Grammaticalization and 'lateral' grammaticalization, formalism and functionalism, in Minimalism:

Introduction:

Grammaticalization occurs cross-linguistically and is a challenge for Lighfoot's models of language change (1979, 1991, 1999, 2006) which predict that language evolution should be in the form of 'random walks' with no cross-linguistic trends (Lightfoot (1999:148-149, 166-173)). Roberts and Roussou (R & R) (2003) and van Gelderen (2011) propose that grammaticalization is a natural type of change that can occur cross-linguistically (R & R (2003:2-7), van Gelderen (2011:4)).

In section 1, I set out the premises of their arguments.

In section 2, I analyse the grammaticalization of Latin *quod* as the Romance complementiser *que* and the grammaticalization of Romance prepositional complementisers (*ad*/*de*), the former being D (relative pronoun) > C (complementiser) change while the latter being P (preposition) > C (complementiser), since 1) they are related phenomena, as they often show complementarity in Romance 2) both have cross-linguistic counterparts in R & R (2003), which reveals the nature of the cross-linguistic distribution of grammaticalization in Minimalism[1] 3) while Latin *quod* is well analysed, Romance prepositional complementisers are not, and so this section contains some original analysis of Latin/Romance historical syntax.

In section 3, I compare R & R's grammaticalization with Simpson and Wu's (S & W) (2002) and Wu's (2004) 'lateral' grammaticalization in Minimalism. S & W (2002) and Wu (2004) analyse Chinese *de* which has been re-analysed from being a determiner (D) to a past tense marker (T(past)), and I compare it to R & R's (2003:48-58) and Roberts' (2010:58-61) analysis of the Romance future (T(future)), since both are geneses of verbal inflections in T.

In section 4, I define grammaticalization and 'lateral' grammaticalization in Minimalism and grammaticalization theory.

Section 5 is my conclusion where I reply to Vincent and Borjars' (V & B) (2010) account on Minimalism and grammaticalization, especially their comments on the relationship between grammaticalization and 'lateral' grammaticalization and that between formalism and functionalism.

Section 1.1: Generative models of language change (Lightfoot (1979, 1991, 1999, 2006)):

Lightfoot (1999:60-74, 2006:10-15, 88-89) argues that grammar is moulded in first language acquisition, which is hence the locus for language change. There are three components here (Lightfoot (1999:66-68, 2006:10, 45)): 1) internal grammar (I-G) 2) universal principles and parameters of grammar (UG) 3) trigger experience in the form of primary linguistic data (PLD). I-G is formed when children analyse their PLD and set the parametric values of their UG accordingly (Lightfoot (1991:1, 1999:66-67, 2006:10, 45)):

a) Linguistic triggering experience (genotype $\longrightarrow$phenotype)
b) Primary linguistic data (Universal Grammar $\longrightarrow$internal grammar)

[1] R & R (2003:100, 111) acknowledge them as cross-linguistic counterparts to English *to*/*for* (P > C) and Germanic *that*/Greek *pou* (D > C).

Language change lies in the I-Gs of successive generations of speakers and is the result of different parametric settings between them (Lightfoot (1999:101ff, 2006:88-89)).[2] As UG is a genetic constant, the source for language change lies in the PLD and in how children (re-)analyse it in language acquisition (Lightfoot (1999:66-68, 178-179, 225, 2006:11-2, 87-90)).

Section 1.2: 'Re-analysis' in grammaticalization:

The classic example of 're-analysis' in grammaticalization is English lexical verb *going to* > future auxiliary *gonna* (Hopper and Traugott (H & T) (1993:2-4, 33-35, 61-62, 2003:1-3), Campbell (2001:141-142)):

a) 'the change occurs only in a very local context, that of purposive directional constructions with non-finite complements, such as *I am going to marry Bill* (i.e. *I am leaving/travelling to marry* Bill)' (H & T (1993:2, 2003:2))

b) 'the change is made possible by the fact that there is an inference of futurity from purposives... in the absence of an overt directional phrase, futurity can become salient.' (H & T (1993:3, 2003:3))

c) 'the re-analysis is discoverable… only when the verb following *be going to* is incompatible with a purposive meaning, or at least unlikely in that context, for example, *I am going to like Bill*, *I am going to go to London*...' (H & T (1993:3, 2003:3))

a) identifies the examples (purposive directional constructions with non-finite complements) where the old (lexical verb *going to* denoting movement and purpose) and new (auxiliary verb *gonna* denoting futurity) interpretations co-exist, while b) recognises their semantic overlap and identifies the context (the absence of an overt directional phrase) where the old interpretation is weakened. b) is therefore the locus of 're-analysis' , and c) identifies the outcome of 're-analysis' in examples where only the new interpretation is likely/possible.[3]

b) contains two claims: b1) there is semantic overlap between the two interpretations in 're-analysis' b2) there are contexts where the old interpretation is weakened and the new one is strengthened. b1) can be elided with a):

a+b1) there are examples where, due to semantic overlap, two interpretations co-exist

b2) 're-analysis' occurs in a particular context where the new interpretation is strengthened by the weakening of the old one

[2] Hale (1998) argues that language change can only be considered language change when spread through the whole community (cf Weinreich, Labov and Herzog (1968:188): 'the grammars in which linguistic change occurs are grammars of the speech community'). Language change is therefore fully executed when the new generation of speakers, who have new parametric settings, displace the older generation (R & R (2003:11)).

[3] In 're-analysis', there are alternative syntactic structures for ambiguous examples like b), even though their surface manisfestations are the same (Langacker (1977:58, 79)). The effects of 're-analysis' are seen in examples like c) where the new syntactic structure is extended (Langacker (1977:58, 92), Campbell (2001:142)). In English *going to* > *gonna*, there is syntactic rebracketting [[going] [to]] > [going-to] > [gonna], and *gonna* is only permissible in examples like c) (H & T (1993:1-4, 2003:3)).

c) after 're-analysis', there are examples where only the new interpretation is likely/possible

In this paper, a + b1) will be referred to as a) and b2) as b).

Section 1.3: 'Re-analysis' in generative models of language change:

Both Lightfoot (1999, 2006) and R & R (2003) employ a cue-based model of language acquisition where 'cues' are the 'triggers' which express parametric values (Lightfoot (1999:149, 2006:chapter 4), Clark and Roberts (1993:317-8), R & R (1999:1021-1022, 2003:14-15)),[4] and R & R (2003:10) ascribe parametric values to individual lexical items (cf Borer (1984)). Steps a), b) and c) are therefore all 'cues' and b) is the exact point of parameter resetting where the original parametric value (e.g. *going* (lexical verb) + *to* (preposition)) drops below 'stability', as it is not 'robust' enough, and this leads to 'catastrophes' i.e. parameter resettings (e.g. > *gonna* (auxiliary verb)), as seen in c) (see footnote 3).[5]

Lightfoot asserts that language evolution is random because he argues that PLD is language-specific and unpredictable (Lightfoot (1999:180-204, 264-266, 2006:90-111, 164-165)). He makes no comment on how PLD shifts through time: '… the cues permit an appropriately *contingent* account of why the change took place… the expression of the cues changed in such a way that a threshold was crossed (i.e. 'catastrophe') and a new grammar was acquired (i.e. 'parameter resetting'). That is as far as this model goes, *and it has nothing to say about why the distribution of cues should change*.' (my italics and brackets) (Lightfoot (1999:166)). Lightfoot's model therefore predicts that the cross-linguistic distribution of 'cues' is random.

Grammaticalization occurs cross-linguistically and is hence problematic for Lightfoot's model. R & R introduce a learning device in language acquisition which favours the 'simpler' alternative in ambiguous 'cues' (Clark and Roberts (1993:300-302, 313-319), R & R (1999:1020-1022, 2003:14-17) cf van Gelderen (2011:4, 8-9)),[6] and since R & R (1999:1014, 2003:2-3, 15-17) argue that grammaticalization always leads to 'simpler' structures, grammaticalization is a natural mechanism in language acquisition and hence occurs cross-linguistically. Cases of grammaticalization are thus 'basins of attraction' within the possible space of parametric variation (R & R (2003:4), van Gelderen (2011:4)). R & R (2003) define 'simplicity'as the reduction of 'formal feature syncretisms', which are 'the presence of more than one formal feature in a given structural position: H [+F, +G…]' (R & R (1999:1021, 2003:201), Roberts (2010:49)), and van Gelderen (2011:4, 16-17, 20-21, 41-43) argues that uninterpretable features are 'simpler' than interpretable ones in not having feature-values. R & R (2003:198-199) discover three types of grammaticalization:

[4] There are subtle differences between Lightfoot (1999:149) and R & R (2003:13-15), since the former denies the existence of parameters while the latter argue that 'cues' supply the information for setting parametric values and are analysed by children via abduction (Anderson (1973)) (see section 1.2, a-b)). As parameters are essential to the generative framework, R & R's approach will be adopted in this paper.

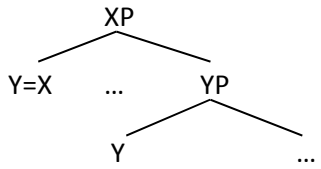
[5] Lightfoot (1991:172-173, 1999:89-91) defines 'catastrophes' as parameter resettings which lead to language change, while R & R (2003:14-15) and Clark and Roberts (1993:302) define 'robust'/'stable' parameter expressions as unambiguous/unobscure 'cues'. b) is neither 'stable' nor 'robust' and can lead to 'catastrophes'.

[6] It is not clear whether this learning device is part of UG or not, since while V & B (2010:280, 293), following Clark and Roberts (1993:300ff) and R & R (2003:14) , consider it as part of UG, van Gelderen (2011:9) attributes it to Chomsky's 'third factor principles' i.e. principles that are not specific to the faculty of language (UG) (Chomsky (2005:6, 2007:3)). Either way this learning device plays a prominent role in Minimalism.

1) $[_{XP}\ Y + X\ [_{YP}...t_Y...]] > [_{XP}\ Y{=}X\ [_{YP}...Y...]]$
2) $[_{XP}\ X_F...\ [_{YP}...Y_F...]] > [_{XP}\ X_F...\ [_{YP}...Y...]]$
3) $[_{XP}\ YP\ X\ ...\ [\ ...\ t_{YP}\ ...\ ]] > [_{XP}\ Y{=}X\ ...\ [\ ...\ ]]$

1) and 3) involve the loss of *Move* ($Y...t_Y$, $YP...t_{YP}$) and introduce *Merge* to the grammaticalized item in the head position of its previous landing-site (Y=X), which conforms to van Gelderen's 'Late Merge Principle' and 'Head Preference Principle' (Van Gelderen (2011:13-14)), while 2) involves the loss of *Agree* ($X_F...Y_F$) and an upward shift of features to the grammaticalized item (X_F). R & R (2003:200) therefore represent grammaticalization thus:

4)



In 1-3), features in a lower position (Y) are shifted upwards (Y=X) in the clausal hierarchy.[7] [8] Roberts (2010:50-1) generalises between *Move* and *Agree* by arguing that both consist of probe and goal features (cf Chomsky (2000, 2001)), the former of which has a movement-triggering diacritic which attracts the latter in *Move* (R & R (1999:1014-1015), Roberts (2010:50)). Grammaticalization is thus the loss of probe features and an upward shift of goal features (see footnote 7).

Section 2:1 Romance complementizers:

Generative studies on Romance syntax present very similar distributional tests for prepositional infinitives that seem to be CPs rather than PPs. These prepositional infinitives are syntactically equivalent to non-prepositional (pro)nouns that serve as direct arguments of their head predicates (Rizzi (1982:94), Jones (1993:262)) e.g.

Modern Italian (Benucci (1992:24), Rizzi (1982:94), Kayne (1984:105)):

1a)	afferm-o	di	fa-re	questo
	assert-PRES.1SG	DE	do-INF	this
	'I assert that I am doing this.'			
1b)	afferm-o	questo		
	assert-PRES.1SG	this		
	'I assert this.'			

[7] Cf Cinque's (1999, 2004) assumption of a universal functional/clausal hierarchy and Giorgi and Pianesi's (1997) argument that syntactic features can 'scatter' in this hierarchy. Grammaticalization is thus an upward shift of features in the universal clausal hierarchy.
[8] English *gonna* comes between the verb 'to be' (T) and the lexical verb (V) and hence occupies the little v (Chomsky (1995, 2001), Adger (2003:155, 164-165), R & R (2003:47), van Gelderen (2011:11)). *going to* > *gonna* therefore undergoes an upward shift from V to little v (see footnote 3).

Modern French (Huot (1981:10-11), Kayne (1984:104-105)):

2a)	Jean	le	redout-e	beaucoup,	d’	être	licencié
	John	it	fear-PRES.3SG	very.much	DE	be.INF	fired
	‘John fears it very much, namely to be fired.’[9]						
2b)	Jean	redout-e	beaucoup	un	licenciement		
	John	fear-PRES.3SG	very.much	a	dismissal		
	‘John fears very much a dismissal.’						

Modern Sardinian (Jones (1993:262, 264)):

3a)	cred-o	de	ti	connosk-ere
	believe-PRES.1SG	DE	you	know-INF
	‘I believe that I know you.’			
3b)	lu	cred-o		
	it	believe-PRES.1SG		
	‘I believe it.’			

Furthermore, these prepositions only subcategorise for infinitives, not (pro)nouns, which suggests that they are complementisers, given that infinitives are clausal and these prepositions seem to be subcategorising for a (mini-)clause (Rizzi (1982:94), Mensching (2000:63)):

Modern Italian (Benucci (1992:24), Rizzi (1982:94)):

4)	*afferm-o	di	questo
	assert-PRES.1SG	DE	this

Modern French (Huot (1981:9), Kayne (1984:104)):

5)	*Jean	redout-e	beaucoup	d-u	licenciement
	John	fear-PRES.3SG	very.much	DE-DEF.ART	dismissal

Modern Sardinian (Jones (1993:262, 264)):

6)	*cred-o	de	cussu
	believe-PRES.1SG	DE	that

[9] This prepositional infinitive (*d’être licencié*) is in apposition to the non-prepositional pronoun (*le*) and is hence syntactically equivalent to it.

These prepositional infinitives are analysed as direct clausal arguments (CP) of their head predicates (Benucci (1992:25), Huot (1981:22, 39), Jones (1993:262), Rizzi (1982:94)).[10] [11] Predicates that subcategorise for prepositional CPs often select finite CPs as well:[12]

Modern Italian (Benucci (1992:24-25), Rizzi (1997:288)):

7a)	cred-o	di	fa-re	questo
	believe-PRES.1SG	DE	do-INF	this
	'I believe that I am doing this.'			
7b)	lo	cred-o		
	it	believe-PRES.1SG		
	'I believe it.'			
7c)	*cred-o	di	questo	
	believe-PRES.1SG	DE	this	
7d)	cred-o	che	le	scriv-a
	believe-PRES.1SG	QUE	to.her	write-3SG.PRES.SUBJ
	'I believe that he/she writes to her.'			

Modern French (Huot (1981:9-10, 33), Kayne (1984:104)):

8a)	Jean	crain-t	... d'	échou-er	à	cet	examen
	John	fear-PRES.3SG	DE	fail-INF	to	this	exam
	'John fears to fail this exam.'						

[10] Benucci (1992) and Kayne (1989, 2000) argue that prepositional complementisers occupy SpecC, as they permit *wh*-extraction (Benucci (1992:31, 33-35)), the PRO of the embedded infinitive to be controlled by/raised to the higher verb (Benucci (1992:31-32), Kayne (1989: footnote 9), Kayne (2000:77-79)), and/or clitic climbing (Benucci (1992:32), Kayne (2000:77-78)), all of which suggest that they are not 'barriers' and hence cannot occupy the head position of C. It will be assumed for simplicity that they are the heads of CP (cf Mensching (2000:chapter 3 footnote 44)). R & R (2003:97-110) similarly analyse English *to* as the head of CP even though it is analysed as SpecC by Kayne (2000:297-304).

[11] Rizzi (1997:288, 2004:237) and Beninca' and Poletto (2004:54)) argue that in the cartography of C elements prepositional complementisers occupy FinP (= MP in R & R (2003)), which is lower than ForceP (=CP in R & R (2003)), TopicP and FocusP since prepositional complementisers do not host Topics or Foci whereas finite complementisers do (Rizzi (1997:288)) (cf Ledgeway's (2011:429-432, 2012:162, 166, 168-9, 179)).

[12] Romance finite clauses headed by *que* are traditionally analyzed as CPs (Kayne (1976:259, 1984:104), Huot (1981:20-26)), and so the complementarity with *que*-clauses supports the CP analysis of these prepositional infinitives (Kayne (1984:104), Rizzi (1997:288)).

8b) Jean crain-t ... un-e augmentation de loyer

John fear-PRES.3SG one-FEM.SG rise.FEM.SG of rent

'John fears a rise of rent.'

8c) *Jean crain-t ...de l' échec à cet examen

John fear-PRES.3SG DE DEF.ART failure to this exam

8d) Jean crain-t ... de perd-re s-a place

John fear-PRES.3SG DE lose-INF his-FEM place.FEM

et que plusieurs de se-s camarade-s

and QUE several of his-PL comrades-PL

so-ient poursuivi-s en justice

be-PRES.SUBJ.3PL prosecuted-PL in justice

'John fears... to lose his place and that several of his comrades will be prosecuted in justice.'[13]

Modern Sardinian (Jones (1993: 247, 262, 264)):

9a) pessa-íat de éss-ere maláid-u

think-IMPERF.3SG DE be-INF sick-MASC.SG

'He thought that he was sick.'

9b) lu pessa-íat

it think-IMPERF.3SG

'He thought it.'

9c) *pessa- íat de cussu

think-IMPERF.3SG DE that

9d) Maria pess-at ki su trenu est in ritardu

Maria think-PRES.3SG QUE her train be.PRES.3SG in delay

'Maria thinks that her train is delayed.'

[13] This prepositional infinitive (*de perdre*…) and the finite complementation (*que*…) are co-ordinated (*et*) and are hence syntactically equivalent.

These prepositional infinitives (7a), 8a), 9a)) are equivalent to non-prepositional (pro)nouns (7b), 8b), 9b)) and finite CPs (7d), 8d), 9d)), and their prepositional heads only subcategorise for infinitives (7c), 8c), 9c)). However, these properties are not co-extensive. On the one hand, there are prepositional infinitives (10a), 11a), 12a)) which are equivalent to finite CPs (10d), 11d), 12c)) but do not show syntactic equivalence to non-prepositional (pro)nouns (10b-c), 11b-c), 12b)) or exclusive subcategorsation for the infinitive (10c), 11c), 12b)) (Huot (1981:7-12), Jones (1993:260-262)):

Modern Italian (Benucci (1992:24-30), Mensching (2000:64)):

10a)	mi	vant-o	di	fa-re	questo
	REFL.PRO	boast-PRES.1SG	DE	do-ING	this
	'I boast of doing this.'				
10b)	se	ne	vant-a		
	REFL.PRO	PRO	boast-PRES.3SG		
	'He/she boasts of it.'[14]				
10c)	mi	vant-o	di	questo	
	REFL.PRO	boast-PRES.1SG	DE	this	
	'I boast of this.'				

10d)	si	vant-a	che	i	su-oi	compit-i
	REFL.PRO	boast-PRES.3SG	QUE	DEF.ART.MASC.PL	his/her-MASC.PL	task-MASC.PL
	si-a-no	stat-i	rifiut-at-i			
	be-PRES.SUBJ-3PL	been-MASC.PL	reject-PERF.PTCP.PASS-MASC.PL			
	'He/she boasts of the fact that his/her tasks have been rejected.'					

Modern French (Huot (1981:48-49)):

11a)	Jean	se	réjou-it	de	part-ir...
	John	REFL.PRO	look.forward-PRES.3SG	DE	leave-INF
	'John looks forward to leave...'				

[14] Huot (1981:8 fn 1) and Kayne (1975:chapter 2) argue that French pronouns *en* and *y* are equivalent to *de* + DP and *à* + DP respectively and are hence prepositional pronouns (PPs). The same applies to Italian *ne* and *ci*, which correspond to *di* + DP and *a* + DP respectively (Benucci (1992:24), Mensching (2000:64)).

11b) Jean s’ en réjou-it

John REFL.PRO PRO look.forward-PRES.3SG

‘John looks forward to it.’ (see footnote 14)

11c) Jean se réjou-it de ce voyage

John REFL.PRO look.forward-PRES.3SG DE this trip

‘John looks forward to this trip.’

11d) Jean se réjou-it que

John REFL.PRO look.forward-PRES.3SG QUE

cette affaire soit termin-ée

this matter be.PRES.SUBJ.3SG complete-PERF.PTCP.PASS

‘John looks forwards to this matter being completed.’

Modern Sardinian (Jones (1981:247,260-261)):

12a) so content-u de inténd-ere cussa notitzia

be.PRES.1SG content-MASC.SG DE hear-INF that news

‘I am content to hear that news.’

12b) so content-u de cussa notitzia

be.PRES.1SG content-MASC.SG DE that news

‘I am content about that news.’

12c) so cuntent-u ki ses arriv-atu

be.PRES.1SG content-MASC.SG QUE be.PRES.SUBJ.2SG arrive-PERF.PTCP

‘I am content that you have arrived.’

On the other hand, there are prepositional infinitives (13a)) which are equivalent to non-prepositional (pro)nouns (13b)) and only subcategorise for the infinitive (13c)) but are not equivalent to a finite CP (13d)):

Modern Italian (Benucci (1992:24-5), Rizzi (1982:94)):

13a) prov-o a fa-re questo

try-PRES.1SG A do-INF this

‘I try to do this.’

13b)	prov-o	questo				
	try-PRES.1SG	this				
	'I try this.'					
13c)	*prov-o	a	questo			
	try-PRES.1SG	A	this			
13d)	*prov-o	(a)	che	Ugo	partecip-a	
	try-PRES.1SG	(A)	QUE	Ugo	participate-3SG.PRES.SUBJ	

Benucci (1992:30), Mensching (2000:63-64), Huot (1981:48-50) and Jones (1993:260-262) regard the former type (10-12)) as PPs,[15] while the latter type (13)) is analysed as a CP (Benucci (1992:25), Rizzi (1982:94)). The two key tests are therefore 'equivalence to non-prepositional (pro)nouns' and 'affinity with infinitives', since these suggest that the prepositional infinitive is a direct clausal argument (CP) of the head predicate.

Section 2.2: the origins of Romance complementisers:

In the previous section, Romance prepositional complementisers show a wide distribution in modern Romance (Italian, French, Sardinian), which suggests that they may have been grammaticalized in proto-Romance (cf Diez (1876:201-202), Meyer-Lübke (1900:426, 433ff), Vincent (1988:68-70), Ledgeway (2011:429-432)). As there is as yet no identification of the

[15] This PP analysis is supported by other Romance languages where similar predicates have a preposition preceding the finite complementiser e.g.

Modern Spanish (Bosque and Demonte (1999:1845), Mensching (2000:chapter 3 footnote 45)):

1a)	se	jact-a	de	hac-er	esto
	REFL.PRO	boast-PRES.3SG	DE	do-INF	this
	'He/she boasts of doing this.'				
b)	se	jact-a	de	esto	
	REFL.PRO	boast-PRES.3SG	DE	this	
	'He/she boasts of this.'				
c)	se	jact-a	de	que	llegu-es
	REFL.PRO	boast-PRES.3SG	DE	QUE	arrive-PRES.SUBJ.2SG
	'He/she boasts of the fact that you arrive.'				

Modern Portuguese (Benucci (1992:26-27)):

2a)	sonh-o	com	faz-er	isso		
	dream-PRES.1SG	COM	do-INF	this		
	'I dream about doing this'					
b)	sonh-o	com	isso			
	dream-PRES.1SG	COM	this			
	'I dream about this.'					
c)	...sonh-ei	com	que	compra-vas	um	carro
	dream-PRETERITE.1SG	COM	QUE	buy-IMPERF.2SG	one	car
	'...I dreamt about you buying a car.'					

In 1c) and 2c), the preposition (*de*, *com*) before *que* indicates a PP structure for the finite complementation, which conforms to 1b) and 2b). Benucci (1992:30) and Mensching (2000:64) therefore argue that in ex. 10)-12) there is a phonetically empty preposition preceding the finite complementiser.

grammaticalization process, this change has to be reconstructed from Romance.[16] The parametric variation here is whether the preposition in prepositional infinitives is a P or a C (see previous section). Romance syntacticians argue that the syntactic category of prepositional infinitives (PP/CP) is determined by their head predicates (Benucci (1992:23), Renzi and Salvi (1991:486-490, 524ff), Huot (1981:7), Jones (1993:262-264)). I therefore propose to reconstruct one head predicate that subcategorises for prepositional CPs in proto-Romance. Although 'complementarity with *que*-clauses' is not a key diagnostic, it will be insisted here since this justifies my use of the Latin corpora for the grammaticalization of *quod* as the Romance complementiser *que*, which I shall also analyse.

In Latin/Romance syntax, subcategorisation is semantically conditioned and semantically similar head predicates tend to share the same subcategorisation properties.[17] In my proto-Romance reconstruction, I propose to look for Latin/Romance correspondences that are semantically (and not necessarily etymologically) cognate, since these go back to the same class of proto-Romance/Latin head predicates with the same subcategorisation properties. Their Latin prepositional dependents should contain the origins of the Romance prepositional CPs. Benucci (1992:29, 44 footnote 1) and Renzi and Salvi (1991:532-533) argue that in modern Italian predicates with very subtly different meanings can subcategorise for different complements e.g.

14a)	pens-o	di	fa-re	questo
	think-1SG.PRES	DE	do-INF	this
	'I think that I am doing this.' Or 'I intend to do this.'			
14b)	pens-o	a	fa-re	questo
	think-1SG.PRES	A	do-INF	this
	'I am thinking of doing this.'			

The same applies to Latin, since the same Latin predicates subcategorise for different complements when they express subtly different meanings e.g. *docere*, which subcategorises for Accusative with Infinitive ('to inform') or a double accusative ('to teach') (Lavency (2003:115)); *dicere* 'to say', which takes Accusative with Infinitive (indirect statements) or an *ut*-clause (indirect commands) (Lavency (2003:144-147)). My Latin/proto-Romance reconstruction is therefore semantically very specific.

Section 2.3: proto-Romance reconstruction:

Hall (1983:2) proposes two criteria for proto-Romance reconstruction: either

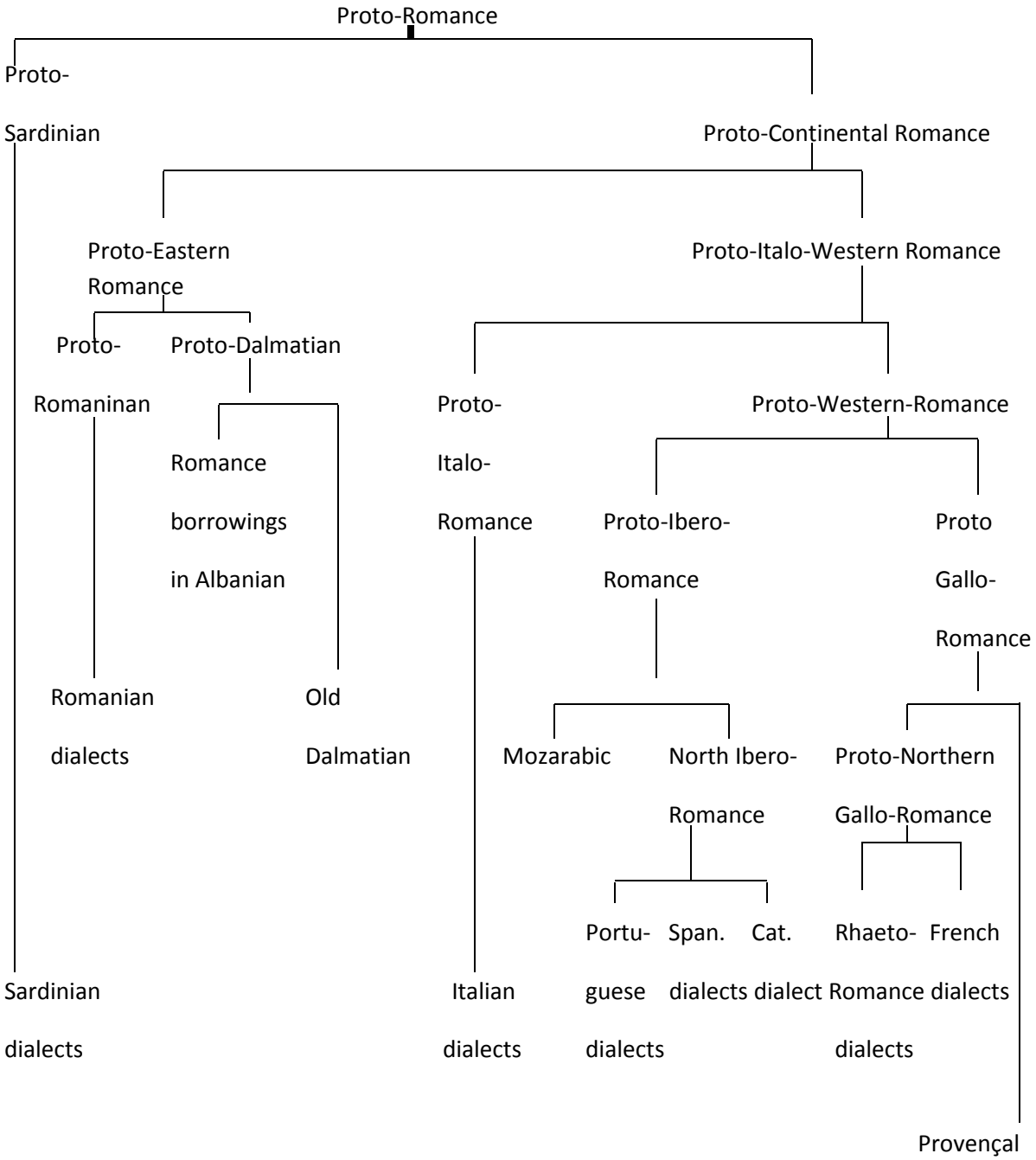
[16] I follow Roberts (1998, 2007:357ff) in incorporating parametric values with the traditional comparative method.

[17] Lavency (2003:109-115, 136-144, 152-159, 169-173), Panchón (2003:366-432, 440-444), Orlandini (2003:496-525) and Serbat (2003:550-554, 569-582, 591-652, 710-714) all classify Latin predicates in terms of their shared semantics and complements e.g. *verba imperandi* ('verbs of ordering') which universally select *ut*-clauses (Panchón (2003:376-377)). The same semantic principles of subcategorisation are inherited by Romance, despite significant differences in the form of the complements (Vincent (1988:65-70)).

a) the linguistic feature occurs in Sardinian and/or Romanian, and one or more of the languages of the Italo-Western group, or

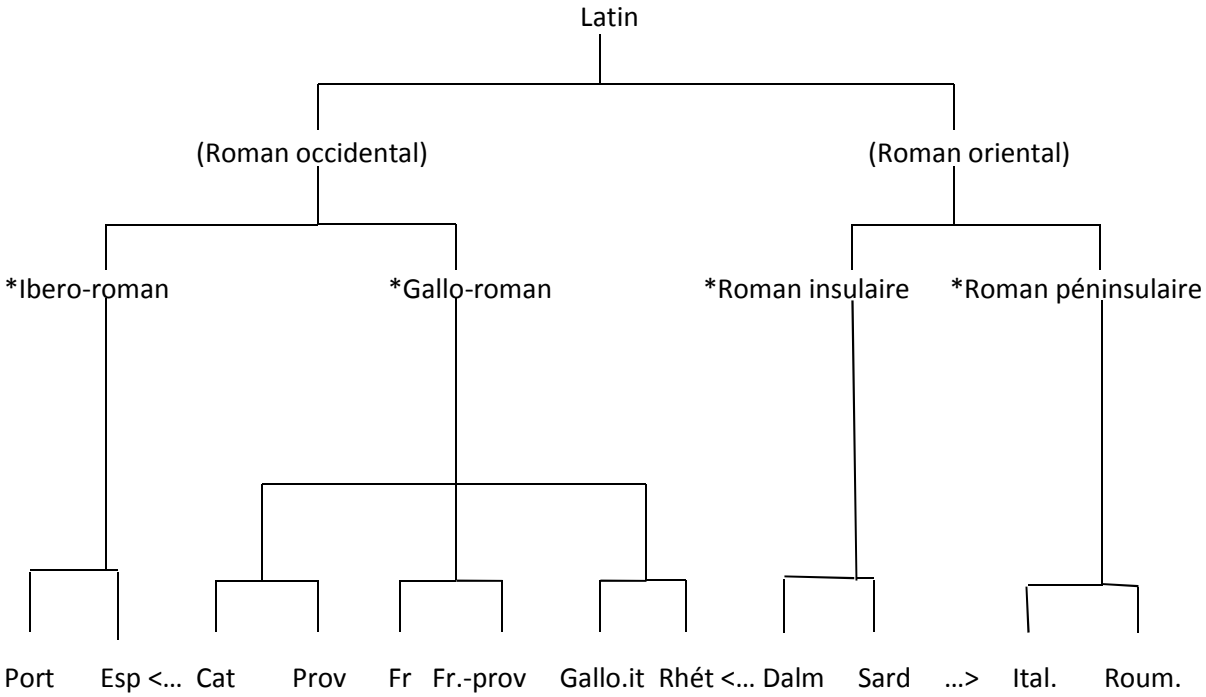
b) it occurs in Latin and any branch of Romance.

The Latin origins of Romance *que* are well-documented (Herman (1963), Coleman (1975:119-121), Cuzzolin (1994)), and so its proto-Romance status can easily be established by b). The Latin origins of the Romance prepositional CPs have to be reconstructed via a), which conforms to Hall's grouping of Romance dialects (Leonard (1970:271), Hall (1964:312, 1974:9-16)):



In the absence of language contact, similarities between Sardinian and/or Romanian and any branch of Italo-Western Romance necessarily goes back to proto-Romance. However, while this justifies the

use of Italian and Sardinian for proto-Romance reconstruction, other groupings do not e.g. Trager (1934:136):



In this grouping, language contact is attested for Sardinian and Itailan, as indicated by the arrow between them (Manczak (1991:14-15)). Furthermore, even if one excludes language contact, comparative data between Italian and Sardinian need not go back to Latin since it could be an Eastern Romance (*Roman oriental*) innovation. Adams (2007) shows that Latin already has dialectal regionalisms, some of which foreshadow Romance,[18] and Trager's Eastern Romance differs from the regional background of my Latin corpora (=Herman (1963), Cuzzolin (1994), Serbat (2003)), which consist of Roman Italy (Accius, Aulus Gellius, Cato, Caelius Rufus, Julius Caesar, Cicero, Ennius, Frontinus, Livy, Lucretius, Plautus, Pliny the Younger, Pliny the Elder, Valerius Maximus, Varro), Roman Spain (Martial, Quintilian, Seneca the Younger, Seneca the Elder), Roman Gaul (Cornelius Nepos, Petronius) and Roman Africa (Apuleius, St Augustine, Florus, Terence). Roman Africa is irrelevant for Romance dialectalisation, and so the key areas are Roman Italy, Spain and Gaul.

I propose two modifications: 1) to scour the earliest attestations of Romance so that language contact is avoided 2) to choose Romance branches that conform to my Latin corpora. I have therefore chosen the corpora of old Spanish (=Beardsley (1921)), old Italian (=Salvi and Renzi (2011:1551-1552)) and old French (=Van Reenan and Schøsler (1991:543-544)).

Section 2.4: old Romance prepositional CPs:

All the examples in section 2.1 come from modern Romance and their (un)grammaticality depends on native intuitions, which are unavailable in historical analysis. The two key distributional tests are (see section 2.1):

[18] E.g. *conrogata* (> French *corvée*), which is regionally restricted to Roman Gaul and modern France (Adams (2007:293-295)).

a) ‘equivalence to non-prepositional (pro)nouns’

b) ‘affinity with infinitives’

b) depends on the ungrammaticality of the prepositional complementiser taking non-infinitival complements (see section 2.1, ex. 4)-6), 7c), 8c), 9c), 13c)), which is impossible to verify in historical data.[19] The key test, therefore, is a), since this depends on positive examples and is the most economical and efficient strategy towards reconstructing proto-Romance prepositional CPs.[20]

Section 2.5: *verba considerandi* ‘verbs of considering’*:*

There is comparative evidence that ‘verbs of considering’ subcategorise for prepositional CPs. This is a very specific type of ‘thinking’[21] e.g.

Old Spanish *asmar*:

15)	asm-ó	de	se-er	clérigo
	consider-PRETERITE.3SG	DE	be-INF	clergyman

‘He considered to be a clergyman.’ (*Vida de Santo Domingo de Silos* verse 34)

[19] Grammatical mistakes are attested in historical data (e.g. syntactic errors in non-literary Latin letters (Halla-Aho (2009:23-25)), but since my Latin and Romance corpora consist of high-style literary texts, grammaticality is beyond question (and the discrepancies in the manuscripts do not qualify as ungrammaticality).

[20] It is hence possible to discard b) entirely, since even if the prepositional complementiser violates b), this is not a contradiction to a) as it could be that the prepositional properties of the prepositional complementiser have been retained. The retention of pre-grammaticalized properties is very common in grammaticalization and is regarded by Bybee et al. (1994:15-19) as a diagnostic trait in grammaticalization theory. This retention still exists in modern Romance e.g. modern Italian *provare* + *a*-infinitive (section 2.1, ex. 13)):

13a)	prov-o	a	fa-re	questo
	try-1SG.PRES	A	do-INF	this
	‘I try to do this.’			
13b)	prov-o	questo		
	try-1SG.PRES	this		
	‘I try this.’			
13c)	*prov-o	a	questo	
	try-1SG.PRES	A	this	
13d)	ci	prov-o		
	PREP.PRO	try-1SG.PRES		
	‘I try it.’			

The *a*-infinitive here is equivalent to non-prepositional (pro)nouns’ (13b)) and only selects the infinitive (13c)) but is also equivalent to Italian *ci* (13d)) (Benucci (1992:24)), which is prepositional (see footnote 14). As the prepositional properties of this *a*-infinitive seem to have lingered on in modern Italian, they can definitely exist in old Romance. Negative evidence, given ‘retention’/’layering’, does not disprove grammaticalization, whereas any positive evidence (e.g. a)) suffices to prove it. In Minimalism, such retentions are accounted for by ‘lexical splits’ e.g. English modals *can*, *need*, *dare*, *will*, which are analysed as lexical verbs (V) and auxiliary verbs (T) synchronically in certain dialects (R & R (1999:1025, 2003:42-43), Roberts (2010:58)). The grammaticalized prepositions are Cs and any lingering prepositional properties (P) are due to ‘retention’/’layering’.

[21] Cf section 2.2, ex. 14) where 14b) is semantically closest to what is being reconstructed here.

Here *asmar* implies planning and forethought, as it describes the decision process of Santo Domingo (Uría (1992:266), Dutton (1978:157), Beardsley (1921:109)). The same predicate is attested with non-prepositional (pro)nouns:

16a) asm-ó un consejo malo e perigloso
consider-PRETERITE.3SG one plan evil and dangerous
'He considered an evil and dangerous plan.' (*El libro de Alixandre* verse 170)

16b) assí lo a-n asm-ado...
so it have-PRES.3PL consider-PERF.PART
'so they have considered it...' (*Cantar del Mio Cid* 844)

In 16a), the character devised a plan (*un consejo*), and in 16b) the pronoun (*lo*) refers to an agreement that the characters are trying to reach. Both imply deliberation.[22]

The same predicate is attested with finite complementation headed by *que*, since the content of the plan in 16a) is expressed by an embedded finite clause:

17) asm-ó que... casar-ié con Olimpias...
consider-PRETERITE.3SG QUE marry-COND.3SG with Olimpias
'He considered that... he would marry Olimpias...'(*El libro de Alexandre* verse 171)[23]

Old Italian *pensare*:

18) non pens-ò mai di ritorn-are
NEG consider-PRETERITE.3SG ever DE return-INF
a-l vescovado...
to-DEF.ART diocese
'He never considered going back to the diocese.'
(*Cronica fiorentina,* in Schiaffini (1926:108))

Pensare describes the decision process of the character, which is indicated by the adverb *mai* 'ever' which implies a prolonged process of deliberation. The same predicate takes non-prepositional (pro)nouns:

[22] Cf *Vida de Santo Domingo de Silos* verses 50, 94, 162, and *El libro de Alexandre* verse 23.
[23] Cf *Cantar del Mio Cid* 524-525.

19) ... pens-ando il grande

consider-GERUND DEF.ART.MASC.SG great.MASC.SG

onore e la ricc-a potenza...

honour.MASC.SG and DEF.ART.FEM.SG rich-FEM.SG power.FEM.SG

'...considering the great honour and rich power...' (*Il Tesoretto* 182-183)

Here the author is urging the reader to contemplate on the moral values of honour and power.[24]

Many attestations of *que* seem to express beliefs rather than deliberation.[25] However, there are some ambiguous examples:

20) voi dov-ete pens-are che l'

PRO.2ND.PL must-PRES.2PL consider-INF QUE DEF.ART

om che è 'namorat-o sovente

man.MASC.SG REL.PRO is in.love-MASC.SG often

mut-a stato

change-PRES.3SG state

'You must think/consider that the man who is in love often changes state.'

(*Il Tesoretto* 2354-2356)

Il Tesoretto is a piece of didactic text (Contini (1960:169-174)), and so the author could be obliging his reader to 'consider' the truth value of the embedded clause (*che l'om*…).[26] 'Complementarity with *que*' could be established for Italian *pensare* 'to consider'.

In old French, *penser* is attested with two types of prepositional infinitives: *de* + infinitive (21) and *a* + infinitive (22) (Van Reenan and Schøsler (1991:541)):

21) ... comenc-er-ai a pens-er de

begin-FUT-1SG A consider-INF DE

aukune bon-e estoire fa-ire

some good-FEM.SG story.FEM.SG make-INF

'... I shall begin to consider making some good story.'

[24] Cf *Il Tesoretto* 2551, *Cerchi* I in Castellani (1952:595)), *Cerchi* II in Castellani (1952:600)).
[25] E.g. *Il Tesoretto* 1336-1339, 2536-2538.
[26] cf *Il Tesoretto* 864-867, 1412, 1678-1680.

22) ...se je pen-s a racont-er

and.so I consider-PRES.1SG A tell-INF

la bon-e vie

DEF.ART.FEM.SG good-FEM.SG life.FEM.SG

'... and so I am considering to tell the good life.'

21) and 22) imply deliberation, since they describe the decision process of the characters. The same predicate is attested with non-prepositional (pro)nouns (Van Reenan and Schøsler (1991:528-529)):

23a) ge meisme-s les pens-e

I EMPHATIC.PRO-PL PRO.3RD.PL consider-PRES.1SG

'I am considering those very things.'

23b) li pueple pens-erunt vein-es chose-s

DEF.ART.NOM.SG nation consider-PRETERITE.3PL futile-FEM.PL thing.FEM-PL

'The nation considered futile things.'

In 23a) and 23b), the characters are deliberating on the (pro)nouns (*meismes les*, *veines choses*).

Like Old Italian, most examples of *penser* taking finite complementation seem to denote beliefs rather than deliberation.[27] However, the following example is ambiguous:

24) je me pen-s que

I REFL.PRO.1ST.SG consider-PRES.1SG QUE

ce so-it m-a fame...

DEM.PRO be-PRES.SUBJ.3SG my-FEM wife.FEM

'I am thinking to myself that it is my wife...' (*La chastelaine de Vergi* 256)

The character utters this sentence in a climactic scene where he suspects that his interlocutor is in love with his wife (Clifford (1986:20)). Deep thought is implied not only by dramatic suspense but also by the use of the reflexive pronoun, which implies introspection (*je* ***me*** *pens* i.e. he is thinking to himself about this). 'Complementarity with *que'* could be established for *penser* 'to consider'.

For proto-Romance, one can therefore reconstruct a class of 'verbs of considering' which subcategorise for prepositional CPs headed by *de* (15), 18), 21)) and *ad* (22)) as well as finite clauses headed by *que* (17), 20), 24)) as their direct object.

[27] E.g. *La chastelaine de Vergi* 191-192, 793-795.

Section 2.6: Latin *quod* / Romance *que*:

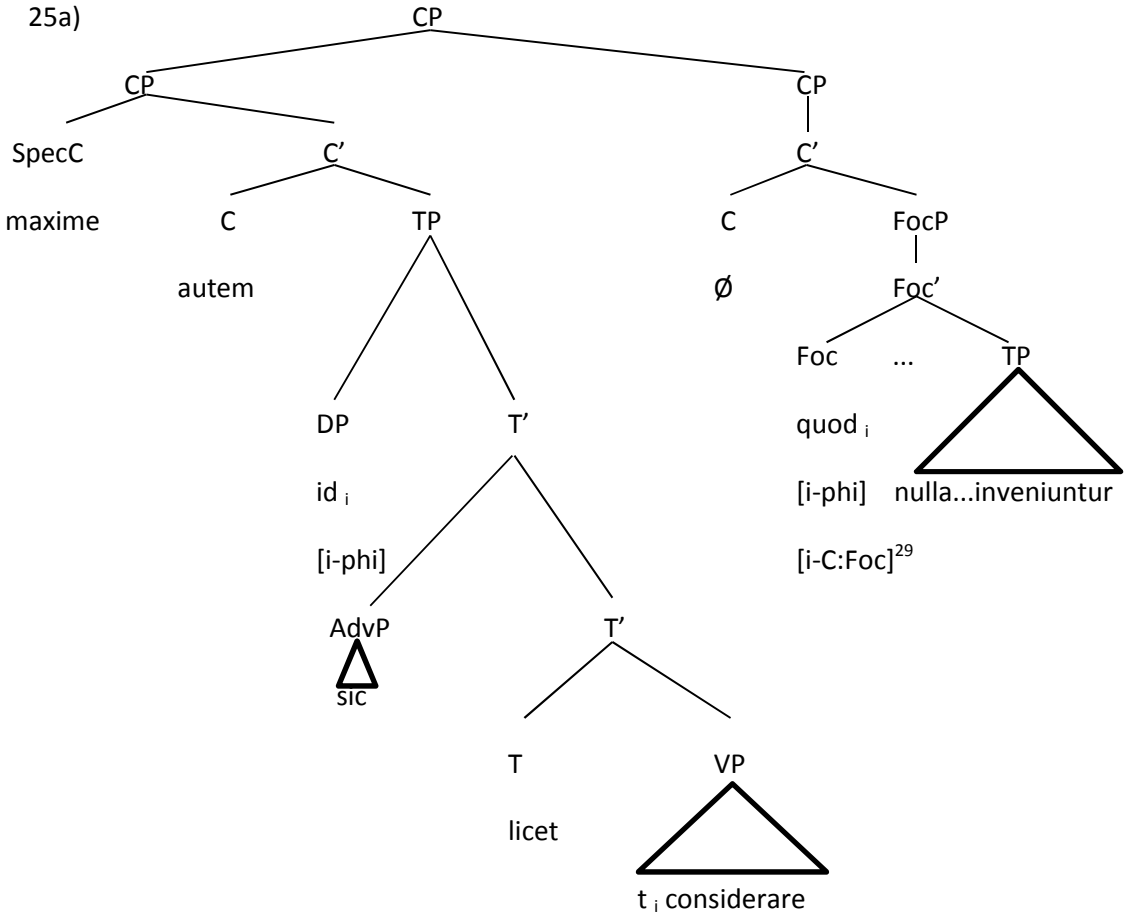
In Cuzzolin (1994:chapter 3), Latin *verba considerandi* subcategorise for *quod*, precursor of Romance *que*. These have the relative pronoun (*quod*) in Focus position introducing a dislocated clause while its antecedent is the direct argument of the main verb in the matrix clause (Cuzzolin (1994:42-45, 86), Justus (1976:235), Serbat (2003:548-550, 557-560), Salvi (2011:372-373), Adams (2011:280)). There is therefore an *Agree* relation between *quod* and its antecedent (Adams (2011:280)):

25)	maxime	autem	id	sic	licet
	especially	but	it.N.SG	thus	be.possible
	consider-are,	quod...	null-a		inveni-unt-ur
	consider-INF	QUE.N.SG	none-N.PL		find-PRES.3PL-PASS

'But it is especially possible to consider it thus, namely the fact that... none are found.'

(*De architectura* 2.6.5, Vitruvius (80-15 BC))[28]

25a)



[28] Cf *De architectura* 2.9.11, Cicero *Haruspicum* 62 (106-43 BC).

[29] Rizzi (1997:288) analyses Focus as part of the CP layer below ForceP (see footnote 11).

Alternatively, one could analyse the whole dislocated CP (*quod*... *nulla inveniuntur*) as the direct object of the main verb (*considerare*), since it is the object under consideration here (> 'it is possible to consider the fact that none are found'), but this is prevented by the antecedent in the matrix clause (*id*), which not only reinforces the pronominal nature of the relative pronoun *quod* but also occupies the direct object position in the matrix clause (*id* $_{i}$ *... t* $_{i}$ *considerare*). This is step a) of the 're-analysis' (see section 1.2).

Step b) occurs when the antecedent in the matrix clause is omitted (Cuzzolin (1994:45, 86)), which is possible if it is in the same case as the relative pronoun (Woodcock (1958:189), Ernout & Thomas (1951:283), Panhuis (2006:175)). The earliest example of this occurs in Tacitus (56-117 BC) (Cuzzolin (1994:120)):

25b) illic reput-ans ideo ...se fallac-ibus

there reconsider-PRES.PTCP thus ...REFL.PRO.ACC.SG deceitful-ABL.PL

litter-is accit-am et honor-e

letter-ABL.PL invite-PERF.PTCP.ACC.SG and honour-ABL.SG

praecipu-o habit-am, quod-que ...nav-is

exceptional-ABL.SG treat-PERF.PTCP.ACC.SG QUE-and ship-NOM.SG

summ-a su-i part-e veluti terrestr-e

top-ABL.SG.FEM self-GEN.SG part-ABL.SG.FEM like on.land-N

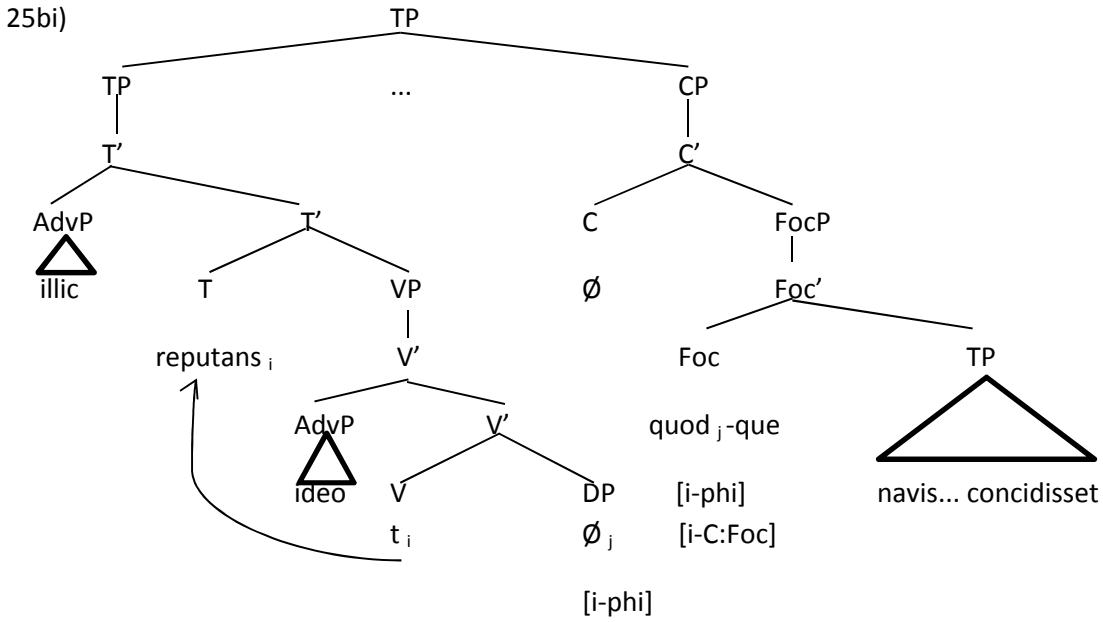
machinamentum concid-isse-t

artificial.structure.N collapse-PLUPERF.SUBJ.3SG

'...thus reconsidering there that she had been invited by deceitful letters and had been treated by an exceptional honour, and (this, namely the fact) that... a ship had collapsed on its own tip like an artificial structure on land.' (*Annales* 14.6.1, Tacitus)

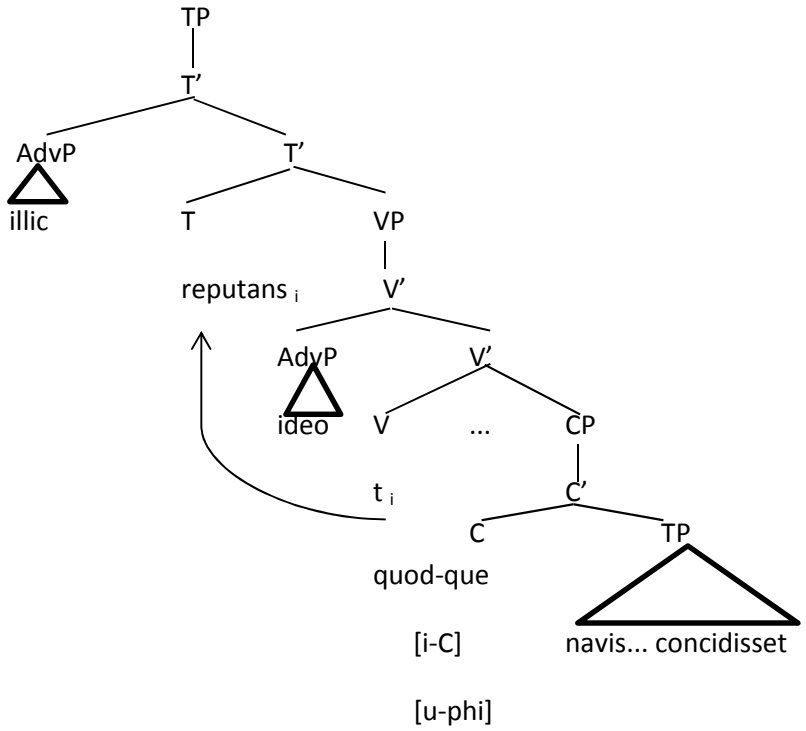
quod could still be analyzed as a relative pronoun if one assumes an empty antecedent in the matrix clause:

25bi)



But since the antecedent of the relative pronoun is empty (Ø), not only is the pronominal nature of *quod* weakened, it is also possible to analyse the dislocated clause (*quodque*... *concidisset*) as the direct argument of the main verb (*reputans*) with *quod* re-analysed as its complementiser (C) (reconsidering... (this, namely the fact) that... > reconsidering that...):[30]

25bii)

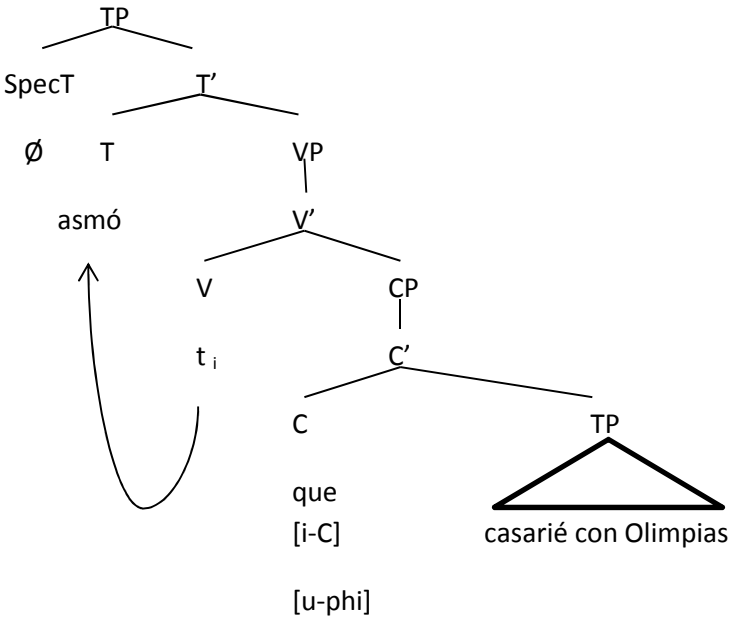


[30] This interpretation is supported by the co-ordination (*-que*) between the *quod*-clause (*quodque… navis concidisset*) and the Accusative with Infinitive construction (*se… habitam* (*esse*)), since the latter is the default construction for embedded CPs in classical Latin (Cuzzolin (1994:10-13), Lavency (2003:97-99), Serbat (2003:528-529), Adams (2011:280)), and this co-ordination supports, if not confirms, the 're-analysis' of *quod*.

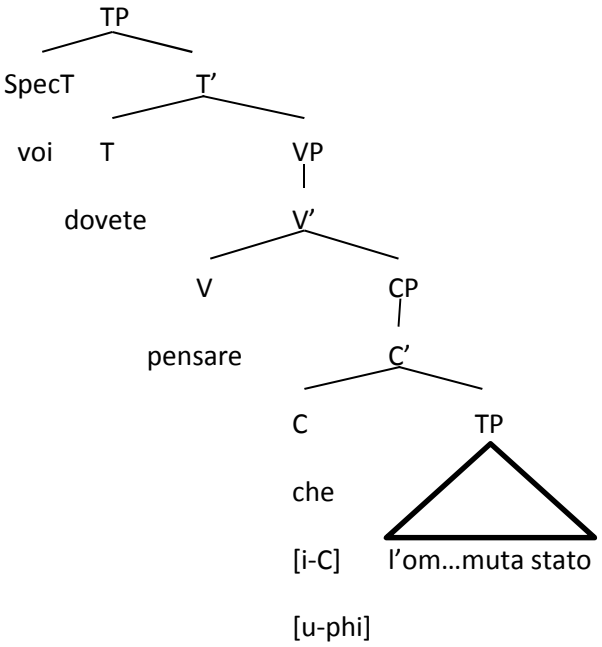
25bii) is 'simpler' than 25bi), since the *Agree* relation between the antecedent and the relative pronoun *quod* is lost. Furthermore, as *quod* is re-analysed as a complementiser (C), its interpretable phi-features ([i-phi]) (25bi)) become uninterpretable ([u-phi]) (25bii)), since complementisers probe for the subject of the embedded clause (*navis*) (van Gelderen (2011:82)).[31] *quod* and the dislocated CP are hence shifted upwards to the matrix clause.

Step c) occurs in Romance (section 3.1, ex. 17), 20), 24), cf section 2.1, ex. 7d), 8d, 9d)), since Romance *que* is analysed as a complementiser (see footnote 12):

17)

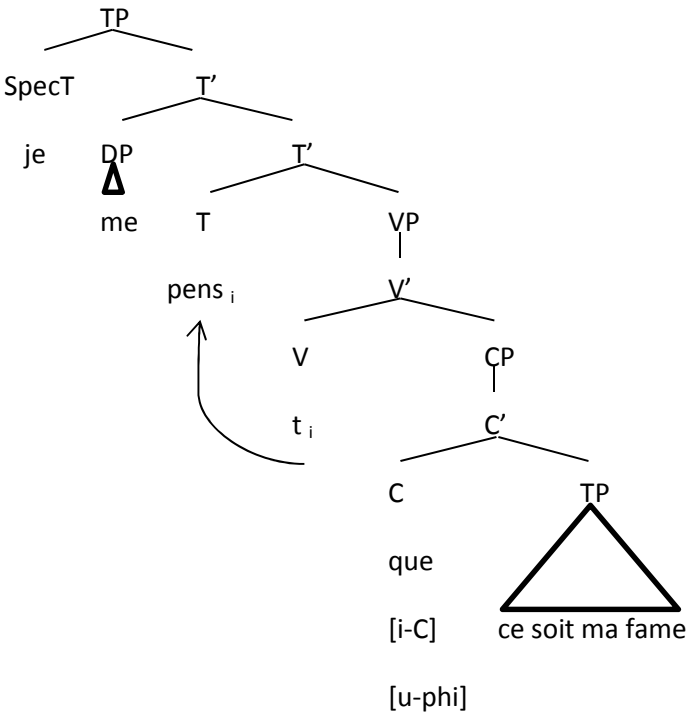


20)



[31] In recent Minimalism, C holds uninterpretable phi-features ([u-phi]) which are transferred to T where they probe for the subject of the clause (Chomsky (2000, 2001, 2007, 2008), cf Richards (2012:201)).

24)



The grammaticalization of Latin *quod* as Romance complementiser *que* therefore conforms to R & R and van Gelderen's 'simplicity' and 'upward feature analysis'.

Section 2.7: Latin/Romance prepositional complementisers:

As mentioned in section 2.2, the Latin origins of Romance prepositional complementisers are unknown, since prepositional infinitives are not attested in Latin (Diez (1876:201), Beardsley (1921:97), Schulte (2007:19, 79)). Nevertheless, there are prepositional dependents in Latin that could be re-analysed as prepositional infinitives in (proto-)Romance, namely Latin prepositional gerunds/gerundives, which are lost in Romance and are assumed to have been replaced by prepositional infinitives (Harris (1978:199), Schulte (2007:79, 87-90, 106-109), Beardsley (1921:97-99, 106-108, 150-153), Diez (1876:201, 212-213), Meyer-Lübke (1900:426), Otto (1889:23))). The earliest example of *verba considerandi* selecting a prepositional gerund/gerundive is in Cicero (106-43 BC):

26ai)	quid			cogit-es
	INTERROGATIVE.PRO-N.SG.ACC			consider-PRES.SUBJ-2SG
	de	transeu-nd-o	in	Epiru-m
	DE	cross-GERUND-ABL.SG	into	Epirus-ACC.SG

'what do you consider about crossing into Epirus' (*ad Atticum* 9.1.4)

As for *ad*-gerund/gerundive, there is an example in the passive in Vitruvius (80-15 BC):

26aii)	...rati-o	ad	host-ium	impet-us	perpetu-o
	method.FEM-NOM.SG	AD	enemy-GEN.PL	attack-ACC.PL	continuous-ADV
	repell-end-os		excogit-at-a		
	ward.off-GERUNDIVE-ACC.PL		devise-PERF.PTCP.PASS-FEM.NOM.SG		

'... the method is devised in order to ward off the enemies' attack continuously.'[32] [33] (*De architectura* 1.3.1)

The active would be:

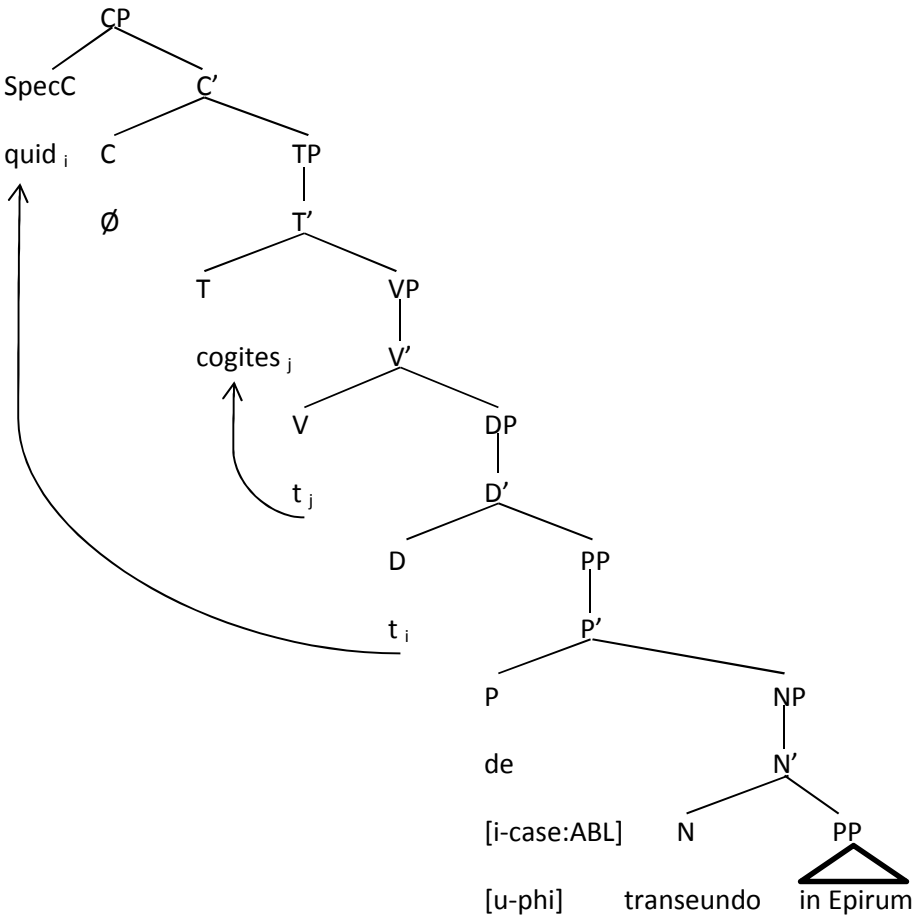
26aiii)	...*ration-em	ad	host-ium	impet-us	perpetu-o
	method.FEM-ACC.SG	AD	enemy-GEN.PL	attack-ACC.PL	continuous-ADV
	repell-end-os		excogit-at		
	ward-GERUNDIVE-ACC.PL		devise-PRES.3SG		

'... he devises the method in order to ward off the enemies' attack continuously.'

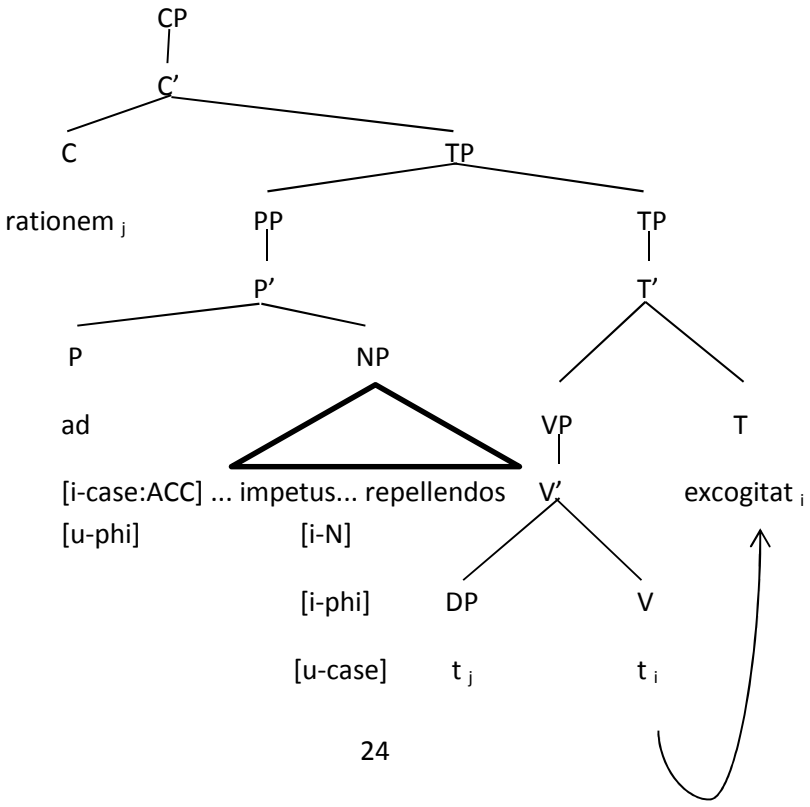
As Latin prepositions assign morphological case to their complements (Ernout and Thomas (1951:9), Baldi (2002:88)), there is an *Agree* relation between them:

[32] *Excogitare* 'to devise' implies mental planning and *ratio* 'the method' is the object under consideration here.
[33] *ad* + gerund/gerundive expresses purpose and can be analysed as a purpose adjunct clause (Woodcock (1958:160, 164-165), Ernout and Thomas (1951:223), Baldi (2002:406), Schulte (2007:89-90)).

26ai)


CP
SpecC
C’
quid i
C
TP
Ø
T’
T
VP
cogites j
V’
V
DP
t j
D’
D
PP
t i
P’
P
NP
de
N’
[i-case:ABL]
N
PP
[u-phi]
transeundo
in Epirum
[i-N]
[i-phi]
[u-case]

26aiii)


CP
C’
C
TP
rationem j
PP
TP
P’
T’
P
NP
ad
VP
T
[i-case:ACC]
... impetus... repellendos
V’
excogitat i
[u-phi]
[i-N]
[i-phi]
DP
V
[u-case]
t j
t i

One could alternatively analyse these prepositional gerunds/gerundives as complements of the main verbs, since co-reference is implied between the subject of the main verb (*cogites* 'you consider', *excogitat* 'he devises') and the subject of these prepositional gerunds/gerundives (*de transeundo in Epirum* 'about crossing into Epirus (yourself)', *ad... impetus...repellendos* 'in order to ward off the enemies' attack (himself)'). These prepositional gerunds/gerundives are therefore prolative. However, as Latin gerunds/gerundives have morphological case-endings (*de... transeund-o*, *ad*... *impet-us*... *repellend-os*), the *Agree* relations between the prepositions and the gerunds/gerundives are unambiguous. Latin prepositional gerunds/gerundives must therefore be analysed as adjunct PPs. Furthermore, there is an explicit direct object (*quid*, *rationem*) which prevents these prepositional gerunds/gerundives from being analysed as complements of the main verbs. This is step a).

Step b) occurs when the direct object is omitted e.g.

26bi)	sed	de	inveni-end-a	veritat-e	tract-amus
	but	about	find-GERUNDIVE-ABL.SG.FEM	truth-ABL.SG.FEM	deal-PRES.1PL

'... but we are considering (something) about finding the truth.'[34]

(C*ontra Academicos* 3.14.30, Augustine) (354-430 AD)

26bii)	in	recogit-and-o	ad	capi-end-um	sincer-um
	in	reconsider-GERUNDIVE-ABL.SG	AD	capture-GERUNDIVE-ACC.SG	intact-ACC.SG

'… in reconsidering (something) in order to capture it whole.'[35]

(*de anima* 18.2, Tertullian) (160-220AD)

[34] *Tractare* 'to deal/handle' could be translated as 'to consider', since in an intellectual context (as in Augustine's *Contra Academicos*) it implies deliberation.

[35] The postulation of an omitted object is supported by earlier examples where explicit objects are used with these verbs:

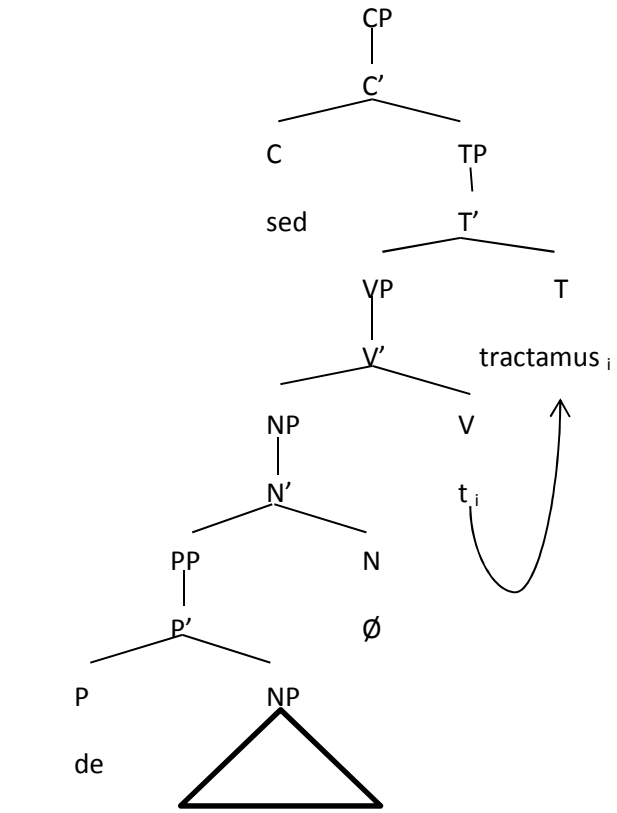
1)	ut	de	origin-e	aliquid	retract-emus…
	so.that	DE	origin-ABL	something	reconsider-PRES.SUBJ.1PL

'so that we can reconsider something about the origin…' (Tertullian *Apologeticum* 5.1) (160-220AD)

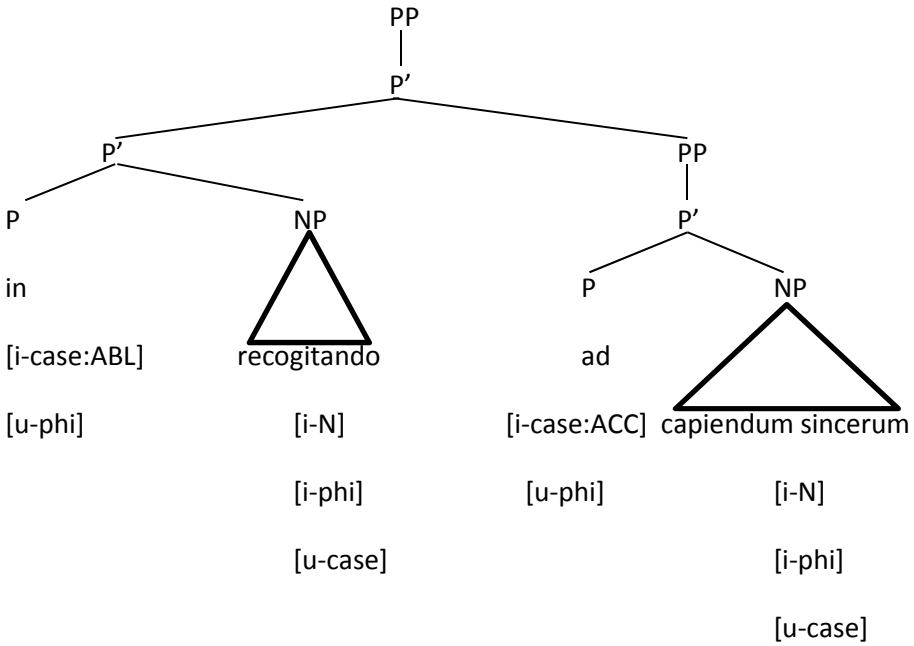
2)	statui	enim	nihil	iam	de	re	public-a	cogit-are
	decide-PERF.1SG	for	nothing	now	DE	thing.ABL.SG.FEM	public-ABL.SG.FEM	think-INF

'For I now decided to think nothing about politics.' (Cicero *ad Atticum* 2.4.4) (106-43 BC)

26bi)


CP
C’
C
TP
sed
T’
VP
T
V’
tractamus i
NP
V
N’
t i
PP
N
P’
Ø
P
NP
de
[i-case:ABL] invenienda veritate
[u-phi]
[i-N]
[i-phi]
[u-case]

26bii)


PP
P’
P’
PP
P
NP
P’
in
P
NP
[i-case:ABL]
recogitando
ad
[u-phi]
[i-N]
[i-case:ACC]
capiendum sincerum
[i-phi]
[u-phi]
[i-N]
[u-case]
[i-phi]
[u-case]

When the Latin/Romance infinitive replaced the prepositional gerunds/gerundives, one can reconstruct the following:

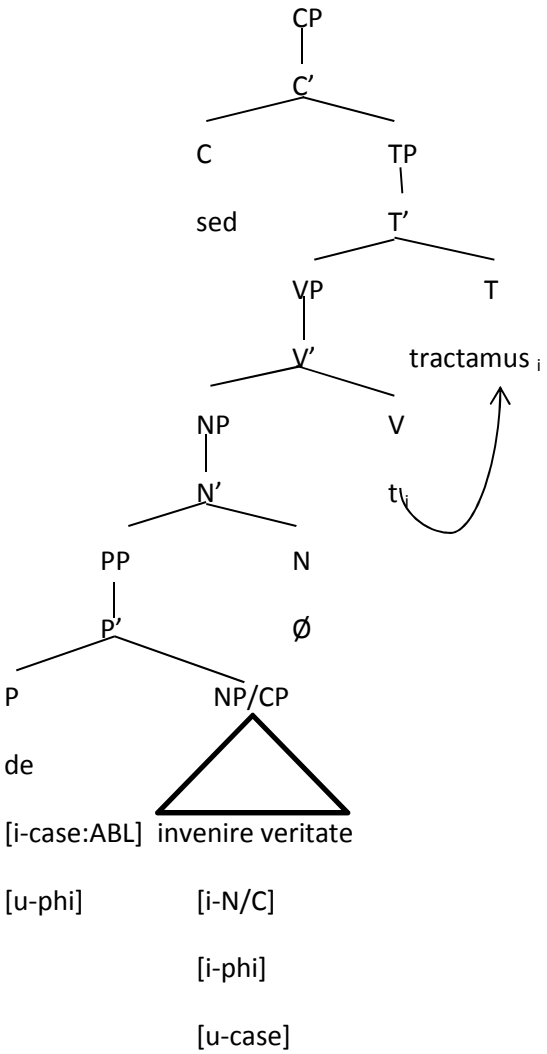
26biii)	*sed	de	inven-ire	veritat-em	tract-amus
	but	about	find-INF	truth-ACC.SG.FEM	deal-PRES.1PL

'... but we are considering (something) about finding the truth.'

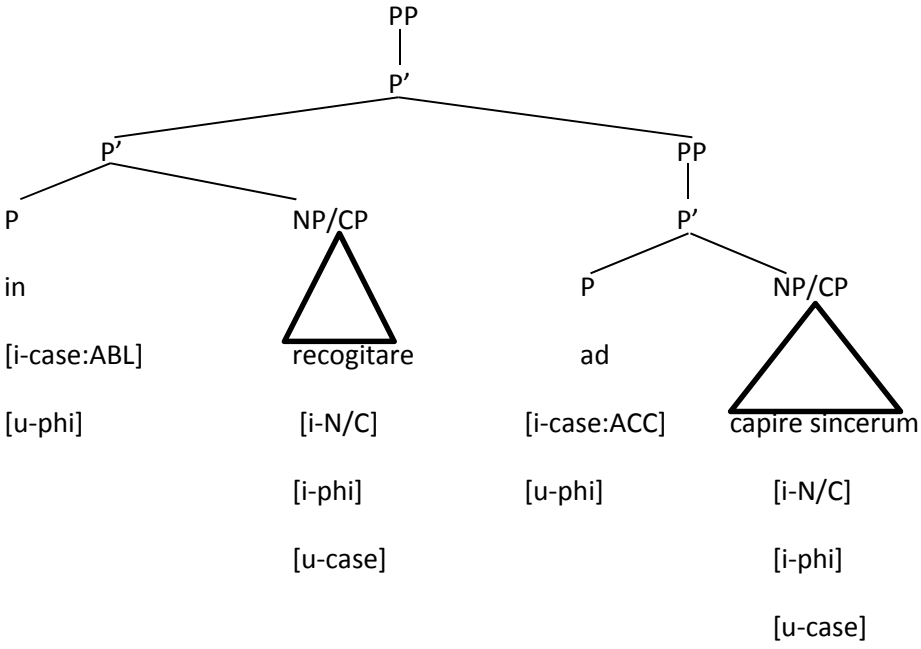
26biv)	in	recogit-are	ad	capi-re	sincer-um
	in	reconsider-INF	AD	capture-INF	intact-ACC.SG

'… in reconsidering (something) in order to capture it whole.'

26biii)

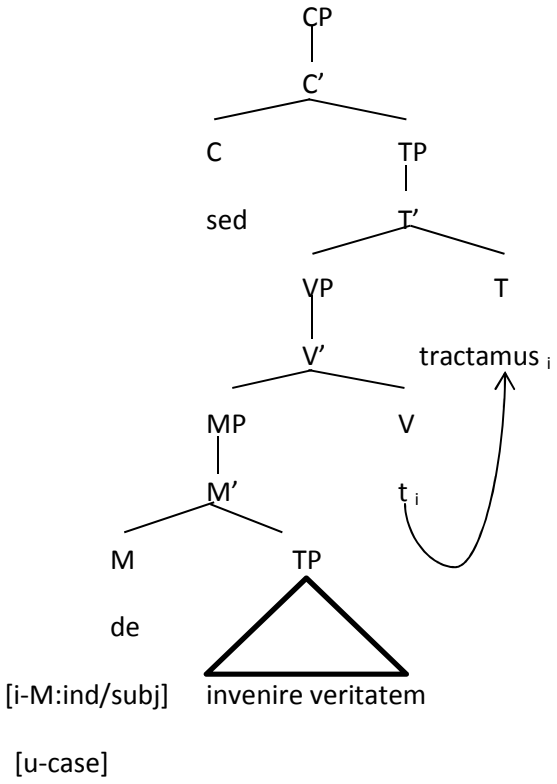


26biv)

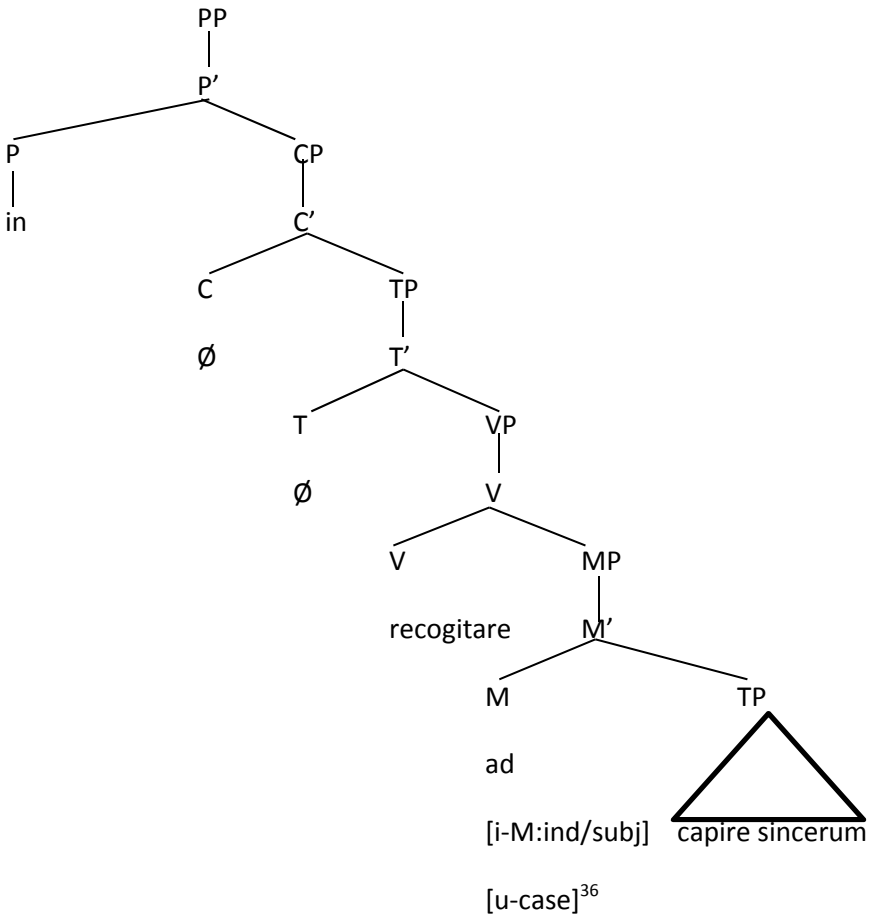


However, as Latin/Romance infinitives do not have nominal endings, the *Agree* relations between the prepositions and their infinitival complements are no longer guaranteed. Furthermore, as infinitives are ambiguous between being nouns (NP) and clauses (CP), these prepositions could be re-analysed as complementisers (C) selecting infinitival complements (TP), since these prepositional infinitives are also prolative: ‘but we are considering (something) about finding the truth (ourselves)’ > ‘but we are considering to find the truth’, ‘in reconsidering (something) in order to capture it intact (yourself)’ > ‘in reconsidering to capture it intact’:

26bv)



26vi)



26bv) and 26bvi) are 'simpler' than 26biii) and 26biv) respectively, since the *Agree* relations ([u-phi]) between the prepositions and their infinitival complements are lost and the interpretable case features ([i-case]) of these prepositions become uninterpretable ([u-case]).[37] [38] Furthermore, interpretable C/M features [(i-C/M)] are shifted upwards from the infinitives to the prepositions.[39]

[36] Prepositional complementisers are merged in M (see footnote 11), and Rizzi (1997:283-284) argues that as M does not subcategorise for finite verbs with tense/mood features, mood features in non-finite clauses are expressed in M (cf R & R (2003:106-107)). As these prepositional infinitives are in complementary distribution with the finite complementation (see sections 2.5, 2.6), the mood features of the parallel finite CPs may have been shifted upwards from T to the prepositional complementisers in M. According to Cuzzolin (1994:*passim*), Latin *quod* clauses select both indicative and subjunctive verbs, and so these prepositional complementisers should hold either mood feature.

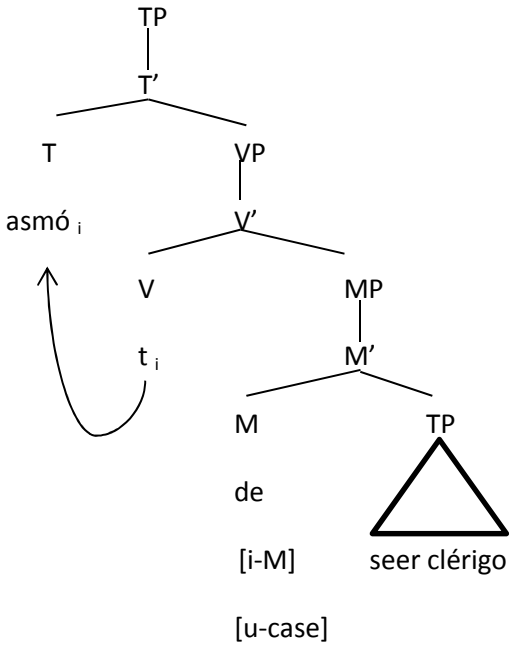
[37] In modern Minimalism, head predicates assign case and have interpretable case features ([i-case]) while complements have uninterpretable case features ([u-case]) which agree with their head predicates (Chomsky (2001), Pesetsky and Torrego (2001, 2004, 2011)). Stowell's (1981) 'Case Resistance Principle' states that case-assigners (e.g. prepositions) cannot occur in case positions, and so when prepositions are re-analysed as complementisers, their interpretable case-features become uninterpretable.

[38] R & R (2003:106) also argue that adjuncts are more 'complex' than complements in that they incur an extra projection in X'-theory (cf van Gelderen (2011:6, 17, 20)). The re-analysis of PP-adjuncts as CP-complements is hence 'simplification'.

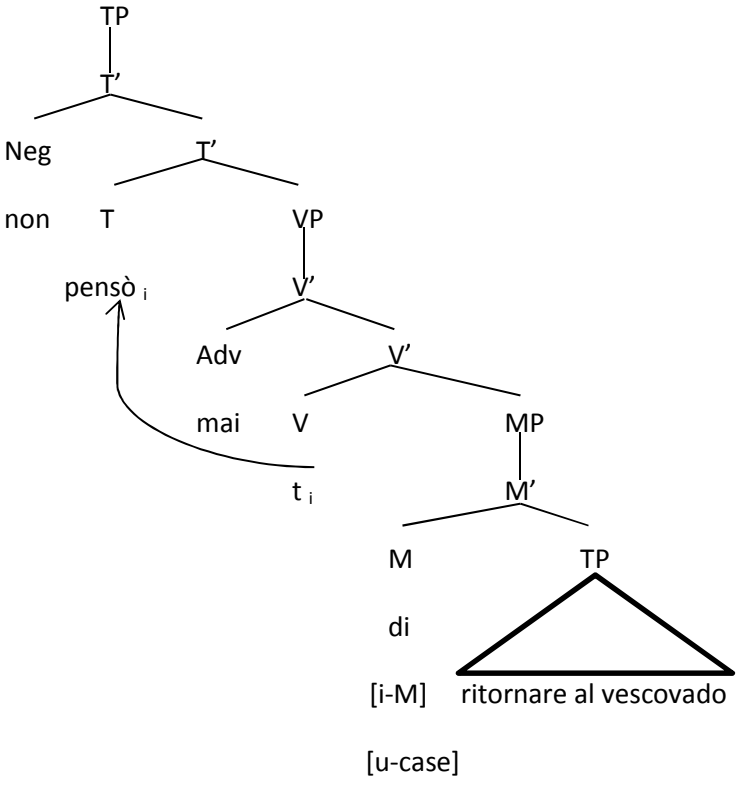
[39] In R & R (2003:84-85, 97), when *Agree* is lost, the grammaticalized item is not necessarily shifted upwards as long as goal features are shifted upwards to it (see section 1.3, ex. 2)). There is therefore still 'upward feature analysis, and here interpretable C/M features are shifted upwards from the infinitival complements to the prepositional complementisers.

Step c) occurs in Romance where prepositional infinitives are analyzed as direct clausal arguments (section 2.5, ex. 15), 18), 21)-22), cf section 2.1):

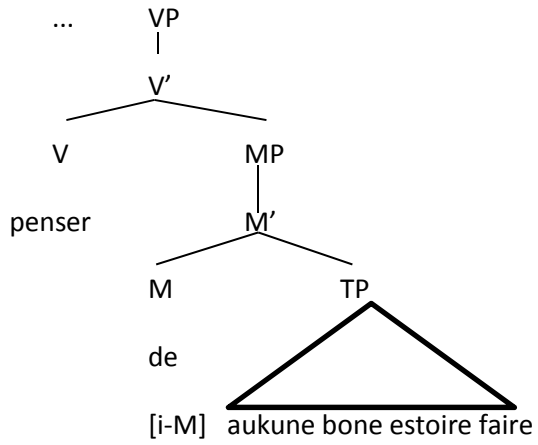
15)



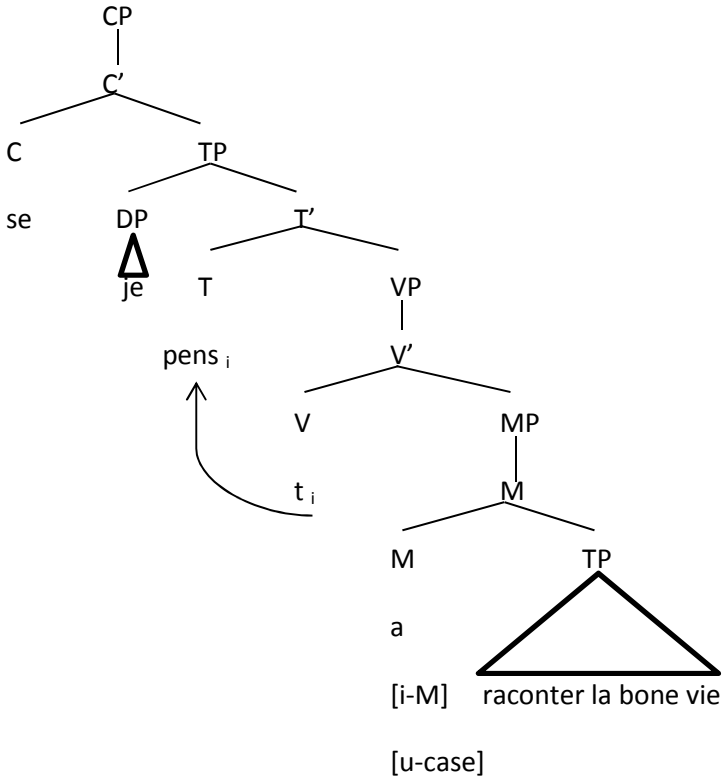
18)



21)



22)



The grammaticalization of Romance prepositional complementisers (*ad*/*de*) also conforms to R & R's and van Gelderen's 'simplicity' and 'upward feature analysis' (see footnote 39).

Section 2.8: cross-linguistic distribution (1):

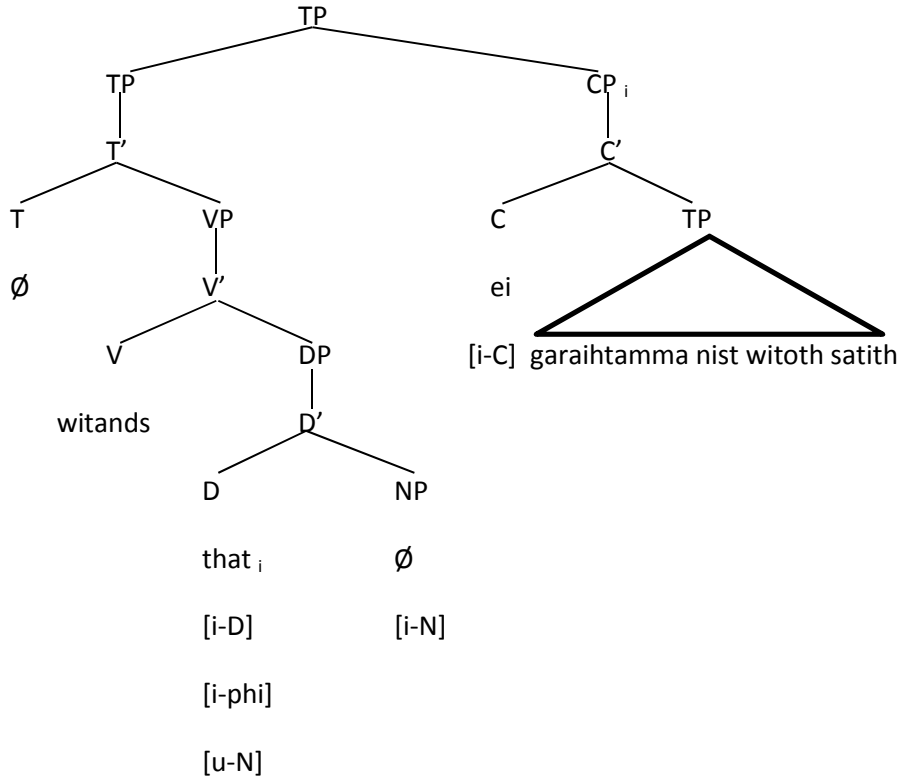
Romance *que* (D > C) and prepositional complementizers (P > C) are cross-linguistic counterparts to English *to*/*for* (R & R (2003:97-110)) and English *that*/Greek *opou* respectively (see footnote 1). A comparison between them reveals three themes. First of all, cross-linguistic examples need not go through the same re-analysis: English *for*, unlike Romance *de* and *ad*, originates from *for* denoting the benefactor of the action (R & R (2003:108)), whereas Greek *opou*, unlike Romance *que*, originates from relative pronouns undergoing wh-movement (R & R (2003:120-121)). This shows that syntactic change can be different, even if the same categories are involved.

Furthermore, cross-linguistic examples need not be exactly the same as they could be sub-types of a more general phenomenon e.g. English *that* vs Romance *que*. Step a), like 25a), involves an argument pronoun in the matrix clause in apposition with a dislocated clause, but in Germanic it is the demonstrative pronoun in the matrix clause that is grammaticalized as a complementiser (R & R (2003:116-119), Ferraresi (1991:30-35), Kiparsky (1995)), not the relative pronoun in the dislocated clause, as in Latin *quod* (section 2.6, ex. 25)):

27a)	wit-ands	that-ei	garaiht-amma	n-ist	witoth	satith
	know-PRES.PTCP	DEM.PRO-COMP	the.just-DAT	NEG-is	law	made

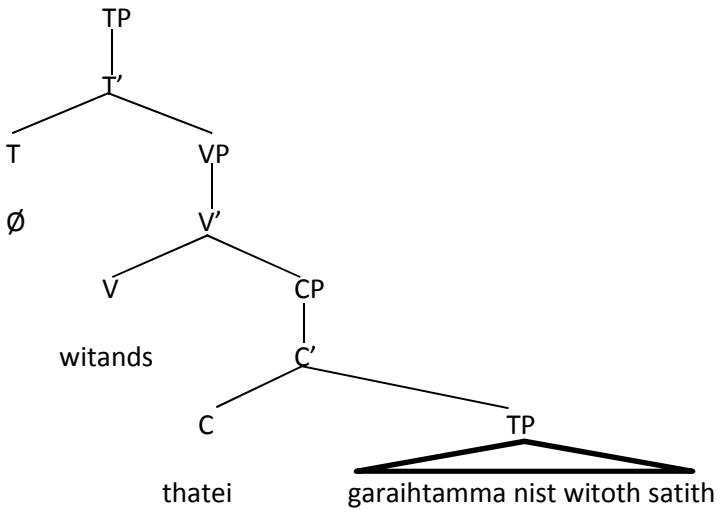
'knowing this, namely that the law is not made for the just.' (Gothic T 1,9)

27ai)



Alternatively, one could analyse the entire CP (*ei garaihtamma nist witoth satith*) as the direct object of the verb (*witands*) (> 'knowing that the law is not made for the just.'). *thatei* is hence re-analysed as the complementiser of the embedded clause (R & R (2003:118-119), Ferraresi (1991:30-35)):

27aii)



This is step a), and 27aii) is 'simpler' than 27ai), since the *Agree* relation ([u-N]) between the demonstrative pronoun (*that*) and its (empty) nominal complement and that between the demonstrative pronoun (*that*) and the dislocated clause are lost. Furthermore, as *that* is re-analysed as a complementiser, its interpretable phi-features ([i-phi]) become uninterpretable ([u-phi]) (see footnote 31). Interpretable C features ([i-C]) are hence shifted upwards from *ei* to *thatei* (see footnote 39).

Step b), like 25b), involves the weakening of the pronominal nature of the pronoun, since *that* in 27a) does not have an explicit nominal complement and so it need not be analysed as a determiner (R & R (2003:118-119)).

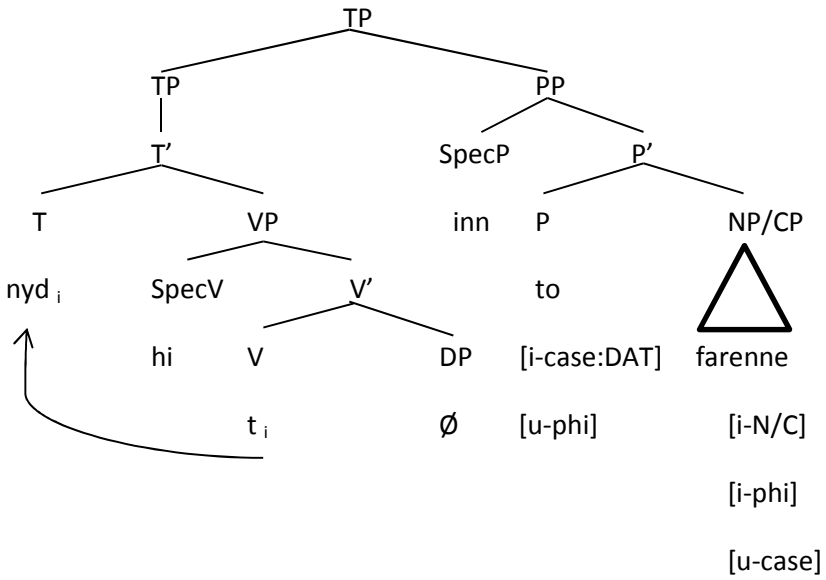
Romance *ad* and English *to* are exact parallels as both of them originate from adjunct PPs expressing purpose (see footnote 33) (R & R (2003:103-105), Los (1999)) (cf section 2.7, 26a)):

28) nyd hi inn to farenne

urge them in to go

'urge them so that they would go in' (R & R (2003:105), Los (1999:5))

28a)

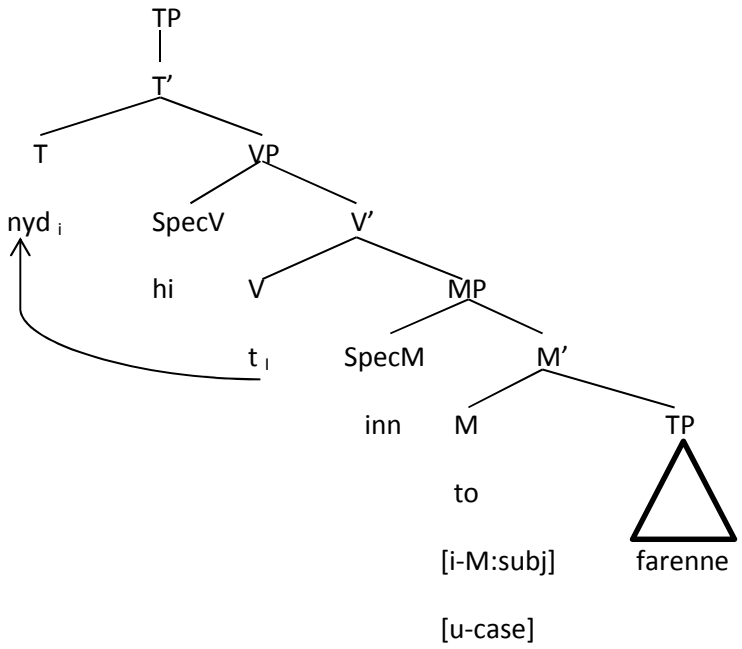


Since *nyd* 'urge' is a verb of command, one could re-analyse *to farenne* as an indirect command (CP): 'urge them so that they would go in' > 'urge them to go in' (R & R (2003:105)). However, the complement of *to* has morphological case ending (dative) (*far-enne*), which makes the *Agree* relation between the preposition *to* and its complement unambiguous (R & R (2003:105)). *to farenne* must therefore be analysed as an adjunct PP in proto-Germanic. This is step a).

Step b), like 26b), involves the morphophonological weakening of the nominal case system, since Los (1999:chapter 11, 2005:155-157) argues that the dative ending *–enne* was no longer part of the productive case paradigm in Old English, which means that infinitives like *farenne* were no longer nominal but clausal (R & R (2003:106)). The *Agree* between *to* and its infinitival complement was no longer guaranteed, and so *to* was re-analysed as a complementiser (M) selecting a TP complement (*farenne*) (R & R (2003:105-106)). Furthermore, English *to*-infinitives, like Romance prepositional infinitives, were in complementary distribution with the finite *that*-clause (R & R (2003:99-107), Stowell (1981:39ff), Lencho (1992), Los (1999:257ff)), and so the mood features of the embedded CP may have been shifted upwards to the preposition in M (R & R (2003:107), see footnote 36).[40]

[40] Los (1999:chapter 11) argues that *to*-infinitives developed at the expense of *that*-clauses + subjunctive, and so the mood features that are shifted to *to* in M are [mood:subjunctive] (cf footnote 36).

28b)



28b) is 'simpler' than 28a), since the *Agree* [u-phi] between the preposition *to* and its complement *(farenne*) is lost and interpretable C/M features ([i-C/M]) are shifted upwards from the infinitive (*farenne*) to *to* itself (see footnote 39). The interpretable case features ([i-case]) of *to* as a preposition also become uninterpretable ([u-case]) as it is re-analysed as a complementiser (see footnote 37)).

Finally, the cross-linguistic distribution of 'cues' is far from random: both Romance *que* (25a)) and English *that* (27ai)) involve the use of an argument pronoun in apposition to a dislocated clause, and with the weakening of their pronominal nature (25b), 27aii)), they are re-analysed as complementisers of the embedded clause; both Romance *ad* (26a)) and English *to* (28a)) originate from *to*-PPs denoting purpose, and they are both re-analysed from PP-adjuncts to C/MP-complements due to morphophonological weakening of the morphological case paradigm and the presence of empty arguments in the matrix clause (26b), 28b)). PLD displays clear cross-linguistic trends, which contradicts Lightfoot's prediction of random PLD (see section 1.3).[41] The cross-linguistic distribution of grammaticalization (Romance *que*/English *that*, Romance *ad*/*de*/English *to*) is therefore conditioned by two key factors: 'structural simplification' and parallel 'cues'. This will be a key theme in the rest of this paper.

Section 3: Grammaticalization and 'Lateral' Grammaticalization:

Campbell and Janda (C & J) (2001) give a long catalogue of different definitions of grammaticalization. They conclude that the only common denominator is 'some linguistic element > some more functional element' (C & J (2001:107)), which entails 'lexical > functional' and 'functional > more functional' (Campbell (2001:114)). I expand on this definition of grammaticalization by

[41] The re-analysis of pronouns as complementisers is noted cross-linguistically by Heine and Kuteva (2002:106-107), who also mention that different pronouns may be used. The development from paratactic adjunct clauses to hypotactic embedded clauses has occurred in several Indo-European languages (Kiparsky (1995:155ff), Cuzzolin (1994:47-54)), and cross-linguistic examples for purpose > infinitive marker are given in Haspelmath (1989) and Heine and Kuteva (2002:247-248).

including aspects of grammaticalization that are mentioned frequently in C & J (2001). Of the thirty-six definitions, I include 'semantic bleaching' (X18), 'phonological weakening' (X13) and 'univerbation' (X18) into my definition of grammaticalization. 'Re-analysis' (X5) and 'cross-linguistic distribution' (X7) are crucial to Minimalism (see section 1) and are included here as well, even though they are not numerically as prominent.[42] [43] In my comparison between grammaticalization and 'lateral' grammaticalization, I propose to form a partition of these phenomena.

R & R (2003:50) and Roberts (2010:59) provide the following steps for the grammaticalization of Latin *habere* as a Romance future tense marker:

1) $[_{ModP}\ [_{VP}\ [_{XP}$ amare$]\ t_{habeo}\ [_{Mod}$ habeo$]]] > [_{ModP}\ [_{XP}$ amare$][_{Mod}$ habeo$]]$
2) $[_{ModP}\ [_{XP}$ amare$]\ [_{Mod}$ habeo$]] > [_{ModP}\ [_{XP}\ t_{infin}\ ]\ [_{Mod}$ amar+aio$]]$
3) $[_{ModP}\ [_{Mod}$ amar+aio$]\ [_{VP}\ t_{infin}\ ]] > [_{T(Fut]P}\ [_{T(Fut)}$ amer+ò$]\ [_{VP}\ t_{V+fut}])$

There is evidence that the Romance future originates from modal uses of Latin *habere* (Fleischman (1982:56), Raiskila (1990:212-214), Adams (1991:160)), and so the grammaticalization of *habere* can be divided into 1) lexical *habere* (V) > 2) modal *habere* (Mod) > 3) future tense marker (T(future)). Chinese *de*, on the other hand, is a change from determiner (D) to past tense marker (T(past)) (see introduction). The two main similarities are 're-analysis' and 'cross-linguistic distribution'.

<u>Section 3.1: 're-analysis':</u>

The earliest attestations of *habere* + infinitive occur in the late Roman Republic (Coleman (1971:215), Fleischman (1982:52), Pinkster (1987:205-206), Adams (1991:131)):

1a)	in	mult-is	hoc	re-bus	dic-ere	hab-emus
	in	many-ABL.PL	this	thing-ABL.PL	say-INF	have-1PL.PRES

'… in many cases we have this to say.'

(Lucretius *De rerum natura* 6.711) (99 – ca. 55 BC)

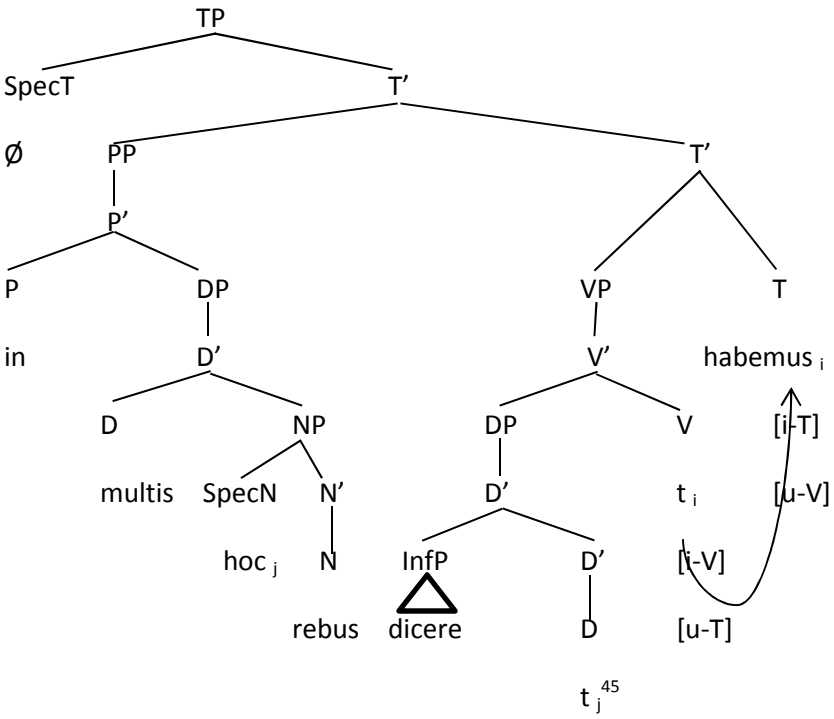
Here the direct object (*hoc*) of *habere* 'to have' is modified by the infinitive (*dicere*):[44]

[42] That said, 're-analysis' is emphatically mentioned by Traugott (H & J (1993:2), Traugott (1994:1481, 1995:1-2, 2001:1)), and 'cross-linguistic distribution' is listed by Bybee et alii (1994:14-15) as one of eight diagnostic traits of grammaticalization theory ('universal paths') (cf footnote 20).

[43] The conceptual importance of these phenomena is seen in the fact that these are precisely the aspects of grammaticalization theory that are critically examined in Campbell (2001) (cf Heine and Kuteva (2002:2)).

[44] This modifying use of the infinitive is analysed as the infinitive of purpose in Plautus (254-184 BC) by Coleman (1971:216), the infinitive which replaced the gerundive in Cato the Elder (234-149 BC) by Pinkster (1985:202, 1987:208-209), and the infinitive which was equivalent to a relative clause with a potential subjunctive in Cicero (106-43 BC) by Fleischman (1982:120-121).

1ai)



[45]

As modality is implied by purpose, the Latin gerundive[46] and the subjunctive (see footnote 44), *habere* can be re-analysed as a modal auxiliary verb (T) selecting the infinitive (*dicere*) as the main verb (V).[47] The direct object (*hoc*) is therefore re-analysed as the object of the infinitive ('we have this to say' > 'we have to say this') (Coleman (1971:216), Raiskila (1990:215), Fleischman (1982:58-59, 120-121), Fruyt (2011:801)):

[45] Ledgeway (2012:chapter 5) argues that Latin word order is free and allows 'scrambling' of constituents from their base argument positions to various non-argument positions. Here the object (*hoc*) is 'scrambled' from D to SpecN.

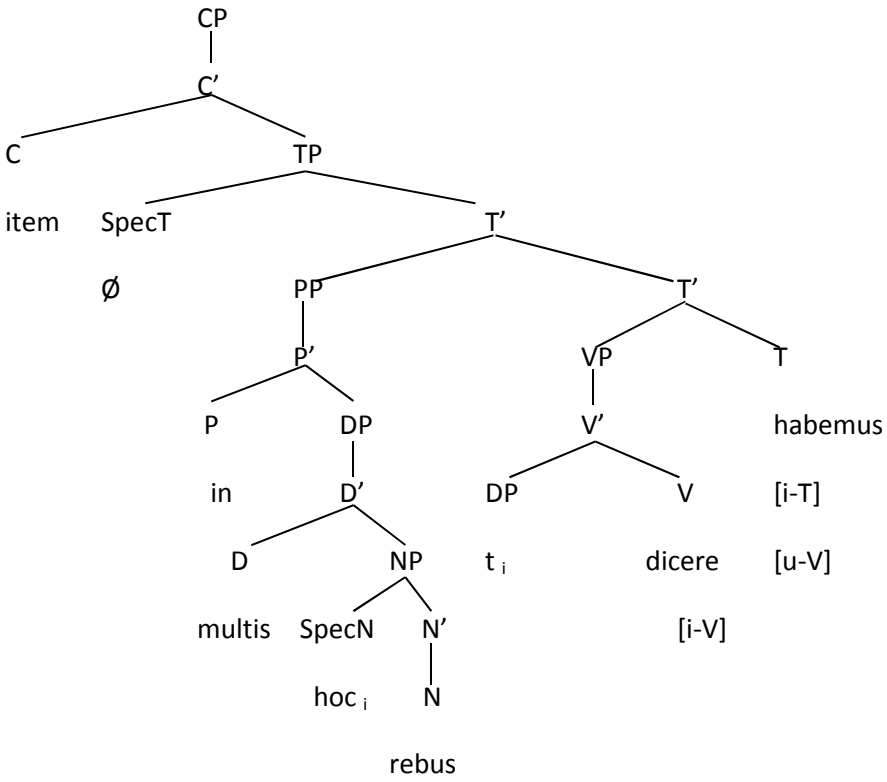
[46] Latin gerundives denote 'obligation/necessity' in predicative constructions (Woodcock (1958:158-159, 163), Weiss:2009:460 fn 43), Sihler (1995:626)) e.g.

1)	qui-d	hab-es	dic-end-um?
	INTERROGATIVE.PRO-N.SG	have-2SG.PRES	say-GERUNDIVE-N.SG
2)	qui-d	hab-es	dic-ere?
	INTERROGATIVE.PRO-N.SG	have-2SG.PRES	say-INF

'What do you have that must be said?' > 'what do you have to say?' (Pinkster (1985:202, 1987:208-209))

[47] This may have been facilitated by Sihler's (1995:497) argument that *habere* originates from Proto-Indo-European stative verb and is hence thematically defective and prone to be auxiliarised (R & R (2003:51-52)).

1aii)

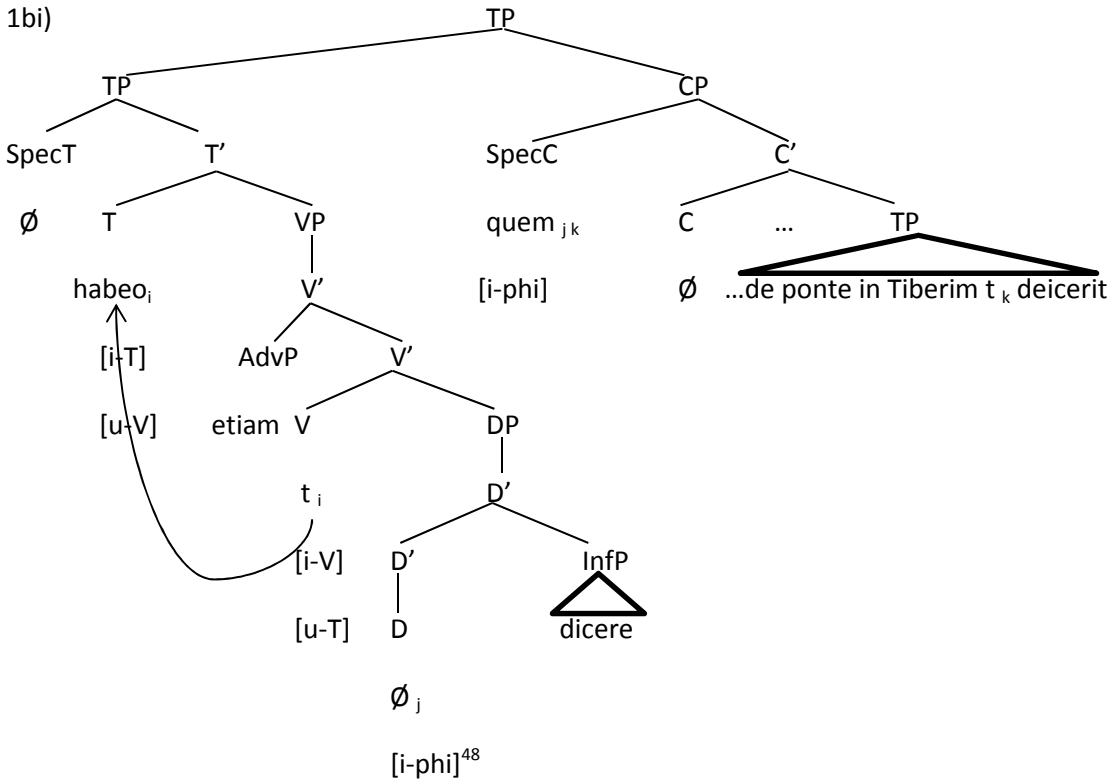


1aii) is ‘simpler’ than 1ai), since V-to-T *Move* is lost and *habere* is shifted upwards from V to T. Furthermore, its interpretable verbal features ([i-V]) become uninterpretable ([u-V)] as an auxiliary.

Step b) occurs when the lexical meaning of *habere* is undermined, and this can be found in the other earliest example (Coleman (1971:216), Fleischman (1982:52), Pinkster (1987:206)):

1b)	hab-eo	etiam	dic-ere	qu-em...	de	pont-e	in
	have-1SG.PRES	even	tell-INF	REL.PRO-ACC.SG	from	bridge.ABL.SG	into
	Tiber-im		deic-erit.				
	Tiber-ACC.SG		throw.down-3SG.PERF.SUBJ				

‘I even have an example to say, namely the man whom he threw from the bridge into the Tiber.’ (Cicero *Pro S. Roscio Amerino* 100) (80 BC)

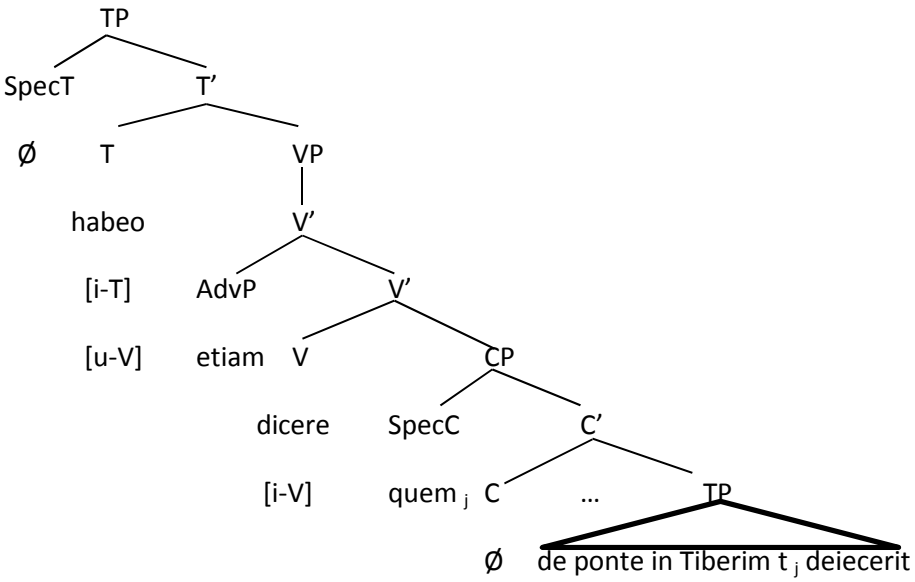


The antecedent of the relative pronoun (*quem*) is ellipsed (*habeo* ($Ø_j$) *dicere quem*$_j$ ... 'I have (an example$_j$) to say, namely whom$_j$ …'), as it is in the same case (accusative) as the relative pronoun (*quem*) (cf section 2.6, ex. 25b)). One could re-analyse this as an indirect question ('I have (an example$_j$) to say, namely whom$_j$ he threw…' > 'I have to say whom he threw…'):[49]

[48] As Latin word order is argued to be free (see footnote 45), there is no consistent setting for the head directionality parameter. Kayne's (1994) proposal of a universal SVO base is an extremist position and I admit both head-initial (1b)) and head-final structures (1a)) for Latin (cf Travis (1984), Koopman (1984), Li (1990, 2008), Haegeman (1991:94ff), Roberts (1997:397-399)).

[49] This interpretation is supported by the fact that the verb in the subordinate clause is in the subjunctive (*deicerit*), and indirect questions in Latin demand the subjunctive (Woodcock (1958:133-140), Panhuis (2006:134-135), Ernout and Thomas (1951:266-267)). This subjunctive facilitates, if not confirms, 're-analysis'.

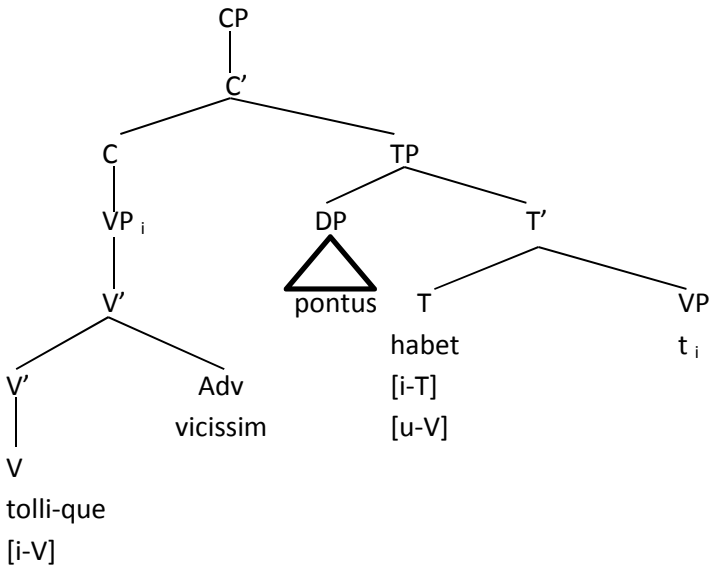
1bii)



Step c) is where *habere* must be analysed as an auxiliary verb, and the earliest examples of this can be found when *habere* is used with a passive or intransitive infinitive where there is no conceivable direct object (Coleman (1971:217), Pinkster (1987:207)):

1c)	…toll-i-que	vicissim	pontus	hab-et
	lift-INF.PASS-and	again	sea	HABERE-3SG.PRES

‘…and the sea has to be lifted repeatedly.’ (Valerius Flaccus 1.671-2) (?-90 AD)



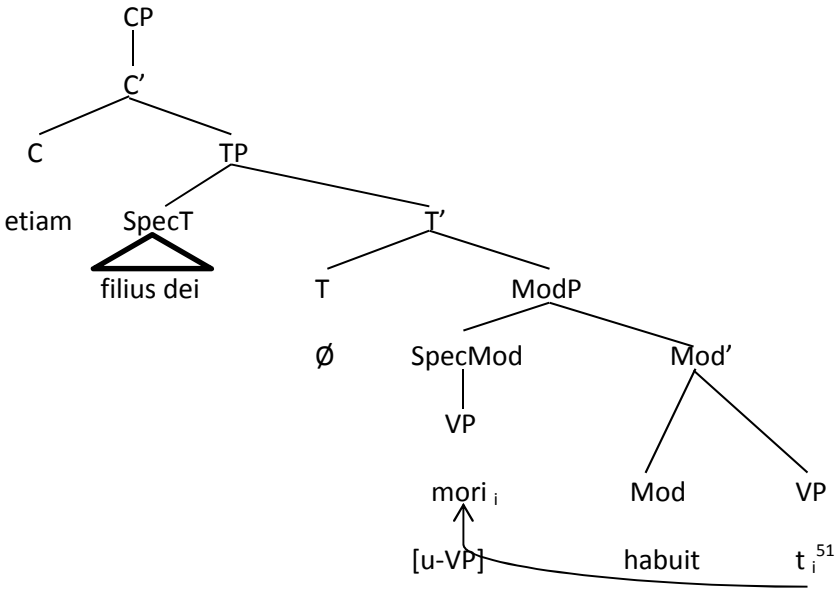
habere is thus re-analysed as a modal auxiliary verb. It is widely agreed that from Latin to Romance there is a shift in word order from SOV to SVO with a corresponding shift in the word order of auxiliary verbs, namely infinitive + auxiliary (head-final) > auxiliary + infinitive (head-initial) (Adams (1991:131-134), R & R (2003:53-57)). The Romance future paradigm consists of *habere* being

suffixed to an infinitival stem (R & R (2003:49), Roberts (2010:58)),[50] which suggests that infinitive + *habere*, rather than *habere* + infinitive, is its direct precursor (Thielmann (1885:80), Adams (1991:131-134)). However, future-related meanings of *habere* are not attested till Tertullian (160-220 AD), by which time Latin already shows head-initial and SVO characteristics (Adams (1991:131-133)). The genesis of the Romance future must therefore be related to Latin SVO where infinitive + *habere* (head final) is marked. I follow R & R (2003:54) and Roberts (2010:60) in deriving head-final constructions in SVO by raising the VP to the specifier position of *habere* in T (cf Kayne (1994)). The T node which contains *habere* should be Mod and all the T nodes above Mod remain empty (R & R (2003:53-5), Roberts (2010:60)) e.g.

2a)	etiam	fili-us	de-i	mor-i	hab-uit
	even	son-NOM.SG	God-GEN.SG	die-INF	HABERE-PERF.3SG

'Even the son of God had to die.' (Tertullian *de cultu feminarum* 1.1.2) (160-220 AD)

2ai)



[50] e.g. Modern French (R & R (2003:49-52), Roberts (2010:58)):

chanter-ai	chanter-as	chanter-a
sing-FUT.1SG	sing-FUT.2SG	sing-FUT.3SG
chanter-ons	chanter-ez	chanter-ont
sing-FUT.1PL	sing-FUT.2PL	sing-FUT.3PL

Modern Italian:

amer-ò	amer-ai	amer-à
love-FUT.1SG	love-FUT.2SG	love-FUT.3SG
amer-emo	amer-ete	amer-anno
love-FUT.1PL	love-FUT.2PL	love-FUT.3PL

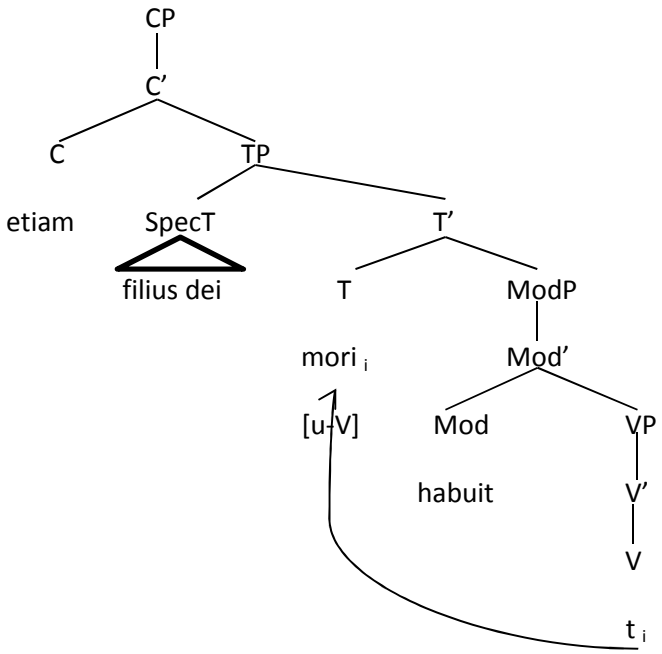
[51] This VP-movement is supported by examples where the infinitive and its complement are moved together:

1) exclud-i ac respu-i magis hab-eret
exclude-INF.PASS and reject-INF.PASS more HABERE-IMPF.SUBJ.3SG
'… more was to be excluded and rejected…' (Tertullian *de anima* 32.4) (160-220 AD)

2) iung-ere ill-am habes
attach-INF PRO-FEM.SG.ACC HABERE-PRES.2SG
'you must attach it' (Pompeius 275.3) (5th-6th century AD)

habere could be re-analysed as a suffix to the infinitival stem, in which case the infinitive is the main verb (V) which undergoes V-to-T *Move* and bypasses *habere* in Mod (R & R (2003:54-55), Roberts (2010:60)). This anticipates the Romance future (see footnote 50, cf Fleischman (1982:70-71)):

2aii)



2aii) is 'simpler' than 2ai), since in 2ai) the entire VP moves ([u-VP]) whereas in 2aii) only the verb does ([u-V]) (R & R (2003:212-213)). The infinitive is hence shifted upwards from Mod to T.

Step b) may have been due to the increasing use of SVO from Latin to Romance. In time, leftward V-to-T *Move* (2aii)) is strengthened and head-final order (2ai)) is weakened.[52]

Step c) occurs by the time of Pompeius (5th-6th century AD), since Adams (1991:163-164) shows that in Pompeius *habere* is very often juxtaposed to the preceding infinitive and is only separated from it twice by unstressed pronouns, which suggests that *habere* was already a clitic to the preceding infinitive, the main verb. The *terminus ante quem* could be extended since Raiskila (1990:213) also argues that *habere* in Tertullian (160-220 AD) is more than often juxtaposed to the preceding infinitive and is only separated from it by unstressed words (see footnote 51).[53] Stage 2 may have been complete by the time of Tertullian.

[52] Although SVO and head-initiality do not become statistically dominant in Latin till the early centuries AD (Ledgeway (2012:64ff)), (S)VO is attested in Plautus (2nd century BC) where it is associated with colloquial registers (Adams (1976)). SVO may well have played a causal role in the grammaticalization of Latin/Romance *habere.*

[53] This anticipates 'mesocliticization' in medieval (Ibero–)Romance (1)) and modern European Portuguese (2)) (Adams (1991:163), Roberts (1993:237ff), R & R (2003:55)) (cf footnote 51):

1)	dez-ir	vos	he	la	verdad
	say-INF	PRO.2PL	HABERE.1SG	DEF.ART	truth
	'I shall tell you the truth'	(*El Cid* 947) (Beardsley (1921:27-30), cf R & R (2003:55))			
2)	dar-me-as				
	give-me-HABERE.2SG				
	'You will give me'	(Adams (1991:163))			

Adams (1991:155-161) argues that, by the time of Pompeius (5th-6th century BC), infinitive + *habere* is the marked order and denotes strong modal meaning ('obligation/necessity'). This can also be extended earlier to Tertullian (160-220 AD), since Raiskila (1990:214) gives the following statistics:

	Total occurrences of *habere* + infinitive/infinitive + *habere* in Tertullian	*habere* + infinitive	Infinitive + *habere*
Possibility	27	19	8
Obligation/necessity	34	18	16
Future	29	3	26
Future-in-the-past	37	6	31

By the time of Tertullian (160-220 AD), infinitive + *habere* seems to have been associated with strong modal meanings ('obligation/necessity') and future-related ones. The semantic similarities between 'obligation/necessity' and futurity are obvious, since when one is obliged to do something, one will inevitably do it (Coleman (1971:219), Lyons (1977:824), Adams (1991:160-161, 2011:278)). Examples like 2a) are therefore ambiguous between 'obligation/necessity' (3ai)) and 'future' (3aii)):[54]

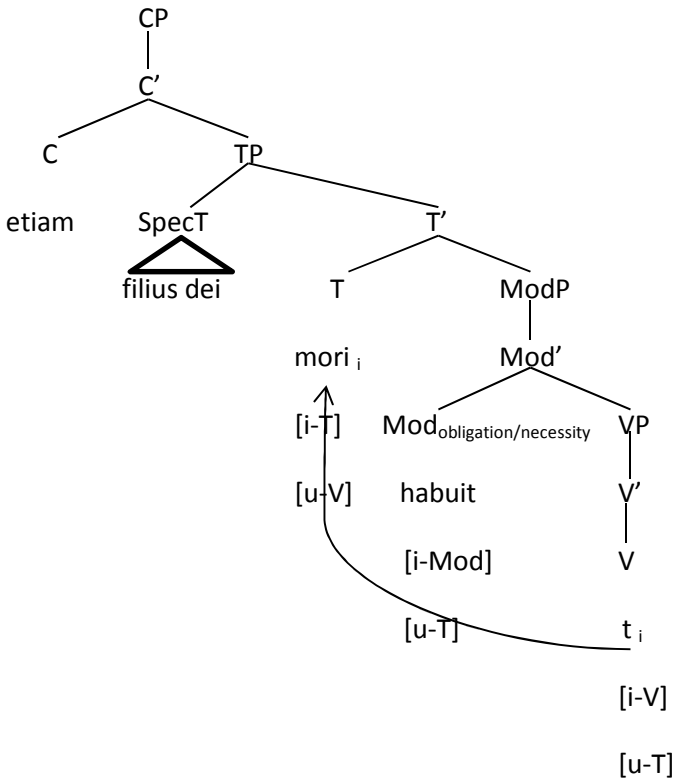
3a) = 2a)	etiam	fili-us	de-i	mor-i	hab-uit
	even	son-NOM.SG	God-GEN.SG	die-INF	HABERE-3SG.PERFECT

'Even the son of God had to die.' i.e. 'he would die.'[55]

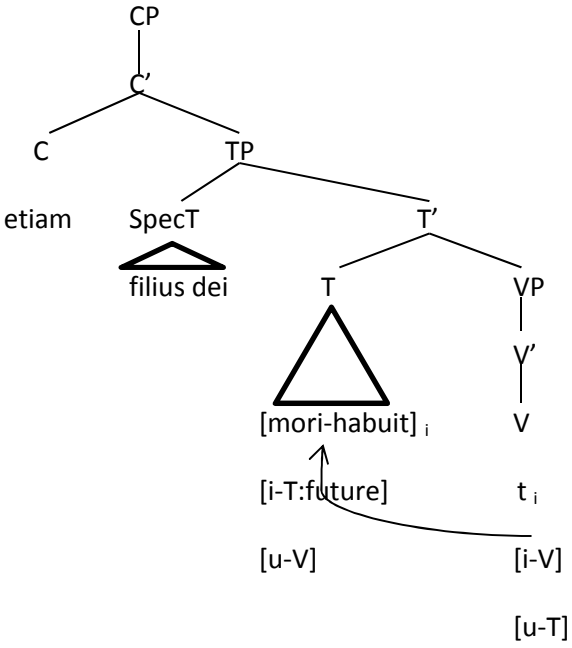
[54] This re-analysis is seen when infinitive + *habere* came to compete with the classical Latin future tense, which died out when the phonetic confusion between [b] and [v] and between [ē] and [i] destroyed its morphophonological paradigm (Benveniste (1968:91), Coleman (1971:219-221), Fleischman (1982:40-41)).

[55] Romance future and conditional (future-in-the-past) are formed by infinitive + *habere* with *habere* in the present tense marking future and in the imperfect/perfect tense marking future-in-the-past (Coleman (1971:215), Fleischman (1982:54), Fruyt (2011)). These are related developments and can be interpreted as occupying the same functional node (T(future)).

3ai)= 2aii)



3aii)



3aii) is 'simpler' than 3ai), since while *habere* as a modal verb can still inflect for tense and hence holds *Agree* with T ([u-T]) (3ai)), as a future tense suffix it does not inflect for tense and so this *Agree* is lost (3aii)) (R & R (2003:50, 210-211)).[56] *habere* is hence shifted upwards from Mod to T, despite being base-generated in V (Roberts (2010:60-61)).

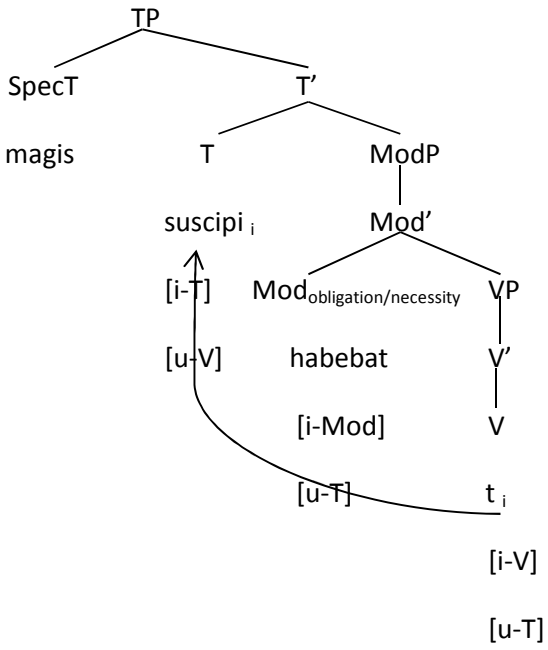
[56] Beveniste (1968:89-90), Fleischman (1982:54) and Raiskila (1990:213-214) argue that in Tertullian (160-220 AD) infinitive + *habere* is used mainly in the past (perfect/imperfect) and present tenses, while Adams (1991:163) states that in Pompeius (5th-6th century AD) infinitive + *habere* is only found in the present tense. Post-infinitival *habere* is temporally defective in late Latin, which anticipates Romance (see previous footnote).

Step b) occurs in a particular type of 'obligation/necessity' which is first attested in Tertullian (160-220 AD) and is associated with infinitive + *habere*, namely 'predestination' (Benveniste (1968:89-90), Raiskila (1990:213), Fruyt (2011:804-805), Adams (2011:278)) e.g.

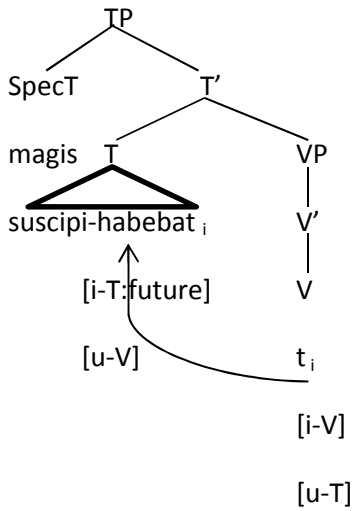
3b)	in	nation-ibus	a	qui-bus	magis
	in	nation-ABL.PL	by	REL.PRO-ABL.PL	most
	suscip-i		habe-bat		
	accept-INF.PASS		HABERE-IMPF.3SG		

'Among the nations by which most was to be accepted i.e. most would be accepted.' (Tertullian *Adversus Marcionem* 9.9)

3bi)



3bii)



The subject (*magis*) is 'predestined' (i.e. 'obliged by (Christian) fate') to undergo the imminent action (*suscipi*) and displays no 'intention/volition' whatsoever. Most examples of 'predestination' are in

the passive in Tertullian (Benveniste (1968:89-90), Fleischman (1982:54-55), Raiskila (1990:214), Fruyt (2011:804-805)), which further undermines the 'intention/volition' of the subject. Bybee et alii (1991:26-29) cite cross-linguistic evidence for modal verbs denoting 'obligation/necessity' developing into intentive modal verbs, and Fleischman (1982:56-58) argues that 'obligation/necessity' is semantically related to 'intention/volition'. The absence of 'intention/volition' therefore weakens modality (3bi)).

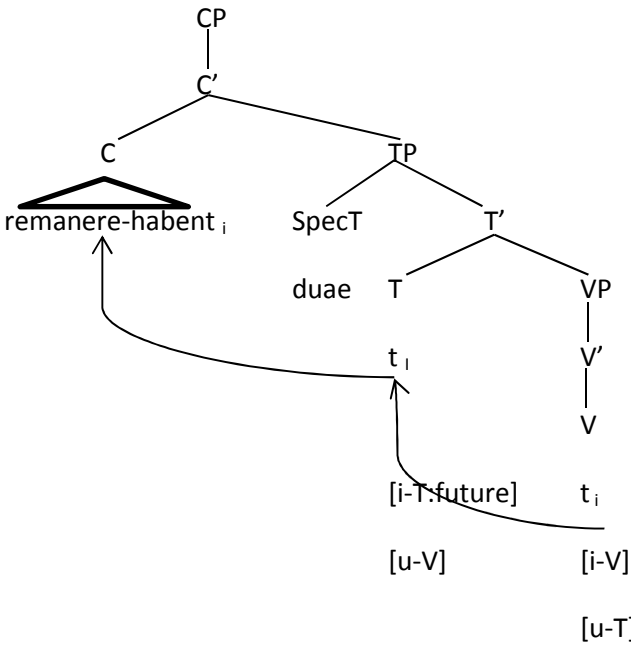
Step c) has examples that are unambiguously future, and the earliest of these can be found in Pompeius (5th-6th century AD) where infinitive + *habere* is used in conditional sentences with strict temporal sequences (Adams (1991:162-163)):

3c)	si	enim	sustul-eris	ist-am	terti-am,
	if	for	take.away-FUT.PERF.2SG	that-FEM.SG.ACC	third-FEM.SG.ACC
	reman-ere	hab-ent	du-ae		
	remain-INF	HABERE-3PL.PRES	two-FEM.PL.NOM		

'For if you take away that third syllable, two will remain.' (Pompeius 129.26)

As the verb in the protasis (*sustuleris*) is in the future, the verb in the apodosis (*remanere habent*) should be analysed as a future tense verb (Adams (1991:148-149, 162-163)):

3c)



The grammaticalization of Latin/Romance *habere* conforms to R & R's and van Gelderen's 'simplicity' and 'upward feature analysis' in all three stages.

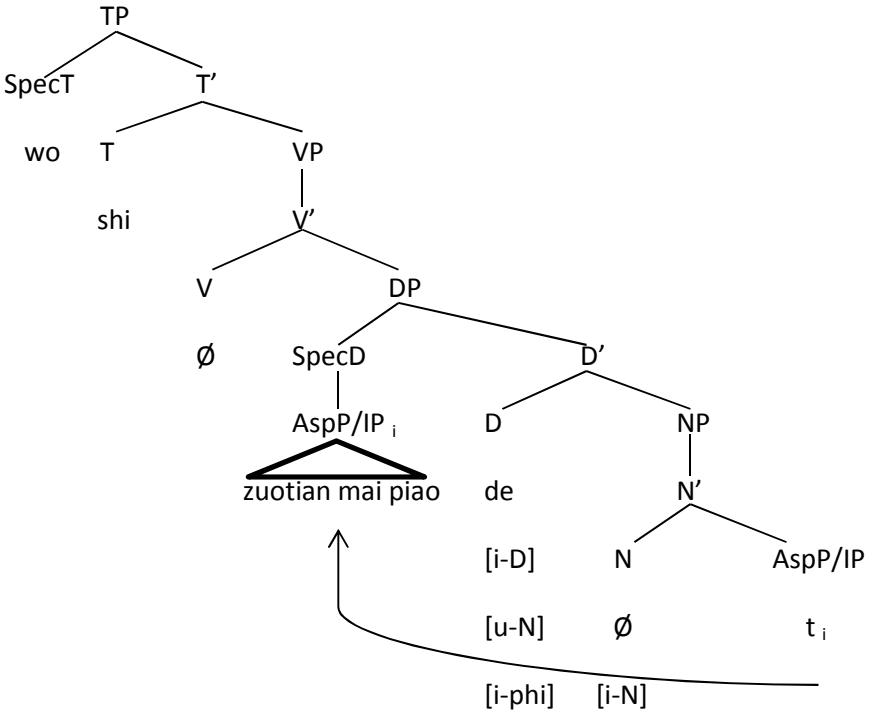
S & W (2002) and Wu (2004:chapter 4) analyse Chinese *de* in *shi-de* constructions in northern Mandarin dialects, which displays the following alternation in northern dialects of Mandarin Chinese (S & W (2002:169), Wu (2004:120)):

4)	wo	shi	zuotian	mai	piao	de
	I	be	yesterday	buy	ticket	DE
5)	wo	shi	zuotian	mai	de	piao
	I	be	yesterday	buy	DE	ticket

'It was yesterday that I bought the ticket.'

S & W (2002:171) and Wu (2004:122) argue that 5) is derived from 4) since 4) is attested earlier than 5) and 5) only occurs in certain dialects while 4) is pan-Chinese. One is therefore investigating why *de* has been preposed from sentence-final position (4)) to being a verbal suffix (5)) (S & W (2002:171-175, 190-191), Wu (2004:122-125)).[57] Step a) consists of examples like 4) where S & W (2002:180-189) and Wu (2004:132-140) analyse *zuotian mai piao* 'to buy ticket yesterday' as a relative clause that is part of a complex noun phrase headed by *de* (D):

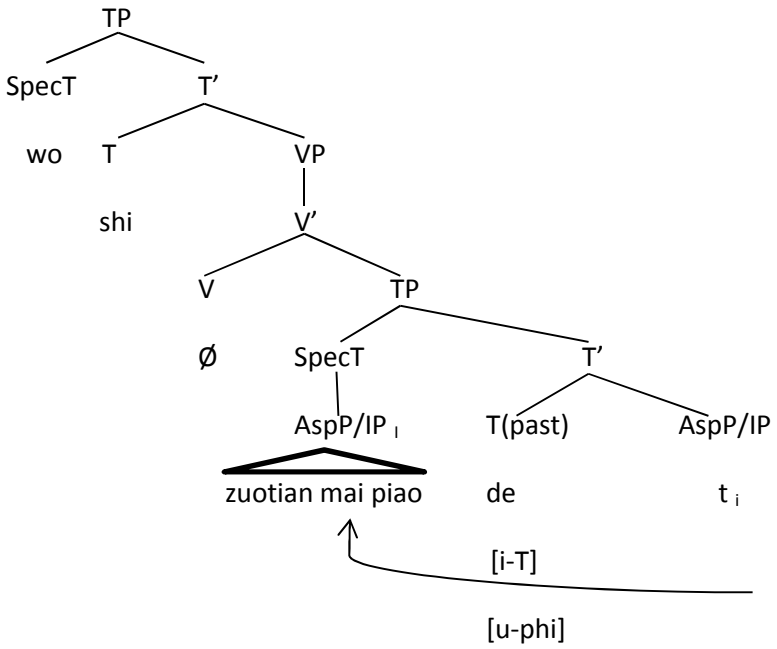
4ai)



S & W (2002:175-177) and Wu (2004:125-127) argue that *shi-de* constructions often imply that the action of the embedded clause (here *zuotian mai piao* 'to buy ticket yesterday') has already occurred, and so past tense is implied for the verb *mai* and *de* can be re-analysed as a past tense marker (T(past)) (S & W (2002:190), Wu (2004:141)):

[57] Cf Chinese completive suffix *-le*, which is derived from sentence-final *liao* (S & W (2002:174-175), Wu (2004:122-125, 200ff)).

4aii)

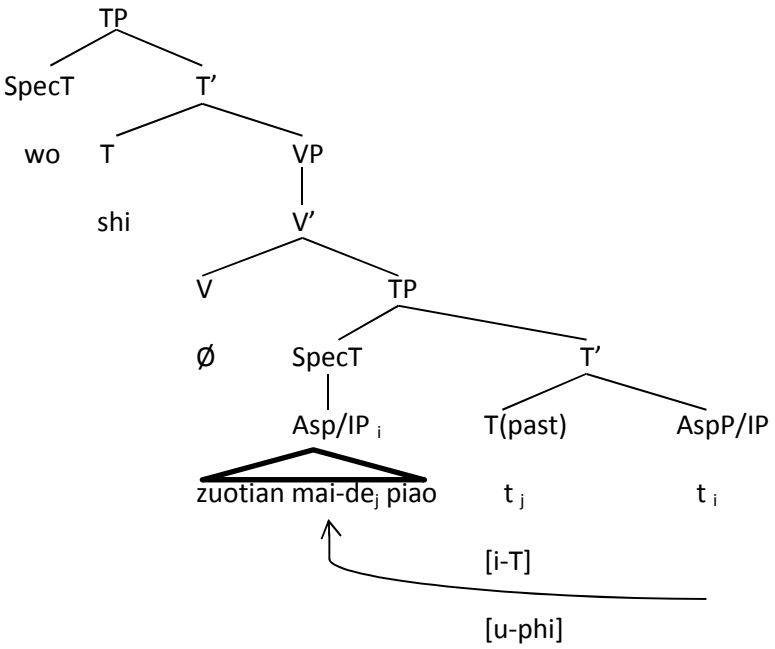


4aii) is 'simpler' than 4ai), since *de* as a determiner (D) has an *Agree* relation ([u-N]) with its (empty) nominal complement (4ai)), whereas as a past tense marker (T) this *Agree* relation is lost and the empty N complement is eliminated (4aii)) (S & W (2002:189-190), Wu (2004:140-142)). Furthermore, while *de* as a determiner (D) holds interpretable phi-features ([i-phi]), as it is the head of a complex noun phrase, as a past tense marker it holds uninterpretable phi-features [(u-phi)] which agree with the subject of the relative clause.

Step b) may also consist of examples like 4a), since S & W (2002:180-181, 189-190) and Wu (2004:130-133, 140-142) argue that the noun in the complex noun phrase is phonetically and semantically light/null and so the *Agree* between *de* and its nominal complement is not guaranteed.

Step c) consists of examples like 5) where *de* is suffixed onto the verb (*zuotian mai-de piao*) and past tense is guaranteed for the relative clause (S & W (2002:174-177), Wu (2004:126-127)). *de* must therefore be base-generated in T(past) and is suffixed onto the verb via movement-cliticization (S & W (2002:174-177, 190-197), Wu (2004:126-127, 141-146)):

5)



'Lateral grammaticalization' shows the same three steps of H & T's 're-analysis' (S & W (2002:177), Wu (2004:127)) as well as R & R's and van Gelderen's 'structural simplification'. However, it does not conform to R & R's 'upward feature analysis', since *de* holds interpretable T features ([i-T]) that are not re-analysed from below but from pragmatic implicature, namely the tendency for *shi-de* constructions to imply that the embedded action is past. More will be said about this below.

Section 3.2: cross-linguistic distribution (2):

Both Romance future and Chinese *de* have cross-linguistic counterparts that undergo 'structural simplification'. S & W (2002:199-202) and Wu (2004:149-153) cite copula verbs (T) derived from determiners (D) as cross-linguistic counterparts to Chinese *de* e.g. Chinese *shi*:

6a)	qian		li	er	jian	wang
	thousand		mile	then	see	king
	shi	wo	suo		yu	ye
	this	I	NOMINALISER		desire	DECLARATIVE.PARTICLE

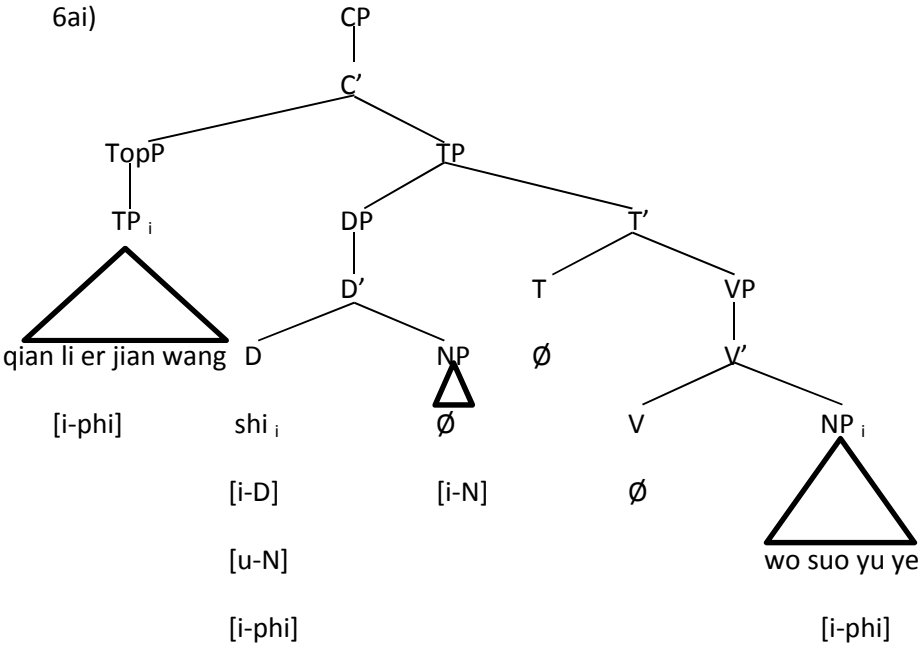
'To see the king after travelling a thousand miles, this (is) what I want.' (6ai))

OR 'To see the king after travelling a thousand miles is what I want.' (6aii))

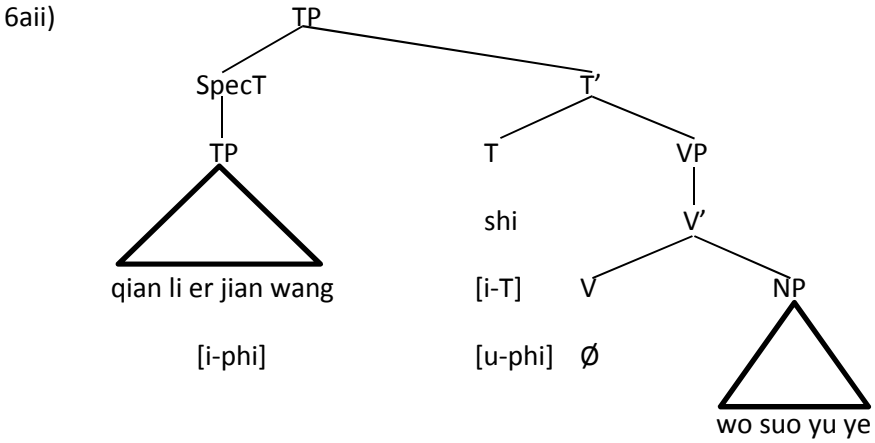
(Mencius, 4th century BC)

Step a) is the original equational construction (6ai)) where *shi* is a determiner (D) in subject position (SpecT) and is in apposition to the topic (*qian li er jian wang* 'to see the king after travelling a thousand miles') (see footnote 11) and the predicate (*wo suo yu ye* 'what I want') (Li and Thompson (1977:420), van Gelderen (2011:130), Feng (1993:284-285, 2003:31-33)). All three constituents are nominal and therefore have interpretable phi-features ([i-phi]). As they are in

apposition, there is an *Agree* relation between them. Furthermore, as *shi* is a determiner (D), it holds [u-N] (L & T (1977:422-423)):[58]



As identity is implied, *shi* can be re-analysed as a copula verb linking the topic and the predicate (6aii)) (van Gelderen (2011:130-131), Feng (1993:301, 2003:30-35)):[59]



6aii) is 'simpler' than 6ai), since the *Agree* relation ([u-N]) between *shi* and its (empty) nominal complement and that between *shi*, the topic and the predicate are lost. Furthermore, the original

[58] This is supported by the fact that *shi* is synchronically attested with nominal complements (L & T (1976:422-423)):

1) zi yu shi ri ku
Confucius at this day cry
'Confucius cried on this day (*shi ri*).' (Analect, 5th century BC)

[59] L & T (1977:436) argue that copula verbs are omissible cross-linguistically and are often used to bear tense, whuich puts them on a par with tense-markers (T). Bowers (1993, 2001:302ff) proposes that copula verbs occupy a unique functional category called Pred(icate), which is structurally very similar to T (cf den Dikken (2006), Lohndal (2009)). In this paper, copula verbs are represented as T elements for simplicity.

interpretable phi-features ([i-phi]) of *shi* become uninterpretable ([u-phi]), since as a copula verb *shi* agrees with the new subject (*qian li er jian wang*) (van Gelderen (2011:130-131)).

Step b) may also consist of examples like 6a), since the nominal complement of *shi* is empty and it is not obligatory to analyse *shi* as a determiner (cf Feng (1993:294-300, 2003:32-35)).

There are sub-types of this change, as there are two copula verbs in Panare (*këj*, *nëj*) which correspond etymologically to two demonstrative pronouns (*kën*, *nëj*) (Gildea (1993:56)). Step a), like 6a), consists of equational constructions where the demonstrative pronouns are in apposition with the dislocated constituent and the predicate, though Panare is head-final and shows leftwards complementation and right dislocation (Gildea (1993:57-58)) (see footnote 48):

7ai) maestro këj mëj

teacher DEM.PRO.PROXIMAL PRO.PROXIMAL

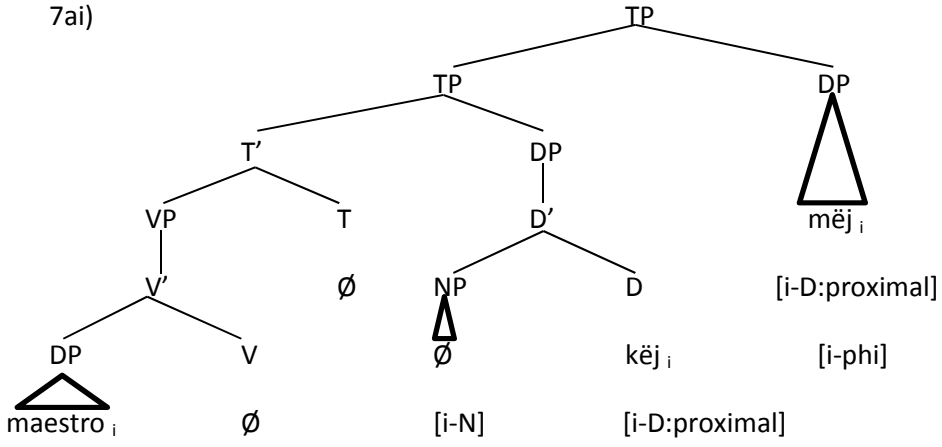
'A teacher (is) he here, this guy.' > 'This guy here is a teacher.'

7aii) maestro nëj kën

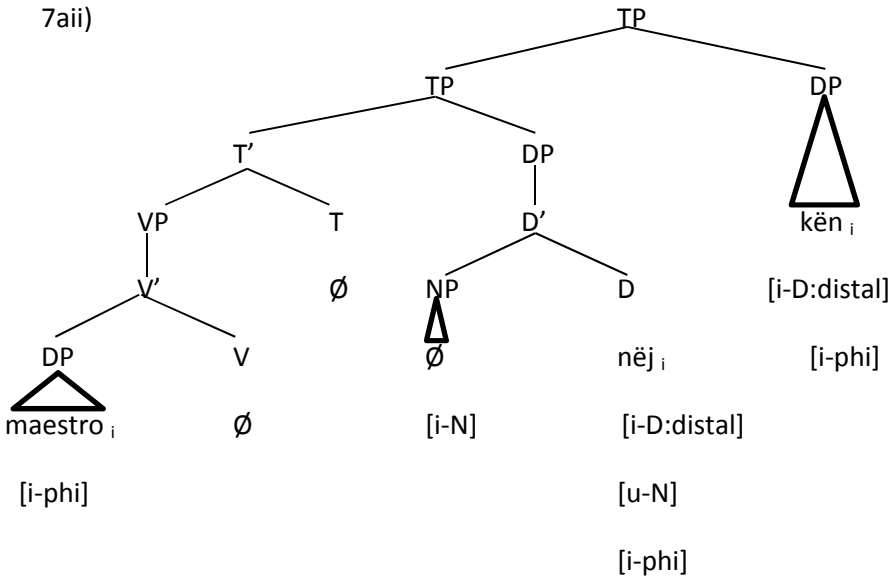
teacher DEM.PRO.DISTAL PRO.DISTAL

'A teacher (is) he there, that guy.' > 'That guy there is a teacher.'

7ai)

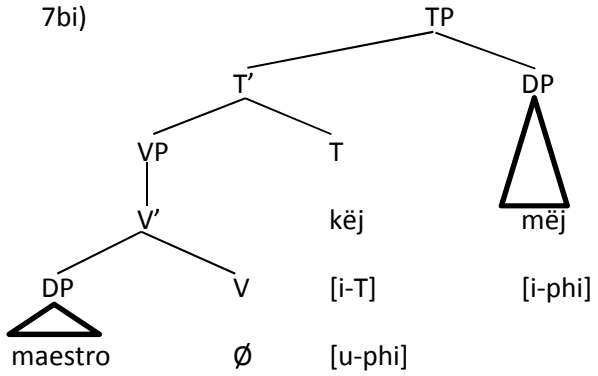


7aii)

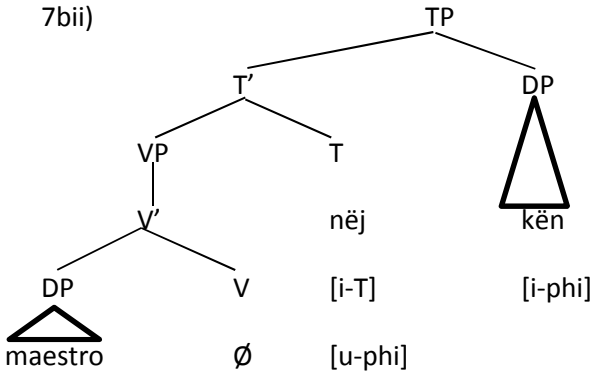


Alternatively, these demonstrative pronouns are re-analysed as copula verbs:

7bi)



7bii)



7bi) and 7bii) are 'simpler' than 7ai) and 7aii) respectively, since the *Agree* relation between the demonstratives and their (empty) nominal complements and that between the three constituents originally in apposition are lost, and formerly interpretable phi-features become uninterpretable.

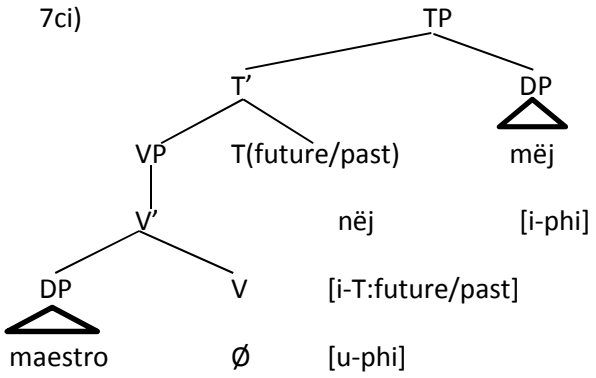
Step b), like 6b), may also consist of the original examples, since the nominal complements are not explicit and it is not obligatory to analyse *këj* and *një* as determiners (Gildea (1993:57)).

Step c) consists of examples where there is a conflict of deixis between the dislocated constituent and the demonstrative pronoun, which suggests that they are no longer in apposition

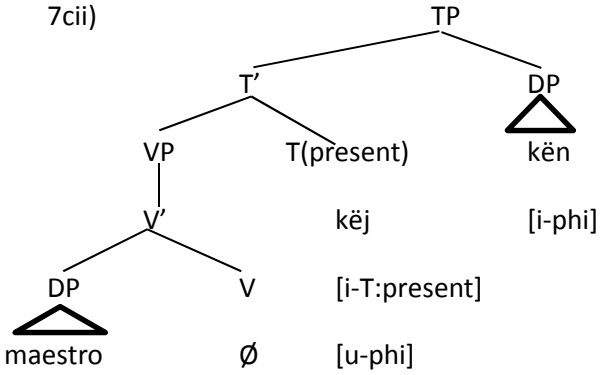
and hence no *Agree* holds between them. Furthermore, in these examples the deixes of the demonstrative pronouns must be interpreted temporally and not spatially: *këj*, which is a proximal demonstrative pronoun, is re-analysed as a present tense copula, whereas *nëj*, a distal demonstrative pronoun, denotes either past or future tense (Gildea (1993:57, 59, 61-62)). These demonstrative pronouns must therefore be analysed as copula verbs:

7ci)	maestro	nëj	mëj
	teacher	DEM.PRO.DISTAL	PRO.PROXIMAL
	'This guy here was/will be a teacher.'		
7cii)	maestro	këj	kën
	teacher	DEM.PRO.PROXIMAL	PRO.DISTAL
	'That guy there is being a teacher right now.'		

7ci)



7cii)



Although copula verbs derived from determiners undergo 'structural simplification', they acquire interpretable T features ([i-T]) that are not re-analysed from below, since in the original 'cues' (6a), 7a)) there is no verb but only *Agree* relations between the three constituents in apposition. These features, like Chinese *de*, are the results of pragmatic implicature, namely the implied identity between the three constituents in the original equational constructions.[60] [61]

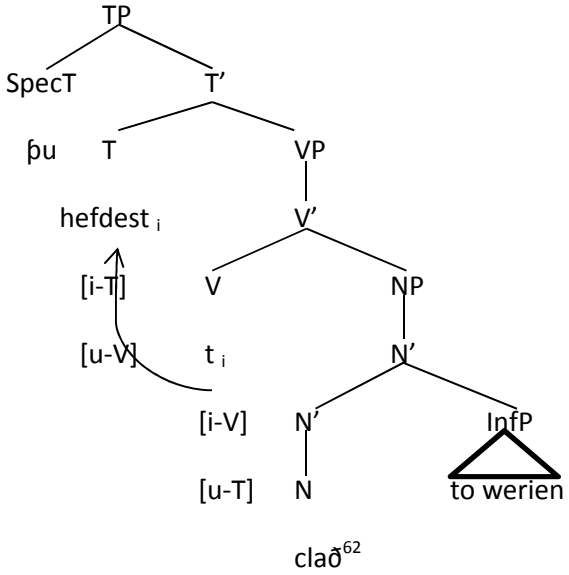
[60] My analysis differs from van Gelderen (2011:chapter 4) who assumes a filled T position ([i-T]) in the original equational construction even though T is originally empty (6ai), 7a)). Feng (1993:288ff, 2003:32-35) gives prosodic evidence for the fact that in the original Chinese equational construction (6ai)), there is a prosodic

Cross-linguistic parallels are also found for the Romance future. As for lexical verb 'to have' > modal verb, one parallel is English *have to*. Step a), like 1a), has the lexical verb 'to have' taking a direct object modified by the infinitive (8ai)):

8a)	þu	hefdest	clað	to	werien
	you	had	clothes	to	wear

(Old English, in Fischer (1994:141, 1997:167))

8ai)



But since modality is implied by the infinitive (Fleischman (1982:58-59), Fischer (1994:138-141, 1997:164-165)), English *have* can be re-analysed as a modal auxiliary (T) with the infinitive taking the direct object as its complement (8aii)) (Denison (1993:316), Fischer (1994:141, 147-150)):[63]

---

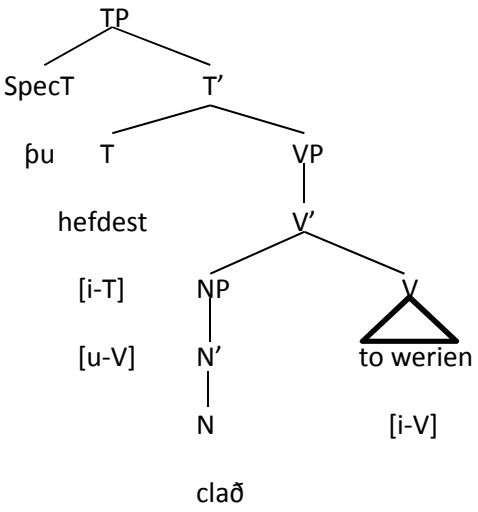
gap (Ø) between the determiner in subject position (*shi*) and the predicate. *shi* is therefore filling a syntactic position (T) that is originally empty and is holding features ([i-T]) that are not in the original 'cue'.

[61] Another example of 'lateral grammaticalization' given by S & W (2002:200) and Wu (2004:151) is English complementiser *that*, which in certain dialects shows T-to-C raising (Pesetsky and Torrego (2001)), and since it is originally a demonstrative pronoun (D), S & W (2002:200) and Wu (2004:151) argue that it may have undergone D-to-T re-analysis. However, R & R (2003:116-120, 196, 199) show that the grammaticalization of English/Germanic *that* displays 'upward feature analysis' (cf section 2.8, ex. 27)). The grammaticalization of English/Germanic *that* should therefore be separated from Chinese *de* and copula verbs, even though they are the same in terms of categories (D > T) (cf section 2.8).

[62] As Old English had SOV word order (Fischer (1994)), the VO parameter is head-final here (see footnote 48).

[63] Fischer (1994:149) points out that English 'to have' is thematically weak and is hence prone to be auxiliarised (see footnote 48).

8aii)

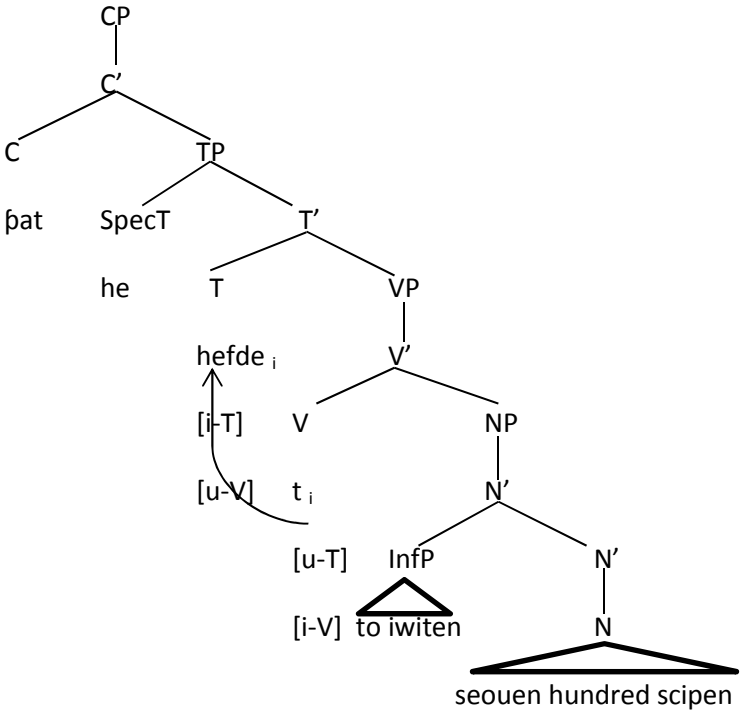


8aii) is ‘simpler’ than 8ai), since the probe features ([u-V]) that cause V-to-T *Move* are lost and *hefdest* is shifted upwards to T where it holds uninterpretable verb features ([u-V]). Step b), like 1b), consists of examples where the lexical meaning of ‘to have’ is weakened, since Fischer (1994:146-149)) argues that the change in word order (SOV > SVO) shifted the object of *have* from before the infinitive to after it (see footnote 62):

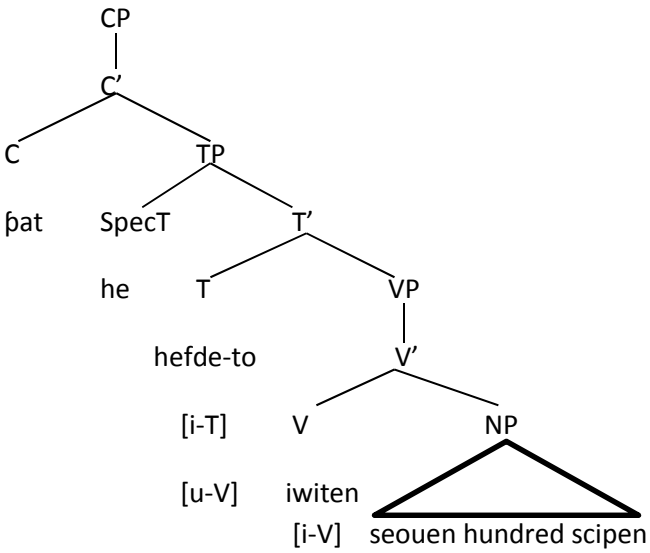
8b)	þat	he	hefde	to	iwiten	seouen	hundred	scipen
	So.that	he	had	to	guard	seven	hundred	ships

(Middle English, in Fischer (1994:149))

8bi)



8bii)



As the object (*seouen hundred scipen*) is now closer to the infinitive ((*to*) *iwiten*) and farther away from the verb 'to have' (*hefde*), it is more natural to analyse it as the object of the infinitive (8bii)) (Fischer (1994:149-150)). English *have to* is hence grammaticalized as a modal auxiliary with concomitant syntactic rebracketting ([have] [to + infinitive]> [have to] + [infinitive]) (8bii)) (Fischer (1994:141)) (cf footnote 3).

As for $Mod_{obligation/necessity}$ > T(future), modern English *shall* is derived from *sceal* denoting 'obligation/necessity',[64] and since futurity is implied (Visser (1969:1582)), (cf 3a)), English *sceal* is ambiguous e.g.

9a) Six years thou shalt sow thy land

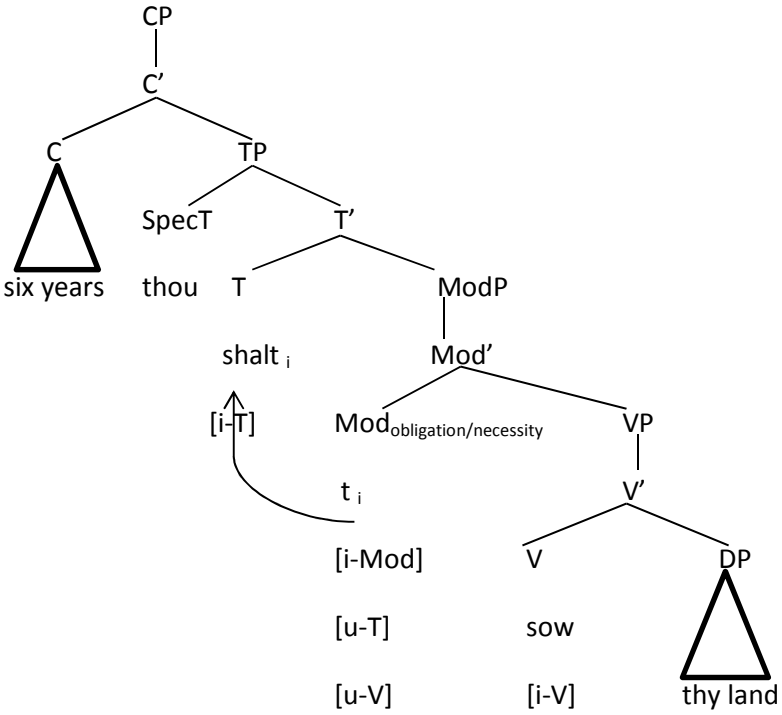
Six years you shall sow your land

'For six years you must sow your land.' i.e. '… you will sow your land.'

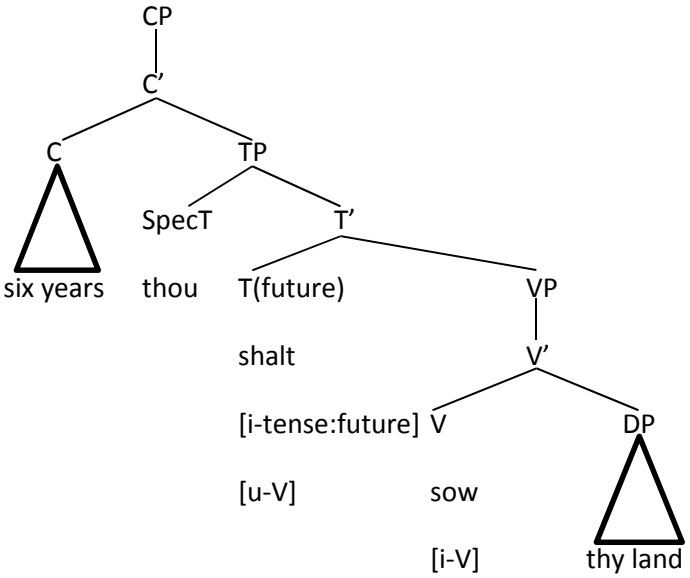
(*Bible Exodus* 23.10) (1611 AD)

[64] *Sceal* 'obligation/necessity' originates from 'to owe', which is another lexical source for $Mod_{obligation/necessity}$ (Bybee et alii (1994:251-254)).

9ai)



9aii)

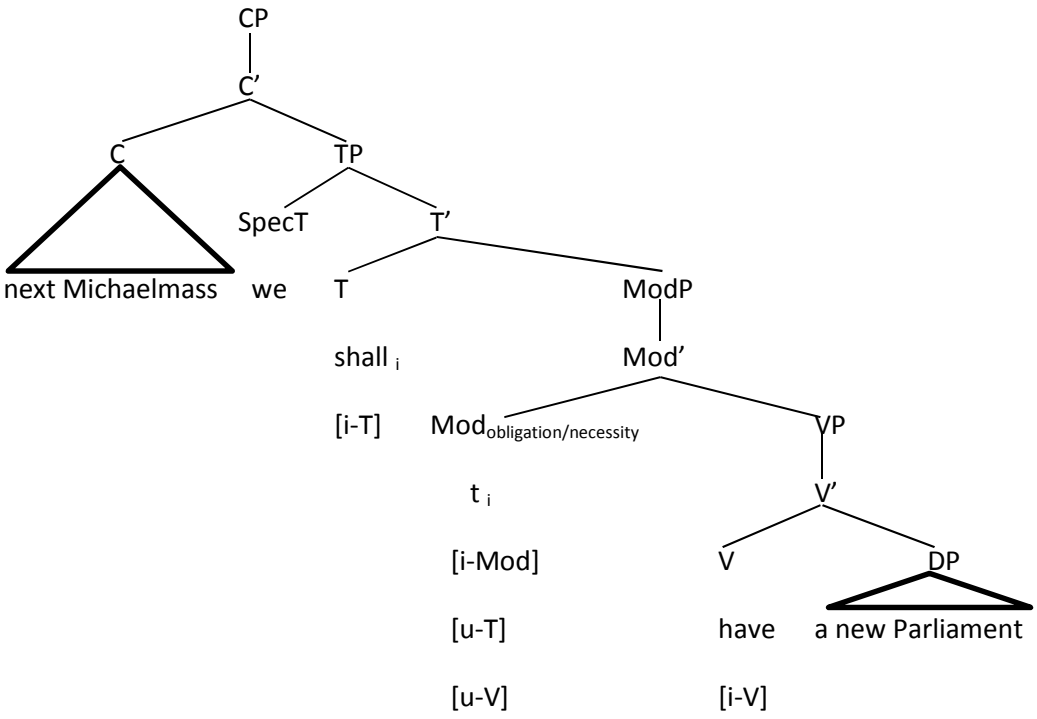


9aii) is 'simpler' than 9ai), since while *shalt* as a modal verb can inflect for tense and hence moves to T (9ai)), as a future tense auxiliary it no longer does and so this *Move* is lost and *sceal* is shifted upwards from Mod to T (9aii)). Step b), like 3b), consists of examples which denote 'predestination' (Flesichman (1982:57 fn 48), Visser (1969:1581-1582, 1601ff)):

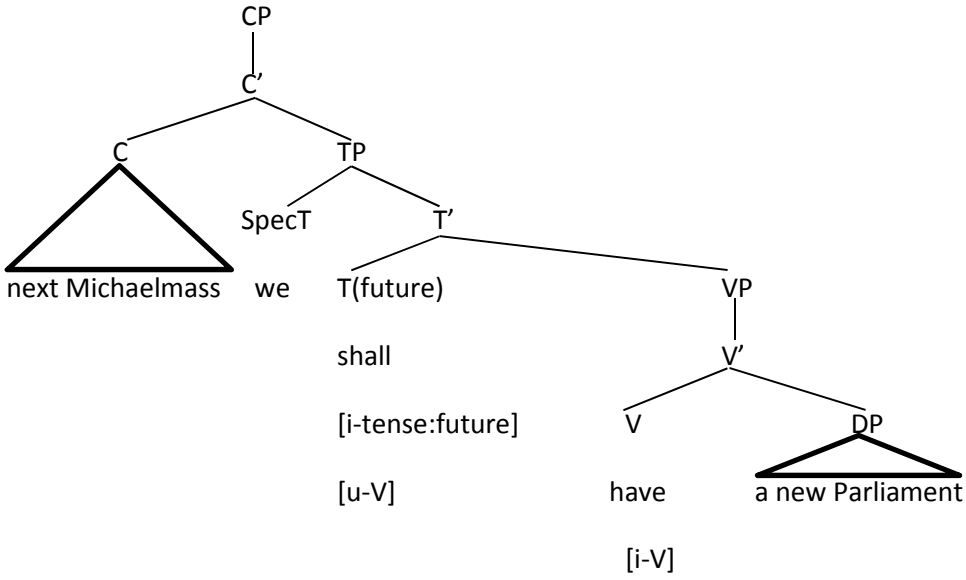
9b)	next	Michaelmass	we	shall	have	a	new	Parliament
	next	Michaelmas	we	shall	have	a	new	Parliament

(Dyrden, *Letters* 63) (1655-1700 AD)

9bi)



9bii)



Here the character is expressing a fated prediction rather than a wish or intention (Visser (1969:1601)), and since 'intention/volition' is related to 'obligation/necessity' (Bybee et al (1991:26-29), Fleischman (1982:56-58)), modality (9bi)) is weakened.

There are many types of V-to-T re-analysis, and 'to have' > $Mod_{obligation/necessity}$ > T(future) is not the only path that leads to future tense markers (Bybee et alii (1994:chapter 7)). One such pathway is verb 'to go' > T(future) (Bybee et al (1994:266-271)), like English *going to* > *gonna* in section 1.2 e.g. Spanish *ir* (*a*) + infinitive (Fleischman (1982:78-86)). Step a), like section 1.2, ex. a),

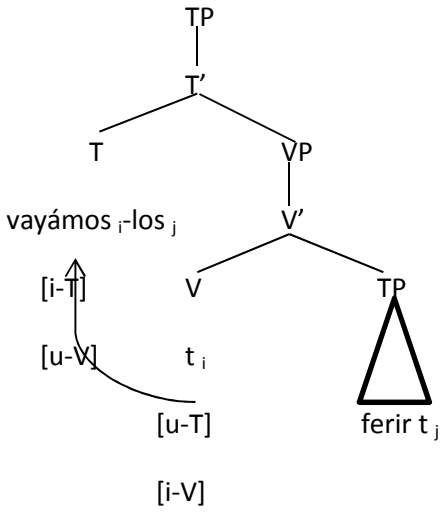
consists of examples where the verb 'to go' (*ir*) takes a purposive infinitive as its complement,[65] and spatial movement and purpose (10ai)) imply futurity (10aii)) (Champion (1978:23-32)):

10a) vay-á-mos-los fer-ir

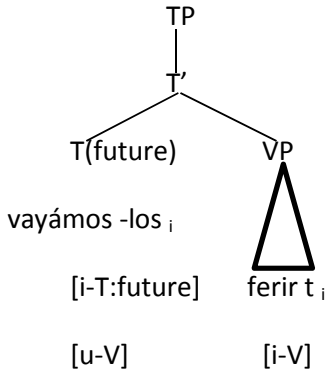
go-PRES.SUBJ-1PL-PRO.3PL strike-INF

'Let's go and strike them.' i.e. 'we shall strike them.'(*Cantar del mio Cid* 676, 1195-1207 AD)

10ai)



10aii)



10aii) is 'simpler' than 10ai), since the probe ([u-V]) which originally licenses movement (10ai)) is lost and the verb 'to go' (*vayámos*) is shifted upwards to T where it holds uninterpretable verb features (10aii)) (cf footnote 8). Step b), like section 1.2, ex. b), consists of examples where spatial movement is not contextually guaranteed (Champion (1978:27-32)) e.g.

10b) tu soltar-as la flot-a

you release-FUT.2SG DEF.ART.FEM.SG fleet-FEM.SG

quand entrar-e-s en la mar:

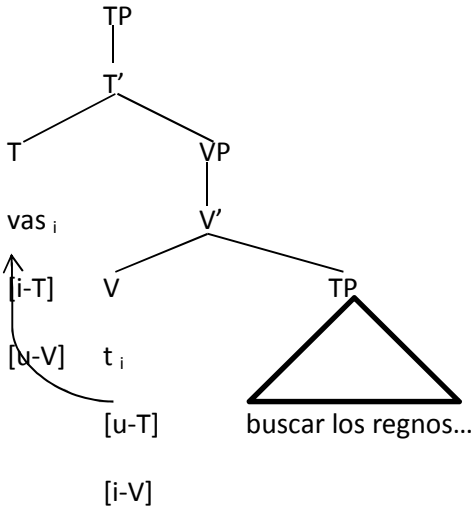
when enter-FUT.SUBJ-2SG in DEF.ART.FEM.SG sea.FEM.SG

[65] In medieval Spanish, *a* + infinitive denotes purpose after verbs of motion (e.g. *ir*) (Beardsley (1921:74-78, 159-163)), like *to*-infinitive after English *going* (see section 1.2).

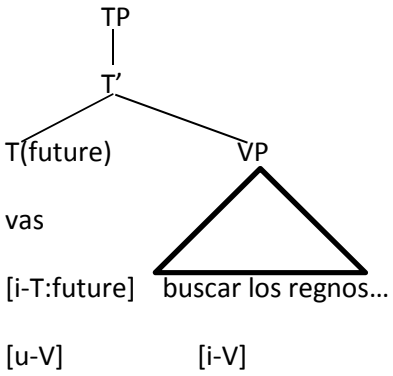
e	bien	alli	soltar-as		la	postura
and	well	there	release-FUT.2SG		DEF.ART.FEM.SG	stand
que		comigo	ov-i-ste,		quebrantando-la.	
REL.PRO		with.me	have-PRET-2SG		break-GERUND-PRO.FEM.SG	
Tu	v-as	busc-ar	los	regnos	de	Italia…
you	go-2SG.PRES	search-INF	DEF.ART.MASC.PL	realm-MASC.PL	of	Italy

'You will release the fleet when you enter the sea: and there you will release the stand which you had with me, by breaking it. You are going to search the realms of Italy…' (*Primera crónica general de España* 40a, 9ff) (1260 AD)

10bi)



10bii)



As the construction (*vas buscar*) is juxtaposed with future tense verbs (*soltarás… entrares… soltarás*), futurity (10bii)) is contextually prominent (Champion (1978:27)).

These cross-linguistic parallels reinforce the analysis in section 2.8, namely the fact that cross-linguistic examples not only undergo 'structural simplification' but also have parallel 'cues': determiners > copula verbs originate from equational constructions where determiners are in apposition with the dislocated constituent and the predicate (6ai), 7a)), and the pronominal nature of these determiners is weakened by the lack of nominal complements (6aii), 7b-c)); Latin *habere* and English *have to* originally take a direct object modified by the infinitive implying modality (1a),

8a)), and re-analysis occurs when the direct object relation is weakened (1b), 8b)); Latin *habere* and English *sceal* imply 'obligation/necessity' and 'futurity' simultaneously (3a), 9a)), and they both undergo weakening of 'intention/volition' via 'predestination' (3b), 9b)); English *going to* and Spanish *ir* (*a*) + infinitive have spatial movement and purpose implying futurity (section 1.2, ex. a), 10a)), and they both undergo re-analysis when spatial movement is not contextually guaranteed (section 1.2, ex. b), 10b)). These are all cross-linguistic trends which strongly contradict Lightfoot's prediction of random PLD (see sections 1.3, 2.8).[66]

Section 3.3: the differences between 'grammaticalization' and 'lateral' grammaticalization:

The key differences between grammaticalization and 'lateral' grammaticalization are 'phonological weakening', 'univerbation', 'semantic bleaching' and 'lexical > functional', all of which occur in grammaticalization but do not seem to occur in 'lateral' grammaticalization. These four phenomena can be further divided: 'univerbation' applies to bound morphemes that are phonologically weak and coalesce with phonological hosts (Zwicky (1985:286-287)). It can therefore be analysed as the consequence of 'phonological weakening'.[67] Furthermore, lexical categories are considered to be semantically stronger than functional ones, since the former are attested with antonyms whereas the latter are not (Radford (1997:45), R & R (2003:18)). 'Lexical > functional' therefore entails 'semantic bleaching'.

Section 3.3.1: 'phonological weakening' and 'univerbation':

All the V > T examples display 'phonological weakening' and 'univerbation' e.g.

11) ille responde-bat: non da-bo.

he reply-IMPERF.3SG NEG give-FUT.1SG

Iustinian-us dice-bat: dar-as

Iustinianus-NOM say-IMPERF.3SG give-2SG.FUT

'He used to reply: I shan't give them. Iustinianus used to say: you will give them.'

(*Fredegar's Chronicle,* c. 613 AD)

11) is the earliest attestation of 'phonological weakening' and 'univerbation' of Latin *habere*, which is reduced to a monosyllabic inflection (*dar-as* 'you will give') and corresponds to the classical Latin future (*dabo* 'I shall give') (Coleman (1971:230), Fleischman (1982:68)) (see footnote 54).[68]

[66] As for determiners > copula verbs, cross-linguistic examples are given in L & T (1977), Heine and Kuteva (2002:108-109) and Van Gelderen (2011:chapter 4); as for verb 'to have' > modal verb, cross-linguistic patterns are given in Bybee and Pagliuca (1985:71-75) and Heine and Kuteva (2002:243-245); as for modal verb 'obligation/necessity' > future, cross-linguistic examples are given in Heine and Kuteva (2002:218), Bybee et alii. (1991:22-29) and Bybee et alii (1994:258-264); as for 'to go' > future, cross-linguistic examples are given in Fleischman (1982:82) and Bybee et alii. (1994:266-260).

[67] In Minimalist terms, 'univerbation' follows from the weakening of 'Phonetic Form' (PF) (R & R (1999:1017-1018, 2003:27-30), Chomsky (1995:21-23, 2000:90-91, 94-98)).

[68] Cf *salvar-ai* 'I shall assist' and *prindr-ai* 'I shall take' in the Strasbourg Oaths (843 AD), which are the earliest attested Romance texts (Fleischman (1982:68)).

Adams (1991:160-161) and Fruyt (2011:806) argue that *daras* is ambiguous between future ('you will give') and 'obligation/necessity' ('you have to give'), which suggests that *habere* may already be phonologically weak as a modal verb (see footnotes 51 and 53). Similarly English *have to* is 'phonologically weakened' and 'univerbated' as *hafta* in certain varieties (Fleischman (1982:58-59), H & T (2003:128)). English *shall* is also 'phonologically weakened' as [ʃəɬ] / [ʃɬ] (R & R (2003:226)). English *going to* and Spanish *ir* (*a*) + infinitive (e.g. *dormir* 'to sleep') are likewise 'phonological weakened' and 'univerbated' as *gonna* (H & T (1993:3, 2003:128)) and *vadormir* respectively (Fleischman (1982:115-117), Anderson (1979)).

With 'lateral grammaticalization', the evidence for 'phonological weakening' and 'univerbation' is much harder to find. Chinese *de* is toneless both as a determiner (D) and as a past tense morpheme (T(past)) with no perceptible phonetic difference (S & W (2002:173-174, 186, 190-194), Wu (2004:123-124, 138-139, 142-144)). Chinese *de* as a past tense suffix (T) can be said to be more 'univerbated' than as a determiner (D), since the former is a verbal suffix (*mai-de*, see section 3.1, ex. 5)) whereas the latter is a clausal clitic (*zuotian mai piao-de*, see section 3.1, ex. 4)), and suffixes are 'phonologically weaker' and more 'univerbated' than clitics (Zwicky (1985:287-288), Zwicky and Pullum (1983:503-506), H & T (1993:5-7, 108, 132)). However, this greater 'univerbation' does not seem to be phonologically motivated, not only because *de* is phonetically identical (toneless) in both cases (D and T), but also because verbal suffixes marking tense and aspect (T/v) are typically attached to the verb in Chinese (S & W (2002:174-175, 190-191), Wu (2004:125-126, 161, 204-205)).[69] 'Phonological weakening' is therefore a sufficient, not necessary, condition for 'univerbation', and for Chinese *de,* 'phonological weakening' is not justified. I find no evidence for 'phonological weakening' or 'univerbation' in copula verbs derived from determiners either.[70] [71]

Section 3.3.2: 'semantic bleaching' and 'lexical > functional':

All the lexical verbs in the previous sections are attested with obvious antonyms: Latin *habere* 'to have' vs *carere* 'to lack', English *to have* vs *to lack*, English *to go to* vs *to come from*, Spanish *ir a* 'to go to' vs *venir de* 'to come from'. Antonyms cannot be easily established for $Mod_{obligation/necessity}$ or T(future), and so it is possible to argue that V > T is a 'lexical > functional' change which has resulted in 'semantic bleaching'. As for D > T, both D and T are functional categories (R & R (2003:17ff)), and so there is no 'semantic bleaching' or 'lexical > functional' here.

[69] Cf Chinese perfective suffix *–le*, which is also derived from sentence-final *liao* (see footnote 57), and Wu (2004:234-236) argues that *liao* is 'univerbated' as a verbal suffix before undergoing 'phonological weakening' (> *-le*). This suggests that 'univerbation' can occur without 'phonological weakening' and Chinese tense/aspect markers have a strong tendency to be suffixed to the main verb (Wu (2004:201ff)).

[70] I am a native speaker of Chinese and Chinese *shi* is still toned (tone 4) in modern Mandarin i.e. phonologically and syntactically independent. I am grateful to two anonymous L1 speakers of Palestinian Arabic for confirming the absence of 'phonological reduction' and 'univerbation' in *hiyye* and *huwwe* (L & T (1977:431-433)), to Joanna Kowalik for that in Polish *to* (van Gelderen (2011:134-135)), to two Russian speakers for that in Russian *eto* (van Gelderen (2011:134-135)), and to Anat Greenstein for that in Hebrew *hu* and *ze* (L & T (1977:427-431)). In this, my analysis differs from van Gelderen (2011:8)).

[71] Campbell (2001:121-122) argues that 'phonological weakening' is a probabilistic, rather than an absolute, tendency in grammaticalization (cf van Gelderen (2011:6)). Nonetheless, the total absence of 'phonological weakening'/'univerbation' in copula verbs derived from determiners is striking. Nick Welch (University of Calgary, personal communication) tells me that the copula verb in Tsúùt'inà has undergone 'phonological weakening' (?át'à > ?á?à), but this is derived from a lexical verb (V > T).

Section 3.4: grammaticalization and 'lateral grammaticalization'- an initial partition:

Grammaticalization (V > T) displays 're-analysis' (section 3.1), 'cross-linguistic distribution' (section 3.2), 'phonological weakening' (section 3.3.1), 'univerbation' (section 3.3.1), 'semantic bleaching' (section 3.3.2), and 'lexical > functional' (section 3.3.2) whereas 'lateral grammaticalization' (D > T) only displays the first two (sections 3.1-3.2). However, 'functional > more functional' is a difficult notion, since there is no formal criterion for 'degrees of functionality'. Furthermore, 'semantic bleaching' does not apply to $Mod_{obligation/necessity}$ > T(future), since both do not generate antonyms (see section 3.3.2). There are therefore some loose ends in our partition.

Section 3.5.1: 're-analysis' and 'cross-linguistic distribution' in Minimalism:

As explained in section 1.1, 're-analysis' is essential to generative models of language change and so it is a common similarity between 'grammaticalization' and 'lateral' grammaticalization (and all syntactic changes in general). 'Cross-linguistic distribution' can be explained by the fact that both changes involve 'structural simplification' (sections 3.1-3.2), which makes them both natural mechanisms in language acquisition (section 1.3).

Section 3.5.2: 'phonological weakening' and 'univerbation' in Minimalism:

Grammaticalization (V > T) displays an upward shift of the grammaticalized item, since when V-to-T *Move* is lost, *Merge* is introduced for the verb in T. Cinque (1999, 2004) establishes a hierarchy of T elements by assuming that adverbial modifiers occupy the specifier positions of the verbs that they modify (Cinque (1999:3)). T(future) is cross-linguistically modified by temporal adverbs (e.g. 'then') while $Mod_{obligation/necessity}$ is modified by adverbs like 'necessarily'. The following examples suggest that T(future) is higher than $Mod_{obligation/necessity}$, since while it is grammatical to place 'then' before 'necessarily' (12a)), the converse is ungrammatical (12b)) (Cinque (1999:88-89)):

12a) neanche loro sar-anno allora necessariamente da-lla vostr-a parte

not.even they be-FUT.3PL then necessarily from-DEF.ART.FEM.SG your-FEM.SG side

'Not even they will then necessarily be on your side.'

12b) *neanche loro sar-anno necessariamente allora da-lla vostr-a parte

not.even they be-FUT.3PL necessarily then from-DEF.ART.FEM.SG your-FEM.SG side

The following hierarchy is therefore established (Cinque (1999:106)):

$Mood_{SpeechAct}$ $Mood_{Evaluative}$ $Mood_{Evidential}$ $Mod_{Epistemic}$ T(Past)
T(Future) $Mood_{Irrealis}$ $Mod_{Obligation/Necessity}$ …

Latin/Romance *habere* and English *shall* seem to move upwards in this hierarchy ($Mod_{Obligation/Necessity}$ > T(Future)) (Roberts (2010:46-49)). R & R (2003:224-232) argue that functional projections are defective in the interfaces (Phonetic Form (PF) and Logical Form (LF)), and so when a lexical verb (V) is re-analysed as T, it undergoes 'phonological weakening' and consequently 'univerbation'. There also seems to be a scale of inversely proportional PF in this hierarchy, since while Latin *habere* as a modal verb is a clitic (see section 3.1, ex. 2-3) and footnotes 51 and 53), its

outcome in Romance is an affix (see section 3.3.1, ex. 11) and footnotes 50 and 68), which is 'phonologically weaker' and more 'univerbated' than clitics (Zwicky (1985:287-288), Zwicky and Pullum (1983:503-506), H & T (1993:5-7, 108, 132)). The same applies to English *shall*, since Heine (1993:51) points out that English future auxiliaries *will*/*shall* are almost always 'phonologically weakened'/'univerbated' in their future function. T(future), being in a higher functional position than $Mod_{obligation/necessity}$, can be said to have an even weaker PF, and so an ascension from $Mod_{obligation/necessity}$ to T(future) gives rise to (further) 'phonological weakening' and 'univerbation'.

Section 3.5.3: 'semantic bleaching', 'lexical > functional' and 'functional > more functional':

R & R (2003:218-224) argue that functional categories also have defective LF, and in terms of verbs, R & R (2003:218-221) argue that T is weaker than V in terms of argument structure (cf Haegeman (1991:56-58)). As lexical verbs, Latin *habere* and English *have* are two-place predicates (see section 3.1, ex. 1a-b), section 3.2, ex. 8a)), whereas as modal auxiliaries, they do not have argument structure (see section 3.1, ex. 1c), 2-3)).[72] Furthermore, when $Mod_{obligation/necessity}$ is re-analysed as T(future), Latin *habere* (see section 3.1, ex. 3a-c) and footnotes 55 and 56) and English *shall* (see section 3.2, ex. 9a-b)) lose their tense features ([u-T]). There is therefore an inversely proportional scale of LF in T hierarchy as well, since upper nodes (T(future)) are semantically weaker than lower ones ($Mod_{obligation/necessity}$).

'Lateral grammaticalization', on the other hand, is either a wholesale replacement of a DP by a 'simpler' TP (Chinese *de*, section 3.1, ex. 4-5)) or a re-analysis of SpecT as T (determiners > copula verbs, section 3.2, ex. 6-7)). These positions do not correlate with any functional hierarchy and so there is no reduction of PF/LF. These examples therefore do not undergo 'phonological weakening' or 'univerbation', nor do they undergo 'semantic bleaching' as D and T have different lexical semantics (R & R (2003:218-224)) and it is difficult to argue that one is 'weaker' than the other. D > T, therefore, does not constitute 'functional > more functional' in Minimalism.

Section 3.6: grammaticalization and 'lateral grammaticalization'- a final partition (1):

'Re-analysis' underlies both grammaticalization and 'lateral' grammaticalization, since it is essential in language change (sections 1.1, 3.5.1). 'Cross-linguistic distribution' is also a similarity since both changes undergo 'structural simplification' and are hence preferred in language acquisition (sections 1.3, 3.5.1). 'Phonological weakening' and 'semantic bleaching' are due to 'lexical > functional' and 'functional > more functional' in Cinque's (1999, 2004) functional hierarchy, since functional categories are phonologically and semantically defective (R & R (2003:218-232)) and within the hierarchy of T elements there seems to be a scale of inversely proportional PF and LF (sections 3.5.2-3.5.3). 'Univerbation' follows from 'phonological weakening' (section 3.3). 'Lateral

[72] The earliest unambiguous modal attestations of Latin *habere* occur when it is used with intransitive/passive verbs (section 3.1, ex. 1c)), and the same applies to English *have to* (Denison (1993:316-317), Fischer (1994:139)). Theta-criterion imposes a one-to-one correspondence between arguments and thematic roles (Haegeman (1991:46, 57)), and since the only argument/theta-role of intransitive/passive verbs is already saturated by the subject of the sentence (*pontus* in 1c), *filius* in 2a), 3a), *magis* in 3b), *duae* in 3c)), auxiliary verbs do not have argument structure or assign thematic roles (Haegeman (1991:57), Roberts (1993:225-227), Radford (1997:328), Harris and Campbell (1995:193)).

grammaticalization', on the other hand, does not correlate with any functional hierarchy and hence does not display these phenomena (section 3.5.3).

Section 4.1: what is grammaticalization?

While the partition in sections 3.5-3.6 suffices to explain cases of grammaticalization where *Move* is lost and *Merge* is introduced for the grammaticalized item in a higher functional position (section 1.3, ex. 1), 3)), it does not account for the loss of *Agree* (section 1.3, ex. 2)), since this is an upward shift of features to the grammaticalized item, regardless of its relative positions (R & R (2003:74, 97, 199, 202)) (see footnote 39). The examples in section 2 are shifted upwards, but from adjunct to complement position rather than through a functional hierarchy:

1) Romance *que* (section 2, ex. 25)):

$[_{TP}$ T $[_{VP}$ V $DP_i]$ $[_{CP}$ $[_{FocP}$ $quod_i$ TP]]] > $[_{TP}$ T $[_{VP}$ V $[_{CP}$ *quod* $[_{TP}$…]]]]

2) Romance *de* (section 2, ex. 26))

$[_{VP}$ V $[_{NP}$ N $[_{PP}$ *de* [DP/CP]]]] > $[_{VP}$ V $[_{CP}$ $[_{MP}$ *de* $[_{TP}$…]]]]

3) Romance *ad* (section 2, ex. 26))

VP $[_{PP}$ *ad* [DP/CP]] > $[_{VP}$ V $[_{CP}$ $[_{MP}$ *ad* $[_{TP}$…]]]]

4) English *to* (section 2, ex. 28), R & R (2003:103-106, 196))

VP $[_{PP}$ *to* [DP/CP]] > $[_{VP}$ V $[_{CP}$ $[_{MP}$ *to* $[_{TP}$…]]]]

In R & R (2003), when *Agree* is lost, the grammaticalized item can remain in the same position (5)) or even be shifted to downwards (6), 7)) as long as goal features are shifted upwards to them (R & R (2003:84-85)):

5) Germanic *that* (section 2, ex. 27), R & R (2003:116-119))

$[_{TP}$ T $[_{VP}$ V $that_i]$ $[CP_i]$ > $[_{TP}$ T $[_{VP}$ V $[_{CP}$ *that* $[_{TP}$…]]]

6) Greek *na* < *hina* (R & R (2003:83, 196), Philippaki-Warburton and Spyropoulos (2000)):

$[_{CP}$ *hina* $[_{MP}$ $[_{T}$ $[_{V}$ V + $affix_{subjunctive}$ > $[_{CP}$ $[_{MP}$ $na_{subjunctive}$ $[_{TP}$…

7) Calabrian *mu* < Latin *modo* (R & R (2003:96,196))

$[_{CP}$ *modo* C $[_{NegP}$ $[_{MP}$ *ut* $[_{TP}$ $[_{V}$ V + $affix_{subjunctive}$> $[_{CP}$ $[_{NegP}$ $[_{MP}$ $mu_{subjunctive}$ $[_{TP}$…

These examples nevertheless undergo 'phonological weakening', 'univerbation' and 'semantic bleaching' (R & R (2003:224)).[73] Furthermore, Romance *quod* (D > C), English *that* (D > C), and Greek

[73] Vogel (1999) and R & R (2003:228) argue that Italian complementisers *che*, *di* and *ad* consist of a single light syllable and are hence phonologically subminimal, and Acquaviva (1989) argues that Romance prepositional complementisers are 'semantically bleached' as they no longer assign case (see section 2.7, ex. 26), especially footnote 38).

hina (C > M) are already functional before grammaticalization, and the former two (D > C), like 'lateral' grammaticalization (D > T), undergo categorial re-analysis from one functional category (D) to another (C), while Greek *hina* is shifted downwards in the hierarchy of C elements (C > M) (R & R (2003:84-85, 97)) (see footnote 11). The partition in sections 3.5-3.6 needs to be modified.

Section 4.2.1: 'phonological weakening', 'univerbation', 'lexical > functional' and 'functional > more functional' in Minimalism:

In section 1.3, ex. 1)-4), grammaticalization is defined as an upward shift of goal features due to the loss of probe features which originally cause *Move* or *Agree*. The underlying factor in grammaticalization is therefore that goal features are shifted upwards, either along with the grammaticalized item (if *Move* is lost) (section 1.3, ex. 1), 3)) or onto the grammaticalized item (if *Agree* is lost) (section 1.3, ex. 2)). The various phenomena of grammaticalization can therefore be re-defined around this upward shift (section 1.3, ex. 4)): 'phonological weakening' and 'univerbation' can be re-defined as the effects of features being shifted upwards, since the grammaticalized item always holds upwardly shifted features. 'Lexical/Functional > more functional' can also be re-defined in that a 'more functional' position is the new place-holder for these upwardly shifted features, which is necessarily in a higher functional position when *Move* is lost (section 1.3, ex. 1), 3)), but when *Agree* is lost (section 1.3, ex. 2)), it can be in the same position (e.g. section 4.1, ex. 5)) or in a lower position (e.g. section 4.1, ex. 6-7)).

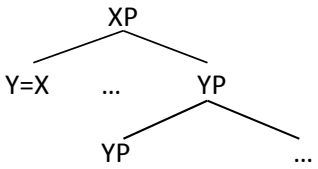
Section 4.2.2: 'semantic bleaching' in Minimalism:

Theupward shift of features in grammaticalization is caused by the loss of probe features. 'Semantic bleaching' can therefore be re-defined as the relative number of features in the 'cue', since with the loss of probe features, the new 'cue' necessarily contains fewer features and is hence 'semantically bleached' (cf Roberts (2007:235)).[74] [75]

Section 4.3: grammaticalization in Minimalism:

Such is grammaticalization in Minimalism, as represented by R & R (2003:200):

8) =section 1.3, ex.4)



[74] This conforms to R & R (1999:1017, 2003:4-5, 27-29, 218)) who only admits features that are LF-interpretable, and so if a 'cue' has fewer features, it is necessarily semantically weaker.

[75] It is interesting that the two examples where the grammaticalized item is shifted downwards (section 4.1, ex. 6-7)) occur in the hierarchy of C elements, which, unlike T elements, does not seem to have an inversely proportional scale of LF. Rizzi (1997:283-284) attributes clausal features (declarative/interrogative) and finite subcategorisation (probe:finite/+tense/+mood) to Force (= R & R's C) but not to lower Fin (= R & R's M) as Fin neither expresses clausal information nor selects finite verbs (see footnotes 11 and 36). Fin/M is hence featurally simpler than Force/C, and moving down from Force/C to Fin/M does not violate 'structural simplification', as it would in the hierarchy of T elements (see sections 3.5.2-3.5.3).

This upward shift of features allows us to define 'phonological weakening', 'univerbation', 'lexical > functional' and 'functional > more functional', and the cause for this upward shift, namely the loss of probe features, allows us to define 'semantic bleaching'.

Section 4.4: grammaticalization and 'lateral' grammaticalization- a final partition (2):

The relationship between grammaticalization and 'lateral grammaticalization' can also be re-defined: Chinese *de* and copula verbs come to hold features that are re-analysed from pragmatics (section 3.1, ex. 4-5), section 3.2, ex. 6-7)). As these features are not shifted upwards from below, 'lateral' grammaticalization does not entail 'phonological weakening', 'univerbation' or 'functional > more functional'. Although 'lateral' grammaticalization undergoes R & R's and van Gelderen's 'structural simplification' (see section 3.5.1), Chinese *de* and copula verbs also gain new features that are not in the original 'cues'. They therefore cannot be said to undergo 'semantic bleaching'.

Such is a refined relationship between grammaticalization and 'lateral' grammaticalization, which depends on the relative positions and number of features in the 'cues'.

Section 5.1: V & B (2010): grammaticalization vs 'lateral' grammaticalization:

V & B (2010:291-293) criticise R & R (2003) and Roberts (2010) for not taking 'lateral grammaticalization' into their account:

> '… there is nothing in the Minimalist architecture which makes the change ('lateral' grammaticalization) necessary… it ('lateral' grammaticalization) does not follow from the principles and mechanisms established by Roberts and Roussou (2003), nor from the cartographic approach adopted by Roberts in this volume (Roberts (2010)). This is problematic, since, if both 'upward' (i.e. grammaticalization) and 'sideways' (i.e. 'lateral' grammaticalization) types of grammaticalization exist, then we still need to seek the generalization that accounts for them, or else conclude that there is not after all a unified phenomenon from the point of view of UG.' (my brackets) (V & B (2010:293))

Here I defend R & R (2003) and Roberts (2010) by pointing out that V & B's dichotomy between grammaticalization and 'lateral' grammaticalization is false, since it lies in the relative positions of **features**, not those of the **grammaticalized item** (see sections 4.2-4.4). Grammaticalization involves an upward shift of goal features, whereas 'lateral' grammaticalization is a re-analysis of features from pragmatics and discourse (see sections 4.2-4.4). The relative positions of the grammaticalized item are therefore irrelevant, since in grammaticalization it can be shifted upwards, downwards, or remain in the same position (see section 4.1), whereas in 'lateral' grammaticalization it can remain in the same position (Chinese *de*- section 3.1., ex. 4-5)) or be re-analysed from specifier to head position (copula verbs- section 3.2, ex. 6-7)).[76] In fact, R & R's (and van Gelderen's) account is very much supported by 'lateral' grammaticalization, since their definitions of 'simplicity' have independently and coincidentally predicted and explained its 'cross-linguistic distribution' (see sections 3.1, 3.2, 3.5.1). Furthermore, the structural differences between grammaticalization and 'lateral' grammaticalization allow us to capture their fine empirical differences (see sections 3.5, 4.2-

[76] My objections also apply to Simpson (1998), S & W (2002:200-201) and Wu (2004:151-152), who also argue that grammaticalization is an upward shift of the grammaticalized item.

4.4). Minimalism is hence an elegant model for accounting for grammaticalization and 'lateral' grammaticalization.

Section 5.2: Formalism vs functionalism:

V & B (2010) also argue that formalism and functionalism should not be seen as mutually exclusive in language change. Formalist approaches are defined as 'a property of a theoretical system' (V & B (2010:283)) and are said 'to model this data in terms of the innate asymmetries of Universal Grammar (UG) (i.e. 'simplicity' being preferred in language acquisition (see section 1.3))… and in particular the hierarchical arrangement within the 'cartographic' model of categorical structure…' (V & B (2010:280)) (my brackets), while functionalism 'relates internal aspects of language to the external context of language use' (V & B (2010:283)) and 'seeks to explain these diachronic patterns (i.e. 'cross-linguistic distribution') with reference to discourse and interpersonal communication strategies rather than in terms of an innate UG' (V & B (2010:280)) (my brackets). In my examination of cross-linguistic examples (sections 2.8, 3.2), I have shown that while R & R's and van Gelderen's 'simplicity' (formalist) holds for all the cross-linguistic examples, the 'cues' in the PLD (functionalist, as they constitute communicative and discourse patterns) are by no means random. Formalism and functionalism account for different yet related aspects of 'cross-linguistic distribution' and are hence not mutually exclusive.

Furthermore, formalist and functionalist factors can reinforce one another mutually. In V-to-T and D-to-T re-analyses, formalist factors cannot predict sub-types, since the verbs and determiners are grammaticalized as more than one type of T: Latin/Romance *habere* and English *have* are not only the sources for $Mod_{obligation/necessity}$ but also for the Romance and English perfect tenses ($Asp_{perfect}$) (R & R (2003:56-58), Harris (1978:136-153)), and there is cross-linguistic evidence for $Mod_{obligation/necessity}$ developing into auxiliaries marking probability (Heine and Kuteva (2002:218-219)).[77] [78] All this can be accounted for by functionalist factors, namely the different pragmatic implicatures in different constructions, and these dictate the outcomes of grammaticalization.[79]

The incorporation of functionalist factors into formalism also resolves the problems entailed by Cinque's (1999:132-134) assertion that all functional heads are universally present, since this predicts that grammaticalized items should traverse all the functional nodes when they ascend upwards in the functional hierarchies when there is no evidence for Latin *habere* or English *shall*

[77] Verbs 'to go' likewise are not only grammaticalized as T(future) (section 3.2, ex. 10)) but also as T(past) e.g. Catalán *anar* (Ledgeway (2011:421)).

[78] The many-to-many correspondence between lexical sources and functional elements is known as the Principle of Divergence (Hopper (1991:24-25)) (cf Campbell (2001:152-153), Heine and Kuteva (2002:6-7)), which is problematic for Roberts (2010:59-60) who argues that Latin *habere* moves to ModP as a lexical verb and once it is grammaticalized as Mod, it holds an *Agree* or *Move* relation with T(future), its later target. Roberts' account predicts that Latin *habere* necessarily grammaticalises as a modal verb and subsequently as a future tense marker, which is not empirically true (cf van Gelderen's (2011:268-269), who argues that English *will* targets T(future)) as a lexical verb). Furthermore, these formalist accounts are inapplicable to Panare copula verbs (T), which are derived from different determiners (D) and mark different tenses (section 3.2, ex. 7)), since there is no conceivable *Agree*/*Move* between the determiners in subject pronoun and T in the original equational constructions where T is empty (7a))(see footnote 61).

[79] cf R & R's (2003:44-48) account of English modals, which consist of a wide range of T elements and are dictated by the semantics of individual pre-modals.

going through the nodes between T(future) and $Mod_{obligation/necessity}$ (e.g. $Mood_{irrealis}$) (see section 3.1, ex. 3), section 3.2 ex. 9)) (cf Roberts (2010:60-61)). If we incorporate functionalist factors and abandon any *Agree* or *Move* between T(future) and $Mod_{obligation/necessity}$, T(future) is merely a semantic/pragmatic implicature of $Mod_{obligation/necessity}$ in 're-analysis'. The grammaticalized item is therefore not required to go through all the intermediary nodes, even if they are universally present.

Conversely, functionalism alone cannot account for both grammaticalization and 'lateral' grammaticalization. Radical functionalism has given rise to a particular approach towards grammaticalization known as 'Emergent Grammar' (Hopper (1987, 1988)), which places exclusive emphasis on speech and discourse strategies as the driving forces behind grammaticalization: 'the 'Emergence of Grammar'… has come to view grammar… whose status is constantly being renegotiated in speech and which cannot be distinguished in principle from strategies for building discourses' (Hopper (1988:118)); '… grammar is always emergent but never present… there is, in other words, no 'grammar' but only 'grammaticalization'' (Hopper (1987:148)). 'Emergent grammar' therefore denies the existence of a pre-existing grammar, which is a total reversal to Lightfoot's assumption of an innate, genetically endowed, grammar (UG) (see section 1.1).[80]

'Emergent grammar' therefore predicts that any functional category that is the result of 're-analysis' is 'more functional' than the original category. Bybee et alii (1994:19-20) argue that 'more functional' categories are semantically more general and hence occur more frequently. They therefore undergo 'phonological weakening' since 'phonological weakening' correlates with usage frequency (Bybee and Pagliuca (1985:76), Bybee et alii (1994:19-20), cf Haspelmath (1999:1058)). All this does not seem to hold for 'lateral' grammaticalization, since in D-to-T re-analysis, the resultant category (T) is not 'phonologically weaker' than the original category (D) (see section 3.2). Feature analysis, a formalist approach, offers a good way of accounting for the absence of 'phonological weakening' in 'lateral' grammaticalization, as there are clear featural differences between grammaticalization and 'lateral' grammaticalization which can be used to account for the lack of 'phonological weakening' in the latter (see sections 4.2-4.4). Formalist factors complement radical functionalism as well, and this mutual complementarity further verifies V & B's assertion.

Conclusions:

The hypothesis that 'lateral' grammaticalization, which is similar to yet different from grammaticalization (sections 3.3-3.6, 4.2-4.4), is a new discovery for grammaticalization theory, since it is a type of grammaticalization which does not involve 'phonological weakening', 'univerbation' and 'semantic bleaching' when these are diagnostic traits of grammaticalization (see section 3). These results also bear heavily on the nature of functional categories, which are widely assumed to be phonologically, morphosyntactically and semantically weak (R & R (2003:218ff)) when they seem not to be so in 'lateral' grammaticalization. Furthermore, the re-analysis of determiners as copula verbs (section 3.2, ex. 6-7)) is a very recurrent example in grammaticalization studies (see footnotes 67, 71) and my analysis of it as 'lateral' grammaticalization is a novel analysis. The

[80] Cf Bybee et alii (1994:1): 'we do not take the structuralist position that each language represents a tidy system in which units are defined by the oppositions they enter into and the object of study is the internal system the units are supposed to create. Rather, we consider it more profitable to view languages as composed of substance- both semantic substance and phonetic substance…'. (cf H & T (1993:2), Heine and Reh (1984:15)).

evidence presented in this paper suggests that there are formal and empirical differences between grammaticalization ('upward feature analysis') and 'lateral' grammaticalization ('re-analysis of features from pragmatics) in Minimalism (see sections 4.2-4.4), and this deserves further investigation.

Bibliography:

Acquaviva, P. (1989): '*A* e *di* come introduttori di completive' in *Aspetti della complementazione frasale.* Tesi di Laurea Università di Pisa, Cap 2, p. 16-48.

Adams, J. N. (1976): 'A Typological Approach to Latin Word Order', *Indogermanische Forschungen* 81-70-99.

Adams, J. N. (1991): 'Some Neglected Evidence for Latin *habeo* with infinitive: the Order of the Constituents.' *Transaction of the Philological Society* 89.2:131-196.

Adams, J. N. (2007): *The Regional Diversification of Latin, 200 BC to 600 AD.* Cambridge: Cambridge University Press.

Adams, J. N. (2011): 'Late Latin', in Clackson, J. (ed.), *A Companion to the Latin Language*, Wiley-Blackwell, pp. 257-283.

Anderson, H. (1973): 'Abductive and deductive change.' *Language* 49:765-793.

Anderson, E. W. (1979): 'The Development of the Romance Future Tense: Morphologization II and a Tendency towards Analyticity'. *Papers in Romance* I:21-35.

Baldi, P. (2002): *The Foundations of Latin,* Berlin/New York: Mouton de Gruyter.

Beardsley, W. (1921): *Infinitive Constructions in Old Spanish.* New York: Columbia University Press.

Benincà, P. and Poletto, C. (2004): 'Topic, Focus, and V2: Defining the CP Sublayers', in Rizzi, L. (ed), *The Structure of CP and IP: The Cartography of Syntactic Structures,* vol 2. Oxford: Oxford University Press, p. 52-75.

Benucci, F. (1992): 'Romance Infinitival Particles as Specifiers of CP.' In Fava, E. (ed), *Proceedings of the XVII Meeting of Generative Grammar*, *Trieste, February 22-24, 1991. Volume presented to Giuseppe Francescato on the occasion of his seventieth birthday.* Turin: Rosenberg & Sellier, p. 23-51

Benveniste, E. (1968): 'Mutations of Linguistic Categories'. In Malkiel, Y. and Lehmann, W. P. (eds) *Directions for Historical Linguistics.* Austin and London: University of Texas Press, 83-94.

Borer, H. (1994): *Parametric Syntax.* Dordrecht: Foris.

Bosque, I. and Demonte, V. (1999): *Gramática descriptiva de la Lengua Española,* vol II, *las construcciones sintácticas fundametales: relaciones temporalis, aspectuales y modales.* Madrid: Espasa Calpe, S. A..

Bowers, J. (1993): 'The syntax of predication'. *Linguistic Inquiry* 24:591-656.

Bowers, J. (2001): 'Predication', in Baltin, M. and Collins, C. (eds), *The Handbook of Contemporary Syntactic Theory.* Blackwell, p. 299-333.

Bybee, J. L. and Pagliuca, W. (1985): 'Cross-linguistic comparisons and the development of grammatical meaning.' In Fisiak, J. (ed), *Historical semantics, historical word formation.* Berlin: Mouton, p. 59-83.

Bybee, J.L., Perkins, R. D., Pagliuca, W. (1991): 'Back to the Future'. In Traugott, E. C. and Heine, B. (eds) *Approaches to Grammaticalization,* vol II, p. 17-58.

Bybee, J. L., Perkins, R. D., Pagliuca, W. (1994): *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World.* Chicago: University of Chicago Press.

Campbell, L. (2001): What's wrong with grammaticalization? *Language Sciences* 23:113-161.

Campbell, L. and Janda, R. (2001): Introduction: conceptions of grammaticalization and their problems*. Language Sciences* 23:93-112.

Castellani, A. (1952): *Nuovi testi fiorentini del Dugento.* Firenze: Sansoni.

Champion, J. J. (1978): *The Periphrastic Futures formed by the Romance reflexes of* VADO (AD) *plus Infinitive.* North Carolina Studies in the Romance Languages and Literatures, 202. Chapel Hill: Department of Romance Languages.

Chomsky, N. (1995): *The Minimalist Program.* Cambridge, Massachussetts/London: MIT Press.

Chomsky, N. (2000): 'Minimalist inquiries: the framework', in Martin, R., Michael, D. and Uriagereka, J. (eds), *Step by Step: Essays in Honor of Howard Lasnik.* Cambridge, MA: MIT Press, p. 89-156.

Chomsky, N. (2001): 'Derivation by phase', in Kenstowicz, M. (ed), *Ken Hale*: *A Life in Language.* Cambridge, MA: MIT Press, p. 1-52.

Chomsky, N. (2005): 'Three factors in Language Design', *Linguistic Inquiry* 36.1:1-22.

Chomsky, N. (2007): 'Approaching UG from Below'. In Uli Sauerland et alii. (eds), *Interfaces + Recursion = Language,* pp. 1-29. Berlin: Mouton de Gruyter.

Chomsky, N. (2008): 'On phases', in Freidin, R., Otero, C. P. and Zubizarreta, M. L. (eds), *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud.* Cambridge, MA: MIT Press, pp. 133-66.

Cinque, G. (1999): *Adverbs and the Universal Hierarchy of Functional Projections.* Oxford: Oxford University Press.

Cinque, G. (2004): *Restructuring and Functional Heads: A Cross-linguistic Perspective.* (Oxford Studies in Comparative Syntax). Oxford: Oxford University Press.

Clark, R. and Roberts, I. (1993): 'A computational model of language learnability and language change', *Linguistic Inquiry* 24:299-345.

Clifford, P. (1986): *La Chastelaine de Vergi and Jean Renart: La Lai de l'ombre.* Grant & Cutler Ltd.

Coleman, R. (1971): 'The Origin and Development of Latin Habeo+Infinitive', *The Classical Quarterley, VN.S.* 21.1:215-232.

Coleman, R. (1975): 'Greek influence on Latin syntax', *Transactions of the Philological Society* 74:101-156.

Contini, G. (1960): *Poeti del Duecento. Tomo II.* Milano-Napoli: Ricciardi.

Cuzzolin, P. (1994): *Sull'origine della costruzione* dicere quod*. Aspetti sintattici e semantici.* Florence: La Nuova Italia.

Den Dikken, M. (2006): *Relators and Linkers. The Syntax of Predication, Predicate Inversion, and Copulas.* Linguistic Inquiry, Monograph Forty-Seven. Cambridge, MA and London, England: MIT Press.

Denison, D. (1993): *English historical syntax: verbal constructions.* London/New York: Longman.

Diez, F. (1876): *Grammaire des Langues Romanes, vol* III. 3rd ed. Paris: F. Vieweg, Libraire-Éditeur.

Dutton, B. (1978): *Gonzalo de Berceo: Obras completas IV, La Vida de Santo Domingo de Silos.* London: Tamesis Books Limited.

Syntaxe latine. Paris : Librairie C. Klincksieck.

Feng, S-L (1993): 'The Copula in Classical Chinese Declarative Sentences'. *Journal of Chinese Linguistics* 22(2):277-311.

Feng, S-L (2003): 'Gu Hanyu panduan ju zhong de xici'. Research in Ancient Chinese Language 58(1):30-36.

Ferraresi, G. (1991): 'Die stellung des gotischen Verbs im Lichte eines Vergleichs mit dem Althochdeutschen', MA thesis, University of Venice.

Fischer, O. (1994): 'The Development of Quasi- Auxiliaries in English and Changes in Word Order'. *Neophilologus* 78: 137-64.

Fischer, O. (1997): 'On the status of grammaticalization and the diachronic dimension in explanation'. *Transactions of the Philological Society* 95(2):149-187.

Fleischman, S (1982): *The future in Thought and Language. Diachronic evidence from Romance.* Cambridge: Cambridge University Press.

Fruyt, M. (2011): 'Grammaticalization in Latin'. In Baldi, P. and Cuzzolin, P. (eds), *New Perspectives on Historical Latin Syntax, volume 4*, *Complex Sentences, Grammaticalization, Typology*, pp. 661-864.

Gelderen, E. van. (2011): *The Linguistics Cycle. Language Change and the Language Faculty.* Oxford: Oxford University Press.

Gildea, S. (1993): 'The Development of Tense Markers from Demonstrative Pronouns in Panare (Cariban)', *Studies in Language* 17 (1):53-73.

Giorgi, A. and Pianesi, G. (1997): *Tense and Aspect: From Semantics to Morphosyntax.* Oxford: Oxford University Press.

Haegeman, L. (1991): *Introduction to Government & Binding Theory.* Blackwell.

Hale, M. (1998): 'Diachronic syntax'. *Syntax* 1(1):1-18.

Hall, R. (1964): *Introductory linguistics.* Philadelphia: Chilton Books.

Hall, R. (1974): *Comparative Romance Grammar: 1. External History of the Romance Languages.* New York: American Elsevier.

Hall, R. (1983): *Proto-Romance Morphology*. Philadelphia: John Benjamins.

Halla-aho, Hilla (2009): *The Non-literary Latin Letters: A study of their syntax and pragmatics.* Societas Scientiarum Fennica.

Harris, M. (1978): *The evolution of French syntax: a comparative approach.* London: Longman.

Harris, A. and Campbell, L. (1995): *Historical Syntax in cross-linguistic perspective.* Cambridge: Cambridge University Press.

Haegeman, L. (1991): *Introduction to Government and Binding Theory.* Blackwell.

Hale, M. (1998): 'Diachronic syntax'. *Syntax* 1:1-18.

Harris, M. (1978): *The evolution of French syntax: a comparative approach.* London: Longman.

Haspelmath, M. (1989): 'From purposive to infinitive- a universal path of grammaticalization', *Folia Linguistica Historica* 10/1-2:287-310.

Haspelmath, M. (1999): 'Why is grammaticalization irreversible?', *Linguistics* 37:1043-1068.

Heine, B. (1993): *Auxiliaries: Cognitive Forces and Grammaticalization.* Oxford/New York: Oxford University Press.

Heine, B. and Reh, M. (1984): *Grammaticalization and re-analysis in African languages.* Hamburg: Helmut Buske.

Heine, B., Claudi, B. and Hünnemeyer, F. (1991): *Grammaticalization: A Conceptual Framework.* London/Chicago: University of Chicago Press.

Heine, B. and Kuteva, T. (2002): *World Lexicon of Grammaticalization.* Cambridge: Cambridge University Press.

Herman, J. (1963): *La formation du système roman des conjonctions de subordination.* Berlin: Akademie-Verlag.

Halla-Aho, H. (2009): *The non-literary Latin letters. A study of their syntax and pragmatics.* Helskinki: Societas Scientiarum Fennica (Commentationes Humanarum Litterarum 124).

Hopper, P. J. (1987): 'Emergent grammar'. *Berkeley Linguistics Society* 13:139-157.

Hopper, P. J. (1988): 'Emergent grammar and the a priori grammar postulate', in Tannen, D. (ed), *Linguistics in Context.* Ablex, Norwood, NH, pp. 117-134.

Hopper, P. J. (1991): 'On some principles of grammaticization', in Traugott, E. C. and Heine, B. (eds), *Approaches to Grammaticization. Typological studies in language 19. Vol I.* Amsterdam/Philadelphia: John Benjamins Pubilshing Company, pp. 17-35.

Hopper, P. J. and Traugott, E. C. (1993): *Grammaticalization.* Cambridge: Cambridge University Press.

Hopper, P. J. and Traugott, E. C. (2003): *Grammaticalization. Second Edition.* Cambridge: Cambridge University Press.

Huot, H. (1981): *Constructions infinitives de français. Le subordonnant DE.* Librairie Droz, Genève-Paris.

Jones, M. (1993): *Sardinian Syntax.* London: Routledge.

Justus, C. (1976): 'Relativization and Topicalization in Hittite.' In Li, C. N. (ed) *Subject and Topic.* New York/San Francesco/London: Academic Press.

Kayne, R. (1975): *French syntax, the transformational cycle*. Cambridge, Mass., The MIT Press.

Kayne, R. (1976): 'French relative *que*', in Luján, M. and Hensey, F. (eds.), *Current Studies in Romance Linguistics: Papers delivered at the Texas Symposium on Romance Linguistics.* Washington: Georgetown University Press, p. 255-299.

Kayne, R. (1982): 'Predicates and arguments, verbs and nouns', *GLOW* Newsletter 8:24.

Kayne, R. (1984): *Connectedness and Binary Branching.* Dordrecht: Foris.

Kayne, R. (1989): 'Null Subject and Clitic Climbing' in Jaeggli, O., Safir, K. J. *The Null Subject Parameter.* Dordrecht: Kluver Academic Publishers, p. 239-261.

Kayne, R. (1994): *The Antisymmetry of Syntax.* Cambridge, Massachussetts: MIT Press.

Kayne, R. (2000): *Parameters and Universals.* Oxford: Oxford University Press.

Kemenade, A. van and Vincent, N. (1997): 'Introduction: parameters and morphosyntactic change', in Vincent, N. and Kemenade, A. van (eds) *Parameters of morphosyntactic change.* Cambridge : Cambridge University Press, p. 1-25.

Kiparsky, P. (1995): 'Indo-European origins of Germanic syntax.' In Battye, A. and Roberts, I. (eds) *Clause Structure and Language Change.* Oxford: Oxford University Press, p. 140-169.

Koopman, H. (1984): *The Syntax of Verbs: From Verb Movement Rules in the Kru Languages to Universal Grammar.* Dordrecht: Foris.

Kroch, A. (1991): 'Reflexes of Grammar in Patterns of Language Change'. *Language Variation and Change* 1:199-244.

Kurylowicz, J. (1965): 'The evolution of grammatical categories'. *Diogenes* 51:55-71.

Labov, W. (1994): *Principles of Linguistic Change I: Internal Factors.* Oxford: Oxford University Press.

Langacker, R. W. (1977): 'Syntactic Reanalysis', in Li. C (ed), *Mechanisms of Syntactic Change*. Austin: University of Texas Press, p. 57-139.

Lavency, M. (2003): 'La proposition infinitive (A.c.I)' In Bodelot, Colette (ed) *Grammarie Fondamentale du Latin Tome X*: *Les propositions complétives en latin.* Louvain-Paris-Dudley, MA: Peeters, p. 97-192.

Ledgeway, A. (2011): 'Syntactic and morphosyntactic typology and change.' In Maiden, M., Smith, J. C. and Ledgeway, A. (eds) *The Cambridge History of the Romance Languages.* Vol. I *Structures,* Cambridge: Cambridge University Press, p. 382-471.

Lehmann, C. (1995): *Thoughts on Grammaticalization.* LINCOM Studies in Theoretical Linguistics 01. München/Newcastle: LINCOM EUROPA.

Lencho, M. (1992): 'Evidence that ''to'' is a complementizer', paper presented at the Comparative 8th Workshop on Germanic Syntax, University of Tromsø, 20-22 November 1992.

Li, C. N. and Thompson, S. A. (1977): 'A Mechanism for the Development of Copula Morphemes', in Li, C. (ed) *Mechanisms of Syntactic Change,* Austin and London: University of Texas Press, p. 419-444.

Lightfoot, D. (1979): *Principles of Diachronic Syntax*. Cambridge: Cambridge University Press.

Lightfoot, D. (1991): *How to Set Parameters: Arguments from Language Change*. Cambridge, MA: MIT Press.

Lightfoot, D. (1999): *The Development of Language: Acquisition, Change, and Evolution.* Oxford: Blackwell.

Lightfoot, D. (2006): *How New Languages Emerge*. Cambridge: Cambridge University Press.

Lohndal, T. (2009): 'The Copula Cycle', in Gelderen, E. van. (ed), *Cyclical Change.*Amsterdam: John Benjamins, pp. 209-242.

Los, B. (1999): *Infinitival Complementation in Old and Middle English.* The Hague: Holland Academic Graphics.

Los, B. (2005): *The Rise of the To-infinitive.* Oxford, Oxford University Press.

Lyons, J. (1977): *Semantics,* vol II. Cambridge: Cambridge University Press.

Manczak, W. (1991): *La classification des langue romanes.*Universitas.

Menéndez Pidal, R. (1954): *Cantar de mio Cid: texto, gramática, vocabulário.* Madrid.

Mensching, G. (2000): *Infinitive Constructions with Specified Subjects: A Syntactic Analysis of the Romance Languages.* Oxford: Oxford University Press.

Meyer-Lübke, W. (1900): *Grammaire des Langues Romanes.* Vol. III, *Syntaxe*. Paris.

Nelson, D. N. (1979): *El libro de Alixandre.* Madrid: Editorial Gredos.

Orlandini, A. (2003): 'Les complétives en *ne, quin, quominus'* In Bodelot, C. (ed) *Grammarie Fondamentale du Latin Tome X*: *Les propositions complétives en latin.* Louvain-Paris-Dudley, MA: Peeters, p. 482-527.

Otto, R. (1889): Der portugiesische Infinitiv bei Camões. *Romanische Forschungen,* vol VI.

Panchón, F. (2003): 'Les complétives en *ut*'. In Bodelot, C. (ed) *Grammarie Fondamentale du Latin Tome X*: *Les propositions complétives en latin.* Louvain-Paris-Dudley, MA: Peeters, p. 335-481.

Panhuis, D. G. J. (2006): *Latin grammar.* Ann Arbor: University of Michigan Press.

Pesetsky, D. and Torrego, E. (2001): 'T-to-C Movement: Causes and Consequences', in Kenstowicz, M. (ed), *Ken Hale: A Life in Language.* Cambridge, Massachusetts: MIT Press.

Pesetsky, D. and Torrego, E. (2004): 'Tense, Case and the Nature of Syntactic Categories', in Guéron, J. and Lecarme, J. (eds), *The Syntax of Time.* Cambridge, MA and London, England: MIT Press, pp. 495-537.

Pesetsky, D. and Torrego, E. (2011): 'Case', in Boeckx, C. (ed), *The Oxford Handbook of Minimalism,* Oxford: Oxford University Press, pp. 52-72.

Philippaki-Warburton and Spyropoulos (2000): 'A change of mood: the mood system of Hellenistic and Roman Koine Greek (3rd BC – 4th AD)', *Studies in Greek Linguistics* 20:567-578.

Pinkster, H. (1985): 'The Development of Future Tense Auxiliaries in Latin'. *Glotta* 63.3/4:186-208.

Pinkster, H. (1987): 'The strategy and chronology of the development of future and perfect tense auxiliaries in Latin'. In Harris M., B. and Ramat, P. (eds) *The Historical Development of Auxiliaries*. Berlin: Mouton de Gruyter, p. 193-223.

Radford, A (1997): *A syntactic theory and the structure of English: a minimalist approach.* Cambridge: Cambridge University Press.

Radford, A. (2004): *Minimalist Syntax: Exploring the Structure of English.* Cambridge: Cambridge University Press.

Raiskila, R. (1990): 'Periphrastic use of *habere* in Tertullian', in Calboli, G. (ed) *Latin vulgaire – latin tardif II, Actes du IIeme colloque international sur le latin vulgaire et tardif (Bologne, 29 Août-2 Septembre 1988).* Tübingen: Niemeyer, p. 209-217.

Reenan, P., van. and Schøsler, L. (1993): 'Les indices d'infinitif complément d'objet en ancien français', in Lorenzo, R. (ed), *Actas do XIX Congreso Internacional de Lingüística e Filoloxía Románicas, Vol* V. La Coruña, pp. 523-545.

Renzi, L. and Salvi,G. (1991): *Grande grammatical italiana di consultazione.* Vol. II. Il Mulino.

Richards, M. D. (2012): 'On feature inheritance, defective phases, and the movement-morphology connection', in Gallego (2012), pp. 195-232.

Rizzi, L. (1982): *Issues in Italian Syntax.* Dordrecht: Foris.

Rizzi, L. (1997): 'The fine structure of the left periphery', in L. Haegeman (ed.), *Elements of Grammar.* Dordreht: Kluwer, p.281-337.

Rizzi, L. (2004): 'Locality and left periphery', in Belletti, A. (ed), *Structures and Beyond: The Cartography of Syntactic Structures,* vol 3. Oxford: Oxford University Press, p. 223-251.

Roberts, I. (1993): 'A formal account of grammaticalization in the history of the Romance futures'. *Folia Linguistica Historica* 13:219-258.

Roberts, I. (1997): 'Directionality and word order change in the history of English', in Vincent, N. and Kemenade, A. van (eds) *Parameters of morphosyntactic change.* Cambridge: Cambridge University Press, pp. 397-426.

Roberts, I. (1998): 'Review of Harris, A. and Campbell, L., *Historical syntax in cross-linguistic perspective'. Romance philology* 51:363-370.

Roberts, I. (2007): *Diachronic Syntax.* Oxford: Oxford University Press.

Roberts, I. (2010): 'Grammaticalization, the clausal hierarchy and semantic bleaching', in Traugott, E. C. and Trousdale, G. (eds), *Gradience, Gradualness and Grammaticalization*. John Benjamins Publishing Company, p. 45-73.

Roberts, I. and Roussou, A. (1999): 'A formal approach to ''grammaticalization'' '. *Linguistics* 37:1011-1041.

Roberts, I. and Roussou, A. (2003): *Syntactic change. A Minimalist approach to grammaticalization.* Cambridge: Cambridge University Press.

Salvi, G. (2011): 'Morphosyntactic persistence', in Maiden, M., Smith, J. C. and Ledgeway, A. (eds) *The Cambridge History of the Romance Languages.* Vol. I *Structures,* Cambridge: Cambridge University Press, p. 318-381.

Salvi, G. and Renzi, L. (2010): *Grammatica dell'italiano antico.* Il Mulino.

Schiaffini, A. (1926): *Testi fiorentini del Dugento e dei primi del Trecento.* Firenze: Sansoni.

Schulte, K. (2007): *Prepositional infinitives in Romance: a usage-based approach to syntactic change***.** Oxford : Peter Lang**.**

Serbat, G. (2003): 'Les complétives en *quod*', in Bodelot, C. (ed) *Grammarie Fondamentale du Latin Tome X*: *Les propositions complétives en latin.* Louvain-Paris-Dudley, MA: Peeters, p. 528-753.

Sihler, A. L. (1995): *A New Comparative Grammar of Greek and Latin.* Oxford: Oxford University Press.

Simpson, A. (1998): 'Empty determiners and nominalization in Chinese, Japanese and Korean.' Paper presented in Symposium on the Syntax of East Asian Languages, University of Southern California, Los Angeles.

Simpson, A. and Wu, Z. (2002a): 'From D to T – determiner incorporation and the creation of tense.' *Journal of East Asian Linguistics* 11:169-202.

Simpson, A. and Wu, Z. (2002b): 'Agreement Shells and Focus' *Language* 78(2):287-313.

Stowell, T. (1978): 'What was there before there was there?', in Farkas, D. et alii (eds), *Proceedings of the 13th Regional Meeting of the Chicago Linguistics Society*. Chicago: Chicago Linguistics Society, p. 458-471.

Stowell, T. (1981): *Origins of Phrase Structure,* unpublished PhD dissertation, MIT.

Thielmann, P. (1885): 'Habere mit dem Infinitiv und die Enstehung des romanischen Futurums'. *Archiv für lateinische Lexikographie und Grammatik* 2:48-89, 157-202.

Trager, G. L. (1934): 'On the Classification of the Romance Languages'. *Romane Revue* 25:129-136.

Traugott, E. C. (1994): *Grammaticalization and lexicalization,* in Asher, R. and Simpson, J. (eds) *Encyclopaedia of Language and Linguistics,* 3, 1481-1486. Oxford: Pergamon

Traugott, E. C. (1995): The Role of the Development of Discourse Markers in a Theory of Grammaticalization. Paper given at the 12th International Conference on Historical Linguistics. Manchester. 13-18, August, 1995

Traugott, E. C. (2001): 'Constructions in Grammaticalization'. In Joseph, B., D. and Janda, R., D. (eds) *Handbook of Historical Linguistics.* London: Blackwell.

Travis, L (1984): *Parameters and Effects of word Order Variation.* PhD dissertation, MIT.

Uría, I. (1992): *Gonzalo de Berceo*: Obra *completa.* Madrid: Espasa-Calpe.

Vincent, N. (1988): 'Latin', in Vincent, Nigel and Harris, Martin (eds) *The Romance Languages*, London: Croom Helm, p. 26-78.

Vincent, N. (2000): 'Competition and correspondence in syntactic change: null arguments in Latin and Romance', in Pintzuk, Susan, Tsoulas, George and Warner, Anthony (eds) *Diachronic Syntax. Models and Mechanisms.* Oxford: Oxford University Press, pp. 25-50.

Vincent, N. and Borjars, K. (2010): 'Grammaticalization and models of language'. In Traugott, E. C. and Trousdale, G. (eds), *Gradience, Gradualness and Grammaticalization*. John Benjamins Publishing Company, p. 279-299.

Visser, F. T. (1969): *An Historical Syntax of the English Language,* vol III. Leiden: Brill.

Weinreich, U., Labov, W. and Herzog, M. I. (1968): 'Empirical foundations for a theory of language change', in Lehmann, W. P. and Malkiel, Y. (eds), *Directions for Historical Linguistics: A Symposium.* Austin: University of Texas Press, p. 95-189.

Weiss, M. (2009): *Outline of the Historical and Comparative Grammar of Latin.* Ann Arbor, New York: Beech Stave Press.

Wu, Z. (2004): *Grammaticalization and Language Change in Chinese: a Formal View.* Oxford: Oxford University Press.

Zwicky, A. M. (1985): Clitics and Particles. *Language* 61(2):283-305.

Zwicky, A. M. and Pullum, G. K. (1983): Cliticization vs Inflection: English *n't. Language* 59(3):502-513.