphi}]\ [_{CP}\ [_{DP}$ (that)$]$ **C** …$]] \rightarrow$ no Distinctness

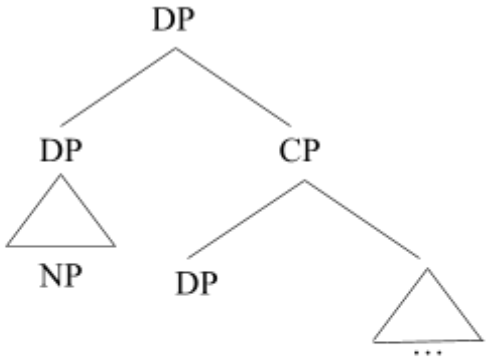
I would like to suggest, however, that English is also sensitive to identity in φ-features, though to a lesser extent than Romance. In particular, while identity in φ-features between the nominal antecedent and the relativizer does not cause a complete crash of the derivation, the S-M component of English can choose to minimize the featural redundancy that would otherwise arise under identity in φ-features by adopting either Ø-exponence of the relativizer (abstracting away from anti-that-trace effects) or by employing the non-inflected relativizer *that* (cf. (51)). Suppose further that Ø- and *that*-relativization are strategies only licensed as a means to avoid identity in φ-features within the same EXT domain. If so, then we can understand the unavailability of such strategies in Appositive Tensed Relatives, to which I turn below. Note incidentally that this treatment of Ø- and *that*-relativization could also account for their unavailability under pied-piping: being shielded by the phase-head P, the relativizer cannot enter into the computation of Distinctness with the antecedent (cf. (52)).

(52) a. *The girl with (that) John danced

b. $[_{DP}$ the $[_{CP}\ [_{NP}$ girl$_{+\varphi}]\ [_{PP}$ **P** with (that)$]$ C …$]] \rightarrow$ no Distinctness: Ø/*that*-relativization cannot be licensed

In Appositive Tensed Relatives, Distinctness does not arise. This follows from the standard analysis of Appositive Tensed Relatives (e.g., Demirdache 1991; cf., more recently, Griffiths 2015), where the NP is contained in a distinct EXT domain as that of the *wh*-DP (cf. (53)). This analysis is suggested by several properties of Appositive Tensed Relatives, such as their prosodic and propositional independence from the matrix clause, in which the antecedent is included.

(53)



The assumption that the antecedent NP is outside of the relative clause in Appositive Tensed Relatives can thus capture the observation that bare φ-inflected relativizers can be licensed in such contexts in Romance. In (54) and (55), for instance, the φ-inflected relativizers belong to a distinct EXT domain than the antecedent. Distinctness for φ-features is therefore not at stake in Appositive Tensed Relatives, unlike Restrictive Tensed Relatives, thereby accounting for the distributional asymmetry of bare φ-inflected relativizers in the two types of relatives.

(54) a. La ragazza, *la quale* Gianni ha invitato a cena…
The girl, the which G. has invited to dinner
'The girl who John invited over for dinner…'

b. $[_{DP}$ la $[_{NP}$ ragazza$_{+\varphi}]]$ $[_{\underline{CP}}$ $[_{\underline{DP}}$ la quale$_{\underline{+\varphi}}]]$ **C** …$]]$ → no Distinctness

(55) a. El autor, *quien* escribió la obra enfermo…
The author who wrote the play ill
'The author, who wrote the play while ill…'

b. $[_{DP}$ el $[_{NP}$ autor$_{+\varphi}]]$ $[_{\underline{CP}}$ $[_{\underline{DP}}$ quien$_{\underline{+\varphi}}]]$ **C** …$]]$ → no Distinctness

In English, on the other hand, only φ-inflected relativizers can be externalized in Appositive Tensed Relatives (56). I suggested above that English may license Ø-/*that*-relativization only under Distinctness for φ-features. If this hypothesis is tenable, then the unavailability of such strategies in Appositive Tensed Relatives is immediately captured, as the relevant conditions for Distinctness simply do not arise in Appositive Tensed Relatives (57).

(56) a. The girl, who John invited for dinner…

b. $[_{DP}$ the $[_{NP}$ girl$_{+\varphi}$]] $[_{\underline{CP}}$ $[_{\underline{DP}}$ who$_{+\varphi}$]] **C** …]] → no Distinctness

(57) a. *The girl, (that) John invited for dinner…

b. $[_{DP}$ the $[_{NP}$ girl$_{+\varphi}$]] $[_{\underline{CP}}$ $[_{\underline{DP}}$ (*that*)]] **C** …]] → no Distinctness: Ø/*that*-relativization cannot be licensed

Finally, we may assume that Infinitival Relatives do not have a strong phase head (i.e., they do not trigger TRANSFER/EXT), an assumption that has occasionally been made for other infinitival clauses that presumably involve a CP-layer (as in, e.g., control environments; cf. Landau 2015). More specifically, we may assume that although Infinitival Relatives have a CP-layer (as suggested by the availability of relativizers at the edge of such relatives), this is somehow deficient with respect to the CP of Tensed Relatives, lacking in particular the property whereby its phasal domain can be subject to TRANSFER independently. Note that Infinitival Relatives are deficient with respect to Tensed Relatives in other aspects; for instance, they do not allow topicalization of constituents to the edge (Douglas 2016), as illustrated in the contrast in (58)-(59) for English (examples taken from Douglas 2016: 72, 77) and its equivalent in Italian (60)-(61).

(58) a. ?a man to whom, liberty, we should never grant

b. the man who, to every student, gave a brand new book

c. a man who, to us, will never grant liberty

(59) a. *I found a thrift-shop in which, the Christmas shopping, to do next year.

b. *I found an ideal venue in which, to Mary, to propose.

(60) a. Un uomo a cui, la libertà, non dovremmo mai concedere. (=58a)

b. Un uomo che, ad ogni studente, ha dato un libro nuovo di zecca. (=58b)

c. Un uomo che, a noi, non concederebbe mai la libertà. (= 58c)

(61) a. *Ho trovato un negozio dell'usato nel quale, le spese di Natale, fare il prossimo anno. (= 59a)

b. *Ho trovato un luogo ideale nel quale, a Maria, chiedere di sposarmi (= 59b)

If the assumption that Infinitival Relatives are not strong phases is on the right track, the external DP, the antecedent NP, and the relativizer are all part of the same EXT domain in such relatives (regardless of whether the NP is part of the relative clause or not). Following Richards (2010) in assuming that Distinctness for D is at stake in these cases, we can thus account for the unavailability of all bare relativizers in both English (62) and Romance Infinitival Relatives (63).

(62) a. *The girl *who*/*that* to invite

b. [$_{DP}$ the [$_{NP}$ man] [$_{CP}$ [$_{DP}$ who/that] …]] → <D, D> crashes at S-M

(63) a. *La ragazza *che*/*la quale* invitare
The girl what/the which invite.INF

b. [$_{DP}$ la [$_{NP}$ ragazza$_{+\varphi}$] [$_{CP}$ [$_{DP}$ che/la quale$_{+\varphi}$] …]] → <D, D> crashes at S-M

As in Richards' account, the pied-piping requirement in Infinitival Relatives is captured under the assumption that Ps trigger TRANSFER of the relativizer in its own EXT domain (distinct from the EXT domain of the antecedent and the external D), as illustrated in the examples below.

(64) a. The man *with whom* to speak.

b. [$_{DP}$ the man [$_{CP}$ [$_{PP}$ [**P** with [$_{DP}$ whom]]] [C [to speak]]]] → no crash

(65) a. La ragazza *con cui* /*la quale* ballare.
the girl with what.OBL /the which dance-INF
'The girl with whom to dance.'

b. [$_{DP}$ la ragazza [$_{CP}$ [$_{PP}$ [**P** con [$_{DP}$ cui/la quale]]] [C [ballare]]]] → no crash

In order to model the fact that Spanish allows the non-inflected relativizer *que* in Infinitival Relatives, I suggest that EXT in Spanish is not sensitive to Distinctness for categorial features, but only for φ. This assumption can thus correctly rule in cases like (66) as well as rule out cases like (67).

(66) a. El autor *que* escribió la obra enfermo…
The author who wrote the play ill
'The author, who wrote the play while ill…'
b. $[_{DP}$ el $[_{NP}$ autor$_{+\varphi}]]$ $[_{CP}$ $[_{DP}$ que$]]$ **C** …$]]$ → no Distinctness

(67) a. *El autor *quien* escribió la obra enfermo…
The author who wrote the play ill
'The author, who wrote the play while ill…'
b. $[_{DP}$ el $[_{NP}$ autor$_{+\varphi}]]$ $[_{CP}$ $[_{DP}$ quien$_{+\varphi}]]$ **C** …$]]$ → <φ, φ> crashes at S-M

The hypothesis whereby the features that are relevant for the computation of Distinctness can vary across languages might also partially account for cases like (68)-(69), which as noted in fn. 38, can be acceptable in formal registers. We may shed some light on the grammaticality of bare φ-inflected relativizers at the edge of Restrictive Tensed and Infinitival Relatives under the assumption that such registers (presumably constituting their own I-languages, relatively distinct from the standard language) relax the conditions on Distinctness under identity in D- and φ-features. Recall that Distinctness is a relatively superficial, S-M-related constraint, and as such we expect it to be subject rather straightforwardly to intra- and cross-linguistic variation (in line with Berwick and Chomsky's 2011 assumption that variation is restricted to the S-M component of languages).

(68) I cittadini i quali abbiano riscontrato problemi…
'The citizens who might have had problems…'

(69) ?Cercavo una ragazza la quale poter invitare alla cerimonia di inaugurazione
'I was looking for a girl to be able to invite to the inauguration ceremony'
(Cinque 1982: 282)

4.5 Concluding remarks

This Chapter analyzed the distribution of relativizers in English and Romance in Headed Relatives. The distribution has been argued not to be due to either interpretive or narrow syntactic processes, but rather to arise at the S-M interface. The relevant constraint may be identified with a principle of the third kind (in the sense of Chomsky 2005) that disfavors morphosyntactic featural identity arising in conditions of locality, i.e., when the offending features are part of the same EXT domain (as in Richards 2010). I argued that the distribution can be captured by the proposed account, which relies on four main assumptions: (I) in Romance (and in English, to some extent) φ-features are relevant for the computation of Distinctness; (II) the nominal head is part of the relative clause in Restrictive Tensed Relatives (though not in Appositive Tensed Relatives); (III) the domain of EXT includes the whole phase (Bošković 2016); and (IV) the CP of Infinitival Relatives is not a strong phase. If the analysis proposed here is tenable, then it can provide independent evidence for the hypothesis that EXT functions as claimed in Bošković (2016). Moreover, the analysis also provides support for the hypothesis that the nominal antecedent is part of the relative clause in Restrictive Tensed Relatives (as in Kayne 1994 *et seq.*).

Below I report the main questions raised in Section 2 as well as provide a summary of their respective answers in light of the proposed analysis.

(A) **Q**: Why does Romance, but not English, bar bare φ-inflected relativizers the edge of Restrictive Tensed Relatives?

A: In Romance, the identical φ-features of the relativizer and those of the nominal antecedent are ruled out under Distinctness.

(B) **Q**: Why is the ban against bare φ-inflected relativizers lifted in Romance Appositive Tensed Relatives?

A: The nominal antecedent is outside the relative clause in Appositive Tensed Relatives, hence it is part of a distinct EXT domain than the relativizer.

(C) **Q**: Why are φ-inflected relativizers the only option in English Appositive Tensed Relatives, but not in Romance?

A: In English, Ø-/*that*-relativization may be licensed only under conditions of Distinctness. Since Distinctness cannot arise in Appositive Tensed Relatives, φ-inflected relativizers are the only grammatical option.

(D) **Q**: Why are bare relativizers barred in Infinitival Relatives in both English and Romance (with the exception of Spanish *que*)?

A: The CP of Infinitival Relatives is assumed not to contain a strong phase head. This causes the external D to be part of the same EXT domain as the relativizer in Infinitival Relatives. Under the assumption that the D-feature is relevant for the computation of Distinctness (except in Spanish), a crash ensues at S-M under featural identity between the external D and the relativizer.

(E) **Q:** Why can φ-inflected relativizers occur freely under pied-piping?

A: Ps are assumed to be strong phase heads, triggering EXT of their phasal domain. Consequently, φ-inflected relativizers pied-piping Ps will be externalized in an EXT domain that is separate from the EXT domain of the antecedent and the external D. Distinctness for φ-features can therefore not be triggered in Romance Restrictive Tensed Relative, nor can Distinctness for D-features be triggered in the Infinitival Relatives of English and Romance.

Chapter 5

A FormCopy Analysis of *wh*-copying and *wh*-doubling

5.1 Introduction

In this chapter, I attempt to develop a unifying analysis for two *wh*-constructions that have hitherto been treated independently in the literature, namely *wh*-doubling in Northern Italian Varieties (NIV) (1) and *wh*-copying in varieties of German and Dutch (2). The two constructions illustrated in (1)-(2) are similar in that although they involve multiple *wh*-phrases, they are interpreted as single-constituent interrogatives.

(1) se sut ʃ et ku'zɛ
what happens what
'what happens?'

Civate (Manzini and Savoia 2005: 590)

(2) *Ch*'et fat *què*?
What'have=you done what
'What have you done?

Monno (Poletto and Pollock 2004: 242)

(3) *Wen* glaubst du *wen* sie liebt?
who believe you who she loves
'Who do you think she loves?'

German (Pankau 2013: 1)

(4) *Wie* denk je *wie* ik gezien heb?
who think you who I seen have

'Who do you think I saw?'

Dutch (Barbiers et al. 2010: 2)

Abstracting away from morphological differences, both constructions may be descriptively characterized as involving copies of a single *wh*-element realized in multiple positions (copies are italicized in the following examples). The most notable distinction between *wh*-doubling and copying involves the structural position where the non-scope copy is realized. In German and Dutch, the copy in non-scope position has been assumed to be structurally located at the edge of the embedded C-phases (i.e., SpecCP; e.g., Felser 2004, Barbiers et al. 2010), whereas in NIV the non-scope *wh*-copy *prima facie* appears to be in situ (i.e., within the v-phase).

Both constructions raise the theoretical issue of how the *wh*-dependency among the multiple *wh*-copies is to be modeled, given the single-constituent reading that they give rise to. The literature on *wh*-doubling in NIV (e.g., Poletto and Pollock 2004, 2005, Manzini and Savoia 2011, among others) agrees on the assumption that the two copies of the *wh*-element (i.e., doubler and doublee) are lexicalized independently of each other. More specifically, the morphological differences between the *wh*-copies have been taken as evidence for the assumption that the *wh*-copies enter derivation via EM, rather than being *bona fide* copies generated via IM. Competing analyses differ in the assumed nature of the *wh*-copies and the exact structural positioning in which they undergo EM. Thus Poletto and Pollock (2004) assume, on the basis of the then available data, that the *wh*-copies involve a clitic *wh*-element and a non-clitic *wh*-phrase generated as part of the same complex clitic phrase, as illustrated in (5) (from Poletto and Pollock 2004: 249).[44]

(5) $[_{\text{ClP}}$ WhP wh-cl]

Manzini and Savoia (2011) instead show with data from the Olgiate variety among others that doubling need not necessarily involve a clitic *wh*-element (cf. (6), where *se* is the clitic and *kuza* the non-clitic form corresponding to 'what'). They propose that the *wh*-copies are each lexicalized independently in their surface position, i.e., in the scope position and in situ, with

[44] This approach, which has come to be known as the 'big DP' approach in the literature, is based on the analysis independently developed for other instances of clitic doubling by Kayne (1991) and Uriagereka (1996).

the two *wh*-copies being connected via interpretive rules at C-I (cf. (7), adapting Manzini and Savoia 2011: 28).

(6) *se/'kuza* fa la *ku'zɛ*?
what does she what
'What does she do?'

Olgiate (Manzini and Savoia 2011: 17)

(7) $[_{CP}$ kuza/se$_j$ [C fa [D la $[_{VP}$ ku'zɛ$_k$]]]]

On the other hand, the standard position on German/Dutch *wh*-copying is that IM is the proper theoretical construct for capturing the dependency among the *wh*-copies. In fact, data like (2)-(3) have been taken as empirical evidence for the successive-cyclic nature of movement (e.g., Fanselow and Mahajan 2000, Fanselow and Ćavar 2001, Felser 2004, Bruening 2006, Lahne 2008, among many others). Under this analysis, a sentence like (3) is modeled as in (8). The derivation and structure of *wh*-copying is therefore assumed to be underlyingly identical to other cases of regular long-distance extraction, like (9) — the difference between the two consisting in some parameter regulating the spell out of intermediate copies left behind by IM (see, e.g., Felser 2004, Nunes 2004, Schippers 2012 for some proposals).

(8) $[_{CP}$ *wen*$_k$ glaubst du $[_{CP}$ *wen*$_k$ C *sie* $[_{VP}$ *liebt* <*wen*>$_k$]]]

(9) Wen glaubst du dass sie liebt?
Who believe you that she loves
'Who do you believe she loves?'

German (Pankau 2013: 2)

Following Manzini and Rugna (in progress), the unifying analysis I would like to pursue here rests on the idea that the overt *wh*-copies are best treated as being merged independently of one another, i.e., they are generated via EM, rather than via IM (cf. Den Dikken 2018: Ch. 4 for the same basic assumption). The major empirical argument in favor of this hypothesis comes from what I will refer to as non-identical *wh*-coping, as attested in varieties of German (10), and Dutch (11).

(10) a. *Wen* glaubst du *den* ich gesehen habe?
whom believe you this I seen have
'Who do you think that I have seen?'

(Pankau 2009: 206)

b. *Welchem Mann* glaubst du *wem/dem* sie das Buch gegeben hat?
which man believe you who she the book given has
'Which man do you think she has given the book to?'

(adapted from Anyadi and Tamrazian 1993: 4)

(11) a. *Wie* denk je *die* ik gezien heb?
who think you who I seen have
'Who do you think I saw?'

(Barbiers et al. 2010: 2)

b. *Welke jongen* denk je *wie*/*die* het gedaan heeft?
which boy think you who it done has
'Which boy do you think has done it?'

(adapted from Boef 2012: 115)

Such data are difficult to reconcile with the idea that *wh*-copying is derived via IM of syntactic copies (cf. Rugna 2020).[45] In particular, analyses based on IM would require an account of how the 'copies' can acquire distinct morphophonological realizations. In (10a)-(11a), the two copies belong to distinct pronominal paradigms: the copy in scope position is a *wh*-pronoun, whereas the intermediate copy is a d-pronoun. A natural assumption to make is that such morphological difference reflects an intrinsic featural difference between (the lexical entries of) d- and *wh*-pronouns. Similarly, in 'complex' *wh*-copying (10b)-(11b) the two copies are structurally different: unlike the intermediate copy, the scope copy contains a morpheme expressing D-linking (German *-lch-*, Dutch *-elk-*) as well as a nominal restriction (see §5.3.1 for further discussion).

[45] Rugna's (2020) analysis is based on a Top-Down derivational framework (e.g., Chesi 2012, Den Dikken 2018) that is not compatible with the assumptions adopted in this dissertation.

It should be clear that, under the Copy Theory of Movement (Chomsky 1993), IM-copies are predicted to be identical in their featural composition. As well known, however, specifically for German and Dutch complex *wh*-copying, this is never the case (i.e., the pattern with full-fledged complex copies in both scope and intermediate positions is ungrammatical in varieties of German and Dutch). Therefore, in order to obtain the featural asymmetry among the copies, IM approaches to *wh*-copying would have to resort to some feature-altering mechanism. This mechanism might be conceived of as either operating in the Narrow Syntax (cf. e.g., the partial movement approach of Barbiers et al. 2010, discussed in §5.3.1) or at S-M, under a particular 'realizationist' conception of the S-M interface that can post-syntactically alter the featural content of copies (cf. van Urk 2018). To my knowledge, a full-fledged account under the latter (S-M) approach has not been developed for Germanic varieties, so I will not consider it further. The former approach will instead be argued to run into some empirical and theoretical challenges in §5.3.1.

Let me point out that the prediction made by IM approaches to (complex) *wh*-copying, i.e., that full-fledged copies can be spelled out in both scope and intermediate positions, seems to be attested in one language, namely Afrikaans, as illustrated in (62).

(62) a. *Watter meisie* sê hy *watter meisie* kom vanaand kuier?
which girl say he which girl come tonight visit
'Which girl did he say is coming to visit tonight?'

b. *Watter mooi meisie* sê hy *watter mooi miesie* kom vanand kuier
which beautiful girl say he which beautiful girl come tonight visit
'Which beautiful girl did he say is coming to visit tonight?'

Afrikaans (Lohndal 2010: ex. 16, reporting Theresa Biberauer's judgments)

It could be the case that IM + multiple spell-out is the correct analysis for these cases. This would of course not affect the overall argument against IM approaches to *wh*-copying in German and Dutch in the absence of an account of non-identical copying. At any rate, note that the pattern in Afrikaans seems to be extremely rare, and it is unclear what its status in (varieties of) Afrikaans actually is. Pending further empirical research, I will therefore assume that the case of Afrikaans can be assimilated to the analysis of *wh*-doubling/copying developed in subsequent sections.

5.1.1 Basic assumptions: Chomsky (2021), EM over IM and FormCopy

The analysis to be developed adopts Chomsky's (2021) conception of IM and EM as regulated by third-factor principles (e.g., Search Σ) and Language-Specific Conditions (e.g., Θ-Theory), as well as his rule of FormCopy (FC), which allows items in the syntactic workspace to be part of the same chain at C-I. This apparatus, and specifically the rule of FC, is introduced by Chomsky (2021) to account for control configurations like (12).

(12) John tried to win.

Chomsky (2021) argues that IM is more economical than EM whenever available. This is because IM restricts Σ of the Lexical Items to which it applies to the current workspace, whereas, under EM, Σ has access to the entire Lexicon. Therefore, EM is more costly, and occurs only if IM is somehow rendered impossible.

In control environments, EM of a copy, as opposed to IM, is forced by Θ-Theory, as indicated in (13-i).[46] Importantly, derivations are blind to previous and subsequent steps, i.e., no backtracking or look-ahead is allowed. Therefore, FC has no way of distinguishing a copy created by IM or EM, applying to both (13-ii) and determining, in control configurations, an equivalent result at S-M (13-iii).

(13) Control derivation by EM

i. EM of the two copies is forced by Θ-Theory

ii. FC holds of two items

iii. The lower member of the copy-pair is deleted at S-M

Since IM is barred in control, the operation FC thus ensures that the two independently merged instances of *John* in (11) are interpreted as copies at C-I, as illustrated in (14).

[46] Chomsky (2021: 21) defines Θ-Theory as in (i):

(i) *A θ-assigner assigns no more than a single θ-role to an SO and a θ-position cannot receive more than one θ-role.*

Hence *John* in (11) would receive two θ-roles, one from *win* and one from *try*, if it were displaced onto its surface position via IM, in violation of Θ-Theory.

(14) [John$_k$ tried [<John>$_j$ to win <John>$_j$]]

FORMCOPY (lower *John* deletes at S-M)

More explicitly, FC appropriates Σ from the third-factor tool-kit to locate the items to which it applies; FC is therefore subject to conditions on Σ, namely minimality, c-command and, Chomsky (2021) assumes, the Phase Impenetrability Condition (PIC).[47] As any other non-structure building operation, FC is optional — its result being evaluated at the interfaces. Besides playing a role in control configurations, Chomsky (2021: 25) suggests that FC applies in anaphoric binding, as in (15).

(15) John expects himself to be elected

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I take this to indicate that FC: (i) need not apply to strictly identical items; and (ii) that the lower member of the copy-pair need not necessarily undergo deletion at S-M (cf. §2.3.3).

Here I propose (cf. Manzini and Rugna in preparation) that the same impossibility of IM and subsequent repair by (anti-economical) EM proposed for control configurations is set in motion in *wh*-doubling and *wh*-copying – though (13-i) is of course entirely irrelevant for our purposes. Rather, what is relevant is that the nature of the derivation forces the impossibility of look-ahead, as in (16-i). This means that the derivation may very well hit dead ends. More specifically, I propose that the IM derivation in (1)-(4) may be stopped at the edge of lower phases because the *wh*-element enters into the labeling of a criterial configuration (Chomsky 2013, 2015; Rizzi 2015) and is subsequently frozen in place, cf. (16-ii). I propose that *wh*-dependencies including Externally merged copies or non-identical copies, are produced as a repair to such dead ends, as in (16-iii). The operation FC then applies among the independently generated *wh*-phrases (16-iv), determining their interpretation as members of the same chain at C-I.

[47] I will eventually follow Chomsky et al. (2019) and adopt a weaker version of cyclicity whereby Σ is not restricted by the PIC (see §5.2.2).

(16) General proposal for the derivation of *wh*-doubling and *wh*-copying

i. No look-ahead

ii. IM derivation ended

iii. Derivation extended by EM of (non-identical) *wh*-phrases

iv. FC applies among the *wh*-phrases

The rest of this chapter is structured as follows. In section §5.2 and §5.3, I discuss *wh*-doubling and *wh*-copying, respectively. The main data are presented in §5.2.1 and §5.3.1, which are followed by their respective analyses in §5.2.2 and §5.3.2. In §5.4 I offer some brief remarks on remaining issues pertaining to language variation, and how these may be captured under the present account. It is suggested there that variation in patterns of doubling/copying may be captured under the assumption that the application of FC is subject to language-particular externalization conditions. Finally, §5.5 draws some conclusions.

5.2 Wh-doubling

5.2.1 Data and generalizations

From a descriptive point of view, *wh*-doubling can be characterized as a heterogeneous phenomenon. As described in Poletto and Pollock (2015) and Bonan (2019: 33ff.), three different types of doubling can be distinguished depending on the nature of the *wh*-elements involved, as illustrated in (17).[48] Type A involves a clitic *wh*-element in scope position and a clause-internal non-clitic *wh*-element; type B involves a non-clitic *wh*-element in scope position and a clause-internal non-clitic *wh*-element; finally, type C uses an invariant *wh*-element in scope position and a 'contentful' clause-internal *wh*-phrase.

[48] More accurately, Poletto and Pollock's (2015) description makes use of the tripartite distinction of pronominal forms in 'clitic', 'weak' and 'strong' (Cardinaletti and Starke 1999). Since the legitimacy of this distinction is a point of contention in the literature (e.g., Manzini and Savoia 2011, Manzini 2014b), and nothing hinges on it for our purposes, I follow Bonan (2019) in referring to weak and strong forms as non-clitic.

(17) DOUBLING CONFIGURATIONS

Type A: Clitic *wh*-element in scope position

a. *Sa* eto dito *che*?
what have-you said what
'What did you say?'

Illasi (Poletto and Pollock 2015: 146)

b. *Ngo* fet majà *ngont*?
where do-you eat where
'Where do you eat?'

Monno (Poletto and Pollock 2004: 242)

Type B: Non-clitic *wh*-element in scope position

c. *Cusa* t'è fai *cusè*?
what you have done what
'What have you done?'

Mendrisio (Poletto and Pollock 2015: 146)

d. *in'do* et *indo'ɛ*
where you go where
'Where are you going?'

Sanrocco (Manzini and Savoia 2005: 588)

Type C: Invariant *wh*-element in scope position

e. *che* mànge-t *'nsémachi*?
what eat-you with who
'Whom are you going to eat with?'

Mendrisio (Poletto and Pollock 2015: 147)

f. *ch'* ö-t *qual*?
what want-you which
'Which one do you want?'

Mendrisio (Poletto and Pollock 2015: 147)

Doubling varieties can display one or more of the above patterns, independently of the particular geographical region in which they are spoken. Thus Olgiate in (18) displays type A and B, whereas Mendrisio displays all three configurations.

(18) *se/'kuza* fa la *ku'zɛ*?
what does she what
'What does she do?'

Olgiate (Manzini and Savoia 2011: 17)

Though examples are not many, type A and B are also attested in long-distance interrogatives (19), and in indirect questions (20). These patterns have not been attested in the doubling varieties of type C.

(19) a. '*koza* 'pɛnsɛt (k) el 'faɣɛ *ko'zɛ*
what think.you that he do what
'What do you think he's doing?'

Strozza (Manzini and Savoia 2005: 591)

b. *ki* pɛnsɛt ke l vɛɲɛ *'ki*
who think.2S that he comes who
'Who do you think will come?'

Borgo di Terzo (Manzini and Savoia 2005: 591)

(20) a. so 'mia *'kome* i fa *ko'mɛ*
know.I NEG how they do how
'I don't know how they're doing it'

Strozza (Manzini and Savoia 2005: 592)

b. al so 'mia *se* fa *ku'zɛ*
it know.I NEG what do what
'I don't know what to do'

Civate (Manzini and Savoia 2005: 593)

A generalization emerging from the available data is that doubling is mostly restricted to the nominal *wh*-elements *what* and *who* and to the *wh*-adverbs *where* and *how*. Doubling has not been attested with the counterparts of *why* in any NIV (cf. (21)).

(21) **Parchè* veto via *parchè*?
why go-you away why

Illasi (Poletto and Pollock 2015: 146)

Moreover, doubling of complex *wh*-phrases (i.e., *wh*+NP) appears to be rare, though it is attested in the type C doubling configuration in Mendrisio.

(22) *che* l'è-t fat *con che ròba*?
what it have-you done with what thing
'With what did you do it?'

Mendrisio (Poletto and Pollock 2015: 147)

A further generalization is that the order between doubler and doublee cannot be reversed if there is an asymmetry between the two, i.e., a (non-)clitic or 'short' form must always precede the tonic or 'long' form of the *wh*-phrase. This is exemplified in (23), where the *wh*-PP occurring clause-internally is doubled by a simple ('short') *wh*-element in scope position.

(23) a. *koha* l fe:t koŋ *ko'hɛ*
what it you.do with what
'What do you do it with?'

Grumello (Manzini and Savoia 2011: 27)

b. *se* l fet *kuŋ* *ku'zɛ*
what it you.do with what
'What do you do it with?

Olgiate (*Ibid.*)

5.2.2 Analysis

The analysis to be proposed applies equally to all attested types of doubling. I assume that there is no fundamental syntactic difference between Type A, B and C, and that parametric variation is to be attributed to aspects of the lexicon (e.g., the availability of *wh*-clitics) and of the externalization interface (e.g., licensing the 'complexity' of the *wh*-copies; cf §5.4).

The gist of the proposal is that doubling involves the lexicalization of distinct scope-discourse properties, namely Q, lexicalized by the higher *wh*-copy, and Focus, lexicalized by the lower *wh*-copy (Manzini and Savoia 2011, Manzini 2014b, Bonan 2019). As mentioned in §5.1, I take the morphological asymmetry between the copies involved in the doubling configuration to be evidence for their independent generation. This is pretty much in line with the account in Manzini and Savoia (2011), though I recast this main insight under a minimalist derivational framework (Chomsky 2013, 2015, Chomsky et al. 2019, Chomsky 2021).

Let us begin with the derivation of a simple doubling case like (18), repeated as (24).

(24) *se/'kuza* fa la *ku'zɛ*?
what does she what
'What does she do?'

The first step of the derivation involves EM of the contentful *wh*-element *ku'zɛ* 'what' with the main predicate (25-i), where the *wh*-element receives its θ-role, as standardly assumed. The derivation then proceeds by building the v-phase (25-ii).

(25) i. {fa, *ku'zɛ*}
ii. {v {fa, *ku'zɛ*}}

Two analytical options are in principle available for doubling grammars at this point: either (i) the *wh*-element remains *in situ* (as in Manzini and Savoia 2011), or (ii) it undergoes short *wh*-movement, i.e., to the edge of (some projection of) v (as in Bonan 2019, 2021). Some empirical evidence for short *wh*-movement in NIV is presented in Bonan (2019, 2021) on the basis of *wh*-in-situ data from the dialect of eastern Trevisan. (26) shows that in eastern Trevisian the Indirect Object (IO) represented by the *wh*-phrase *a ki* 'to whom' must surface

above the Direct Object (DO) *i pomi* 'the apples' in Interrogatives, an option that is not otherwise available to IOs in unmarked declaratives (27).

(26) a. ghe ga-tu dato *a* ki_i i pomi $\_\__i$?
3.DAT have=you given to who the apples
'To whom did you give the apples?'

b. *ghe gatu dato i pomi a ki?
3.DAT have=you given the apples to who
'To whom did you give the apples?'

Treviso (adapting Bonan 2021: 5)

(27) a. ghe go dato i $pomi_{DO}$ a $dʒani_{IO}$
3.DAT have.1S given the apples to John
'I gave the apples to John'

b. *ghe go dato a $dʒani_{IO}$ i $pomi_{DO}$
3.DAT have.1S given to John the apples

Treviso (adapting Bonan 2021: 7)

However, the empirical evidence for short *wh*-movement is unattested for other NIV (Bonan 2021: 38), so that the lower *wh*-phrase may be truly *in situ* for at least some doubling dialects. What is crucial at this point is not so much the exact structural positioning of the lower *wh*-phrase, but the assumption that the *wh*-phrase remains within the v-phase. If my assumption that IM is not involved in doubling *wh*-dependencies is on the right track, then this means that further IM of the lower *wh*-phrase out of the v-phase is in fact prevented somehow.

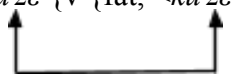
For concreteness, let us assume that in NIV the v phase-head is what is traditionally characterized as an EPP position, i.e., it forces IM of the *wh*-phrase to its edge (25-iii).[49] If my assumption that lower *wh*-phrases in *wh*-doubling lexicalize Focus is on the right, then we may understand the EPP effect as demanded by configurational requirements on the licensing of scope-discourse properties (cf. Gallego 2018).

[49] As far as I can see, this assumption does not have major consequences on the overall substance of the analysis, though of course the technical implementation does not carry over entirely if the lower *wh*-element is modeled as being *in situ*, rather than at the edge of the v-phase.

(25) iii. {*ku'zɛ* {v {fat, *ku'zɛ*}}

If this is accepted, the operation FC (cf. § 5.1) can apply between the two *wh*-copies, licensing the copy-pair <*ku'zɛ*, *ku'zɛ*> at C-I and subsequent deletion of the lower *ku'zɛ* at S-M (25-iv).

(25) iv. {*ku'zɛ* {v {fat, <*ku'zɛ*>}}



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The derivation then proceeds by building the rest of the structure up to the interrogative (Q) C-phase (25-v).

(25) v. {$C_{[Q]}$ … {*ku'zɛ*, v {...}}}

At this point, IM of *ku'zɛ* 'what' from the edge of the v-phase to the edge of the C-phase would be the most economical option, accepting Chomsky's (2021) argument, as I do, that IM restricts Σ to the current workspace. However, I propose that doubling grammars are prevented this option because *ku'zɛ* 'what' is frozen at the edge of the v-phase and is therefore unable to undergo further displacement. I return below to a more precise characterization of this freezing effect. Note for now that freezing of *ku'zɛ* 'what' precludes its IM to scope position, despite IM being the most economical option.

EM of an additional *wh*-element thus becomes a viable option to continue the derivation and lexicalize the scope position. Hence either the clitic (*se*) or the non-clitic (*'kuza*) forms corresponding to 'what' in (24) can undergo EM to give phonological content to the interrogative scope position at S-M (25-vi).[50]

(25) vi. {*se*/*'kuza*, $C_{[Q]}$ … {*ku'zɛ*, v {...}}}

However, while *se/'kuza* falls under the scope of Q, it is not assigned a θ-role at this point of the derivation. This is once again where the role of FC becomes crucial: by virtue of FC

[50] This constitutes a case of EM for scope-discourse properties licensed in A'-positions, an option contemplated by the present framework (cf. Chomsky 2021: fn. 44).

se/'kuza can be linked to the thematic position (it is *θ-linked*; Chomsky 2021: 26); similarly, *ku'zɛ* falls under the scope of Q, as it is now associated with *se/'kuza* (25-vii).

(25) vii. {*se/'kuza*, $C_{[Q]}$ … {*ku'zɛ*, v {...}}}

FORMCOPY

Therefore, though they have been independently generated, the members of the chain formed via FC (i.e., <*se/'kuza*, *ku'zɛ*, *ku'zɛ*>) come to share the same interpretation at C-I with respect to both argumental semantics (θ-roles) and scope-discourse properties. The analysis can thus account for the single-constituent reading of the construction despite its featuring multiple *wh*-elements.

An important aspect of the derivation is that FC between the *wh*-element in scope position and the clause-internal *wh*-element does not lead to deletion of the latter at S-M. There are two hypotheses one can make to understand this effect. One hypothesis would maintain that deletion under FC results only if identical members are involved in the copy-pair. This would then be in line with the analysis of control developed in Chomsky (2021) and with the fact that there is no deletion of the lower copy under anaphoric binding. However, this hypothesis can be rejected for the following two reasons. First, it cannot be maintained under the current unifying analysis with *wh*-copying of the German/Dutch type, which can clearly involve morphophonologically identical copies. A second problem is that, even in doubling of the NIV type, there are cases where the two copies do not show any apparent morphophonological asymmetry, as in (28)-(29) below.

(28) *ki* tʃamet *ki*
who call.2S who
'Who are you calling?'

La Strozza (Manzini and Savoia 2011: 16)

(29) *Cumè* ta l'è cüsinaa *cumè*?
how you it have cooked how
'How did you cook it?'

*Mendrisio*tto (Munaro 2022: ex. (46))

The second hypothesis, which is the one I adopt, maintains that deletion at S-M is prevented under freezing. Hence I assume that freezing not only blocks IM of a phrase in Narrow Syntax, allowing for the derivation to proceed via EM of an additional *wh*-element; freezing also licenses the overt realization of the frozen phrase at S-M. This can be informally stated as in (30).

(30) Hypothesis on deletion at S-M

At S-M, deletion of members of copy-pairs formed under FC is prevented under freezing.

The hypothesis in (30) raises the question of how freezing of the lower copy can obtain, which I have so far not discussed explicitly. I essentially follow Rizzi's (2006, 2015) and Chomsky's (2013, 2015) insight that once a phrase enters into a 'criterial' configuration, namely a configuration dedicated to the expression of scope-discourse semantics, that phrase is frozen in place.

In Rizzi's system, criterial configurations arise when a phrase and a criterial head are in agreement with respect to the criterial property (e.g. Foc, Rel, Top, Q; cf. also Rizzi 1996, Rizzi 1997). For instance, Rizzi argues that (31) is grammatical while (32) is ruled out because in (31) the *wh*-phrase *which book* carries a Q-feature that is in agreement with the Q-feature carried by the embedded C. The establishment of the criterial configuration via Q-agreement then freezes the *wh*-phrase at the edge of α in (31b), rendering (32) ungrammatical.

(31) a. I wonder which book Bill read

b. I wonder [$_{\alpha}$ [which$_{\mathbf{Q}}$ book] [**Q** [Bill read __]]]

(32) a. *Which book do you wonder Bill read?

b. Which book do you wonder [$_{\alpha}$ __ Q [Bill read __]]

More specifically, Rizzi (2015) assumes with Chomsky (2013) that syntactic structures must be labeled for requirements on interpretation at the interfaces.[51] In (31), agreement between

[51] Similarly to Θ-theory, the requirement for labels may be understood as a Language-Specific Condition in Chomsky's (2021) framework.

the two Q-features has as an effect that the criterial configuration is labeled via the agreeing feature, i.e., α is labeled as Q in (31b);[52] α is consequently interpreted as a *wh*-interrogative. The freezing of *which book* is then derived from a syntactic principle that prohibits non-maximal projections to undergo IM. This principle of 'maximality' is stated in (33) (from Rizzi 2015: 327).

(33) Maximality: only maximal objects with a given label can be moved.

The maximality principle can be seen to be at work in (31)-(32) because labeling of α as Q makes the *wh*-phrase count as a non-maximal projection, as its Q feature is now dominated by a structurally higher instance of Q. The ungrammaticality of (32) is therefore accounted for under Rizzi's (2015) proposal that labeled criterial configurations cannot be modified via IM on pain of violating the principle in (33).

Chomsky (2015) also argues that freezing effects can be derived from labeling. For Chomsky (2015), however, freezing in A'-movement is due to purely interpretive constraints (cf. Epstein et al. 2016, Gallego 2018). For instance, if *which book* were to move in (32b), α would be labeled by the Q complementizer alone. This would have as an effect that the structure is interpreted as a yes-no question, rather than as a *wh*-question, rendering it gibberish and therefore crashing at C-I.

Regardless of how freezing is ultimately modeled (see also the collections of papers in Hartmann et al. 2018), what is crucial for our purposes is the assumption that elements entering into the labeling of criterial configurations are frozen in place. The question that arises is what sort of criterial configuration the lower *wh*-elements in doubling freeze in.

As mentioned above, and in line with Belletti (2008) and Bonan (2019, 2021), I assume that the v-phase in doubling grammars can license a Focus configuration. This assumption is compatible with the morphology of the lower *wh*-element in *wh*-doubling, which often carries stressed *-'ɛ* morphology (e.g. *ku'zɛ* 'what', *indo'ɛ* 'where', etc.). As Manzini (2014b) notes, the *-'ɛ* morphology is syncretic with the copula, specifically with the

[52] This labeling mechanism is essentially on a par with the Labeling Algorithm proposed in Chomsky (2013) for XP-YP configurations, where the label can be assigned by some agreeing feature of X and Y. Another possible way in which XP-YP configurations can be labeled is via IM of either XP or YP (cf. Moro 2000). In this latter case, the label is projected by the element that has not undergone IM, as displaced elements are by assumption invisible to the Labeling Algorithm.

third person singular of the verb corresponding to *be*. Significantly, copulas participate in the construal of Focus in other aspects of the grammar in Romance (as in English), such as cleft constructions (e.g., Italian *cos'è che…* 'what is it that…'), and they can also lexicalize focus particles in other languages, like Somali (see Manzini 2014b: 187 and references cited there). These observations lend support to the following hypothesis:

(34) Hypothesis on the interpretation of the v-phase:
In *wh*-doubling, the v-phase licenses Focus

If the v-phase can be interpreted as a criterial Focus configuration, we may then capture the freezing of the lower *wh*-elements in *wh*-doubling. Specifically, criterial configurations are labeled by the relevant elements constituting the configuration; IM of one of the elements entering into the labeling of the criterial configuration would then either: (i) disrupt the relevant interpretation; or (ii) violate the Maximality Principle.

In line with Chomsky (2013, 2015) and Rizzi (2015) I then assume that the criterial configuration in the v-phase in *wh*-doubling is labeled by both the lower *wh*-element and the v phase-head. However, contrary to the system of labeling developed in Chomsky's and Rizzi's work, I take it that the label is not provided by the agreeing features of the *wh*-element and the 'criterial' head. As argued in Chapter 2, I assume that *wh*-elements encode their status as variables via a [wh]-feature, whose ultimate interpretation is acquired in the scope of various operators at C-I. This crucially means that *wh*-elements do not carry any features specifying quantificational force. Therefore in (24), for instance, *ku'zɛ* 'what' does not carry intrinsic [foc] features; its Focus interpretation arises under the scope of a Focus operator, which I simply take to be the v phase-head. I therefore make the assumption that the label in the v-phase is provided by the [wh]-feature of the *wh*-element and by the operator feature carried by the phase-head. This is represented in (35), where the label is simply notated as <Op,x> as indicative of the Operator-variable interpretation that the criterial configuration receives at C-I.

(35) $[_{<Op,x>P}\,[_{DP[wh]}\,ku'z\varepsilon]\ v_{[foc]}\ [\ \ldots\ <ku'z\varepsilon>]$

Upon entering into labeling, the *wh*-element is thus frozen in place, it is interpreted under Focus at C-I and it is overtly realized as *ku'zɛ* at S-M by hypothesis (30). The derivation is then continued in the manner described above, i.e., via EM higher up in the structure of an

additional *wh*-element which is eventually connected to the same chain of the lower *wh*-element via FC (cf. (25-vi-vii)).

As mentioned, the analysis extends to all types of doubling configurations described in Poletto and Pollock (2015). Consider a configuration of 'type C' like (36), where doubling involves an invariant *wh*-element in scope position and a clause-internal contentful *wh*-phrase.

(36) *che* fè-t dàjel *a chi*?
what do-you give-it to whom
'Whom will you give it to?'
Mendrisiotto (Poletto and Pollock 2015: 147)

The derivation for (36) runs exactly as the one illustrated for (24) (save, of course, for the Lexical Items involved), so I will not reproduce it in full; see (37) for a rough illustration. The key components of the derivation are once again: (i) freezing of the *wh*-phrase at the edge of the v-phase; (ii) derivation continued by EM of *wh*-copy at the edge of the C-phase; and (iii) FC between the *wh*-element in scope position and the lower *wh*-phrase.

(37) a. $[_{<Op,x>}$ ***a chi*** $v_{[foc]}$ $[_{VP}$ *dàjel* <*a chi*>]]

b. $[_{<Op,x>}$ ***che*** $C_{[Q]}$ … $[_{vP}$ ***a chi*** v [...]]]

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The two copies in (37b) differ in overt φ-features, specifically animacy, but also in the expression of case (K) morphology. In particular, oblique case is realized on *chi* 'who' via the P *a* 'to', though not on *che* 'what'. The availability to construct doubling dependencies of the type in (36) points to the parameterization of the expression of copies formed under FC. As I will further discuss in §5.4, variation among varieties of doubling/copying can be attributed to conditions of featural identity/non-distinctness among the members of the chain constructed by FC. For the case at hand, the parameter characterizing type C varieties can be captured under the assumption that these grammars require copies at S-M to be identical only in the [wh]-feature. In other words, the chain <[(K) D: [wh], φ: [+human]], [(K) D: [wh], φ: [+human]> is ruled out at S-M for doubling varieties of type C under identity in φ- (or K-) features.

Finally, let us consider a case of doubling involving the long-distance construal of the internal *wh*-copy, as in (19), repeated below as (38).

(38) *'koza* 'pɛnsɛt (k) el 'faɣɛ *ko'zɛ*
what think.you that he do what
'What do you think he's doing?'

The first steps of the derivation are as in the previous derivations. First, the lower *wh*-element *ko'zɛ* 'what' merges with the embedded predicate, from which it receives its θ-role (39-i). The *wh*-element then moves to the edge of the v-phase (39ii), where by assumption it freezes by its entering into the labeling of the criterial Focus configuration (39-iii). At the edge of the v-phase, moreover, FC constructs the chain <ko'zɛ, ko'zɛ>; deletion of the lower member then ensues at S-M as it is in a non-criterial position.

(39) i. $\{_{VP}\ [_{V}$ 'faɣɛ], $[_{DP[wh]}$ ko'zɛ]$\}$

ii. $\{_{?}\ [_{DP[wh]}$ ko'zɛ] $\{_{vP}\ v_{[foc]}\ \{_{VP}$ 'faɣɛ, <ko'zɛ>$\}\}\}$

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iii. $\{_{<Op,x>P}\ [_{DP[wh]}$ ko'zɛ] $\{_{vP}\ v_{[foc]}\ \{_{VP}\ \ldots\}\}$

So far the derivation is essentially parallel to the previous ones. Like in previous cases of doubling, the derivation is extended via an additional *wh*-element. However, if the derivation is extended by the EM of the higher copy directly in scope position, an issue arises, which has to do with the assumption made in Chomsky (2021) that FC applies at the phase level. Consider the configuration in (40), where the boldfaced categories represent the phase heads. It should be evident that, if FC were subject to the PIC, then *'koza* at the edge of the matrix C-phase could not be connected to *ko'zɛ* at the edge of the lowest v-phase: the domain of *ko'zɛ* would be already sent to TRANSFER by the time *'koza* is merged. This 'locality problem' in the application of FC in fact also arises for previous cases under the assumption I made in Chapter 4 that TRANSFER targets the entire phasal domain (Bošković 2016), rather than just the complement of the phase head (Chomsky 2001).

(40) [*'koza* $\mathbf{C}_{[Q]}$ $[_{IP}$ 'pɛnsɛt $[_{vP}$ **v** $[_{CP}$ $[_{DP}$ (k)] **C** $[_{IP}$ el 'faɣɛ [*ko'zɛ* **v** [...]]]]]

There are two possible solutions to this issue. One possibility is to assume that the higher copy (*'koza*) undergoes EM in a position that is sufficiently local with respect to the lower copy, e.g., in the embedded SpecCP under Chomsky's (2001) version of TRANSFER, or in another specifier position within the vP under Bošković's (2016). This solution would technically allow for the application of FC under the assumption that FC is restricted by phases. However, besides being empirically unwarranted, note that this solution would also raise the question of what rules out (41a), a version of (40) with an overtly realized copy of *'koza* in the matrix SpecvP. Specifically, we would expect freezing of *'koza* in the matrix vP to be potentially available under the standard assumption that successive-cyclic movement targets phase edges (41b).

(41) a. **'koza* ˈpɛnsɛt *'koza* (k) el ˈfaɣɛ *koˈzɛ*

b. [$_{<Op,x>P}$ [$_{DP}$ ˈkoza]$_y$ **C$_{[Q]}$** … [$_{<Op,x>P}$ ˈkoza$_k$ **v$_{[foc]}$** [$_{CP}$ <ˈkoza>$_k$ **C** … [$_{<Op,x>P}$ koˈzɛ$_j$ **v$_{[foc]}$** [... t_j]]]]]

The second solution to overcome the locality problem is to simply assume that FC is not subject to the PIC. The reason why Chomsky (2021) assumes that FC applies at the phase level is because he defines FC as an operation that makes use of Search Σ, which in turn is assumed to be bound by a strong version of cyclicity. In particular, Chomsky (2021: 18) assumes that "after a phase is constructed, it is dispatched to interpretation at C-I and can no longer be accessed by Σ: the [PIC]. Strict cyclicity thus reduces search." The main argument in favor of this constraint is therefore conceptual: the derivation seeks to minimize resources as much as possible.

However, as Chomsky (2021: fn. 28) himself points out, the assumption that Σ (and hence FC) is constrained by the PIC raises questions, particularly in view of the evidence that dependencies modeled under Agree (also subject to Σ) can take place across phase boundaries (see Bošković 2003, a.o. for this conclusion). Chomsky et al. (2019: 240f) in fact argue, based on evidence affecting both S-M and C-I, that "transferred phases remain accessible, but they cannot be modified at later cycles" (p. 241). The version of the PIC contemplated in Chomsky et al. (2019) is a weaker one, where relations across phase boundaries can take place, with the crucial condition that the phase be not modified after it has undergone TRANSFER.

Given that the constraint of Σ to the PIC is still open for debate, it is reasonable to assume that FC is not restricted to phase boundaries. If so, *'koza* in (40) can undergo EM in

the scope position, where it can be connected to the lower copy via (long-distance) FC (39-iv). As before, this allows the construction to receive a single-constituent reading through the chain <ˈkoza, koˈzɛ, koˈzɛ>, with the lowest member determining θ-interpretation at C-I and the highest member determining scope interpretation.

(39) iv. $[_{<Op,x>P}\,[_{DP[wh]}\,\text{ˈkoza}]_k\ C_{[Q]}\ \ldots\ [_{<Op,x>P}\,[_{DP[wh]}\,\text{koˈzɛ}]_j\ [_{vP}\,v_{[foc]}\ \ldots\ ]]$

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5.3 Wh-copying

5.3.1 Data and previous analyses

The *wh*-copying construction is often considered one type of evidence for the conclusion that long-distance *wh*-movement can be modeled as proceeding in a successive-cyclic fashion. Under this IM approach, an example like (42) is simply viewed as displaying the overt realization of multiple copies along the *wh*-movement path (Fanselow and Mahajan 2000, Fanselow and Cavar 2001, Felser 2004, Bruening 2006, Lahne 2008, among many others). This is roughly illustrated in (42b), where *wen* 'who' moves from the argumental position within the VP to the embedded SpecCP to finally reach its landing site in scope position in the matrix SpecCP.

(42) a. *Wen* glaubst du *wen* sie liebt?
who believe you who she loves
'Who do you think she loves?'

b. $[_{CP}\ wen_k$ glaubst du $[_{CP}$ <*wen*>$_k$ *sie* $[_{VP}$ *liebt* <*wen*>$_k]]]$

Wh-copying is also attested with PPs (43) and AdvPs (44), though their relative acceptability is subject to variation (cf. Felser 2004: 550, Pankau 2013: 83).

(43) a. % An wen glaubst du, an wen sie denkt?

of whom believe you of whom she thinks
'Who do you believe that she thinks of?'

German (Felser 2004: 550)

b. %Op wie denk je op wie hij verliefd is?
on who think you on who he in love is
'Who do you think he is in love with?'

Dutch (Boef 2012: 97)

(44) %Warum glaubst du, warum sie das getan hat?
why believe you why she that done has
'Why do you believe she has done this?'

German (adapting Felser 2004: 549)

However, as mentioned in the introduction, matters are not as simple as they may appear in (42), because of the existence of numerous examples in which non-identical copies are found, with various permutations of the position and nature of the non-identical copies.

In German (45a) and Dutch (45b), the copying construction involves d-pronouns in intermediate positions (i.e. *den, die* respectively) as opposed to identical *wh*-copies. Examples like (45), with a d-pronoun in the embedded clause, appear to be the only option allowed by some speakers of what we may call the *d-variety* (Pankau 2009; Boef 2012: 24). The d-variety is to be distinguished from the *wh*-variety, which cannot employ d-pronouns as legitimate intermediate copies. Both types of pronoun can freely alternate in intermediate positions for other speakers, that is, without triggering semantic or pragmatic effects.

(45) a. *Wen* glaubst du *den* ich gesehen habe?
whom believe you this I seen have
'Who do you think that I have seen?'

German (Pankau 2009: 206)

b. *Wie* denk je *die* ik gezien heb?
who think you who I seen have
'Who do you think I saw?'

Dutch (Barbiers et al. 2010: 2)

Note that in German and Dutch d-pronouns are otherwise found in Headed Relative clauses

(46), including Free Relatives in some varieties (47), and also overlap with definite Ds (48) and demonstratives (49).

(46) a. Der Mann *den* sie liebt ist ein Idiot.
the man who she loves is an idiot
'The man whom she loves is an idiot.'

German (Pankau 2013: 91)

b. De man *die* ik gezien heb
The man who I seen have
'The man who I have seen.'

Dutch (Boef 2012: ex. (71))

(47) a. %Ich lade ein *wen/den* alle mögen.
I invite in who everyone likes
'I invite who everyone likes.'

b. %Ich esse *was/das* du gekochst hast.
I eat what you cooked have
'I eat what you cooked.'

German (Pankau 2013: 52)

c. %*Wie*/*die* het weet mag het zeggen
Who it knows may it say
'Who knows it, may say it'

Dutch (Boef 2012: 184)

(48) Maria hat *den* Mann beleidigt
Maria has the man insulted
'Maria has insulted the man.'

German (Wiltschko 1998: 146)

(49) Ik heb *die* man niet gezien
I have that man not seen
'I have not seen that man'

Dutch (Boef 2012: 56)

The availability of d-pronouns in *wh*-copying raises the question of how the morphological asymmetry between the scope *wh*-copy and the intermediate d-copy can be obtained, if they are copies *stricto sensu* in the syntax (i.e., generated via IM). Barbiers et al. (2010) develop an analysis of Dutch *wh*-copying that seeks to account for cases like (45b).[53] Assuming that pronouns have a rich internal structure (Déchaine and Wiltschko 2002), as represented in (50), they propose that non-identical copying is the result of a subcase of IM that targets only a portion of the complex pronominal structure.

(50) $[_{DP}$ D *die* $[_{PhiP}$ Phi *wie* $[_{QP}$ Q *wat* …]]]

For the sentence in (45b), specifically, the complex pronominal in (50) moves from the thematic position (51a) to the embedded SpecCP, where it is spelled-out as *die* (51b). From the embedded SpecCP, partial IM then targets the PhiP layer of the complex pronominal, displacing it onto scope position, thereby obtaining its spell-out as *wie* (51c).

(51) a. $[_{vP}\,[_{DP}$ *die* $[_{PhiP}$ *wie* $[_{QP}$ *wat*]]]]

b. $[_{CP}\,[_{DP}$ ***die*** $[_{PhiP}$ *wie* $[_{QP}$ *wat*]]]$_j$ … $[_{vP}\,t_j]]$

c. $[_{C[Q]P}\,[_{PhiP}$ ***wie*** $[_{QP}$ *wat*]]$_k$ $C_{[Q]}$ $[_{IP}$ denk je $[_{CP}\,[_{DP}$ *die* $[t_k]]]_j$ … $[_{vP}\,t_j]]]]$

Abstracting away from the legitimacy of the structure in (50), note that the proposed mechanism raises a problem in view of cases of *wh*-copying involving multiple embeddings like (52), where the d-pronoun is found in a higher clause than the *wh*-element. This option cannot be derived by the partial IM approach of Barbiers et al. (2010) (cf. also Boef 2012: 34ff.), which they in fact incorrectly rule out on grounds of a violation of the Inclusiveness Condition (Barbiers et al. 2010: 13). In particular, assuming the structure in (50), the spell-out of the d-pronoun would require the addition of features and/or structure if it were an IM copy of the lower *wh*-pronoun.

(52) a. *Wen* glaubst du *den* Peter denkt *wen* sie geküsst hat?
who believe you who Peter thinks who she kissed has
'Who do you think Peter believes she has kissed?'

[53] The analysis developed in Barbiers et al. (2010) also seeks to capture the scope-marking construction under the direct dependency approach.

German (Pankau 2013: 50)

b. *Wie* denk je *die* Jan zei *wie* het gedaan heeft?
Who think you who Jan said who it done has?
'Who do you think John said has done it?'

Dutch (Adapting Boef 2012: 83)

Another problematic case for Barbiers et al. (2010) is represented by complex non-identical *wh*-copying. This type of *wh*-copying, allowed in some (though not all) varieties of German and Dutch, involves complex *wh*-phrases and simplex *wh*-pronouns (or d-pronouns, depending on the variety). In (53), for instance, the complex *wh*-phrase is placed in scope position, whereas the intermediate simplex pronoun is in intermediate position.

(53) a. *Welchem Mann* glaubst du *wem/dem* sie das Buch gegeben hat?
which man believe you who she the book given has
'Which man do you think she has given the book to?'

German (Adapted from Anyadi and Tamrazian 1993: 4)

b. *Welke jongen* denk je *wie*/*die* het gedaan heeft?
which boy think you who it done has
'Which boy do you think has done it?'

Dutch (Adapted from Boef 2012: 115)

Once again, the question that arises is how the morphological asymmetry between the scope and intermediate copies can be obtained, assuming that the syntactic derivation contains full-fledged copies of the displaced complex *wh*-phrase. In fact, Barbiers et al. (2010) (cf. Boef 2012: 115f.) assume that cases such as (53) require a separate analysis, one crucially not involving the formation of a syntactic chain via IM between the complex *wh*-phrase in scope position and the intermediate copy. More specifically, they assume that complex *wh*-phrases are base-generated in their surface position (cf. van Craenenbroeck 2004) and are connected to the intermediate simplex copy via semantic construal. This solution is therefore pretty much in line with the current proposal, though we extend it to *wh*-copying more generally (§5.3.2).

Finally, another challenge for Barbiers et al.'s (2010) subextraction analysis has to do with cases like (54), with a complex *wh*-phrase in intermediate position and a simplex

wh-pronoun in scope position.[54]

(54) *Wie* denk je *welke jongen* ik gezien heb?
Who think you which youngsters I seen have?
'Which young people do you think I saw?'

Dutch (Koster 2009: 28)

Besides raising the question of how the spell-out as *wie* 'who' can be derived from *welke* 'which', note that the subextraction of *wie* from *welke* is in clear violation of the Left Branch Constraint (LBC; Ross 1967: 207). Note that the LBC otherwise excludes movement of the specifier out of complex [*which* + NP] phrases, thereby ruling out cases like (55).

(55) *Welchen$_j$ hat sie [t_j Mann] eingeladen?
which has she man invited?
'Which man did she invite?'

Complex non-identical *wh*-copying is also attested — though, it would seem, much less frequently —[55] with intermediate copies assuming the form of a *which*-like element, as in (56).

(56) a. *Welche Person* glaubt John *welche* Mary getroffen hat?
which person believes J. which M. met has
'Which person does John believe Mary has met?'

German (Rett 2006: 15)

b. *Welke boeken* denk je *welke* zij gekocht heeft?
which books think you which she bought has
'Which books do you think she bought?'

Dutch (Koster 2009: 23)

[54] This type of copying is to the best of my knowledge not attested in varieties of German.

[55] As far as I am aware, these cases of non-identical copying in Dutch and German are only attested, respectively, in Koster (2009: 28) and Rett (2006: 15), who in turn attributes the example to personal communication by Hedde Zeijlstra.

As far as these cases are concerned, one could maintain the IM derivation by assuming that the lexical restriction (*Person*/*boeken* in (56a-b)) must somehow undergo deletion on intermediate copies. However, this solution would raise the issue why deletion of the lexical restriction must affect only intermediate copies and not the scope copy, as shown by the ungrammaticality of cases like (57) (cf. Boef 2012: 101f.).

(57) a. **Welches* denkst du *welches Schweinderl* er nehmen wird?
which think you which piggie he take will
'Which piggie do you think he will take?'
German (Fanselow & Ćavar 2001: 124)

b. **Welke* denk je *welke man* ik gisteren gezien heb?
which think you which man I yesterday seen have?
'Which man do you think I saw yesterday?'
Dutch (Boef 2012: 69, fn. 73)

What is more, examples of complex *wh*-copying like (54), with a simplex *wh*-copy in scope position, show that the mechanism for the spell-out of copies under an IM approach would need to be complicated further so that lower copies can be fully spelled out and simplex, partially spelled out copies can appear in higher positions.

Boef (2012) assumes that (57) can be accounted for in an IM approach under the LBC. In other words, the ungrammaticality of (57) would be expected if IM were to target just the determiner *welches*/*welke* (rather than the whole complex phrase with the subsequent deletion of the nominal restriction), as this type of movement is independently ruled out by the LBC (cf. (55)). However, while this solution accounts for (57), it is not clear how it could be extended to comparable grammatical cases of complex *wh*-copying, as in (58a) below. As Koster (2009) notes, the grammaticality of (58a) is unexpected under the LBC, which otherwise rules out cases like (58b).

(58) a. *Hóéveel* zeg je *hoeveel varkens* je gezien hebt?
how.many say you how.many pigs you.PL seen have
'How many pigs do you say (that) you saw?'

b. *Hoeveel$_j$ zeg je [t_j varkens] je gezien hebt?
how.many say you how.many pigs you.PL seen have
'How many pigs do you say (that) you saw?'

Dutch (Koster 2009: 11)

5.3.3.1 A note on the cleft analysis of Koster (2009) and Den Dikken (2018)

Cases of non-identical *wh*-copying have in fact led Koster (2009) to the conclusion being argued for here, namely that IM is not involved in creating the dependency between the *wh*-copies. Koster (2009) proposes that *wh*-copying has the underlying configuration of a reduced cleft, e.g., (59) is treated as the cleft in (60a) with the deletion of the clefting predicate *is het* 'is it' and the insertion of the expression *denk je* as a parenthetical. Den Dikken (2018: 240f.) pursues a similar analysis, suggesting that the underlying cleft for (53b) could be as in (60b).[56] In both cases, the two *wh*-phrases are assumed to enter the derivation independently, with the lower *wh*-pronoun being part of a relative clause.

(59) *Welke jongen* denk je *wie* het gedaan heeft?
which boy think you who it done has
'Which boy do you think has done it?'

(60) a. *Welke jongen* ~~*is het*~~ denk je *wie* het gedaan heeft?
which boy is it think you who it done has
'Which boy do you think has done it?'

b. *welke jongen* denk je ~~*dat het is*~~ *wie* het gedaan heeft?
which boy think you that it is who it done has
'Which boy do you think has done it?'

However, the reduced cleft analysis for *wh*-copying has been shown to be inadequate in

[56] Note that Den Dikken (2018) argues that when the copy at scope position is pronominal, *wh*-copying involves a base-generated 'concordial' scope-marker, namely a version of *was*/*wat* 'what' that agrees in φ- and K-features with the phrase in intermediate position. Hence Den Dikken's analysis of such cases is comparable to the one to be developed below (see §5.3.2) in not involving a chain generated via IM. However, Den Dikken's account differs from mine in that the scope position must always contain a (concordial) scope-marker under his analysis, whereas in my own account this assumption is not enforced. This will allow me to assimilate the account of complex *wh*-copying with other cases of simplex *wh*-copying.

Pankau (2013), at least with respect to its application to the German data. One problem with this analysis has to do with the morphological case of the copies. In German, clefted constituents invariably show up with nominative case, whereas the relative pronoun carries whichever case is assigned to it by the embedded predicate (61).

(61) a. *Wer* ist es *den* Maria liebt?
Who.NOM is it who.ACC Maria loves
'Who is it that Maria loves?'

b. *Wer* ist es dem Maria hilft?
who.NOM is it who.DAT Maria helps
'Who is it that Maria helps?'

(Pankau 2013: 95)

The prediction made by the cleft analysis is that the observations pertaining to case morphology should carry over to the *wh*-copying construction. However, as shown in (62), this prediction is not borne out: the scope copy and the intermediate copy must be in agreement for case with the lower d-pronoun.

(62) a. Wen/*wer glaubst du den Maria liebt?
who.ACC/who.NOM believe you who.ACC Maria loves
Who do you think Maria loves?

b. Wem/*wer glaubst du dem Maria hilft?
who.DAT/who.NOM believe you who.DAT Maria helps
'Who do you think Maria helps?'

(adapting *ibid.*)

I will therefore assume that the cleft analysis is on the wrong track for *wh*-copying, though I will maintain Koster's (2009) insight that the embedded clause is a type of relative in my own analysis.

5.3.2 Analysis

Having discussed what I take to be the problems for IM approaches to *wh*-copying, in this section I extend the analysis based on EM + FC that was developed for *wh*-doubling in NIV in §5.2.2. The core of the proposal remains crucially unchanged: multiple overt copies are independently generated in the syntax via EM and connected by FC, thereby licensing identity of θ-roles and scope-discourse semantics at C-I. What changes with respect to the derivation of *wh*-doubling are aspects of externalization related to the Lexical Items involved in the *wh*-dependency and the particular edges where the copies receive phonological content. Such aspects of externalization are also at the basis of variation between varieties of German and Dutch in allowing/barring certain patterns of *wh*-copying. Here I outline the analysis for the most prominent patterns, deferring to §5.4 a more articulate discussion of intra- and cross-linguistic parameterization.

Let us begin with what appears to be the simplest cases of *wh*-copying, namely simplex *wh*-copying involving identical *wh*-elements, as in (3), repeated below as (63).

(63) *Wen* glaubst du *wen* sie liebt?
who believe you who she loves
'Who do you think she loves?'

The first step of the derivation involves EM of the *wh*-element *wen* 'who' in θ-position (64-i).

(64) i. $\{_{VP}$ liebt, $[_{DP}$ *wen*$]\}$

By assumption, the *wh*-element does not freeze within the v-phase and its movement can therefore proceed farther. I then assume, as is standard, that *wen* 'who' undergoes IM to the edge of the embedded C-phase (64-ii).[57]

[57] Note that in order to escape the PIC under Bošković's (2016) theory of TRANSFER, the *wh*-element would have to first move to some intermediate, non-phasal projection before reaching its landing site at the edge of the C-phase. IM of *wen* in (64ii) may therefore skip the edge of the v-phase altogether, accounting for the lack of freezing in that position.

(64) ii. $\{_{?}[_{DP}$ wen] $\{_{CP}$ C … {<wen> $\{_{vP}$ v {...}}}}}[58]

Under the present analysis, doubling/copying grammars prevent lower *wh*-elements to reach the scope position via IM, which would instead derive a case of regular *wh*-movement. This in turn implies that in *wh*-copying the lower *wh*-element is frozen in the embedded C-phase. Why should this be the case? Independently of *wh*-copying, we know that freezing at the edge of embedded non-interrogative C-phases can ensue in other constructions, specifically in relative clauses. Note, moreover, that the configuration that arises in relative clauses is essentially identical to that of the embedded clauses in *wh*-copying, i.e., with a *wh*- or d-element at the edge of a non-interrogative C-phase. As the system lacks any look-ahead, it is therefore natural to assume that at step (64-ii) the structure can receive an interpretation as a sort of relative clause (i.e., as an open predicate) and consequently be labeled as such, without any knowledge of what is yet to come in the derivation. This assumption can be empirically supported by the observation that the set of elements at the edge of the embedded clauses in *wh*-copying overlaps with the set of elements available in the (Headed/Free) Relatives of German and Dutch varieties, i.e., both allow d- and *wh*-elements (abstracting away from parametric variation).

If this line of reasoning is correct, then the *wh*-element in (64-ii) freezes because it is in the same criterial configuration that is found in relative clauses. In line with Chomsky (2015) and Rizzi (2015) (cf. the discussion in §5.2.2) criterial configurations are labeled via the features of both the phrase at the edge of the phase and those of the phase-head itself. Hence I assume that the criterial configuration in (64-ii) is labeled via the features of *wen* and C. The question that arises is what features specifically go into labeling.

In the system of Rizzi (2015), the criterial configuration in relative clauses is labeled via the shared Rel feature of the *wh*-element and that of the C-head. The assumption that the Lexicon contains a Rel-feature is problematic, however, as it implies that the grammar has access to the notion of what a relative clause is. Even if Rel referred to some semantic feature (rather than a construction-specific feature), the assumption that *wh*-elements can be endowed with Rel features would have the sole purpose of deriving freezing, as they are not strictly speaking required for their interpretation. Chomsky (2015: fn. 16) instead suggests that *wh*-elements are endowed with unvalued Q features which are valued by the Q-feature on C.

[58] The question mark is intended to indicate a point in the derivation when no label is yet assigned to the structure.

While he assumes that the interpretation of *wh*-elements as relative is "determined by structural position", he does not specify what value Q on C should carry in relative clauses as opposed to, e.g., Interrogatives.

Given these complications, I will simply notate the label in (64-iii) as <Op,x>P (cf. (64-iii), as indicative of the Operator-variable interpretation that may ensue at phase-edges, leaving it to future research to give a more precise characterization of the features entering into labeling in non-interrogative C-phases.[59]

(64) iii. $\{_{<Op,x>P}\,[_{DP}\,\textit{wen}]\ \{_{CP}\,C\ \ldots\ \{<\textit{wen}>\ \{v\ \{...\}\}\}\}\}$

With *wen* now entering into the labeling of the criterial configuration, it is frozen in place for the reasons discussed in §5.2.2: its movement is either barred on pains of violating the Maximality Principle (Rizzi 2015) or on interpretive grounds (Chomsky 2015).

The derivation is then continued via EM of an additional *wh*-element higher up in the structure. If the assumption made in §5.2.2 that Σ isn't restricted by the PIC is on the right track, then the higher instance of *wen* in (63) can undergo EM directly in the matrix C-phase.[60] If so, the operation FC can apply here between the two occurrences of *wen* (64-iv).

(64) iv. $\{_{<Op,x>P}\,wen_k\ \{C_{[Q]}\ \{...\ \{_{<Op,x>P}\,wen_j\ \{C\ \ldots\ \}\}\}\}\}$

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As discussed for the analysis of doubling, FC has as an effect that the independently generated *wh*-elements come to be construed as part of the same chain, with the highest member of the chain providing scope-discourse semantics and the lowest providing argumental semantics. The present derivation with externally merged copies of the *wh*-element thus essentially achieves the same semantic result as the derivation of long-distance *wh*-movement involving IM, since the members of the chain share the same θ-role and fall under the scope of the Q operator in the matrix C-phase. The advantage of the

[59] In particular, it remains unclear what is the exact featural contribution made by the non-interrogative C-phase in the labeling of relative clauses.

[60] Alternatively, EM of the higher *wen* can take place in the matrix v-phase, where FC can apply under the PIC, and be subsequently displaced onto the interrogative scope position.

present derivation over IM approaches to *wh*-copying is that we can now straightforwardly account for cases of non-identical *wh*-copying. Consider first a case of non-identical simplex *wh*-copying, as in (65).

(65) a. *Wen* glaubst du *den* sie liebt?
who believe you who she loves
'Who do you think she loves?'

b. *Wie* denk je *die* ik gezien heb?
who think you who I seen have
'Who do you think I saw?'

The derivation runs in the now familiar manner, as roughly illustrated in (66) for the example in (65a). If the d-pronouns is not related to the *wh*-element in scope position via IM, we can immediately account for the morphological asymmetry in the shape of the copies in the *wh*-dependency. Quite simply, the two types of pronoun are drawn from the Lexicon independently. The d-pronoun, endowed with a θ-role, freezes in the embedded C-phase due to its entering a criterial configuration. Its connection with the *wh*-element in scope position at C-I is established via FC in the syntactic workspace.

(66) $[_{<Op,x>P}\ [_{DP[wh]}\ wen_k]\ C_{[Q]}\ [\ \ldots\ [_{<Op,x>P}\ [_{DP}\ den_j]\ C\ [_{IP}$ sie $[_{vP} <den>_j$ liebt]]]]]

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The same derivation can of course unproblematically apply in cases of multiple embeddings with *wh*- or d-pronouns (cf. (67)), as roughly illustrated in (68).

(67) a. *Wen* glaubst du *den* Peter denkt *wen* sie geküsst hat?
who believe you who Peter thinks who she kissed has
'Who do you think Peter believes she has kissed?'

b. *Wie* denk je *die* Jan zei *wie* het gedaan heeft?
Who think you who Jan said who it done has?
'Who do you think John said has done it?'

(68) $[_{<Op,x>P}\ wie_k\ C_{[Q]}\ [\ \ldots\ [_{<Op,x>P}\ die_j\ C\ [_{IP}$ Jan zei $\ldots\ [_{<Op,x>P}\ wie_i\ C\ \ldots\ [_{vP} <wie>_i]]]]]$

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In the cases considered so far the lower copies undergo freezing in a declarative sentence, of a type that can be essentially characterized as a relative clause (as also suggested by the morphology of the pronominals at the edge). The interrogative property of the chain is determined by the matrix C phase and is crucially not visible on inspection of embedded phases. The present approach thus makes the prediction that the same derivation involving independently generated *wh*-elements should in principle be available in non-interrogative *wh*-dependencies. The prediction is borne out: *wh*-copying is indeed attested both for headed (69a) and free relatives in German (69b-c), as well as in the headed relative clauses of the Dutch varieties of the type discussed by Boef (2012), as in (69d).

(69) a. Das ist der Junge *mit dem* ich glaube *mit dem* Hans spricht
this is the boy with whom I believe with whom Hans talks
'This is the boy with whom I believe Hans talks'
German (McDaniel 1986: 182)

b. Ich traf *wen* John meint *wen* Mary liebt.
I met who John thinks who May loves
'I met who John think Mary loves'
German (Rett 2006: 8)

c. *Was* du nicht willst *was* man dir tu, füg auch keinem andern zu
what you not want what one you do inflict also no.one other PRT
'Do unto others as you would have others do unto you.'
German (Pankau 2013: 14, citing Andersson & Kvam 1984: 112)

d. Dat is de man *wie* ik denk *die* het gedaan heeft
this is the man who I think who it done has
'This is the man who I think has done it.'
Dutch (Boef 2012)

Let us then turn to cases of complex *wh*-copying, as in (70).

(70) a. *Welchem Mann* glaubst du *wem/dem* sie das Buch gibt?
which man believe you who she the book gave
'Which man do you think she gave the book to?'

b. *Welke jongen* denk je *wie*/*die* het gedaan heeft?
which boy think you who it done has
'Which boy do you think has done it?'

The morphophonological asymmetry in the shape of the phrases in the *wh*-dependency can again be straightforwardly accounted for under the assumption that they are generated independently. As in previous derivations, EM in θ-position involves a *wh*- or d-pronoun (depending on the variety), which undergoes IM onto the embedded C-phase, where by hypothesis it freezes. The derivation can therefore be continued via EM of an additional *wh*-phrase. So far we have only considered cases where the *wh*-copy in scope position is pronominal. However, nothing in the Narrow Syntax should preclude the generation of a complex *wh*-phrase in scope position. As long as the complex *wh*-phrase may be subsequently connected to the embedded *wh*-element via FC (71), its argumental interpretation can be licensed at C-I.

(71) $[_{<Op,x>P}\ [_{DP}\ \textit{Welchen Mann}]\ C_{[Q]}\ [\ \ldots\ [_{<Op,x>P}\ [_{DP}\ \textit{wen/den}_j]\ C\ [_{IP}\ \text{sie}\ [_{vP}\ <\textit{wen/den}>_j]]]]]$

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The proposed analysis equally applies to the reverse pattern of complex *wh*-copying, involving a simplex pronominal copy in scope position and a complex *wh*-phrase in intermediate position, as attested in Dutch (72a) and roughly illustrated in (72b). In this particular case, it is a complex *wh*-phrase that freezes in the embedded C-phase.

(72) a. *Wie* denk je *welke jongen* ik gezien heb?
Who think you which youngsters I seen have?
'Which young people do you think I saw?'

b. $[_{<Op,x>P}\ [_{DP}\ \textit{wie}_k]\ C_{[Q]}\ [\ldots\ [_{<Op,x>P}\ [_{DP}\ \textit{welke jongen}]_j\ C\ [\text{ik gezien heb}\ <\textit{w. j.}>_j]]]]$

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I assume that the operation FC is insensitive to the structural position (i.e., matrix/embedded C) in which simplex/complex copies are merged, and can apply in (72b) as it does in (71). Modulo this aspect on the positioning of the members in the chain, FC ensures that its members are connected in the usual manner at C-I.

One problem that arises is why the equivalent of (72a) is ungrammatical when the element in scope position is a *which*-like element, as in (57b), repeated below as (73).

(73) **Welke* denk je *welke man* ik gisteren gezien heb?
which think you which man I yesterday seen have?
'Which man do you think I saw yesterday?'

We know that in complex non-identical *wh*-copying the 'shorter' copy can occur in scope position, as in (72a) or (58a), repeated below as (74).

(74) *Hóéveel* zeg je *hoeveel varkens* je gezien hebt?
how.many say you how.many pigs you.PL seen have
'How many pigs do you say (that) you saw?'

It seems reasonable to assume that the problem lies specifically with *welk-* 'which' in (73), rather than with the general form of the derivation. Although I do not have a full-fledged account of this contrast (which, as argued in §5.3.1, is problematic for IM approaches as well), we might speculate that *which*-like elements, unlike *how many*-like elements, must necessarily be construed with a lexical restriction. In other words, *welke* 'which' cannot be a pronoun. This assumption is suggested by the fact that *which*-like elements are necessarily D-linked (Pesetsky 1987). If *which*-like elements are merged with NP restrictions due to an intrinsic lexical property, then (73) may be underlyingly analyzed as in (75).

(75) $[_{<Op,x>P}\,[_{DP}\,\textit{Welke}\,[_{NP}\,\textit{man}]]_k\ C_{[Q]}\ \ldots\ [_{<Op,x>P}\,[_{DP}\,\textit{welke}\,[_{NP}\,\textit{man}]]_j\ C\ [\text{ik gisteren }\ldots]]]$

Let us assume further that, in line with the Matching Analysis of relative clauses, deletion at S-M can affect the lexical restriction under c-command by a higher copy. If so, we can

correctly rule in (76a), with the analysis in (76b) (strike-through represents deletion at S-M), while ruling out (73).[61]

(76) a. *Welke man* denk je *welke* ik gisteren gezien heb?
which think you which man I yesterday seen have?
'Which man do you think I saw yesterday?'

b. $[_{<Op,x>P}\,[_{DP}\,\textit{Welke}\,[_{NP}\,\textit{man}]]_k\ C_{[Q]}\ \ldots\ [_{<Op,x>P}\,[_{DP}\,\textit{welke}\,[_{NP}\,\sout{\textit{man}}]]_j\ C\ [\text{ik}\ \ldots]]]$

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If *hoeveel* 'how many' lacks the lexical requirement that it be merged with a lexical restriction, then it can undergo EM as a pronominal, as in (77). Thus no deletion of the higher NP, part of the c-commanding copy, would take place in (74), unlike it would be required to derive (73) under present assumptions.

(77) $[_{<Op,x>P}\,[_{DP}\,\textit{Hóéveel}]_k\ C_{[Q]}\ \ldots\ [_{<Op,x>P}\,[_{DP}\,\textit{hoeveel}\,[_{NP}\,\textit{varkens}]]_j\ C\ [\text{je gisteren}\ \ldots]]]$

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5.4 Remarks on language variation

In this section, I turn to a brief discussion of language variation in *wh*-copying/doubling. It is not my intention here to offer a full-fledged account for the attested patterns, which must be left open for future inquiry. Rather, my aim in this section is to discuss some remaining issues that arise under the present account, and suggest a possible way in which these may be treated. The gist of the overall proposal is that at the S-M interface languages can vary as to the particular expression of morphosyntactic features in the members of the copy-pair generated via FC.

[61] This account can be transposed to an IM approach for cases like (73), though it is difficult to see how it could be extended for cases like (74).

It may be important to clarify exactly what I take to be the theoretical status of parameters. In accordance with standard minimalist assumptions, I do not take parameters to be choices or sets of choices internal to UG (unlike, e.g., Chomsky 1981, Baker 2001). Specifically, parameters "reflect not UG specifications but rather the absence thereof" (Chomsky et al. 2019: 251). In other words, parameters are external linguistic statements, describing a range of grammars on which the learner can converge based on the input available in the various target languages. The reason why they need to be stated at all is that in order for the learner to converge on target languages it is necessary (by hypothesis) that the language belongs to the range of languages defined by UG. Therefore, parameters must correspond to choices stateable in terms of UG. Descriptive statements like those below therefore go towards showing that some basic learnability conditions (essentially, consistency with UG) are met by the range of languages investigated, despite superficial differences.

For instance, on the basis of the analysis developed above, there is no reason why the proposed derivation should not extend to English, and derive, e.g., (78).

(78) *Who do you believe who John loves?

In general, we may exclude that the copying/non-copying parameter is to be found in the processes extending the IM derivation by EM. In present terms, *wh*-doubling and *wh*-copying depend on a *wh*-phrase entering into the labeling of a criterial configuration and being frozen in place at some intermediate stage of the derivation. Therefore, we may look at labeling and freezing as the possible origin of the parameter. If labeling by the *wh*-element were somehow prevented in the embedded C-phase in English, then the IM derivation would be enforced. This hypothesis is problematic, however, as *wh*-elements can enter into criterial configurations in embedded non-interrogative C-phases in English, such as relatives (cf. 79).

(79) a. The man who John loves

b. The man [$_{<Op,x>P}$ who C [$_{IP}$ John [$_{vP}$ loves <who>]]

Given that the grammar lacks any look-ahead, the *wh*-element is expected to enter into a criterial configuration at the edge of any C-phase, regardless of how the derivation proceeds, as long as it can receive interpretation at C-I. The assumed derivational parallelism between relatives and the embedded declaratives of the long-distance Interrogatives of *wh*-copying predicts that the *wh*-element in (79b) can indeed enter into the labeling of the embedded

C-phase and undergo subsequent freezing in that position, cf. (80). Unfortunately, as we have seen, the sentence in (78), corresponding to the structure in (80), is ill-formed.

(80) *[$_{<Op,x>P}$ who do [$_{IP}$ you think [$_{<Op,x>P}$ who C [$_{IP}$ John [$_{vP}$ loves ~~who~~]]

One possible way to account for the English/German contrast is to assume that *wh*-copying in English runs afoul of language-specific externalization conditions licensing FC. While the interpretive ('covert' or C-I) component of FC is presumably universal in applying to non-distinct features, the externalization ('overt' or S-M) component is language-specific and subject to cross-linguistic variation. Hence nothing in the syntactic derivation prevents the generation of (78). This is desirable, since we know since at least Thornton (1990) that *wh*-copying is allowed in English during the L1 acquisition stages (as it is during the L1 acquisition of other languages that do not have *wh*-copying in the target grammar).

For (adult) English, therefore, a natural assumption is that while the chain <wh, …, wh> is mapped to C-I, it is not mapped to the S-M interface, unless of course embedded copies are deleted. But deletion of the lower copies is prevented under the hypothesis in (30), repeated below as (81), if the lower *wh*-phrase is frozen in the embedded C-phase by its entering into the labeling of the criterial configuration. Consequently, the lower *wh* must undergo IM. In abeyance with minimalist principles restricting variation to S-M (e.g., Berwick and Chomsky 2011, Chomsky et al. 2019), the relevant parameter can be formulated as a constraint on externalization, along the lines of (82).

(81) Hypothesis on deletion at S-M

At S-M, deletion of members of copy-pairs formed under FC is prevented under freezing.

(82) Doubling/copying parameter

More/no more than one member of a copy-pair can be externalized.

We now can derive the English facts in the obvious way. By (81), the *wh*-phrase must be spelled out in (80) – but by the negative setting of (82) this means that the *wh*-chain cannot be expanded beyond the embedded C-phase. Needless to say, spell-out cannot affect the intermediate C-phase and not the higher one, on the assumption that the latter also contains a *wh*-phrase entering into the labeling of a criterial (Q) configuration.

Language-specific conditions on the application of FC can also be argued to be at play in the parameterization of doubling/copying varieties. One case has already been mentioned in relation to the doubling variety licensing invariant *wh*-elements in scope position (the 'type C' variety), as in (83).

(83) *che* fè-t dàjel *a chi*?
what do-you give-it to whom
'Whom will you give it to?'

In this case, the relevant parameter may be understood as relating to agreement in the morphosyntactic features of the members of the copy-pair generated by FC. Thus, the parameter may be simply stated as the possibility or otherwise of allowing the members of the copy-pair to be in agreement for features other than the [wh]-feature. The positive setting of (84) will then derive the A and B types of doubling, where the *wh*-elements in the copy-pair are identical in φ- and K-features; on the other hand, the negative setting of (84) will derive type C, essentially forcing one member of the copy-pair to be generated as a pronoun with no values for φ- and K-features (i.e., *che* 'what' in Mendrisio).

(84) Parameter on the realization of copies in *wh*-doubling varieties
Members of the copy-pair must/must not be in agreement for features other than [wh].

An explanation along similar lines may account for the distinction between the d- and *wh*-varieties of German/Dutch *wh*-copying, i.e., the varieties that do or do not allow d-pronouns in intermediate positions, as in (85).

(85) %*Wen* glaubst du *wen*/*den* sie liebt?
who believe you who she loves
'Who do you think she loves?'

In this case, the parametric expression of agreement in the morphosyntactic features in the members of the copy-pair may be related to the agreement in (the value of) the D-feature (which I assume is what distinguishes *wh*- from d-pronouns). In other words, copying varieties may be distinguished upon whether or not they require identity of D-features among

the members of the copy-pair (86). The positive setting of (86) derives the *wh*-variety, while its negative setting derives the d-variety. If both options are allowed, free variation between *wh*- and d-pronouns ensues at intermediate positions. Needless to say, a chain may not contain only d-pronouns in Interrogatives like (85) on the assumption that d-pronouns cannot be licensed under the scope of Q.

(86) Parameter on d-pronouns in intermediate positions in German/Dutch
Members of the copy-pair must/must not be in agreement for D-features.

However, the parameter in (86) cannot be the whole story on the distribution of d-pronouns in varieties of German and Dutch. In fact, Pankau (2013) establishes a correlation between the use of d-pronouns as intermediate copies in *wh*-copying and their use in Free Relatives. At least in the German variety that he investigates, d-pronouns can be used as intermediate copies only if they can also be used as free relative pronouns. Conversely, if speakers accept only *wh*-pronouns as free relative pronouns, d-pronouns cannot be employed as intermediate copies for such speakers. For Dutch, on the other hand, Boef (2012:112) claims that there is no correlation between the use of d-pronouns in *wh*-copying and their use in free relative clauses. Judging by her discussion, Dutch d-pronouns in *wh*-copying seem to rather belong to the paradigm of headed relative pronouns, though it has not yet been established, as far as I am aware, whether this is a strict correlation. One question for future research is therefore how the parameter regulating the distribution of d-pronouns in *wh*-copying can be reconciled with the observation that such pronouns may belong to a construction-specific paradigm.

Moving onto complex *wh*-copying, as in (87), we may maintain the assumption that FC is licensed at S-M only under certain language-particular featural conditions.

(87) a. %*Welchem Mann* glaubst du *wem/dem* sie das Buch gibt?
which man believe you who she the book gave
'Which man do you think she gave the book to?'

b. %*Welke jongen* denk je *wie*/*die* het gedaan heeft?
which boy think you who it done has
'Which boy do you think has done it?'

c. %*Wie* denk je *welke jongen* ik gezien heb?
Who think you which youngsters I seen have?
'Which young people do you think I saw?'

Thus speakers that reject (87) but otherwise accept simplex *wh*-copying can be taken to observe more stringent conditions on the application of FC. It might be suggested that for such speakers the application of FC is licensed at S-M only if minimal pronouns are involved (cf. (88)), for reasons that are not entirely clear to me at present.

(88) Parameter on the availability of complex *wh*-copying in German/Dutch
Members of the copy-pair can/cannot be non-minimal.

In (87), the higher copy is non-minimal, containing a 'D-linked' morpheme (*-lch-*) and a lexical restriction. Hence the negative setting of the parameter in (88), while otherwise compatible with other instances of simplex *wh*-copying, will rule out (87) at S-M. The positive setting of (88), on the other hand, will derive (87) as well as (89).

(89) a. %*Welche Person* glaubt John *welche* Mary getroffen hat?
which person believes J. which M. met has
'Which person does John believe Mary has met?'
b. %*Welke boeken* denk je *welke* zij gekocht heeft?
which books think you which she bought has
'Which books do you think she bought?'

Sentences like (89a) are allowed by some speakers of German, but other speakers otherwise allowing complex *wh*-copying reject the pronominal carrying the D-linked morpheme in intermediate positions, requiring instead non-D-linked *wh*-/d-pronouns, as in (90) or (87) above. This indicates that these speakers can't just generate any copy that could potentially connect the scope copy to θ-position: the intermediate copy must adhere to a particular set of morphological constraints. Assuming that these cases are regulated by language-specific conditions on the application of FC, the parameter distinguishing (89) from (90) may be characterized as in (91).

(90) %*Welche Person* glaubt John *die/*welche* Mary getroffen hat?
which person believes John who/which Mary met has
'Which person does John believe Mary has met?'

German (adapting Pankau 2013: 62f.; exx. (78), (82))

(91) Parameter on the availability of D-linked pronouns in intermediate positions
Members of the copy-pair must/must not be in agreement for [D-linked].

Although the scope of the above parameters must remain rather limited for now, the point I wish to make is that at least some aspects of cross-linguistic variation in the availability of patterns of doubling/copying can be imputed to language-particular externalization conditions on the application of FC. Crucially, the attested patterns can be generated as such directly in the syntactic workspace, and the unattested patterns can be filtered out via interface conditions, in line with the SMT.

5.5 Concluding remarks

This chapter sought to develop a unifying analysis for *wh*-doubling in NIV and *wh*-copying in varieties of German and Dutch. I focused here on two fundamental questions regarding the two constructions, namely: (A) how the *wh*-dependency can be modeled; and (B) why there can be an asymmetry in the morphology of the elements involved in the *wh*-dependency. The answer provided to (A) is that the *wh*-dependency is not generated via IM of the *wh*-element from θ-position to scope-position; rather, the dependency involves independently generated elements that are connected via the operation FC (under language-particular externalization conditions). This proposal in turn offers an account of (B) as well.

While for Chomsky (2021) the most economical instance of Merge (IM) is prevented under the Language-Specific Condition Θ-theory, accounting for control, here I argued that in the examined *wh*-constructions IM is blocked under another Language-Specific Condition, namely labeling. In this regard, I followed Chomsky's (2013, 2015) and Rizzi's (2015) assumption that once a phrase enters into the labeling of a criterial configuration, that phrase is frozen in place.

In *wh*-doubling, freezing has been argued to take place in the v-phase, due to the *wh*-element entering into the labeling of a criterial configuration dedicated to the expression of Focus. In *wh*-copying, freezing of the lower *wh*-phrases instead takes place in the embedded C-phases, due to their entering into the labeling of essentially the same criterial

configuration found in relative clauses, i.e., an open predicate. In both cases, the derivation is extended via EM of an additional *wh*-phrase higher up in the structure. This *wh*-phrase, lacking a θ-role, is then connected to the lower phase via the operation FC, giving rise to a chain with the same interpretation at C-I that would have resulted from IM (i.e., same argumental and scope-discourse semantics).

I moreover suggested that cross-linguistic variation in the availability of patterns o) *wh*-copying/doubling is to be related to externalization conditions on the members of the copy-pair generated via FC. Thus, while *wh*-phrases may enter into criterial configurations at phase edges across different languages (provided that they can receive an interpretation at C-I, barring look-ahead), their licensing is ultimately due to language-particular S-M parameters, rather than to purely interpretive ones (e.g., the availability of freezing). For instance, while nothing in the syntax precludes the proposed *wh*-copying derivation in English, it crashes at S-M due to the ban against the realization of multiple members of the copy-pair. This type of explanation is in line with minimalist principles restricting variation at S-M, and it is favored under the SMT. Nonetheless, it remains to be determined by future research how the S-M conditions can be more formally stated, or indeed how they can interact with the syntactic derivation (licensing, e.g., freezing at the edge of different phases across languages).

References

Anyadi, Stefanie, and Armine Tamrazian. 1993. Wh-movement in Armenian and Ruhr German. *UCL Working papers in Linguistics* 5: 1-22.

Arregi, Karlos, and Andrew Ira Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*. Dordrecht: Springer.

Arsenijević, Boban. 2009. Clausal complementation as relativization. *Lingua* 119. 39-50.

Auwera, Johan van der. 1985. Relative that — a centennial dispute. *Journal of Linguistics* 21: 149-179.

Bacskai-Atkari, Julia, and Éva Dékány. 2021. 'Cyclic changes in Hungarian relative clauses'. In Jóhannes Gísli Jónsson, and Thórhallur Eythórsson (eds.), *Syntactic Features and the Limits of Syntactic Change* (Oxford, 2021; online edn, Oxford Academic, 22 Apr. 2021), https://doi.org/10.1093/oso/9780198832584.003.0003, accessed 13 Jan. 2023.

Baier, Nico. 2015. Adjective agreement in Noon: Evidence for a split theory of noun-modifier concord. In Thuy Bui, and Deniz Özyldiz, *Proceedings of NELS 45*, 67–80. Amherst, MA: GLSA.

Baier, Nico. 2018. Spell-out, Chains, and Long Distance Wh-movement in Seereer. *Berkeley Papers in Formal Linguistics* 1. Available at: https://escholarship.org/uc/item/8rg91081 (17/01/2023).

Baker, Carl L. 1970. Notes on the description of English questions: The role of an abstract question morpheme. *Foundations of Language* 6: 197-219.

Baker, Mark. 2001. *The atoms of language*. New York: Basic Books.

Barbiers, Sjef, Olaf Koeneman, and Marika Lekakou. 2010. Syntactic doubling and the structure of wh-chains. *Journal of Linguistics* 46, 1: 1-46.

Baunaz, Lena, and Eric Lander. Syncretisms with the nominal complementizer. *Studia Linguistica* 72(3): 537–570.

Baunaz, Lena, Karen De Clercq, Liliane Haegeman, and Eric Lander. 2018. *Exploring Nanosyntax*. Oxford: Oxford University Press.

Beck, Sigrid. 2006. Intervention effects follow from focus interpretation. *Natural Language and Linguistic Theory* 14: 1–56.

Belletti, Adriana. 2008. *Structures and Strategies*. London: Routledge.

Benincà, Paola. 2010. "Headless relatives in some Old Italian varieties." In Roberta D'Alessandro, Adam Ledgeway, and Ian Roberts (eds.), *Syntactic variation. The dialects of Italy*, 55–70. Cambridge: Cambridge University Press.

Berwick, Robert, and Noam Chomsky. 2011. "The biolinguistic program: The current state of its development". In Anna Maria Di Sciullo, and Cedric Boeckx (eds.), *The Biolinguistic Enterprise*, 19–41. Oxford: Oxford University Press.

Bhat, D. N. S. 2004. *Pronouns*. Oxford: Oxford University Press.

Bianchi, Valentina. 1999. *Consequences of antisymmetry: Headed relative clauses*. Berlin: Mouton de Gruyter.

Bjorkman, Bronwyn, and Hedde Zeijlstra. 2019. Checking up on (ϕ-)Agree. *Linguistic Inquiry* 50(3): 527–569.

Boef, Eefje. 2012. Doubling in Relative Clauses: Aspects of Morphosyntactic Microvariation in Dutch. Doctoral dissertation. Utrecht: LOT.

Bonan, Caterina. 2019. On clause-internally moved wh-phrases: Wh-to-foc, nominative clitics, and the theory of Northern Italian wh-in situ. Doctoral dissertation. Université de Genève.

Bonan, Caterina. 2021. From northern Italian to Asian wh-in situ: A theory of low focus movement. *Isogloss: Open Journal of Romance Linguistics* 7: 1–59.

Bošković, Željko. 2003. Agree, Phases and Intervention Effects. *Linguistic Analysis* 33: 54–96.

Bošković, Željko. 2016. What is sent to spell-out is phases, not phasal complements. Linguistica 56: 25– 66.

Brandt, Patrick, and Eric Fuß. 2014. Most questionable pronouns: Variation between das- vs. was-relatives in German. Linguistische Berichte 239. 297–329.

Bresnan, Joan W. 1970. On Complementizers: Toward a Syntactic Theory of Complement Types. *Foundations of Language* 6: 297–321.

Brucart, José M. 1992. Some Asymmetries in the Functioning of Relative Pronouns in Spanish. *Catalan Working Papers in Linguistics (CWPL)* 1: 113-143.

Bruening, Benjamin. 2006. Differences between the Wh-Scope-Marking and Wh-Copy Constructions in Passamaquoddy. Linguistic Inquiry, 37 (1): 25–49.

Bruening, Benjamin. 2007. Wh-in-situ does not correlate with wh-indefinites or question particles. Linguistic Inquiry 38: 139-166.

Cable, Seth. 2010. *The Grammar of Q. Q-Particles, Wh-Movement, and Pied Piping*. Oxford Studies in Comparative Syntax. Oxford University Press.

Caha, Pavel. 2009. The Nanosyntax of Case. Doctoral dissertation, University of Tromsø.

Caponigro, Ivano, and Maria Polinsky. 2008. Almost everything is relative in the Caucasus. In Tova Friedman, Ito Satoshi (eds.), *Semantics and Linguistic Theory (SALT) XVIII*, 158-175. Ithaca, NY: Cornell University.

Caponigro, Ivano. 2002. Free relatives as DPs with a silent D and a CP complement. In Vida Samiian (ed.), *Proceedings of the Western Conference on Linguistics 2000 (WECOL 2000)*. Fresno, CA: California State University.

Caponigro, Ivano. 2003. Free Not to Ask: On the Semantics of Free Relatives and Wh-Words Cross-linguistically. Doctoral dissertation. UCLA.

Cardinaletti, Anna, and Michal Starke. 1999. The typology of structural deficiency: A case study of the three classes of pronouns. In Henk van Riemsdijk (ed.), *Clitics in the Languages of Europe*, 145–233. Berlin: Mouton de Gruyter.

Cecchetto, Carlo, and Caterina Donati. 2012. “Perché” Rizzi is right. In Valentina Bianchi, and Cristiano Chesi (eds.), *ENJOY LINGUISTICS! Papers offered to Luigi Rizzi on the occasion of his 60th birthday*, 54-62. Siena: CISCL PRESS.

Cecchetto, Carlo, and Caterina Donati. 2015. Subject Intervention in free relatives. In Elisa Di Domenico, Cornelia Hamann, Simona Matteini (eds.), *Structures, strategies and beyond*, 369-392. Amsterdam: Benjamins.

Cheng, Lisa Lai-Shen, and Laura J. Downing. 2016. Phasal syntax = cyclic phonology? *Syntax* 19: 156– 191.

Cheng, Lisa Lai-Shen. 1991. On the typology of wh-questions. Doctoral dissertation. Cambridge, Massachusetts: MIT.

Chesi, Cristiano. 2012. *Competence and computation: Toward a processing friendly minimalist grammar*. Padova: Unipress.

Chomsky, Noam, and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8: 425–504.

Chomsky, Noam, Ángel Gallego, and Dennis Ott. 2019. Generative grammar and the faculty of language: insights, questions, and challenges. *Catalan Journal of Linguistics* 0: 229-261.

Chomsky, Noam. 1964. Current issues in linguistic theory. In J. Fodor, J Katz (eds.), *The structure of language: Readings in the philosophy of language*. Englewood Clifts. NJ: Prentice Hall.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1977. On wh-movement. In Peter Culicover, Thomas Wasow, and Adrian Akmajian (eds.), *Formal Syntax*, 71-132. New York: Academic Press.

Chomsky, Noam. 1980. *On Binding*. Linguistic Inquiry 11: 1-46.

Chomsky, Noam. 1981. *Lectures on Government and Binding: The Pisa Lectures*. Dordrecht: Foris Publications.

Chomsky, Noam. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, Massachusetts: MIT Press.

Chomsky, Noam. 1993. A Minimalist Program for Linguistic Theory. In Ken Hale and Samuel Jay Keyser (eds.), *The View from Building 20*, 1-52. Cambridge: MIT Press.

Chomsky, Noam. 1995. The minimalist program. Cambridge: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels and Juan Uriagereka (eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89-155. Cambridge: MIT Press.

Chomsky, Noam. 2001. "Derivation by phase." In Ken Hale: A life in language, ed. by Michael Kenstowicz, 1-52. Cambridge: MIT Press.

Chomsky, Noam. 2004. Beyond Explanatory Adequacy. In Adriana Belletti (ed.). *Structures and Beyond*, 104-131. Oxford: Oxford University Press.

Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36, 1: 1-22.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos Otero, M.L. Zubizarreta (eds.), Foundational issues in linguistic theory, 133-166. Cambridge: MIT Press.

Chomsky, Noam. 2013. Problems of projection. *Lingua* 130: 33–49.

Chomsky, Noam. 2015. Problems of projection. Extensions. In Elisa Di Domenico, Cornelia Hamann and Simona Matteini (eds.), *Structures, strategies and beyond*, 1–16. Amsterdam: John Benjamins.

Chomsky, Noam. 2021. Minimalism: Where Are We Now, and Where Can We Hope to Go. *Gengo Kenkyu* 160: 1–41.

Cinque, Guglielmo. 1978. La sintassi dei pronomi relativi 'cui' e 'quale' nell'italiano moderno. *Rivista di Grammatica Generativa* 3: 31-126.

Cinque, Guglielmo. 1982. On the Theory of Relative Clauses and Markedness. *Linguistic Review* 1: 247–294.

Cinque, Guglielmo. 2008a. Two types of nonrestrictive relatives. In Olivier Bonami, and Patricia Cabredo Hofherr (eds.), *Empirical Issues in Syntax and Semantics vol. 7*, 99–137. Paris: CNRS.

Cinque, Guglielmo. 2008b. More on the indefinite character of the Head of restrictive relatives. In P. Benincà, F. Damonte, and N. Penello (eds.), Selected Proceedings of the 34th Incontro di Grammatica Generativa, Padova: Unipress.

Cinque, Guglielmo. 2020. The Syntax of relative clauses: A unified analysis. Cambridge: Cambridge University Press.

Citko, Barbara. 2001. Deletion Under Identity in Relative Clauses. In M. Kim and U. Strauss (eds.), *Proceedings of NELS 31*, 131–145.

Citko, Barbara. 2004. On headed, headless, and light-headed relatives. *Natural Language and Linguistic Theory 22* (1): 95–126.

Citko, Barbara. 2014. *Phase Theory: an introduction*. New York: Cambridge University Press.

Collins, Christopher, and Richard Kayne. 2020. "Towards a theory of morphology as syntax". Manuscript. New York University.

Daskalaki, Evangelia. 2020. Types of relative pronouns. In András Bárány, Theresa Biberauer, Jamie Douglas and Sten Vikner (eds.), *Syntactic architecture and its consequences II: Between syntax and morphology*, 277–296. Berlin: Language Science Press, 789.

Dayal, Veneeta. 2017. *Questions*. Oxford: Oxford University Press.

Déchaine, Rose-Marie, and Martina Wiltschko. 2002. Decomposing Pronouns. *Linguistic Inquiry* 33. 409–442.

Del Gobbo, Francesca. 2017. More appositives in heaven and earth than are dreamt of in your Linguistics. *Glossa* 2(1): 49. DOI: https://doi.org/10.5334/gjgl.14.

Diesing, Molly. 1992. *Indefinites*. Cambridge, Massachusetts: MIT Press.

Dikken, Marcel den. 2009. Arguments for successive-cyclic movement through SpecCP: A critical review. *Linguistic Variation Yearbook* 9: 89-126.

Dikken, Marcel den. 2018. *Dependency and Directionality*. Cambridge: Cambridge University Press.

Donati, Caterina, and Carlo Cecchetto. 2011. Relabeling heads: A unified account for relativization structures. *Linguistic Inquiry* 42 (4): 519–560.

Donati, Caterina. 2006. On Wh-head Movement. In Lisa Cheng, Norbert Corver (eds.). *Wh-Movement: Moving On*, 21-46. Cambridge, MA: MIT Press.

Douglas, Jamie. 2016. *The syntactic structures of relativisation*. Doctoral dissertation. Cambridge: University of Cambridge.

Douglas, Jamie. 2017. Unifying the that-trace and anti-that-trace effects. *Glossa* 2(1): 60. 1-28.

Edwards, Viv. 1993. The grammar of southern British English. In James Milroy, Lesley Milroy (eds.), *Real English: The grammar of English dialects in the British Isles*, 214–38. London: Longman.

Epstein, Samuel, Hisatsugu Kitahara, and Daniel Seely. 2016. What Do We Wonder is Not Syntactic? In Samuel Epstein, Hisatsugu Kitahara, Daniel Seely (eds.), *Explorations in Maximizing Syntactic Minimization*, 222-239. New York: Routledge.

Fabb, Nigel. 1990. The difference between English restrictive and non-restrictive relative clauses. *Journal of Linguistics* 26: 57–78.

Fanselow, Gisbert, and Anoop Mahajan. 2000. Towards a Minimalist Theory of Wh-Expletives, Wh-Copying, and Successive Cyclicity. In Uli Lutz, Gereon Müller, Arnim v. Stechow (eds.), *Wh-scope marking*, 195-230. Amsterdam: Benjamins.

Fanselow, Gisbert, and Damir Ćavar. 2001. Remarks on the economy of pronunciation. In Gereon Müller, Wolfgang Sternefeld (eds.), *The rise of competition in syntax: A synopsis*, 107-150. Berlin: De Gruyter.

Fanselow, Gisbert, Reinhold Kliegl, and Matthias Schlesewsky. 2005. Syntactic variation in German wh-questions. *Linguistic Variation Yearbook* 5: 37–65.

Felser, Claudia. 2004. Wh-copying, phases and successive cyclicity. *Lingua* 114, 5: 543–574.

Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31: 1–45

Furuya, Kaori. 2017. (Under)specification of the person feature in relative clauses. *Acta Linguistica Academica* 64(2): 281-311.

Gallego, Ángel J. 2007. Phase theory, case and relative clauses. *Anuario del Seminario de Filología Vasca Julio de Urquijo* 41(2): 71–94.

Gallego, Ángel J. 2010. *Phase Theory*. Amsterdam and Philadelphia: John Benjamins.

Gallego, Ángel J. 2018. "Freezing effects in a free-Merge system: A configurational approach." In Jutta Hartmann, Marion Jäger, Andreas Kehl, et al. (eds.), *Freezing: Theoretical approaches and empirical domains*, 66–104. Berlin: Mouton de Gruyter.

Gelderen, Elly van. 2009. Renewal in the Left Periphery: Economy and the Complementizer Layer. Transactions of the Philological Society 107(2). 131–195

Giannakidou, Anastasia, and Lisa Lai-Shen Cheng. 2006. (In)definiteness, polarity, and the role of wh-morphology in free choice. Journal of Semantics 23: 135–183.

Griffiths, James. 2015. On appositives. Doctoral dissertation, University of Groningen. Utrecht: LOT dissertation series, no. 389.

Groos, Anneke, and Henk van Riemsdijk. 1981. Matching effects in free relatives: A parameter of core grammar. In Adriana Belletti (ed.), *Theory of markedness in generative grammar. The proceedings of the 1979 GLOW conference*, 171–216. Scuola Normale Superiore, Pisa, Italy.

Hachem, Mirjam. 2015. Multifunctionality. The Internal and External Syntax of d- and w-Items in German and Dutch. Doctoral dissertation. Utrecht: Utrecht University.

Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In Ken Hale, S.J. Keyser (eds.), *The View from Building 20*, 111-176. Cambridge: MIT Press.

Halle, Morris. 1997. Distributed Morphology: impoverishment and fission. In Benjamin Bruening, Yoonjung Kang, Martha McGinnis (eds.), *Papers at the interface. MIT Working Papers in Linguistics 30*, 425–449. Cambridge, Massachusetts: MITWPL.

Hartmann, Jutta, Marion Jäger, Andreas Kehl, Andreas Konietzko, and Susanne Winkler. 2018. *Freezing: Theoretical Approaches and Empirical Domains*. Berlin/Boston: de Gruyter Mouton.

Hasegawa, Iroshi. 1998. English infinitival relatives as prepositional phrases. *English Linguistics: Journal of the English Linguistics Society of Japan* 15: 1–27.

Heim, Irene, and Angelika Kratzer. 1998. Semantics in Generative Grammar. Oxford: Blackwell.

Heim, Irene. 1982. The Semantics of Definite and Indefinite Noun Phrases. Doctoral dissertation. University of Massachusetts at Amherst.

Heim, Irene. 2008. Features on bound pronouns. In Daniel Harbour, David Adger, Susana Béjar (eds.), *Phi theory: Phi-features across modules and interfaces, 35-56*. Oxford: Oxford University Press.

Hinterwimmer, Stefan. 2008. *Q-adverbs as selective binders: The quantificational variability of free relatives and definite DPs*. Berlin: Mouton de Gruyter.

Jackendoff, Ray. 1977. *X-bar Syntax: A study of phrase structure*. Cambridge, Massauchusetts: MIT Press.

Jacobson, Pauline. 1995. On the quantificational force of English free relatives. In Emmon Bach, Eloise Jelinek, Angelika Kratzer, Barbara Partee (eds.), *Quantification in natural languages, Vol II*, 451–486. Dordrecht: Kluwer.

Jespersen, Otto. 1924. *The philosophy of grammar*. London: Allen & Unwin.

Kato, Mary, and Jairo Nunes. 2009. A uniform raising analysis for standard and nonstandard relative clauses in Brazilian Portuguese. In Jairo Nunes (ed.), Minimalist essays on Brazilian Portuguese, 93–120. Amsterdam/Philadelphia: John Benjamins.

Katz, Jerrold J. and Paul M. Postal. 1964. *An Integrated Theory of Linguistic Descriptions*. Cambridge, Massachusetts: The MIT Press.

Kayne, Richard. 1975. *French Syntax*. Cambridge, Massachusetts: MIT Press.

Kayne, Richard. 1976. French relative 'que'. In Fritz Hensey, and Marta Lujan (eds.), Current *Studies in Romance Linguistics*, 255-299. Washington, D.C.: Georgetown University Press.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, Massachusetts: MIT Press.

Kayne, Richard. 2014. Why isn't "this" a complementizer? In Peter Svenonius (ed.), *Functional structure from top to toe: The cartography of syntactic structures, vol. 9*, 188–231. Oxford: Oxford University Press.

Kayne, Richard. 2019. "On Complementizers and Relative Pronouns in Germanic vs. Romance". Manuscript. New York: New York University. Available at: https://www.academia.edu/42056841/_On_Complementizers_and_Relative_Pronouns_in_Germanic_vs_Romance_ (13/01/2023).

Kayne. Richard. 1991. Romance clitics, verb movement, and PRO. *Linguistic Inquiry* 22: 647–686.

Kiparsky, Paul. 1973. 'Elsewhere' in phonology. In Paul Kiparsky, Steven Anderson (eds.), *A Festschrift for Morris Halle*, 93-106. New York: Holt, Rinehart and Winston.

Klima, Edward Stephan. 1964. Studies in Diachronic Transformational Syntax. Doctoral dissertation. Cambridge, Massachusetts: Harvard University.

Koster, Jan. 2009. "IM not perfect: The case against copying". Manuscript. Groningen: Rijksuniversiteit Groningen.

Kratzer, Angelika. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40(2): 187-237.

Kuroda, Sige-Yuki. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, MIT.

Lahne, Antje. 2008. Where There is Fire There is Smoke. Local Modelling of Successive-Cyclic Movement. Doctoral dissertation, Leipzig: Universität Leipzig.

Landau, Idan. 2006. Chain resolution in Hebrew V(P) fronting. *Syntax* 9: 32–66.

Landau, Idan. 2015. *A two-tiered theory of control*. Cambridge, Massachusetts: MIT Press.

Law, Paul. 2000. On Relative Clauses and the DP/PP Adjunction Asymmetry. In Artemis Alexiadou, Paul Law, André Meinunger, Chris Wilder (eds.), *The Syntax of Relative Clauses*, 161-199. Amsterdam: John Benjamins.

Lohndal, Terje. 2010. Medial-wh Phenomena, Parallel Movement, and Parameters. *Linguistic Analysis* 34: 215–244.

London: Wiley. Demirdache, Hamida. 1991. Resumptive chains in restrictive relatives, appositives and dislocation structures. Doctoral dissertation. MIT.

Manzini, Maria Rita, and Giuseppe Rugna. in preparation. “Wh-scope marking, wh-copying, wh-doubling: External Merge and Form Copy.” Manuscript. Università degli Studi di Firenze.

Manzini, Maria Rita, and Leonardo Maria Savoia. 2003. The nature of complementizers. *Rivista di Grammatica Generativa* 28: 87–110.

Manzini, Maria Rita, and Leonardo Maria Savoia. 2005. *I dialetti italiani e romanci. Morfosintassi generativa, vol. 1*. Alessandria: Edizioni dell’Orso.

Manzini, Maria Rita, and Leonardo Maria Savoia. 2011. *Grammatical Categories*. Cambridge: Cambridge UP.

Manzini, Maria Rita, and Leonardo Maria Savoia. 2018. *The morphosyntax of Albanian and Aromanian varieties*. Berlin/New York: Mouton de Gruyter.

Manzini, Maria Rita. 2012. The status of complementizers in the left periphery. In Lobke Aelbrecht, Liliane Haegeman, Rachel Nye (eds.), Main Clause Phenomena, 297-318. Amsterdam: Benjamins.

Manzini, Maria Rita. 2014a. The Romance k-complementizers. In Peter Svenonius (ed.), *Functional Structure from Top to Toe The Cartography of Syntactic Structures, Volume 9*, 148–187. New York: Oxford University Press.

Manzini, Maria Rita. 2014b. Grammatical categories: Strong and weak pronouns in Romance. *Lingua* 150: 171–201.

McDaniel, Dana. 1986. Conditions on wh-chains. Doctoral dissertation. New York: City University of New York.

Mitrović, Moreno. 2021. *Superparticles: A microsemantic theory, typology, and history of logical atoms*. Dordrecht: Springer.

Moro, Andrea. 2000. Dynamic Antisymmetry. Cambridge, Massachusetts: MIT Press.

Munaro, Nicola, and Hans-Georg Obenauer. 1999. On underspecified wh-elements in pseudointerrogatives. *University of Venice Working Papers in Linguistics*, Vol. 9 (1–2): 181–253.

Munaro, Nicola. 2022. Interrogatives in the Romance Languages. *Oxford Research Encyclopedia of Linguistics*. Available at: https://oxfordre.com/linguistics/view/10.1093/acrefore/9780199384655.001.0001/acrefore-9780199384655-e-645.

Nasukawa, Kuniya, and Henk van Riemsdijk. 2014. *Identity relations in grammar*. Berlin: Walter de Gruyter.

Neeleman, Ad and Hans van de Koot. 2017. Syntactic haplology. In Martin Everaert and Henk van Riemsdijk (eds.). *The Wiley Blackwell Companion to Syntax. 2nd ed,* 4377-4407.

Nishigauchi, Taisuke. 1990. *Quantification in the theory of grammar*. Dordrecht: Kluwer.

Norris, Mark. 2014. A theory of nominal concord. Doctoral dissertation. Santa Cruz: University of California.

Nunes, Jairo. 2004. *Linearization of Chains and Sideward Movement*. Cambridge, Massachusetts: MIT Press.

Ott, Dennis. 2011. A Note on Free Relative Clauses in the Theory of Phases. *Linguistic Inquiry* 42: 183-192.

Pankau, Andreas. 2009. Copies at the Interfaces. *Proceedings of the Patras International Conference of Graduate Students in Linguistics* 1: 197–209.

Pankau, Andreas. 2013. Replacing copies: The syntax of wh-copying in German. Doctoral dissertation. Utrecht: Utrecht University.

Pankau, Andreas. 2018. The matching analysis of relative clauses: An argument from antipronominal contexts. *Journal of Comparative Germanic Linguistics* 21: 189–245.

Patterson, Gary, and Ivano Caponigro. 2016. The puzzling degraded status of who free relative clauses in English. *English Language and Linguistics* 20(2): 341–352.

Pesetsky, David, and Esther Torrego. 2001. T-to-C Movement: Causes and Consequences. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 355-426. Cambridge, Massachusetts: MIT Press.

Pesetsky, David, and Esther Torrego. 2006. Probes, Goals, and the Nature of Syntactic Categories. In Yukio Otsu (ed.), *Proceedings of the Seventh Tokyo Conference on Psycholinguistics*, 25-60. Tokyo: Hituzi Syobo Publishing Company.

Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In Simin Karimi, Vida Samiian, and Wendy Wilkins (eds.), *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation*, 262–294. Amsterdam: John Benjamins.

Pesetsky, David. 1987. Wh-in-situ: movement and unselective binding. In Eric Reuland, and Alice ter Meulen (eds.), *The Representation of (In)definiteness*, 98-129. Cambridge: MIT Press.

Pesetsky, David. 1998. Some Optimality Principles of Sentence Pronunciation. In Pilar Barbosa, Daniel Fox, Paul Hagstrom, Martha McGinnis, and David Pesetsky (eds.), I*s the Best Good Enough? Optimality and Competition in Syntax*, 337-383. Cambridge, Massachusetts: MIT Press.

Poletto, Cecilia, and Emanuela Sanfelici. 2018. On relative complementizers and relative pronouns. *Linguistic Variation* 18, 2: 265-298.

Poletto, Cecilia, and Emanuela Sanfelici. 2019. On the relative cycle: The case of P+che relative clauses from Old to Modern Italian. In Miriam Bouzouita, Anne Breitbarth, Lieven Danckaert, Elisabeth Witzenhausen (eds.), *Cycles in language change*, 177–198. Oxford: Oxford University Press.

Poletto, Cecilia, and Jean-Yves Pollock. 2004. On wh-clitics, wh-doubling in French, and some North Eastern Italian dialects. *Probus* 16, 241–272.

Poletto, Cecilia, and Jean-Yves Pollock. 2005. On wh-clitics, wh-doubling and apparent wh-in-situ in French and some North Eastern Italian dialects. *Recherches linguistiques de Vincennes* 33: 135–156.

Poletto, Cecilia, and Jean-Yves Pollock. 2015. Arguing for remnant movement in Romance. In G. Grewendorf (ed.), *Remnant Movement*. Mouton de Gruyter.

Postma, Gertjan. 1994. The indefinite reading of WH. In Reineke Bok-Bennema, Crit Cremers (eds.), *Linguistics in the Netherlands*, 187–198. Amsterdam/Philadelphia: John Benjamins.

Rett, Jessica. 2006. Pronominal vs. determiner wh-words: Evidence from the copy construction. *Empirical Issues in Syntax and Semantics* 6(6): 355–374.

Reuland, Eric. 2011. *Anaphora and language design*. Cambridge, Massachusetts: MIT Press.

Richards, Norvin. 2010. *Uttering trees*. Cambridge, Massachusetts: MIT Press.

Riemsdijk, Henk van. 2008. Identity avoidance. In Robert Freidin, Carlos P. Otero, Maria Luisa Zubizarreta (eds.), Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud, 227–250. Cambridge, Massachusetts: MIT Press.

Rinke, Esther, and Elisabeth Aßmann. 2017. The syntax of relative clauses in European Portuguese. Extending the Determiner Hypothesis of relativizers to relative que. Journal of Portuguese Linguistics 16(4). 1–26.

Rizzi, Luigi. 1996. Residual verb second and the Wh-criterion. In Adriana Belletti, Luigi Rizzi (eds.), *Parameters and Functional Heads*, 63–90. Oxford: Oxford University Press.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.), *Elements of Grammar: Handbook of Generative Syntax*, 281-337. Dordrecht: Kluwer.

Rizzi, Luigi. 2006. On the form of chains: Criterial positions and ECP effects. In Lisa Cheng and Norbert Corver (eds.), *Wh-movement: Moving on*, 97-134. Cambridge: MIT Press.

Rizzi, Luigi. 2015. Cartography, Criteria, and Labeling. In Ur Shlonsky (ed.), *Beyond Functional Sequence*, 314-338. Oxford: Oxford University Press.

Rizzi, Luigi. 2020. Che and weak islands. In Ludovico Franco, Paolo Lorusso (eds.), *Linguistic variation: Structure and Interpretation*, 599-608. Boston/Berlin: Walter de Gruyter.

Roberts, Ian, and Anna Roussou. 2003. *Syntactic change: A minimalist approach to grammaticalization*. Cambridge: Cambridge University.

Rooryck, Johan, and Guido Vanden Wyngaerd. 2011. *Dissolving binding theory*. Oxford: Oxford University Press.

Rooth, Mats. 1992. A Theory of Focus Interpretation. *Natural Language Semantics* 1: 75-116.

Ross, John Robert. 1967. Constraints on Variables in Syntax. Doctoral dissertation, MIT.

Roussou, Anna. 2010. Selecting complementizers. *Lingua* 120: 582-603.

Roussou, Anna. 2020a. Complement clauses: Case and argumenthood. In Ludovico Franco, Paolo Lorusso (eds.), *Linguistic variation: Structure and Interpretation*, 609-631. Boston/Berlin: Walter de Gruyter.

Roussou, Anna. 2020b. Some (new) thoughts on grammaticalization: Complementizers. In Bárány, András, Theresa Biberauer, Jamie Douglas, Sten Vikner (eds.). *Syntactic architecture and its consequences I: Syntax inside the grammar (Open Generative Syntax 9)*, 91-111. Berlin: Language Science Press.

Roussou Anna, and Christos Vlachos. 2022. "The morphosyntax of wh-pronouns in Greek." Manuscript. University of Patras.

Rugna, Giuseppe. 2020. German wh-copying: A top-down analysis. *Quaderni di Linguistica e di Studi Orientali* 6: 187-219. DOI: http://dx.doi.org/ 10.13128/QULSO-2421-7220-9700.

Rugna, Giuseppe. 2022. The case and finiteness restrictions of Italian relative che. *Probus*. DOI: https://doi.org/10.1515/probus-2021-0012.

Salzmann, Martin. 2017. *Reconstruction and Resumption in Indirect A'-dependencies: On the syntax of prolepsis and relativization in (Swiss) German and beyond*. Berlin: Mouton de Gruyter.

Sauerland, Uli. 1998. The meaning of chains. Doctoral dissertation. MIT.

Schachter, Paul. 1973. Focus and relativization. *Language* 49: 19–46.

Schippers, Ankelien. 2012. Some people are repeaters. Medial copy spell-out in long-distance wh□dependencies. In Camelia Constantinescu, Bert Le Bruyn, Kathrin Linke (eds.), *Proceedings of ConSOLE XVII*, 269-288.

Seppänen, Aimo. 1997. Relative that and prepositional complementation. *English Language and Linguistics* 1: 111–133

Šimík, Radek. 2011. Modal existential wh-constructions. Doctoral dissertation, University of Groningen.

Šimík, Radek. 2018. Free relatives. In C. Meier, H. Rullmann, D. Gutzmann, L. Matthewson, T. E. Zimmermann (eds.), *The Wiley-Blackwell companion to semantics*. Hoboken: Wiley-Blackwell.

Smits, Rik J.C. 1989. *Eurogrammar. The Relative and Cleft Constructions of the Germanic and Romance Languages*. Dordrecht: Foris.

Sportiche, Dominique. 2011. French Relative Qui. *Linguistic Inquiry* 42: 83-124.

Starke, Michal. 2009. Nanosyntax: A Short Primer to a New Approach to Language. *Nordlyd* 36: pp. 1–6. [online] Available at http://septentrio.uit.no/index.php/nordlyd/index.

Táboas, Susana. 1995. Spanish infinitival relatives: a proposal about their indefiniteness requirement. *Probus* 7: 197-219.

Thornton, Rosalind. 1990. Adventures in Long-Distance Moving: the Acquisition of Complex Wh-questions. Doctoral dissertation. University of Connecticut, Storrs.

Uriagereka, Juan. 1996. Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 26: 79–123.

Urk, Coppe van. 2018. Pronoun copying in Dinka and the Copy Theory of Movement. *Natural Language and Linguistic Theory* 36(3): 937–990.

Vries, Mark de. 2002. The syntax of relativization. Doctoral dissertation. Utrecht: LOT.

Webelhuth, Gerth, Sasha Bargmann, and Cristopher Götze. 2019. Idioms as evidence for the proper analysis of relative clauses. In Manfred Krifka, and Mathias Schenner (eds.), *Reconstruction Effects in Relative Clauses*, 225–62. Berlin: de Gruyter.

Wiltschko, Martina. 1998. On the Syntax and Semantics of (Relative) Pronouns and Determiners. *Journal of Comparative Germanic Linguistics* 2: 143–181.

Wurmbrand, Susan. 2012. The syntax of valuation in auxiliary–participle constructions. In J. Choi et al. (eds.), *Coyote Working Papers: Proceedings of the 29th West Coast Conference on Formal Linguistics (WCCFL 29)*. University of Arizona: Tucson.

Zeijlstra, Hedde. 2012. There is Only One Way to Agree. *The Linguistic Review* 29: 491–539.