

# THE NATURE OF COMPLEMENTIZERS<sup>1</sup>

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## 1. *The problem*

Italian *che* introduces finite declaratives as in (1a) and finite relatives as in (1b), as does English *that*. However *che* also introduces finite and non-finite interrogatives with the meaning of ‘what’ as in (1e)-(1f), while ‘who’ is lexicalized by *chi*, as in (1c)-(1d). Furthermore *che* can appear as the *wh*-determiner of complex interrogative NP’s as in (1g):

- (1) a. Mi hanno detto che vieni domani  
to.me they.have said that you.come tomorrow
- b. Sono quelli che chiamo sempre  
    they.are those that I.call always
- c. Chi chiamano?  
    who they.call?
- d. Non so chi chiamare  
    not I.know who to.call
- e. Che fai?  
    what you.do?
- f. Non so che fare  
    not I.know what to.do
- g. Che camicia hanno portato?  
    what shirt they.have worn

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One possibility that we can reject is that *che* in Italian simply has two lexical entries one of which corresponds to the ‘that’ complementizer and the other to the ‘what’ *wh*-element. This straightforward solution cannot have any explanatory value, given that the pattern that it describes is not an accidental coincidence observed in one (or even a few) dialect(s), but a systematic phenomenon in Romance languages. For instance in French, *que* introduces finite sentences and relatives, leading to its identification with the finite complementizer of the language (Kayne 1976), but also interrogatives with the value of ‘what’.

Furthermore, data relating to the complementizer/ *wh*- system in Italian dialects highlight the existence of several parameters. Thus in the dialect of *Fontanigorda* in (2) the complementizer *ke* coincides with the *wh*-element with the meaning of ‘who’, while ‘what’ is lexicalized by the specialized *wh*-item *kuOse*. In other respects *Fontanigorda* is similar to Italian.

(2) *Fontanigorda*

- a. m aN ittu ke te vie ∇dOpu  
to-me they.have said that you come afterward
- b. l E ∇k2llu ke ∇∇Eggu de ∇loNgu  
he is that that I see from far.away
- c. ke te ∇tΣsammi?  
who you call
- d. ne suO ke tΣa∇ma:  
not I.know who to.call
- e. kuOse te ∇fE?  
what you do
- f. ne suO kuOse ∇fa:  
not I.know what to do
- g. ke kamiZa te te ‘bEtti?  
what shirt you self wear?

Several Italian dialects reproduce the English pattern with one lexicalization for the declarative complementizer, and separate specialized items for ‘who’, ‘what’. These dialects allow us to illustrate one further interesting parameter. Indeed only in some of them, such as for instance *Luras* in (3) the *wh*-operator introducing complex *wh*-phrases corresponds to the specialized *wh*-element for ‘what’ much as it happens in English.

(3) *Luras* (Sardinia)

- a. m ana ∇naΔu ki ∇enis ∇kraza  
me they.have told that you.come tomorrow

- b. sON kussas ki mi ∇□aman ∇sEmprE  
they.are those who me call always
- c. kiE ∇eniΔi?  
who comes
- d. no ∇iskO a k∇kiE □a∇marE  
not I.know to whom to.call
- e. ittE zOn fat∇tE♥□E?  
what they.are doing
- f. no iskO ittE ∇faΓErE  
not I.know what to.do
- g. ittE Γa∇miZa t a llE∇aΔu?  
what shirt you he.has brought

Many other dialects illustrate a different possibility, namely that the specialized lexical item for ‘what’ does not overlap with the *wh*- determiner of complex interrogative NP’s; on the contrary, the latter is once again the same as the declarative complementizer, as for *Modena* in (4).

(4) *Modena* (Emilia)

- a. i m an ∇det k(e) i ∇vinen ed∇man  
they me have told that they come tomorrow
- b. i EN ∇kwi k(e) i m ∇tΣamen ∇sEmper  
they are those that they me call always
- c. ki ∇vin?  
who comes
- d. a n ∇sO ki tΣa∇mEr  
I not know who to.call
- e. ksa ∇fE-t?  
what do-you
- f. a n ∇sO ksa ∇fEr  
I not know what to.do
- g. ke ka∇miza E-t la∇vE?  
What shirt have-you washed?

It must be noticed furthermore that while English, French, Italian have a single finite complementizer *that* for declaratives, many Romance languages distinguish between at least two introductors. This is the case for instance in the dialect of *Guglionesi* in (5), where the ‘that’ of English is lexicalized by *ka* as the introductor of embedded declaratives, generally in the indicative; on the contrary *k≡* introduces embedded declaratives in the subjunctive mood or anyway dependent from verbs

that typically require the subjunctive in other Romance dialects, as well as relative clauses. It is this second complementizer that introduces *wh*-questions, with the interpretation of ‘what’.

(5) *Guglionesi* (Molise)

- a.  $\forall m \text{ Onn} \cong \forall d \cong \text{tt} \cong ka \ vE \ \forall krE$   
to.me they.have said that he.comes tomorrow
- b.  $\forall vujj \cong k \cong \forall vEnn \cong \forall krE$   
I.want that he.come tomorrow
- c.  $E \ k \forall kull \cong k \cong m \cong \forall cEm \cong \forall sEmbr \cong$   
it.is that that me calls always
- d.  $ki \ \forall vE?$   
who comes?
- e.  $n \ \forall tsatt \Sigma \cong a \ kki \ ca \ \forall ma$   
not I.know to whom to.call
- f.  $k \cong f \ \forall fi?$   
what you.do?
- g.  $k \cong kka \ \forall mo \Sigma \cong \forall vu?$   
what shirt you.want?

The interesting thing to note is in all of the dialects that have more than one lexicalization for the complementizer, it is always the one connected to ‘modal’ predicates that eventually lexicalizes the *wh*-introducer. Otherwise, familiar parameters apply. Thus we find languages where the complementizer coincides with the *wh*-introducer for ‘who’, while ‘what’ is lexicalized by a specialized element, and which otherwise instantiates the same conditions as (5), as illustrated by Manzini and Savoia (forthcoming).

On the other hand, the lexicalization of two different complementizers according to the matrix context is independent of the coincidence of one of the two with the *wh*- argument. Cases in point are provided by Sardinian dialects like *Ardaùli* in (6), whose lexicon includes the two complementizers *ka* and *ki* as well as specialized *wh*-items for ‘who and ‘what’.

(6) *Ardaùli* (Sardinia)

- a.  $\forall m \ \text{anta} \ \forall nau \ ka \ \forall \text{eni} \ \Delta i \ \forall \Gamma \text{raza}$   
me they.have told that he.comes tomorrow
- b.  $\forall k \ \text{ErdzO} \ ki \ \forall \text{EndzE} \ \Delta E \ \text{ain} \ \forall n \ \text{O} \ \Gamma E$   
I.want that he.comes here
- c.  $Es \ \forall k \ \text{kussu} \ ki \ b \ \forall bi \ \text{O} \ \forall s \ \text{EmpErE}$   
he.is that that I.see always

- d. kiE ∇eniΔi?  
who comes?
- e. ∇ittE Es fa∇E♥□E?  
what you.are doing
- f. ittE ∇omminE ar tserri∇au?  
what man you.have called

A further dimension of variation brings into play the ‘if’ complementizer, which introduces hypotheticals and ‘yes-no’ embedded questions. In a set of Sardinian dialects similar in other respects to (6), there is no specialized ‘if’ form; rather hypothetical sentences as well as embedded *wh*-questions are introduced by the same *tΣi* element that introduces declarative sentences in modal contexts. Interestingly enough, while *tΣi* is sensitive to finiteness in complement sentence, relatives and hypotheticals, as an interrogative complementizer it normally appears with non-finite verbs, as in (7i).

(7) *Làconi* (Sardinia)

- a. ∇m anti ∇nau ka ∇ennis ∇kraza  
me they.have told that you.come tomorrow
- b. ∇bOZO tΣi ∇EθdZas ∇kraza  
I.want that you.come tomorrow
- c. ∇funti ∇gussuzu tΣi mi ∇tserrianta  
they.were those that me called
- d. ∇tΣinni ∇enniΔi?  
who comes
- e. ∇itta ∇faizi?  
what you.do
- f. itta kam∇miza Δi ∇BOnnEzE?  
what shirt yourself you.wear
- g. tΣi ∇OllEzE ∇BEθdZO  
if you.want, I come
- h. nO iΣ∇Σiu tΣi □□u ∇tserriu  
not I.know if him I.call
- i. nO iΣ∇Σiu tΣi □□u tsErri∇ai  
not I.know if him to.call

In a further set of dialects, illustrated by *Miglionico* in (8) the coincidence is between ‘if’ of both hypotheticals and ‘yes-no’ embedded interrogatives and the *wh*-

argument with the meaning of ‘who’, as in (8c), (8e), (8f). Thus these are dialects where specialized lexicalizations are reserved for the declarative complementizer and for the *wh*-item with the meaning of ‘what’.

(8) *Miglionico* (Lucania)

- a.  $m\cong \forall vOnn\cong \forall ditt\cong \quad ka \forall vi\cong n\cong \forall kra$   
me they.have told that he.comes tomorrow
- b.  $E k\forall kudd\cong ka m\cong \forall c\{m\cong \forall sEmbr\cong$   
he.is that that me calls always
- c.  $t\Sigma i \forall ve:n\cong?$   
who comes?
- d.  $t\Sigma e f\forall fa\Sigma\cong n\cong?$   
what they.do?
- e.  $t\Sigma i v\forall vuo \forall ve99\cong$   
if you want I.come
- f.  $nan \forall satt\Sigma\cong t\Sigma i \forall ven\cong$   
not I.know if he.comes (/who comes)
- g.  $t\Sigma e kam\forall mis\cong vu\cong i\cong?$   
what shirt you.want?

In the table in (9) we briefly summarize the parameters illustrated above. In particular, we have listed as ‘complementizer-1’ the form (generally *ka*) which in all dialects introduces embedded declaratives in what may be generically described as non-modal contexts (complements of *say*, etc.), while as ‘complementizer-2’ we have listed a form which can take on different values according to the dialect. Thus it introduces what we may generically characterize as modal complements in the dialects of *Guglionesi*, *Ardaùli*. In the dialect of *Làconi* it is the modal complementizer as well as ‘if’, while it is ‘if’ in the dialect of *Miglionico*.

(9)

	<i>comp-1</i>	<i>comp-2</i>	<i>relative</i>	<i>who</i>	<i>what</i>	<i>what N</i>
<i>(standard)</i>	<i>che</i>		<i>che</i>	<i>chi</i>	<i>che</i>	<i>che</i>
<i>Fontanigorda</i>	<i>ke</i>		<i>ke</i>	<i>ke</i>	<i>kuOse</i>	<i>ke</i>
<i>Modena</i>	<i>ke</i>		<i>ke</i>	<i>ki</i>	<i>ksa</i>	<i>ke</i>
<i>Luras</i>	<i>ki</i>		<i>ki</i>	<i>kiE</i>	<i>ittE</i>	<i>ittE</i>
<i>Guglionesi</i>	<i>ka</i>	$k\cong$	$k\cong$	<i>ki</i>	$k\cong$	$k\cong$
<i>Ardaùli</i>	<i>ka</i>	<i>ki</i>	<i>ki</i>	<i>kie</i>	<i>ittE</i>	<i>ittE</i>
<i>Làconi</i>	<i>ka</i>	$t\Sigma i$	$t\Sigma i$	$t\Sigma inni$	<i>itta</i>	<i>itta</i>
<i>Miglionico</i>	<i>ka</i>	$t\Sigma i$	<i>ka</i>	$t\Sigma i$	$t\Sigma e$	$t\Sigma e$

It is worth noting that the presentation of the complementizer system of Italian dialects does not take into account another dimension of variation which has been discussed in the generative literature (Trumper and Rizzi 1985, Calabrese 1993) under the heading of the subjunctive for the infinitive. Indeed an element which typically takes the *mi/mu* form in Calabrian and Sicilian dialects and the *ku* form in Salento dialects introduces finite verbs in what are generally infinitival control environments in other Romance languages (as well as in English). Another phenomenon known from the generative literature (Poletto 1995, Giorgi and Pianesi 1997) concerns so-called Complementizer Deletion in Italian, i.e. the possibility of finding *che* lexicalized or not lexicalized according to the syntactic environment. We refer the reader to Manzini and Savoia (forthcoming) for a re-evaluation of these various phenomena in the light of the complex complementation patterns displayed in (9). Furthermore we shall leave aside questions pertaining to the nature of elements such as Italian *di* 'of', *a* 'to', etc. introducing infinitival clauses.

## *2. The analysis*

A generative grammar (for instance Chomsky's 1981, Chomsky's 1995) includes both rules of construal, that establish an interpretive relation between two independently lexicalized points, and rules of movement, that create analogous relations between two points in a tree, lexicalized however by the same material. The analogies between the two sets of rules is apparent in the constraints they are sensitive to, leading for instance Cinque (1990) to propose that locality constraints should be stated on the set of *wh*-dependencies rather than on *wh*-movement. These analogies pose the problem whether we shouldn't take the common core that construal and movement share to indicate that we are dealing with just one elementary rule. In other words that construal reduces to movement or viceversa. In fact, Hornstein (2001) argues precisely in favor of the first option. The present article takes the alternative option, i.e. the existence of rules of construal only, to the exclusion of movement.

Of course construal is by definition interpretive. On the contrary, movement can be construed derivationally, though it can equally well be equated with its product, i.e. a chain, as is the case in Brody's (1997) framework. A major difference that opposes movement to interpretive construal has to do with the notion of interpretability. In the system of Chomsky (1995, 2000, 2001) a crucial connection is established between the existence of uninterpretable properties and the existence of movement. By contrast taking the interpretive, construal view it is evident that uninterpretable features cannot play any role in grammar; by definition interpretive construal processes apply at the interface, and they cannot but be explained by interpretive needs of the categories involved. The empirical arguments that we presented in particular in Manzini and Savoia (2002a, in press a) show that

sentential inflections, which Chomsky (1995, 2000, 2001) takes to be uninterpretable as a matter of fact, are best treated as interpretable with respect to nominal properties such as person, number. It is not in the nature of empirical arguments to prove that the uninterpretability view held by Chomsky (1995, 2000, 2001) is altogether impossible; rather we argued that a grammar that eliminates the notion of uninterpretability is favored by being simpler as well as compatible with the empirical evidence.

In an important respect the theory proposed here departs also from otherwise similar representational models, like the one proposed by Brody (1997, 1999). For him, though there is no operation of movement and processes otherwise described by movement are interpretive in nature, there still are objects in the grammar that have crucial properties of movement chains, in that they consist of copies of the same lexical material. The thesis that we defend is that the chain interpretation is not in fact necessarily connected with chains in the generative grammar sense of the term. In particular it is evident that the crucial chain properties can be defined between two independently lexicalized elements, as for instance in the case of resumptive pronouns. The argument that we shall develop in what follows is that the A'-chain interpretation that attaches to Romance interrogative sentences introduced by *che* in turn cannot depend on the lexicalization of a copy.

The shift proposed here from the classical movement model to an interpretive construal of the 'displacement' property requires an alternative account of properties classically taken to be explained by movement. As for reconstruction, it is worth noting that in many cases the position which in classical transformational terms is the insertion point of a moved *wh*-phrase is overtly lexicalized by a clitic, by an agreement morpheme, and so on. Evidently, resumptive pronouns, agreement etc. can be interpretively substituted by the lexical restriction of the *wh*-phrase with which they share reference and argumental slot. Generalizing this approach we can assume that reconstruction is interpretive even in the case when no overt (partial) copy is present.

Another problem for the views that we are proposing here, replacing the traditional explanation in terms of movement and/or chain formation with an interpretive one, is provided by locality effects. In reality our argument is that movement or chains correspond to certain interpretations; but not that such interpretations are not supported by syntactic objects. In particular the relevant interpretations can be supported by what Manzini and Roussou (2000) call dependencies. In such terms an (operator, variable) interpretation corresponds to a dependency connecting two independently lexicalized points of the tree such as a *wh*-quantifier and the verb that hosts the argumental variable. It is this syntactic object that is subject to syntactic constraints, in particular locality ones.

### 2.1. Italian *che*

As we briefly discussed above, for us chain is the name of an interpretation that need not involve a particular syntactic object consisting of several occurrences of the same lexical item. As a particular case the chain interpretation in (1e) involves an operator capable of introducing a variable in the LF of the sentence, as well as a predicate able to licence such a variable in its (LF) argument structure. In examples such as (1e) the relevant predicate is obviously provided by the one verb present in the sentence namely *fai* ‘you do’. While the first argument of ‘do’ is overtly lexicalized by its inflection, i.e. *-i* in the case at hand, the second argument is not, and both can and must receive a variable interpretation. It is natural to assume that the element that introduces the relevant variable is the complementizer *che*. If introducing a variable is a general property of such an element, the meaning of an embedded declarative must also include a variable of some type. In particular the variable introduced by the complementizer could correspond to the content of the proposition, along the lines of ‘I believe *x*, *x* = the earth is round’.

The operator status of so-called complementizers is supported by a further piece of evidence. Indeed in a language like Italian the *che* complementizer can be restricted by a nominal predicate, exactly like *what* can in English, giving rises to questions of the type in (1g). In a sentence like (1g), *che* introduces a variable, which binds the internal argument of the predicate *camicia* ‘shirt’. In this case no chains are implicated by classical theory. In other words examples like (1g), not unlike their English counterparts, invite an analysis whereby *che/what* acts as an operator binding the internal argument variable of the noun. But in (1g) it is the so-called complementizer that introduces the relevant variable, not the specialized *wh*-word.

In short, we propose that the complement sentence in (1a), the question in (1e) and the *wh*-phrase in (1g) are all preceded by the same lexical item in that they have a similar LF with *che* introducing a variable. The different interpretations stem from the fact that in (1e) *che* binds the internal argument of a verbal predicate, as illustrated in (10a); in (1a), *che* binds a variable with sentential content, as in (10b); and in (1g) *che* binds the internal argument of a nominal predicate, as in (10c).

- (10) a. [che *x* [fai(*x*)]]  
 b. [che *x* [*x*:vieni domani]]  
 c. [che *x* [camicia(*x*)]]

A difference between ‘complementizer’ *che* and ‘wh’ *che* emerges from the representations in (10b) vs. (10a) and (10c). For ‘complementizer’ *che* binds a propositional variable, while ‘interrogative’ *che* binds an argumental one. For (10a) vs. (10c) there appears to be an obvious syntactic counterpart to this difference. Indeed in (10c), the *wh*-phrase as a whole is traditionally assigned to a nominal

position within the C field, typically the Spec of some C head, as in (11c), while the *che* complementizer in (10a) is assigned to a C head as in (11a). In the internal structure of the *wh*-phrase *che* in turn could occupy a position identifiable with that of the sentential C, as in (11a). The parallelism between the I, C positions of the sentence and similar positions of the noun phrase runs through much of the relevant generative literature starting with Abney 1987, Szabolcsi 1994; a close match to (11b) is provided in particular by Cardinaletti and Starke (2000).

- (11) a. [C *che* [I<sup>v</sup> *vieni domani*]]  
 b. [C *che* [I<sup>v</sup> *camicia*]]  
 c. [C<sup>v</sup> *che camicia* [C [I<sup>v</sup> *hanno portato*]]]

The parallelisms between the *che* in (11c) and the *che* in (10b), as well as the different properties of the latter with respect to the *che* in (11a), can be taken to show that the syntactic structure underlying (10b) is of the type in (11c) rather than (11a), i.e. with the *che* constituent in a nominal position of the C field rather than in the C position itself, as in (12).

- (12) [C<sup>v</sup> *che* [C [I<sup>v</sup> *fai*]]]

A movement derivation for (12) can proceed roughly as in (13). However note that the two copies of *che* in (13) can only be present during the derivation itself. Indeed at the PF interface one of the two copies, namely the lower one, is deleted. But crucially, the two copies cannot be present at the LF interface either, for *che*, being a quantifier, will necessarily be in its scope position, i.e. a position within the C field, and will have to be deleted from the lower position in (13). This means that while the derivation in (13) is formally possible, the LF interpretation in (10a) cannot in any way be taken to depend on it. For, quite simply, by LF the second copy of *che* must disappear and the interpretation in (10a) is therefore determined by the same general principles that would dictate it if the derivation in (13) had never taken place. In other words the derivation in (13) is excluded by Occam's razor.

- (13) [C<sup>v</sup> *che* [C [I<sup>v</sup> *fai* *ehe*]]]

As can be seen in such examples as Italian (1f), the *che* complementizer construed as 'what' introduces infinitival sentences as well. However in all cases in which it does not have the force of a *wh*-operator, *che* is limited to finite sentences. Thus the infinitival counterpart to (1a) involves the prepositional complementizer *di* 'of' as in (14a). What is more, even the relative clause in (1b) cannot be introduced by *che*, but requires a prepositional complementizer again, i.e. *da* 'from' as in (14b).

- (14) a. Mi hanno detto di/\*che essere venuti  
           to.me they.have said of/that to.be come  
           ‘They told me that they came’  
       b. Sono quelli       da/\*che chiamare  
           they are those   P/that to.call

In the generative literature, precisely the recognition of the fact that relative clause *che* and declarative *che* are both restricted to finite clauses clinched the argument in favor of giving them the same lexical entry (Kayne 1976). At the same time, the presence of interrogative *che* in infinitival sentences played against this analysis being extended to it. In terms of the syntactic and semantic analyses in (10)-(12) we can now say that the constraint observed in (14a) corresponds to the fact that ‘complementizer’ *che* binds a propositional variable. The absence of such a constraint in (1f) reflects the different status of *che* as an element binding a variable in the argument structure of a predicate.

This also allows us to clarify the status of relative *che*, that we have not discussed so far. In principle we could assume that the *che* in (1b) introduces a nominal variable corresponding to the referential content of the head of the relative, or that it introduces a propositional variable as in declaratives. The fact that relative *che*, as in (14b) patterns with complementizer *che* in (14a) with respect to finiteness argues for the second view, essentially along the lines of Kayne (1976). As proposed notably by Vergnaud (1974), Kayne (1994), Bianchi (1999) it is therefore the head of the relative that binds the argumental variable, i.e. has the displacement property, as schematized in (15).

- (15) [quelli x [<sub>C</sub> che [<sub>T</sub> chiamo(x)]]

The *c* representations that we have so far provided for the different occurrences of *che* do not take into account proposals as the the highly articulated nature of the C field. In particular Rizzi (1997) proposes a splitting of the C position of classical generative theory into at least three positions, a lower position for Finiteness, an intermediate position for Focus and a higher position for Force; in this view Topic positions can be freely interleaved between the different C layers. The complexity of the left periphery of Romance languages however does not appear to be satisfactorily served even by this more articulated model.

Manzini and Savoia (1999, 2002a, forthcoming) accept the general arguments of Rizzi (1997) in favor of a tripartite systematization of the C field, at the same time modifying to some extent the nature of the original domains. The lowest domain, labelled simply C, is identified with the modality lexicalized by the verb in interrogatives. The intermediate domain, labelled C<sub>I</sub>, to suggest Indefiniteness, is identified with the ‘indefinite’ modality lexicalized by infinitivals; the highest C<sub>Op</sub> domain is the domain of intensional anchoring, reserved to root forms of the verb



that of the sentence. Therefore we can expect the basic structure of the noun phrase to consist of the set of positions in (16) for the nominal head and of the argumental and generally denotational specifications in (17) interleaved among the positions in (16). As for the collocation of *che* in such a structure, it would appear that its property of binding an argumental variable, i.e. the internal argument of the nominal predicate, warrants a nominal position for it. We take this position to be Q, as in (19), which in the conception of Manzini and Savoia (2002b, in press b, forthcoming) is the position corresponding to indefinite quantifiers in the noun phrase.

(19) [<sub>Q</sub> che ... [C [<sub>Γ</sub> camicia]]]

## 2.2. Parameters in the lexicalization of ‘wh-’

In what precedes we have considered in some details the properties of Italian *che*. If its treatment is on the right track, we should expect it to be easily pliable to express parametric variation of the type displayed in section 1. Many of the parameters presented in section 1 pertain to the nature of *wh*-introducers. Thus English is like Italian in introducing finite declaratives and relatives by the same complementizer, but differs sharply from Italian in that it has a specialized set of *wh*-introducers, including in particular *what*. As we have seen there are Romance systems with the same properties, as for instance *Luras* in (3). In the *Luras* dialect, *ki* is the declarative and relative complementizer; however *wh*-introducers are always lexicalized by specialized lexical items, in particular *ittE* for ‘what’ both as a free-standing argument and as the determiner of a complex *wh*-phrase. The *Luras* system will be accounted for simply by treating *ki* as a dedicated Op element introducing a propositional argument, while *ittE* introduces an argumental variable both in the sentence and the noun phrase, as schematized in (20). Exactly the same treatment is appropriate for English *that* vs. *what*.

- (20) *Luras*
- a. [<sub>Op</sub> ki ... [C [<sub>Γ</sub> enis kraza]]]
  - b. [<sub>N</sub> ittE ... [C [<sub>Γ</sub> zOn fattE♥□E]]]
  - c. [<sub>N</sub> ittE ΓamiZa ... [C [<sub>P</sub> t [<sub>Γ</sub> a lIEaΔu]]]]]

Let us then consider the case of *Modena* in (4). The dedicated *wh*-word for ‘what’ is *ksa*, as in (21b), while *ke* is both the declarative and relative complementizer restricted to finite clauses, as in (21a) and the element that introduces complex *wh*-phrases as in (21c). In this second case, there are no finiteness restrictions, as we may expect simply on the basis of the fact that *ke* is embedded in the nominal constituent inserted in the left periphery of the sentence. In this case we cannot simply restrict the point of insertion of *ke* to Op, since in the

structure of the noun phrase it presumably occupies the same Q position that we have proposed for its Italian counterpart, as in (21c). However there is an obvious property that the Op element in (21a) and the Q element in (21c) share, namely the fact that the content of the variable they introduce is restricted in the first case by the entire proposition and in the second case by the content of the noun phrase. It is therefore the unrestricted character of the variable in (21b) that determines its specialized lexicalization.

(21) Modena

- a. [Op<sup>r</sup> ke ... [C [D<sup>r</sup> i [r<sup>r</sup> vinen dman ]]]]
- b. [N<sup>r</sup> ksa ... [C fe [D<sup>r</sup> t]]]
- c. [Q<sup>r</sup> ke ... [C [r<sup>r</sup> kamiza]]]

French is to some extent specular to the *Modena* dialect, since *que* introduces finite and infinitival questions with the value of ‘what’, as in (22a), and finite declaratives, as in (22b), and relatives. At the same time it cannot introduce a complex *wh*-phrase as in (22c), where we find instead a specialized *wh*-determiner.

- (22) a. Que fait-il?  
what does he?
- b. Je pense qu(e) il viendra  
I think that Peter will.come
- c. Quel/ \*que garçon as-tu vu?  
what boy have-you seen

It appears that the structure of (22a) and (22b) is similar to that of their Italian counterpart, as in (23a), (23b), requiring an explanation for the fact that a specialized *wh*-item introduces the complex *wh*-phrase in (23c). On the evidence of (23), French *que* is lexically compatible with a propositional restriction, as in (23a), or with no restriction at all, as in (23b), but not with a nominal restriction. In this respect, its case is truly specular to that of *Modena*.

- (23) a. [N<sup>r</sup> que ... [C fait [D<sup>r</sup> il ]]]
- b. [N<sup>r</sup> que ... [C [D<sup>r</sup> il [r<sup>r</sup> viendra]]]]
- c. [Q<sup>r</sup> quel ... [C [r<sup>r</sup> garçon]]]

Summarizing so far, in Italian *che* is compatible not only with a propositional restriction, but also with no restriction and a nominal restriction. Of this latter two possibilities, French instantiates only the first one (no restriction), *Modena* only the second one (nominal restriction), and *Luras* neither. The parametric variation among the languages studied so far is actually wider. Other respects in which French *que* and Italian *che* differ are indeed noted by Poletto and Pollock (2003) in connection with a

study of *wh*-in situ in Romance languages. Thus French *que* cannot be found in situ as in (24a), while Italian *che* can, with the interpretation of *wh*-in situ in this language, roughly the same (echo) one as in English, as in (25a). Furthermore Italian *che* can be pied-piped by a preposition, as in (25b); this behavior is not found with French *que*, as in (24b). In this case French employs a specialized *wh*-items, namely *quoi* ‘what’.

- (24) a. Il a vu \*que/quoi?  
he has seen what  
b. Avec \*que/quoi as-tu fait ça?  
with what have-you done this
- (25) a. Ha visto che?  
He has seen what  
b. Con che lo hai fatto?  
with what it you.have done

It is evident that the behaviors in (24)-(25) are not predicted on the basis of what we have said so far. Indeed if *que* can fill an N position in the *wh*-string in (23a), we would predict that it can also appear as the N, i.e. direct object, argument of a preposition or of a verb, as indeed it happens with Italian *che*. In this respect we may adopt the proposal of Poletto and Pollock (2003) that what is at stake is the clitic status of *que*; we independently know from pronominal clitics that the latter can appear in the left-peripheral domains of the sentence, but not in complement positions. That the clitic status of *que* is at stake is confirmed by the comparison with *Modena*, where the specialized *wh*-clitic *ksa* alternates with the non-clitic *wh*-element *kosa* inside prepositional phrases, verb phrases etc. as in (26).

- (26) *Modena*
- a. kun kosa/\*ksa l E-t fat?  
with what it have-you done?  
b. a-l fat kosa/\*ksa?  
has-he done what

At the same time we emphasize *contra* Poletto and Pollock (2003) that the clitic status of *que* cannot in and of itself explain its entire distribution as *wh*-word. Indeed the left periphery of the noun phrase, exactly as the left periphery of the sentence, hosts clitic material, as shown for instance by definite determiners, which have exactly the same morphological shape as pronominal clitics. Thus the independent parameters postulated here remain necessary to account for (23c).

We are left at this point with the parameters with respect to standard Italian or indeed French illustrated by dialects such as *Fontanigorda* in (2). In Italian and French the coincidence between complementizer and *wh*-introducer involves ‘what’

questions; however in *Fontanigorda*, *ke* is the complementizer and the *wh*-introducer for ‘who’. The case of Italian or French has already been treated as a lack of any restriction on the *che* element. Indeed it is worth noting that a question such as (27a) equally admits the responses in (27b) and in (27c) showing that it ranges over animates and inanimates alike.

- (27) a. Che vedi/guardi?  
      what you.see/you.look.at  
      b. Delle cose.  
          some things  
      c. Della gente.  
          some people

Consider then *Fontanigorda*. This dialect is like *Modena* in always requiring a restriction on *ke*, leading to a specialized *wh*-item for ‘what’. The difference is that in the *Fontanigorda* dialect the human restriction is not lexicalized and is interpretively associated with *ke*, whilst in *Modena* it is lexicalized by the specialized morphology *ki*.

### 2.3. Parameters in the lexicalization of complementizers

The parameters that we have considered so far in relation to languages such as Italian, French, English or those of *Fontanigorda*, *Modena*, *Luras* concern the lexicalization of *wh*- operators, which in present terms bind an argumental variable. At the same time all of the dialects mentioned have the same basic complementizer system in which all complement sentences are introduced by the *that/que/che/ke* complementizer, i.e. in present terms an operator over propositions (possible worlds in intensional semantics, cf. Chierchia 1997).

Let us then consider the dialects in (5)-(8), which are characterized by the existence of at least two ‘that’, starting with *Guglionesi* in (5), where the *ka* complementizer is found under verbs such as *to say*, while *to want* selects *k≡*. This is reminiscent of the distribution of indicatives and subjunctives in Romance languages such as Italian or French. Authors such as Manzini 1996, Baker and Travis 1997 propose in turn that the subjunctive verb differs from the indicative in that it is associated with an indefinite eventive argument rather than with a definite one.

Given the similarities just noted it is tempting to relate the choice of *ka* or *k≡* in *Guglionesi* complement clauses directly to the definite or indefinite nature of the event and hence to the verbal mood. In reality this characterization does not sit easily with one of the main themes developed in the preceding sections, namely that a complementizer is essentially a propositional operator. We take the parallel with subjunctive modality to contain a useful suggestion, namely that definiteness/indefiniteness properties are crucially involved. Thus we suggest that what we have

called the ‘complementizer-1’, i.e. *ka*, has properties of definite quantification over propositions; on the contrary, what we have characterized as ‘complementizer-2’, i.e. *k≡*, introduces an indefinite quantification. Their shared property as propositional operators otherwise determines a similar syntax for both *ka* and *k≡*, which we take to be inserted in Op of the C<sub>Op</sub> domain as in (28).

(28) Guglionesi

- a. [Op<sup>o</sup> ka [C<sub>Op</sub> [I<sup>o</sup> vE
- b. [Op<sup>o</sup> k≡ [C<sub>Op</sub> [I<sup>o</sup> vi

If the hypothesis concerning the split between *ka* and *k≡* is on the right track we expect it to explain why, in case there is coincidence between the complementizer and the *wh*-quantifier, this is always with ‘the complementizer-2’, i.e. *k≡*. Indeed in none of the dialects reviewed by Manzini and Savoia (forthcoming) is it possible for the ‘complementizer-1’ to coincide with a *wh*-element. In our view the crucial connection between *k≡* as a complementizer, i.e. a sentential operator, and as a *wh*-element resides precisely in the notion of indefiniteness. We can in fact take it that the crucial role of a *wh*-element is to introduce an indefinite variable corresponding to one of the arguments of the verb, making it very similar to the indefinites of *wh-in situ* languages. We therefore expect that it will be the indefinite/modal complementizer that overlaps with it.

In other respects the parameters instantiated by *Guglionesi* are already familiar from the discussion of standard Italian in section 2.1. Thus complementizer *k≡* is restricted to finite clauses while *k≡* as a *wh*-element is insensitive to finiteness. This latter property corresponds to the fact that it is an operator over an argumental variable, inserted in a nominal position of the C<sub>1</sub> domain, as in (29a). Alternatively it can bind the internal argument of a noun and thus introduce a complex *wh*-phrase, as in (29b).

(29) Guglionesi

- a. [N<sup>o</sup> k≡ [C<sub>1</sub> [I<sup>o</sup> fi
- b. [N<sup>o</sup> k≡ kkamoΣ≡ [C<sub>1</sub> [I<sup>o</sup> vu

The last property of note of a dialect like *Guglionesi* concerns relative clauses, which are also introduced by *k≡*; the latter can be identified with the complementizer, in Op of the C<sub>Op</sub> domain as in (30), by the fact that it is constrained to finite clauses. In the light of the discussion of the *k≡* complementizer that precedes, its presence in relative clauses should be derived by its indefinite properties. One possibility that comes to mind is that in this case the indefiniteness of the propositional variable is connected to the fact that the sentence contains an argumental variable. Indeed relatives allow us to make it clear that there is only a

partial overlapping between the choice of complementizer and the embedded verbal modality; this is predicted by the present analysis, which connects the selection of the complementizer to the properties of the proposition, and the selection of verbal modality to properties of the eventive argument.

(30) Guglionesi

[<sub>D</sub>° kull≅    [<sub>Op</sub>° k≅    [<sub>Op</sub>    [<sub>I</sub>° vad≅

The dialect of *Ardaùli* in (6) derives from the crossing of the parameter just analyzed for *Guglionesi* and the one illustrated by the dialect of *Luras* in the previous section. In other words, *Ardaùli* has a two-complementizer system, including *ka* for what we have characterized as definite propositional contexts, and *ki* for indefinite ones. Their nature of complementizers, i.e. of propositional operators, is reflected by their insertion in Op of the C<sub>Op</sub> domain, as in (31a)-(31b). At the same time there is no coincidence between either complementizer and the *wh*-system, which has specialized elements for both ‘who’ and ‘what’, as illustrated for ‘what’ in (31c)-(31d). This provides further evidence that the two parameters are entirely independent.

(31) Ardaùli

- |    |                               |                  |                          |
|----|-------------------------------|------------------|--------------------------|
| a. | [ <sub>Op</sub> ° ka          | [C <sub>Op</sub> | [ <sub>I</sub> ° eniΔi   |
| b. | [ <sub>Op</sub> ° ki          | [C <sub>Op</sub> | [ <sub>I</sub> ° EndzEΔE |
| c. | [ <sub>N</sub> ° ittE         | [C <sub>I</sub>  | [ <sub>I</sub> ° vaizi   |
| d. | [ <sub>N</sub> ° ittE kammiZa | [C <sub>I</sub>  | [ <sub>I</sub> ° kErEzE  |

Before considering the final set of dialects in (9), it is worth mentioning that *Ardaùli* also exemplifies a further interesting parameter involving relative clauses. Indeed the *ka* and *ki* complementizers alternate not only in front of complement clauses, but also in front of relatives. In particular, while the *ki* complementizer introduces restrictive relatives, as in (6), non restrictive relatives are introduced by *ka*, as in (32).

(32) Ardaùli

dZu∇anni ka ∇Esti am∇miΓu ∇meu  
 John    that is    friend mine

In both cases we assign to the *ka/ki* complementizer the same structure already indicated for complement sentences in (31), as shown in (33). It is natural to conclude that the choice of a complementizer for relative clauses is sensitive not simply to the presence of an argumental variable, but also to the nature of this variable. Thus it is only restrictive relatives that contain an indefinite variable, while

the variable of non-restrictive clauses has an individual reference. In this second case the relative clause is introduced by the definite sentential operator, i.e. *ka*.

(33) Ardaùli

- a. [D<sup>n</sup> kussu            [Op<sup>n</sup> ki    [C<sub>Op</sub>    [I<sup>n</sup> bbiO  
 b. [D<sup>n</sup> dZuanni        [Op<sup>n</sup> ka    [C<sub>Op</sub>    [I<sup>n</sup> Esti    ... ammiΓu meu

A dialect like *Làconi* in (7) has essentially the same system just illustrated for *Ardaùli* with the difference that the indefinite complementizer *tΣi* introduces ‘if’ sentences as well, i.e. hypotheticals and embedded yes-no questions. Before considering this system, it is worth reviewing briefly the main properties of elements such as *if* in English or *si* in French, *se* in Italian etc. Let us consider Italian *se* as an introducer for hypotheticals in (34).

- (34) a. Se non piove, spesso esco  
           if not it.rains often I.go out  
 b. Se non piove, esco  
           if not it rains I.go out

In the tradition of Lewis (1975) the sentence introduced by *se* is interpreted as the restriction of a propositional variable, bound in particular by adverbs of quantification such as *spesso* ‘often’ in (34a). Therefore (34a) admits of a rough paraphrase like ‘for many instances/worlds *x* such that it doesn’t rain in *x*, I go out in *x*’. In the absence of an overt quantification, the operator that binds the propositional variable can be the generic/universal one so that (34b) can be interpreted roughly as ‘always/generally if it doesn’t rain, I go out’. Given this interpretive properties of hypotheticals, it is natural to assume that *se* ‘if’ introduces an indefinite propositional variable. As such we expect its syntax to parallel that of the propositional *che*, leading to the assignment to *se* of the Op position in the C<sub>Op</sub> domain as in (35).

- (35) [Op<sup>n</sup> se            [C<sub>Op</sub>    [I<sup>n</sup> piove

Hypothetical *se* shares with *che* the property of being compatible only with finite clauses. This property can be connected to the fact that they both introduce a propositional variable, bound by a propositional operator. More specifically, operator properties are intrinsic to *che*, but not to *se*, if as proposed above the quantification in a hypothetical sentence is contributed by an adverb of quantification. Therefore we may expect that contrary to *che*, *se* can in principle appear with infinitivals as well. This is indeed the case when *se* introduces embedded yes-no questions, as in (36).

- (36) a. Mi chiedo se esce (o no)  
 myself Iask if he.goes.out (or not)  
 b. Mi chiedo se uscire (o no)  
 myself Iask if to.go.out (or not)

For embedded yes-no questions such as (36) we can again assume that *se* introduces an indefinite propositional variable and this in fact establishes a *wh*-question ranging over the proposition. As is obviously suggested by the alternative *whether* lexicalization in English, we therefore propose that (36a) can be roughly rendered as ‘I wonder in which cases/worlds *x*, he goes out in *x* (or doesn’t go out in *x*)’. The complementizer nature of *se*, defined as the property of introducing a propositional variable, will give rise to a syntax in which *se* is again inserted in Op. On the other hand we can assume that its relevant domain of insertion is the same as for argumental *wh*-elements, i.e. C<sub>1</sub> rather than C<sub>Op</sub> as indicated in (37) for the sentence in (36a).

- (37) [Op<sup>o</sup> se      [C<sub>1</sub>      [I<sup>o</sup> esce

For Borer (1989), Kayne (2000) the fact that Italian interrogative *se* is insensitive to finiteness is due to the fact that it is construed as a *wh*-element in a Spec position, like the specialized *wh*-item *whether* of English. The characterization for interrogative *se* that we proposed above makes the crucial connection with *wh*-operators by postulating the same insertion domain, i.e. C<sub>1</sub>, for both elements. At the same time it captures the lexical identity of interrogative and hypothetical *se* by treating both as propositional operators Op.

With this much background, we can now return to *Làconi*, where *tΣi* introduces both modal complement clauses and ‘if’ clauses. We assume that hypothetical *tΣi* is associated with the Op position of the C<sub>Op</sub> domain, as illustrated in (38). From an interpretive point of view, the natural conclusion to draw from the discussion that precedes is that the selection of *tΣi* in (38) is connected precisely to the indefinite quantification properties that we have independently associated to elements such as *Ardàili*’s *ki*. Indeed in (38) *tΣi* introduces an indefinite variable, restricted by the following proposition and interpretable in the scope of an unselective quantifier. Crucially, the analysis pursued here allows us to predict that in the absence of a specialized ‘if’ element, the *ka* complementizer could not introduce hypotheticals, given the definite properties that we imputed to it.

- (38) Làconi  
 [Op<sup>o</sup> tΣi      [C<sub>Op</sub>      [I<sup>o</sup> OIIEzE      ...      BE9dZO

Like ‘if’,  $t\Sigma i$  in the *Làconi* dialect can introduce an embedded interrogative as well, in which case it is compatible with both finite verbs as in (39a) and infinitival verbs, as in (39b). In effect,  $t\Sigma i$  behaves as a *wh*-element whose restriction is a proposition. Because it introduces a propositional variable its position can be identified once again with that of complementizers, i.e. Op; its domain of insertion is the same as for argumental *wh*-elements, i.e.  $C_1$ , as already proposed for standard Italian *se* in (37).

(39) *Làconi*

- |    |                    |        |                         |                |
|----|--------------------|--------|-------------------------|----------------|
| a. | $[_{Op} t\Sigma i$ | $[C_1$ | $[_N \square \square u$ | $[_I tserriu$  |
| b. | $[_{Op} t\Sigma i$ | $[C_1$ | $[_N \square \square u$ | $[_I tserriai$ |

Dialects like *Miglionico* in (8) present an interesting combination of some of the parameters reviewed in this and in the previous section. Thus on the one hand they include a single *ka* complementizer for complement clauses and relatives. On the other hand, they do not have a dedicated ‘if’ complementizer for hypotheticals and embedded questions. Rather the complementizer for hypotheticals and embedded yes-no questions coincides with a *wh*-element of the system, typically ‘who’. Of course, *ka* can be analyzed as a lexicalization of Op of the  $C_{Op}$  domain, as in (40a), and interpreted as a propositional variable binder. In turn,  $t\Sigma e$  ‘what’ can be identified with a *wh*-element binding an argumental variable of the verb, as in (40b), or of the noun, as in (40c).

(40) *Miglionico*

- |    |                 |           |                            |
|----|-----------------|-----------|----------------------------|
| a. | $[_{Op} ka$     | $[C_{Op}$ | $[_I vi \ni n \ni$         |
| b. | $[_N t\Sigma e$ | $[C_1$    | $[_I ffa \Sigma \ni n \ni$ |
| c. | $[_N t\Sigma e$ | $[C_1$    | $[_I vu \ni i \ni$         |

The element that interests us here directly is  $t\Sigma i$ . As a lexicalization of the *wh*-element with the meaning of ‘who’,  $t\Sigma i$  can be inserted in a nominal position of the  $C_1$  domain, as in (41a), where it binds an argumental variable. Alternatively  $t\Sigma i$  lexicalizes a *wh*-variable whose restriction is the entire proposition; again its insertion position will be within the  $C_1$  domain, but it will correspond to the Op position of propositional operators. It is worth noting that the terminal strings of (41a) and (41b) are identical; in fact (40a) and (40b) correspond to the single example in (8f), whose ambiguity was indicated in the glosses. The last possibility is for  $t\Sigma i$  to introduce an indefinite propositional variable interpreted in the scope of an unselective quantifier, as in hypotheticals, in which case it appears in Op of the  $C_{Op}$  domain. The finiteness restriction in this last case can be imputed to the quantification in whose domain  $t\Sigma i$  is to be found.

(41) Miglionico

- |    |                     |                  |                         |       |
|----|---------------------|------------------|-------------------------|-------|
| a. | [ <sub>D</sub> tΣi  | [C <sub>I</sub>  | [ <sub>I</sub> ven≅     |       |
| b. | [ <sub>Op</sub> tΣi | [C <sub>I</sub>  | [ <sub>I</sub> ven≅     |       |
| c. | [ <sub>Op</sub> tΣi | [C <sub>Op</sub> | [ <sub>I</sub> vvu≅ ... | ve99≅ |

The distribution observed in (41) is expected given that in all Romance languages the hypothetical complementizer coincides with the embedded yes-no questions complementizer, and given that the latter is treated here as a *wh*-operator over propositions. The fact that in the *Miglionico* dialect *tΣi* can also act as a *wh*-operator over argumental variables confirms the approach taken here. One may wonder on the other hand why *tΣi* is the *wh*-element for ‘who’ rather than for ‘what’. One possibility is that it is an interpretive property of *tΣi* that it is necessarily associated with a restriction. Where there is no lexical restriction in the form of a proposition as in (41), a restriction to human arguments is forced at the interpretive interface. As we may expect, there are on the other hand several dialects with the same relevant properties as *Miglionico* where ‘if’, ‘who’ and ‘what’ coincide on the same *tΣi* form, as illustrated in detail by Manzini and Savoia (forthcoming).

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