**Determinacy and the CP-TP Bottleneck**

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In the last 25 years, generative grammar has undergone a paradigm shift from relying on principles in Universal Grammar to principles that are less specific to the faculty of language. These are usually referred to as Third Factors. In this paper, I take one such non-language specific principle, namely determinacy, and apply it to variation and change in the CP-TP layer, focusing on English and Dutch. I show that variation surrounding Verb-second, TP-expletives, *that*-trace, C-deletion, and subject-less relatives is due to the need for an efficient computation of the CP-TP boundary.

C-deletion, CP-TP boundary, determinacy, Subject-less relatives, *that*-trace, TP-expletives, Verb-second

**1 Introduction**

Universal Grammar served as the foundation of generative grammar for a long time before the latter underwent a shift from relying on principles in Universal Grammar to principles that are less specific to the faculty of language. These are usually refered to as Third Factors (Chomsky 2005) and include Minimal Search, Inclusiveness, and No Tampering. In this paper, I take one such non-language specific principle, namely determinacy, and apply it to variation and change in the CP-TP layer. I show that variation surrounding Verb-second, TP-expletives, *that*-trace, C-deletion, and subject-less relatives is due to the need for an efficient computation of the CP-TP boundary.

The outline is as follows. In section 2, I discuss the paradigm shift, from UG to Third Factors, and provide examples of how determinacy works. In section 3, I first show some overlap in the functions of C and T and then provide examples of variation that are due to determinacy resolutions around the CP/TP `bottle neck’, namely in *that*-trace, C-deletion, and subject-less relatives. In section 4, I show how Verb-second (V2) is a problem for determinacy if both CP and TP occur. When, in the history of English, the TP is introduced around 1400, the V2 option disappears. The phenomena in sections 3 and 4 follow if CP can be deleted (in English) or TP isn’t present (in Old English and Dutch).

**2 From UG to Third Factors**

UG of the 1950s to 1970s includes a lot of language-specific instructions and rules. It initially includes rules for e.g. antecedent-reflexive relations, for passives, and for *wh*-movement. When the model shifts to the Principles and Parameters’ one, the parameters help to account for cross-linguistic differences while still keeping language acquisition central. In that model, children acquiring their language(s) choose a setting (compatible with the data) for language-specific phenomena, such as *wh*-movement and null-subjects. UG remains rich in the Government and Binding framework of the 1980s (Chomsky 1981: 3).

However, if the Faculty of Language developed in humans only 100,000 to 200,000 years ago, it makes sense to attribute less to language specific principles. Because of their specificity, principles of UG wouldn’t have had enough time to evolve and, if there had been time, the changes would possibly have made languages very different from each other. Chomsky, Gallego, & Ott (2019: 230) put it this way, “UG must meet a criterion of evolvability”. That’s why UG is currently assumed to contain just a simple operation merge that combines two elements into an unordered set, as in (1).

(1) **Merge**

Select two lexical items α and β and form the set {α, β} in a workspace.

(Chomsky, Gallego, & Ott 2019)

More important than principles specific to the language faculty, as in (1), are "general properties of organic systems" (Chomsky 2004: 105). Three factors are considered crucial in the development of language and they are listed below.

**Three Factors**

“1. Genetic endowment, apparently nearly uniform for the species, which interprets part of the environment as linguistic experience, a nontrivial task that the infant carries out reflexively, and which determines the general course of the development of the language faculty. Among the genetic elements, some may impose computational limitations that disappear in a regular way through genetically timed maturation …;

2. Experience, which leads to variation, within a fairly narrow range, as in the case of other subsystems of the human capacity and the organism generally.

3. Principles not specific to the faculty of language”. “(a) principles of data analysis that might be used in language acquisition and other domains; (b) principles of structural architecture and developmental constraints that enter into canalization, organic form, and action over a wide range, including principles of efficient computation, which would be expected to be of particular significance for computational systems such as language”. (Chomsky 2005: 6)

The first factor principle, the “genetic endowment” comprises a greatly reduced UG which Chomsky (2005: 11-12) argues includes just merge, i.e. (1). Take two syntactic objects and combine them to make another object. Since merge can continue indefinitely, it also derives the recursive nature of language. The second factor is the learner’s need to be exposed to one or more languages (spoken or signed) to build the lexicon and to become familiar with interface constraints. Lexical differences are responsible for all cross-linguistic variation and parameters are now only relevant to that domain: speakers have to learn which features a lexical item has and which grammatical categories are included.

Third factor principles are not specific to language and include Minimal Search, Determinacy, and Structural Economy and take over some of what used to be attributed to first factor, i.e. UG principles, such as Subjacency, Locality, and Anti-Locality. In what follows, I’ll focus on the Determinacy Principle. In the spirit of attributing as much as possible to non-linguistic or third factors, Chomsky, Ott, Gallego (2019: 246) argue that determinacy is such a principle that is needed to account for the locality of movement. In this section, because it is the most complete account, I provide Goto & Ishii’s (2019) formulation of determinacy and some examples of input that must be unambiguous.

Within a Workspace -read phase-, there can be only one object X, “avoiding in determinate rule application.” Putting this positively gets us (2) and this rule, combined with a derivation by phase model, also accounts for islands.

(2) **The Principle of Determinacy**

If Structural Description (SD) for a rule holds for some [Workspace], then Structural Change (SC) must be unique. (Goto & Ishii 2019: 91)

Boeckx (2012: 4) points out that Chomsky (1964) already writes that “transformations must be unambiguous”.

If CP, v\*P, and DP are phases and the complement of the phase head is sent to Transfer, certain workspaces will contain more than one instance of an item. For instance, a subject in the specifier of the v\*P that moves to the specifier of the TP will have two copies in the workspace that is the complement of C and therefore cannot move to the specifier of the CP. That movement makes the derivation indeterminate. Note that (2) resembles (3), which is usually seen as a UG Principle not a third factor one.

(3) **Anti-Locality**

a. Movement must not be too local. (Grohmann 2003: 26)

b. Movement of a phrase from the specifier of XP must cross a maximal projection other than XP. (cf. Erlewine 2016: 431 and Deal 2019: 408)

As an example of a determinacy violation (or an anti-locality one), English shows a subject island effect where extraction of a *wh*-element from the specifier of the TP in (4a) into the CP in (4b) results in an ungrammatical sentence (Goto & Ishii 2019: 94).

(4) a. A picture of Mary pleased you?

b. \*Who did a picture of please you?

c. [CP who [C-did [TP [a picture of <who>] [T [v\*P [<a pictures of who>] [v\*

[ please you]]]]]]].

Workspace: not allowed by determinacy Transfer 1

In (4c), a derivation of (4b), it is shown that the complement of v\* is transferred to the interface and the next workspace is the complement of C. The latter contains two copies of *who* and is therefore not unambiguous, as required by (2).

If the subject stays in the specifier of the v\*P, as in (5a), there is no violation when *who* moves to the CP, as shown in (5c), because the specifier of TP is filled with an expletive and there would not be two copies of *who* in the workspace.

(5) a. There is a picture of who on the wall?

b. Who is there a picture of on the wall?

c. [CP who [C is [TP there [T [v\*P [a picture of <who>] [v\* …

Note that accounting for the grammaticality of (5b) would be difficult under Subjacency and related constraints because only one TP is crossed.

As argued in detail by Goto & Ishii (2019), in addition to banning extraction from subject position and movement of the subject to a topic position, the requirement for determinate input also accounts for the *that-*trace effect, as in (6a), and the impossibility of further-raising, as in (7a). The violating two copies are shown in (6b) and (7b), respectively.

(6) a. \*Who do you think that read the book?

b. Who do you think that <who> T <who> read the book

workspace Transfer

(7) a. \*John seems that reads a book.

b. John T <John> seems that <John> T <John> reads a book.

workspace Transfer

In (6b), the workspace contains two copies and is therefore indeterminate and ungrammatical. Deleting C, as in (8), makes it determinate because the C transfers its features to T which means that T becomes the phase head and the number of copies of who is reduced to one.

(8) a. Who do you think read the book?

b. Who do you think <who> T <who> read the book

workspace Transfer

The ungrammaticality of further-raising, as in (7a), earlier referred to as the Tensed S Condition (TSC) because a DP cannot move out of a tensed clause, is likewise accounted for by determinacy, as is seen from the multiple copies of *John* in the workspace in (7b).

The C-deletion approach to *that*-trace violations is one adopted in Chomsky (2015: 10-11) but it violates the No Tampering Condition because something is deleted from the derivation. An alternative is not to include the C in the derivation and to choose a T as phase head but this requires the selection from the lexicon to `look ahead’. It seems to me violating the No Tampering Condition is preferable.

In this section, I have outlined the shift in generative grammar from UG to Third factors and given an example of a Third Factor, i.e. the Determinacy Principle, one that will feature in what follows next.

**3 The CP/TP `bottle neck’**

In this section, I first outline how CP and TP duplicate many of each other’s functions. In many cases, having both present results in violations of determinacy. Cross-linguistic variation shows ways to resolve these violations.

A clear indication that C and T fulfill similar functions is that, in the current generative framework, T inherits tense and agreement features from the phase head C. This Feature Inheritance proposal (Chomsky 2001) captures the dependence of mood in the C and finiteness in the T. For instance, indicative mood is marked through *that* in the CP layer (or in the ForceP) and requires a finite verb in its clause. This is achieved by means of tense and phi-features on T. Similarly, if the mood is irrealis, the C is *for* and the T in the accompanying clause will be non-finite. The CP and TP thus work together but, as I will show, throughout the history of generative grammar, only one or the other has played a role: sometimes TP (as with Subjacency in English) and sometimes CP (as with phases). This dependence is also shown when the C head is deleted, the phase is cancelled, and phasehood is transferred to T, as in (8) above.

In the 1970s and 1980s, the clause boundary was relevant for Subjacency and for identifying islands. Once the clause is seen as a combination of a TP and a CP, it is the TP that counts as the bounding node (in English) which can only be crossed once. In (9), the first movement crosses one TP and the second another TP and this results in a grammatical sentence.

(9) Who did TP[ Mary <did> think CP[ <who> that TP[ Peter met <who>]]].

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Crossing two TPs, as in (10) where the intermediate specifier of the CP is filled, results in ungrammaticality.

(10) \*Who did TP[ Mary <did> wonder CP[ when C TP[ Peter met <who>]]].

If both CP and TP counted as bounding nodes, the second movement in (9) would not have a grammatical result. This means that, even though there are two phrases, only one counts for Subjacency/locality. At the time, it was also argued that bounding nodes were parametrized, either TP, as in English, or CP, as in Italian (see e.g. Rizzi 1980), again suggesting that the CP and TP have a differing degree of importance, but that it is either CP or TP that counts, and not both in the same language.

As an alternative to Subjacency, Chomsky (1986) formulates the concept of barriers that block government and hence disallow movement across because the empty position would not be properly governed. Here too, we see the redundancy of the TP. A barrier depends on the notion of Blocking Category (BC), as in (11), where L-marking means a theta and agreement relation with a sister, e.g. a verb L-marks its theta-marked object.

(11) γ is a BC for β iff γ is not L(exically)-marked and γ dominates β.

A barrier is defined in (12) if either there is a BC category in between it and β or it is itself a BC. As with the bounding nodes of Subjacency, movement can’t cross more than one barrier.

(12) γ is a barrier for β iff (a) or (b):

a. γ immediately dominates δ, δ a BC for β = barrier by inheritance

b. γ is a BC for β, γ is not IP [i.e. TP] (Chomsky 1986: 14) = inherent barrier

What is important for this paper is that by (12b), the TP cannot by itself be a BC but has to inherit barrierhood from the CP through (12a). The complexity of the definition in (12) is due to the CP/TP area.

In the Minimalist Program, starting around Chomsky (2001), phases replace bounding nodes and barriers. Phases restrict the “computation of expressions […] to a single cyclic/compositional process” (Chomsky 2008: 142). Once a phase is complete, its complement is transferred to the interfaces and no longer remains accessible to the computation. There are two clausal domains that Chomsky recognizes as phases, the CP and v\*P. The TP is not a phase although it is the locus of the φ-features. The T “manifests the basic tense features if and only if it is selected by C” and it therefore “makes sense to assume that Agree- and Tense-features are inherited from C, the phase head” (2008: 143-4). Under phase theory, the Subjacency violation in (10) is accounted for because, after *who* adjoins to [met <who>], *who* is not extractable because the C containing *when* cannot be deleted. There are two more instances where C can be deleted, which I turn to now. These are C deletion in declarative clauses and C deletion in certain relatives.

In a declarative subordinate clause with both a CP and TP, as in (13), the complementizer has tense, checks agreement with the subject, and assigns nominative case to this subject. In English, that holds whether an overt complementizer *that* is present or not. When C deletes, T inherits tense and agreement features, as seen in (13b).

(13) a. I know (that) she left.

b. I know CP [C TP [she T vP [<she> left]]]

[~~u-phi~~: 3S]/[i-tense/Case] [i-3S]/[u-Case]

Two analyses are possible: either the CP is not lexically filled but present or the CP is not present. The latter option is explored by Doherty (2000, chapter 2). He argues that sentences without the *that* complementizer are in fact just TPs (IPs for him). The differences in topicalization, shown in (14) and (15), provide a major piece of evidence. Assuming that topics have to be positioned in the expanded CP, there is simply no such position. Hence the ungrammaticality of (15); see also Rizzi and Shlonsky (2007: 151) who cite Grimshaw (1997).

(14) I hope that [this book] you will read.

(15) \*I hope [this book] you will read.

(both from Doherty 2000: 13)

Subject-less relative clauses, as in (16) to (18), occur in many present-day varieties of English, but they are no longer considered part of the standard language. Jespersen (1927: 135) uses the term `contact clause’ for all relative clauses that leave out the pronoun and complementizer and that term is still current, e.g. it is used in Doherty (2000) and Radford (2019).

(16) *Anybody does that ought to be locked up.*

`Anyone **who** does that ought to be locked up.’ (from Quirk et al 1985: 1250)

(17) *It’s Simon did it.*

`It is Simon **who** did it.’ (from Quirk et al 1985: 1250)

(18) *He’s brought 4 lads in are explosive*

`He has brought four lads in **who** are explosive.’ (Radford 2019: 14)

Syntactically, I will argue that these constructions just use a TP, in a way very similar to the strategy on how to avoid *that-*trace violations. Doherty’s (2000: 66) structure for the grammatical subject-less relatives in (19), is also one of a CP-less structure with a direct link between the external head N, i.e. *man*, and the subject position, as shown in the slightly adapted (20).

(19) *The man likes Mary lives next door.*

`The man who likes Mary lives next door’.

(20) DP

ei

D NP

The ei

NPi TP

man 4

ei likes Mary

Doherty assumes externally-headed relative clauses. With a raising analysis for relative clauses, as in Kayne (1994), the data can also be accounted for using the same options available in the functional lexicon: some languages have CP relative clauses (and can’t have subject-less relatives) and others TP ones (and can have these). The trees are shown in (21), where (21a) is the indeterminate structure because *man* appears in the specifier of TP and of v\*P and (21b) the determinate one, with only one instance of *man*.

(21) a. DP b. DP

ei ei

D CP D TP

*The* ei *The* ei

DP C’ DP T’

*man* ei *man* ei

C TP T v\*P

(*that*) ei ei

DP T’ DP *likes Mary*

<man> ei <man>

T v\*P

ei

<man> *likes Mary*

If C has all the features to start with, why is T needed? Richards (2007: 565) suggests that C “would actually be *unable* to do all of the work … without the mediation of proxy nonphase heads”. If feature valuation is part of transfer, C can’t hold on to its [u-phi] features because these couldn’t be valued once TP is transferred and, hence, “u-phi must spread from edge to non-edge” (2007: 569). In this section and the next, I argue that it is in fact possible to do without one of the two functional heads and will show there how that would work.

There are some questions with Feature Inheritance, as Chomsky (2008: 144) notes. “The mechanism is a narrow violation of [the No Tampering Condition]. The usual question therefore arises: does it violate [the Strong Minimalist Thesis]? If it does, then the device belongs to UG (perhaps parametrized), lacking a principled explanation”. Chomsky elaborates a little later in the same paper on the universality of Feature Inheritance: “[a]nother question is whether inheritance is obligatory or optional. For C-T, that raises familiar questions about universality of EPP and about mechanisms of agreement” (Chomsky 2008: 149).

In short, the CP-TP complex functions as a boundary for locality and as a holder of agreement and nominative case features. In English, the features from C are generally transferred to T but it also has the option of doing without C. Other languages opt for different solutions, as I now show for Dutch and Old English.

If the reason for the ungrammaticality of *that*-trace sentences is due to indeterminacy (a subject in both the specifier of the TP and v\*P), then that effect is not expected in languages without or with optional movement to the specifier of the TP. This is borne out in Dutch (22), as has been known since Maling and Zaenen (1978).

(22) a. *Wie denk je dat weggegaan is?* Dutch

who think you that left has

`Who do you think left?

b. Wie denk je CP[ <wie> dat v\*P[ <wie> weggegaan is]].

The same *that*-trace violation can be avoided, as Goto and Ishii (2019) show, in a variety of languages that lack a subject in the specifier of the TP. For instance, Japanese has been argued since Fukui (1986) and Kuroda (1988) to not move the subject outside of the v\*P and to not show a *that*-trace effect. Likewise, many varieties of Arabic allow *that-*trace sequences (Halila 1992: 166) and can leave their subjects in the v\*P.

Old and Middle English, like Dutch (and German), can be argued to have a CP but not a TP, up to around 1400 when the situation changes. Here, I will show that *that*-trace sequences are indeed common in the earlier stages of English and that they can be accounted for as in Dutch, namely without a TP. This discussion will also help set the stage for the arguments used in the next section for the loss of T to C movement.

Allen (1977: 122) says that *wh*-extractions from a clause “are quite common” in Old English but she provides only one instance of *that* followed by an extracted subject, namely (23).

(23) *Ac* ***hwæt*** *saegst ðu ðonne* ***ðæt \_\_ sie*** *forcuðre ðonne sio ungesceadwisnes?*

But what say you then that be.SUBJ more.wicked than be foolishness

`But what do you say is more wicked than foolishness.'

(Alfred, *Boethius* XXXVI.8, from Allen 1977: 122)

A search of the YCOE (Prose) (of all *that* followed by zero) reveals the selection of complementizers not followed by a subject in e.g. (24) to (26). There are, however, hundreds of these. I have marked the absence of the subject with underlining but that subject arguably never moved through that position.

(24) *& of þam ilcan bocum tyn capitulas, þa ic geond*

and of those same books ten chapters those I throughout

*stowe awrat & ic wiste* ***þæt \_­\_ swiðost nedðearflecu wæron***

place wrote and I knew that most needful were

‘and ten chapters of the same books which I had transcribed and which I knew were most necessary’ (Bede 278.1-2)

(25) *& he geornlice þa ongan leornian & don þa þe he*

and he gladly then began learn and do those REL he

*ongeat* ***þætte \_\_ belumpun*** *to þære mynsterlican clænsunge& arfæstnesse*

perceived that belonged to that monastic purity and goodness

`and he then gladly began to learn and carry out those things which he perceived to belong to monastic purity and goodness’ (Bede 450.30-541.1-2)

(26) *Hwæt, we genog georne witon ðæt nanne mon þæs ne tweoð þæt*

Indeed we very well know that no man that NEG doubts that

*se sie strong on his mægene þe mon gesihð*

that be strong in his virtue REL man sees

***þæt \_\_*** *stronglic weorc* ***wyrcð***

that strongly work works

‘We know very well that no man doubts that he is strong in his virtue who people see to be doing laborious work’ (Boethius 38.2-4)

Middle English *that*-trace sequences, as in (27), have been documented by Bergh and Seppänen (1994). These sequences become less frequent throughout the Middle English period and cease to exist in the Early Modern period.

(27) *grymbert who wolde ye* ***that \_\_*** *sholde goo and daye hym to come.*

Grymbert who want you that should go and dare him to come

`Grymbert, who do you want that should go and dare him to come.’ (Caxton’s Reynard the Fox, from Bergh and Seppänen 1994: 132)

Bergh and Seppänen argue that the “general decrease of *that* was a major factor” in the loss of *that*-trace sequences “between the early 15th century and the late 17th century” (1994: 138). This means the optionality of C is connected to the presence of a T: if T is present, C can be optional and, if T is not, C has to be there.

So far, I have provided examples of complementizers followed by subject gaps. If Dutch, (German,) and older stages of English lack a TP, there is no gap. That explains the grammaticality of (22) and (23) to (26). If the TP is optional but the CP obligatory, *that-*deletion in complements is not expected either and that is borne out.

In languages such as Dutch, the complementizer is not typically deletable. With a verb like *beloven* `promise’, the only possibility is a V-final subordinate with a complementizer, as in (28a), and not one without, either with V-last or Verb-second, as in (28b) and (28c), respectively.

(28) a. *Hij beloofde* ***dat*** *hij haar ging opzoeken* Dutch

he promised that he her went visit

b. \**Hij beloofde hij haar* ***ging opzoeken*** V-last

he promised he her went visit

c. \**Hij beloofde hij* ***ging*** *haar opzoeken* V-second

he promised he went her visit

`He promised he’d go visit her.’

*That*-deletion occurs in those cases where the embedded object is a direct quote as with verbs like Dutch *zeggen* `to say’ in (29). Note that the word order in the embedded clause is V2 which is typical for a main clause not an embedded one. That makes the connection between these clauses very loose.

(29) *Ik zei hij* ***moet*** *dat maar doen* V2 subordinate

I said he must that PRT do

`I said that he should do that.’

The semantics of the matrix verbs is responsible for the appearance of an embedded clause that either has the characteristics of a V2 main clause, as in (29), or of a V-final embedded one with the complementizer, as in (28a). I will therefore argue that the embedded CP cannot delete its C head.

Turning to older stages of English, *that*-deletion doesn’t occur after verbs like (*ge)hyran* `hear’, as (30) shows. According to Mitchell (1985, II: 25-34), complementizers are only left out for direct speech in Old English (31).

(30) *Ic … secgan hyrde* ***þæt*** *hie gesawon …*

I say heard that they saw …

`I heard it said that they saw ..’ (Beowulf, 1345-7)

(31) *Ic secge eow. manega* ***cweðað***  *to me on ðam micclum dæge.*

I tell you many say to me on that great day

*drihten drihten. la hu ne witegode we on þinum naman.*

Lord Lord hear how NEG prophesied we in your name.

`I’ll tell you: Many will say to me to me on that great day “Lord, Lord, lo! have we not prophesied in thy name …”’

(*Catholic Homilies*, first series, Clemoes, 351.183, from Mitchell 1985, II. 29)

So, complements of ‘say’ verbs act like main clauses and that means they are CPs but without a complementizer. It is therefore also possible to say that verbs such as *say* in these languages always have a CP complement but with an optional complementizer: if the complementizer is not present, Verb-movement occurs (cf. Haider 1986: 53).

In early Middle English, e.g. the 13th century *Wohunge* (see van Gelderen 1993), the only verbs that allow *that*-deletion are *seggen* `to say', as in (32), and *cwidden* `to say.’ These are verbs whose complements are more like main clauses in Dutch (29) and Old English (31) as well. These clauses are not verb-final as typical subordinate clauses are.

(32) *he* ***seide*** *ne dred tu nawt for …*

he said NEG dread you not for

`He said do not fear because …’ (*Wohunge,* 412)

None of the other verbs in this early Middle English text, e.g. *praie* `to pray’, *þunche* `seem', *understonde* `understand', *wearnen* `refuse', *see*, *leue* `to grant,' have *that*-deletion, as (33) shows.

(33) *A iesu swete iesu leue*  ***þ*** *te luue of þe beo*

Oh Jesus sweet Jesus grant that the love of you will.be

`Oh, Jesus, sweet Jesus, grant that the love of you will be ….’ (Wohunge, 55-56)

In Layamon, another early Middle English text, *that*-deletion does not occur either. Sentences (24) to (36) are typical instances where *that* is present, taken from the Caligula version.

(34)  *7 swa heo sculden under-stonden.* ***þat*** *ich am king of Brut-londe,*

`and so they must understand that I am king of Brittany'. (Layamon, *Brut*, Cal. 3065)

(35) *Nu þu wult under-uon.* ***þat*** *nauer ær nes idon*

`Now you will undertake that (it) was never before done'. (Layamon, *Brut*, Cal. 15118)

(36) *and saide* ***þat*** *he wolde. aquellen heom a londe*

`and said that he wanted to destroy him on land'. (Layamon, *Brut*, Cal. 14874)

The fact that *that* must be present can be seen as additional evidence that tense features occupy C and that they must be lexicalized. This means that, in this period, Verb-movement occurs in main clauses and the complementizer *that* must be present in subordinate clauses.

If subject-less relatives are CP-less clauses, languages like Old English and Dutch, with CPs but without TPs, will be expected not to have them and this is borne out by the non-appearance of subject-less relatives in Old English, and the ungrammaticality of them in Dutch (37), which is the translation of (16).

(37) *\*Iemand [\_\_ dat doet] moet opgesloten worden.* Dutch

Someone that does must locked.up be

`Someone who does that should be locked up.’

Subject-less relatives start to occur in late Middle English.

The variation discussed in this section concerns how to resolve the CP-TP `bottle-neck’. In this bottle-neck area, the phi-features of C are argued to be inherited by T and a number of issues can arise, e.g. indeterminacy may occur because there are too many positions in close proximity to each other through which *wh*-elements must move. In Modern English, a strategy is followed where the complementizer *that* and the CP can delete; in Old English and Dutch, the TP is not present so indeterminacy is avoided that way.

**4 Verb-second and TP expletives**

In this section, I show that verb-second and the presence of a TP are not compatible from a determinacy point of view, using Dutch as an example. I then examine the history of English where we see a loss of verb-second (V2) at the time of the introduction of a TP, which makes for determinate derivations.

As the name implies, V2 constructions have the finite verb in second position but may or may not have the subject in first position, as (38) and (39) show, respectively, for Dutch.

(38) ***Sharon is*** *naar huis gegaan* Subject first and V2 Dutch

Sharon AUX to house gone

`Sharon went home.’

(39) *Gisteren* ***is*** *Sharon laat weggegaan* Adverbial first and V2 Dutch

Yesterday AUX Sharon late away.gone

`Yesterday, Sharon left late.’

As is well-known, den Besten (1983) accounts for the complementary distribution between V2 and the presence of a complementizer by suggesting that the V moves to C when the latter isn’t overtly filled with a complementizer. With the expansion of the CP (Rizzi 1997), strict V2 languages such as Dutch (and German) can be seen as employing the high regions of this split CP, i.e. the ForceP (see Hinterhölzl 2018 and the contributions in Woods and Wolfe 2020). I will just continue to use the CP for Dutch but, for more complex V2 languages, such as Old English, the split CP will be useful, as there is evidence for both high V2 and low V2.

In an approach such as that of Chomsky, Gallego, & Ott (2019), V2 constructions in which the subject moves to pre-verbal position are indeterminate if they involve movement of the subject from the specifier of the vP to that of TP, as schematized in (40) for (38).

(40) [CP Sharon [C-is [TP Sharon [T is [v\*P [<Sharon>] [v\* naar huis gegaan]]]]]].

Transfer

The complement of the phase head v\* will transfer to the interfaces and is not relevant for the determinacy violation. What remains is the complement of C and that workspace contains two copies of the subject *Sharon*. That will prevent *Sharon* from moving into the next domain, the CP.

Verbal heads are also subject to the Principle of Determinacy (see van Gelderen 2021). With a TP present, these would lead to a determinacy violation in (41), as (42) shows.

(41) *Zij* ***gaat*** *weg*  Dutch

She goes away, `She is going away.’

(42) [CP [C gaat [TP [T <gaat> [v\*P [v\*<gaat> weg <gaat>]]]]]].

Transfer

If Dutch (and German) lack a TP, as I’ve argued in section 3, the possibility of the subject preceding the finite verb in second position, as in (38), is not problematic. If a TP is not present, as in (43), the structure is determinate, both for the subject and for the (auxiliary) verb that moves to C.

(43) CP[Sharon [C is AUXP [AUX <is> v\*P[<Sharon> v\* naar huis gegaan]]]].

Transfer

If there is no TP, there are no determinacy violations either. Haider (1991; 2010), van Gelderen (1993; 1997), and others have indeed argued that German and Dutch lack a TP and Platzack (1987) combines the T and C in the CP domain. The evidence for such a lack of TP revolves around the optionality of expletives (see van Gelderen 2022), the stranding of German prefixes, the stranding of Dutch subjects in the VP, and the absence of infinitival particles that function independently of the verb, such as English *to*. For reasons of space, I cannot go into these here but, instead, turn to the history of English where a loss of V2 coincides with evidence for the introduction of a TP.

I’ll first show that V2 is lost starting in the 14th century and an SV order is introduced instead, with the V moving to T. I then show that, around the same time, expletive subjects become obligatory to meet the SV requirement in cases where an (indefinite) subject fails to move to the subject position. The expletive has been linked to the presence of a TP, with the possibility of the expletive filling its specifier. A link between the loss of V2 and the introduction of expletives hasn’t been explored in overview studies of early English syntax (e.g. Fischer et al 2000, Los 2015, Fischer et al. 2017). Butler (1980: 300) considers them only indirectly related and van Gelderen (1997) links the introduction of T to the appearance of expletives, but not the loss of V2 to obligatory expletives. Why would the TP need an expletive? There could just be the merge of a T and no specifier. This presence only makes sense if, like regular DPs, expletives move to avoid labeling conflicts in the specifier of vP. I therefore explore an approach that considers certain Old English demonstratives and adverbs as CP expletives and others as vP expletives, as in Richards & Biberauer (2005) for German. Once the verb moves to T in Middle English, the vP expletives are reanalyzed as moving to the specifier of the TP.

In the Old and Middle English independent clause, the subject may be first and the finite verb may occur in the second position, as in (44). When there is a non-finite verb, this tends to be at the end (V-last), also shown in (44).

(44) *wyrd* ***bið*** *ful* ***ared***.V2 and V-last

fate AUX fully set

`Fate is fully determined.’ (DOE, Exeter, Wanderer 5)

Nevalainen (1997) and Fischer et al (2000: 132) put the “sharp decline” of V2 in the mid and late 14th and early 15th centuries. For instance, the beginning passage of Chaucer’s *Astrolabe,* only one out of 12 sentences is V2, namely the initial one, as (45) shows. This sentence may be formulaic since lots of texts start that way.

(45) **Here beginnid** ƿe discptnes of the astrolabye. the ring

**Thyn astrelabie haƿ** a ring to putten on ƿe thombe of ƿi riƷth hõnd in takyng ƿe heygty of ƿingys. and take kepe fro from hennes forward **I wil call** ƿe heƿgtij of eny thing take be ƿe riƷle. ƿe altitude wtowte mo wordis.

**This ring rennyd** in a mañ turret fast to ƿe modir of ƿe astrelabie yn so rõm a place þt **it distrbit** not the instrumẽt to hangẽ aftir his rigtij centre.

**The modir of ƿis astr(o)labie is** ƿe ƿikkist plate. prcd wt a large hool **ƿat receiud** yn here wom̃be ƿe ƿynne plates cõpownd for dius climatis 7 ƿe rieth shapẽ yn mañ of a nett or of a webbe of a lobbe.

**Thys modir is diuidid** on ƿe bakhalf wt a lyne **þt comyd** descending fro ƿe ring down to the nedirest bordure. **ƿe whiche lyne fro ƿe forseide rĩgvn to the centre of the large hole amydde ys clepid** ƿe sowth lyne . or ellis ƿe line m(er)idional. and **ƿe oƿ deel of ƿe line dow̃ to ƿe bordure is clepyd** ƿe norƿlyne or ell ƿe lyne of mydnigti.

Ouerdwart ƿe forseyde loñge lyne **ƿr crosseƿ** hym a noƿ̃ lyne of ƿe same length fro ƿe East to ƿe West.

`Here begins the description of the astrolabe and the ring. Your astrolabe has a ring to put on the thumb of your right hand when taking the height of things. And take care, because from now onwards, I will call the height of anything taken by the rule as the altitude without any more words. This ring goes through a kind of ring fastened to the body of the astrolabe in so large a place that it doesn’t disturb the instrument to hang right down. The body of this astrolabe is the thickest plate and is pierced with a large hole that receives the thin plates made for diverse celestial zones and the reet shaped like a net or border. The which line from the mentioned ring to the center of the large hole in the middle

is called the south line or else the line meridional and the other part of the line down to the border is called the north line or else the line of midnight. Across the mentioned long line there crosses itself anotherline of the same length from the East to the West.’

Because V2 in Old English is varied (e.g. *wh-*questions are different from topic-initial sentences), two positions are assumed for the subject, a high one and a low one. For Pintzuk (1993), these are the specifier of the CP and that of IP and for Haeberli (2002ab), these positions are the specifier of CP and of AgrSP (part for the TP-layer), respectively. For others, these positions are the specifiers of TopicP and FinP or the specifiers of ForceP and FinP. I’ll use the latter but not so much hinges on the exact labels. As in later English, v\* is a phase head as well as the highest C, either Force or Top.

An expanded CP-layer, as in (46), contains two positions for the verb to move to, Force and Fin. If the *wh*-element occupies the specifier of ForceP, the verb moves to the Force head and this results in V2, as shown in (46a). The Force head is then the phase head. The intermediate structure of TopP and FinP is not present otherwise there would be a determinacy violation. If there is a pronoun in the head of the TopicP, as in (46b), V-movement to the highest position is blocked and the result will be V3, with the verb moved to the Fin head. Apart from pronouns, the Top head is also the position for some of the deictic markers, as van Kemenade and Los (2006) argue.

(46) a. ForceP b. TopP

ei ei

wh ForceP topic TopP

*þa* ei ei

Force v\*P Top FinP

V ei pronoun ei

DP v\*P Fin v\*P

ei ei

v\* … DP v\*P

ei

v\* Transfer

As before, the two highest v\*Ps are labeled after v\* inherits [phi]-features from the Force and Fin heads, respectively. This is not shown in (46).

(46) provides insight into the possible positions: not all phrases can be present at the same time, only one of the two phase heads can be. For the structure to be determinate, the finite verb can only move to the Force if the lower Fin position is not present or to the lowest Fin position.

From Middle English on, the structure becomes less concentrated on the CP-domain and more on the TP. The Middle English CP includes a TopP, as in (47) for (48), (and a FocP) but its TP can be expanded with many auxiliaries, as shown in (49).

(47) TopP

ei

PP TopP

4 ei

*ouerdwart …* Top <phi, phi>

ei

*ƿr* TP

ei

T vP

*crosseƿ* …

(48) *Ouerdwart ƿe forseyde loñge lyne* ***ƿr crosseƿ*** *hym a noƿ̃ lyne of ƿe same length*

Across the mentioned long line there crosses him an other line of the same length.

`Across the long line, mentioned before, there crosses itself another line of the same length.’

(Chaucer, *Astrolabe,* from Table 5.1)

(49) *If I so ofte* ***myghte have*** *ywedded* ***bee***

`If I might so often have been married.’

(Canterbury Tales, Wife of Bath Prologue, 7)

Old English has quite a varied word order, also where V2 is concerned, and that’s why an expanded CP, as in e.g. (46), is appropriate. If the highest C is a phase head, the various choices for verb movement, either to Force or to Fin, are accounted for. By the late 14th century, V2 is mostly lost. The introduction of expletives and the loss of V2 can be linked through the introduction of a TP and a simplification of the CP domain, with C as the phase head. Structurally, it means the verb stops moving to C, except in cases of *wh*-movement, and just reaches T.

Semantically unambiguous existential constructions with `there’ are rare in Old and Early Middle English. Most instances of `there’ are locative. The criterion I use to determine expletivehood is their position. A demonstrative is a TP expletive if it follows a sentence-initial adverb(ial) and is followed by a verb and indefinite subject, as in (50a). In contrast, if the language is without a TP, an initial, full adverbial will always trigger V to C. An expletive following a complementizer and preceding an indefinite, as in (50b), is also seen as a TP-expletive.

(50) a. XP, there is/was a/no/some person

Locative Adverbial EXPL BE INDEFINITE N

b. C there … is/was a/no/some person

C EXPL BE INDEFINITE N

Typical Old English V2 existentials are given in (51) and (52) and these occur without an expletive. As a result, these can be V1, as in (53).

(51) *On þæm dagum wæs an hirde on Ispanium, se wæs Ueriatus haten,*

In those days was a shepherd in Spain, who was Viriathus called

`In those days, **there** was a shepherd in Spain, who was called Viriathus.’ (DOE, Orosius, 114.12)

(52) *On þas kinges dæi Offa, wæs an abbot on Medeshamstede Beonne gehaten.*

In the king’s day Offa was an abbott in Medeshamstede Beonna called

`In the days of King Offa, **there** was an abbot Medeshamstede called Beonna.’

(DOE, Peterborough, 777.3)

(53) *Wæs micel fyr onæled on middum þam huse.*

was large fire started in middle that house

`**There** was a large fire started in the middle of the house.’ (DOE, Bede 180.26)

By Early Middle English, e.g. Layamon’s *Brut*, TP expletives start to appear regularly but are not required. Layamon’s text remains in two manuscripts, the earlier Caligula and the later Otho. In (54), there is an expletive in Caligula but not in Otho and, in (55) and (56), the reverse is true. Breivik (1983: 262) takes the optionality as an indication that these are expletives and not locatives.

(54) a. *Ah nes hit buten ane while. þat* ***þer com an oðer time***.

but NEG.was it but one while that EXPL came an other time

`It was only a short time that there came another style.’ (Caligula 5489)

b. *þat* ***com an oþer time***.

that came an other style (Otho 5489)

(55) a. ***Nes næuere na ma****. þat don þer mihte Cristin dom*.

NEG.was never no man REL do there could Christian ceremony

`There was no man who could perform the Christian ceremony there.’ (Caligula 6618)

b. ***Nas þar neuere no man****.*

NEG.was never no man

`There was no man.’ (Otho 6619)

(56) a. *For* ***nis nan kine lond****. na swa brad næ swa long.*

for NEG.is no kingdom not so broad nor so long

`Because there is no kingdom however broad or long.’ (Caligula 6660)

b. *For* ***nis þar no kinelond****.*

for NEG.is EXPL no kingdom

`Because there is no kingdom.’ (Otho 6660)

*There* expletives in Layamon are ambiguous, according to Breivik (1983) and van Gelderen (1997: 92-5), and certainly not obligatory. Layamon’s word order is quite varied, which the sentences above show. As is common for the instances of surface SV, it is not clear whether they are V2 with the subject in the CP domain or SV with the subject in a specifier of TP. However, after adverbs, like `thus’ and `now’, there is still V2 in this text so this stage is still V2.

The word order in Layamon’s (later) Otho is not remarkably different. There is some indication that the infinitival `to’ is more independent of the verb in Otho (57a) than in Caligula (57b). In the latter, it is still a verbal prefix but, in Otho, it appears together with the complementizer in C. (57a) provides no evidence of *to* as T, however, because *for* and *to* could be one unit.

(57) a. *Þe king … wide his men sende.* ***for to*** *hine* ***finde.***

the king … wide his men sent for to him find

`The king sent his men all over to find him.’ (Otho 8488-8490)

b. *heo wenden hine* ***to finden***.

they went him to find

`They went to find him.’ (Caligula 8874)

Layamon’s V2 stage is compatible with the optional expletives filling the specifier of TP; the lack of a designated T element provides more evidence for the optionality.

Wyclif’s works remain in 170 manuscripts and are usually divided in earlier and later versions. The later text is solidly SV and displays expletives, as shown in (58) with S and V are bolded.

(58) *IN the bigynnyng* ***God made*** *of nougt heuene and erthe. Forsothe* ***the erthe was*** *idel and voide, and derknessis weren on the face of depthe; and* ***the Spiryt of the Lord was*** *borun on the watris. And* ***God seide****,* ***LiƷt be*** *maad, and* ***liƷt was*** *maad.*

`In the beginning, God made heaven and earth out of nothing. And, the earth was useless and empty and darkness was on the face of the depth; and the spirit of God was born on the waters. And God said, Let there be light and light was made.’ (Wyclif, Genesis 1-3, later version)

Since this stage is SV, we expect TP expletives and there is indeed good evidence for TP expletives in the later edition, as in (59a) and (60a), but fewer in the earlier version, as (59b) and (60b) show, because that translation stays close to the Latin original, where expletives do not appear. Because the Latin text does not include a locative, as in (59c) and (60c), it is likely that the *there* occuring in the later English edition is an expletive.

(59) a.***Ther*** *cam a womman of Samarye.*

there came a woman from Samaria (*John*, IV, 7, later version)

b. *A womman came of Samarie.*

a woman came from Samaria (*John*, IV, 7, early version)

c. *uenit mulier de samaria* (*John*, IV, 7 *Vulgate*)

came woman of Samaria

`There came a woman of Samaria'.

(60) a. *And* ***ther*** *was a man there.*

and there was a man there (*John*, V, 5, later version)

b. *Forsothe sum man was there.*

truly some man was there (*John*, V, 5, early version)

c. *erat autem quidam homo ibi* (*John*, V, 5 *Vulgate*)

was indeed some man there

`There was indeed some man there'.

There are some *ther* expletives in the early version but these are fewer compared to the later version: 4 in the early version as opposed to 18 in the later version. In the later version, the verb `to be’ followed by an indefinite doesn’t occur without the expletive.

Locative *there* appears in both the early and later Middle English renderings, as in (61a) and (61b), translating *ibi* `there' in the Latin version in (61c).

(61) a. *Forsoth the welle of Jacob was* ***there****.*

truly the well of Jacob was there (*John*, IV, 6, early version)

b. *And* ***ther*** *was the welle of Jacob.*

and there was the well of Jacob (*John*, IV, 6, late version)

c. *erat autem* ***ibi*** *fons iacob*

was moreover there well Jacob (John IV, 6 *Vulgate*)

`Moreover, the well of Jacob was there'.

The insertion of *ther* where the Latin original lacks *ibi* or where another locative *there* occurs, as in (59a), provides evidence that TP expletives are used in Wyclif. If the introduction of expletive *ther(e*) is due to the introduction of a specifier of TP, one expects evidence for a T position as well. Changes in the behavior of modals and of infinitival *to* provide evidence for the occurrence of a special head position T. In Wyclif, such evidence can be found: modals no longer double and infinitival *to* can be separated from its verbal part as in (62) and (63). This points to a special position (T) being present with expletives in the specifier.

(62) *The prestis ben forfended* ***to*** *eny more* ***takyn*** *monee of the puple.*

`The priests are forbidden to take any more money from the people.’

(*4 Kings*, XII, 8, Visser 1963-1973: 1041)

(63) *betere to ben stille þan* ***to*** *fewe thingis* ***writen****.*

`Better to be silent than to write too few things.’ (*Prefatory Epistles of St Jerome*, VII, 224-5)

Accusative-with-infinitives also occur, as in (64) and (65), and this is evidence of the independence of *to* in a T (Massam 1985; van Gelderen 1993). Lindberg (1978: 42-3) mentions 16 occurences in the early edition he compiled of *The Prefatory Epistles of St Jerome*. Although Warner (1982: 141ff.) attributes the more frequent use of Accusatives-with-Infinitives in the early version to Latin influence, I assume the author would not use an ungrammatical translation.

(64) *Forsothe thei gessinge* ***him to be in the felowshipe****.*

`truly, they guess him to be in the fellowship.’ (*Luke* II, 44).

(65) *We knowen* ***the writer of hem, luke, to ben a physician****.*

`We know the writer of them, Luke, to be a physician.’

(*Prefatory Epistles of Jerome*, VII, 160, Visser 1963-1973: 1041)

As mentioned, the word order is SV but verbs continue to move to C in questions, of course, as (66) shows.

(66)***Saw Y thee not*** *in the 3erd with him?*

`Didn’t I see you in the garden with him?’ (*John*, XVIII, 26, later version)

In conclusion to Wyclif, there are TP expletive *ther*s. This can be related to the appearance of a T-position, evident from the introduction of accusative-with-infinitives and split infinitives.

Chaucer is another author identified as having SV, rather than V2, in (45) above. In the same text, i.e. the *Astrolabe*, there are expletives as well. They occur after topics, as in (67) to (70), and in subordinate clauses, as in (71) to (73), indications that they occupy the specifier of TP.

(67) *of the astrelabie þat I haue seyn,* ***there*** *ben some conclusions þat …*

`of the astrolabe that I have seen, there are some goals that…’ (Astrolabe, Preface 21-22)

(68) *Ouer-thwart this for-seide longe lyne,* ***ther*** *crosseth hym a-nother lyne*

`Across this already mentioned long line, there crosses itself another line.’ (Astrolabe, 1.5)

(69) *thorw wich pyn* ***ther*** *goth a litel wegge*

`through which pin, there goes a little wedge.’ (Astrolabe, 1,14)

(70) *From this senyth, as it semeth,* ***ther*** *come a maner krokede strikes*

`from this zenyth, as it seems, there comes a type of curved marks.’ (Astrolabe, 1.19)

(71) *so general … þat* ***ther*** *nedith no more declaracion*

`so general that no more explanation is needed.’ (Astrolabe, 2.2)

(72) *after thin Almenak vp-on wych table* ***ther*** *folwith a canon*

`according to your almanac, upon which plate there follows a set of rules.’ (Astrolabe, Preface 94-5)

(73) *ouer the wiche degrees* ***ther*** *ben nowmbres of augrym*

`over which degrees there are numbers of algorithms.’ (Astrolabe, 1.7)

Searching for a `be’ verb with an indefinite without `there’ provides no results in the *Astrolabe* so that suggests TP-expletives are as necessary as in Modern English. In Chaucer's *Canterbury Tales*, *ther* is also used as an expletive, e.g. after topics in (74) to (76).

(74) *And over his heed* ***ther shynen*** *two figures.*

`And above his head, there shine two images.’ (CT, *Knight's Tale* 2043)

(75) *With hym* ***ther wenten*** *knyghtes many on.*

`With him, there went many a knight.’ (CT, *Knight's Tale*, 2118)

(76) *that in hir coppe* ***ther was*** *no ferthyng sene.*

`that in her cup, there was no small remnant to be seen.’ (CT, *Knight's Tale*, 134)

In addition to the frequent use of expletives, is there evidence for a T? Modals and *do* are used in their Modern English meanings, as in (77) and (78).

(77) *It* ***shal*** *be doon.*

`It shall be done.’ (Chaucer, *The Reeve's Tale* I, 4034)

(78) *how now, what* ***do*** *ye heer?*

`How now, what do you hear?’ (Chaucer, *The Reeve’s Tale,* I, 4025)

*To* is often together with *for* in C, but there is a split infinitive, as in (79), and an Accusative-with-Infinitive in (80) and these are seen as an indication of the independence of *to.*

(79) *to seye to the, that art the man that I best triste; And peril non was it* ***to*** *the* ***bywreye****.*

`to say to you, who is the man I most trust; and it was no peril to reveal to you.’

(*Troilus and Criseyde*, III, 365-67, Visser 1966: 1039)

(80) *It behoveth by necessite that every thing be ryght as science comprehendeth* ***it to be****.*

`It is appropriate by necessity that every thing is as science understands it to be.’ (*Boece*, Visser 1973: 2309).

In conclusion to Chaucer, SV word order is prevalent, as are TP expletives, and there is some independent evidence for a T-position as well. Auxiliaries continue to move to C in questions and here I assume that the tense and agreement features can be bundled on C.

Thus, as the word order changes from V2 to SV and evidence for a T head starts to appear in late Middle English, the use of TP expletives solidifies as well. Wycliff (the later version) and Chaucer are from the last part of the 14th century and show TP expletives as well as evidence for a T. For determinacy, this state of affairs means that, as the TP is introduced, movement of V to C will not be a problem because this movement is lost. The question I haven’t been able to answer is: why was the TP introduced when V2 was being lost? Is it the information structure that changes (cf Los 2009) or does the role of C become less prominent? The C has tense and agreement features and doesn’t need T. The reason for the rise of auxiliaries and T must have been an independent change.

When the TP is present in the spine, determinacy requires the expletive in the TP if the subject is moving into the CP domain. Languages show a fluidity between C and T: in some, both C and T are present but T inherits features from C; in some, T can be skipped; and, in some, T is not present. The options are summarized in Table 1.

|  |
| --- |
| **V to C presence of T Feature Inheritance**  Dutch yes: V2 optional C to v\*/v or C to T  Old English yes: V2 and V3 no C to v\*/v  later Middle English no yes C to T |

Table 1: Options for C and T

**5 Conclusions and limitations**

There are many ways to achieve optimal computation. For instance, the syntax `doesn’t care’ if the subject moves to the specifier of TP before valuation or after, as shown through the work of Obata, Epstein, and Baptista (2015). They (2015: 15) have argued that “[o]ptimal computation is executable in more than one way.” If computational efficiency is underspecified, the timing of subject raising to TP and C-agreement (and Feature Inheritance) can vary, as two varieties that use a complementizer *ki*, Cape Verdian Creole and Haitian Creole,show. The difference between the two varieties has the effect of skipping T.

Likewise, the C-T complex can be simplified in a number of ways: (a) C transfers phasehood to T and the CP deletes or is not present or (b) TP is not present. Table 2 provides a typology of choices and how the difference is evident linguistically.

|  |
| --- |
| Optional CP Optional TP  *That*-trace sequence no; English (6) yes; Old English (23), Dutch (22)  Subject-less RCs some; English (16) no  C-less complements yes; English (13) no |

Table 2: A typology of choices for the C-T complex

This is a programmatic paper: “let’s see what a determinacy approach contributes to the CP-TP complex”. Therefore, the picture I have given of e.g. *that-*trace and subject-less relatives is somewhat simplified. More nuanced data on *that*-trace can be found in Chaves & Putnam (2020) and Kiziak (2010), for instance. My discussion has also been limited to Old, Middle, and Modern English, and to Dutch. It has been assumed that the structure of German is similar to that of Dutch but this has to be investigated more.

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1. This article focuses on the CP-TP layer, which I also discuss in van Gelderen (2022). Examples and discussions overlap with that work but the focus is different. I’d like to thank the audience at CGSW 35, William Kruger, Johanna Wood, Stefanie Bode, and two anonymous reviewers for suggestions on the presentation and content. [↑](#footnote-ref-1)