The grammaticalization of K(case): grammaticalization and 'lateral' grammaticalization

Introduction:

Roberts and Roussou (R & R) (2003) analyse the grammaticalization of three functional categories in Minimalism (R & R (2003:5, 19-27)): auxiliary verbs (T elements) (R & R (2003:chapter 2)), complementisers (C elements) (R & R (2003:chapter 3)), and determiners (D elements) (R & R (2003:chapter 4)). There is another functional category that has not yet been analysed, namely K(case) (van Kemenade and Vincent (1997:7, 18-21)). In this paper, I test the Minimalist framework of grammaticalization (R & R (2003), van Gelderen (2011a)) by analysing the grammaticalization of case-markers (K elements),[1] and in my analysis I incorporate my arguments about grammaticalization and 'lateral' grammaticalization in Tse (2011). My diachronic analysis will yield decisive evidence for the synchronic and typological status of K(case) as a functional category.

In section 1, I review the literature on K(case) and modern case theory.

In section 2, I outline and summarise my arguments in Tse (2011).

In section 3, I analyse the grammaticalization of case-markers in two typologically different languages, one of which has morphological case historically (Latin/Romance), while the other has never had morphological case (Chinese).[2] The presence/absence of morphological case will determine whether the grammaticalization of case-markers conforms to grammaticalization or 'lateral' grammaticalization.

In section 4, I support my partition in section 3 by analysing internal data from Chinese and more typological examples of case-markers. This leads to my conclusion that K(case) is not equivalent to abstract case and should only be postulated for morphological case.

Section 1.1.1: abstract case:[3]

In generative grammar, there is a distinction between abstract case and morphological case. Abstract case is postulated as a module of Universal Grammar (UG) and exists in all languages (Chomsky (1981:5-6, 135), Haegeman (1991:141-144), Riemsdijk and Williams (1986:229-230), van Kemenade (1987:66), van Kemenade and Vincent (1997:13), Lightfoot (1999:114-115), Freidin, Michaels, Otero and Zubizarreta (2008:ix)), while morphological case only exists in certain languages (Chomsky (1986a:187), Haegeman (1991:141-144), Blake (1994:63), van Kemenade and Vincent (1997:13), Malchukov and Spencer (2009:2), van Riemsdijk and Williams (1986:230)). The original formulation of abstract case is as follows (Chomsky (1980:25, 1981:49, 1982:6), Haegeman (1991:156), Webelhuth (1995:44), Bobaljik and Wurmbrand (2009:45)):

[1] Ledgeway (2011a, 2011b, 2012) also only analyses the grammaticalization of Latin/Romance D, T and C elements, and so my analysis of Latin/Romance K elements in section 3.2 supplements his work.

[2] Romance case-markers are derived from Latin prepositions, while Chinese case-markers are derived from lexical verbs. These are the two main sources for the grammaticalization of case-markers (Blake (1994:chapter 6), Heine (2009:460-464), König (2011:512)).

[3] Although it is common practice to denote abstract case with a capital 'C' and morphological case with a lower-case 'c' (Chomsky (1980:13 footnote 18, 1981:16 footnote 1), Bobaljik and Wurmbrand (2009:44), Lightfoot (1999:114), Webelhuth (1995:44), Li (1990:14 footnote 2, 2008:1 footnote 1), Mcfadden (2004:1), Butt (2006:58), Carnie (2007:297)), I denote these concepts in their full names so that there is no ambiguity (cf van Kemenade and Vincent (1997:24-25 footnote 8)).

1) *NP if NP has phonetic content and has no (abstract) Case (my brackets- see footnote 3) (Chomsky (1981:49))

This formulation ('Case Filter') predicts that all phonetically realised NPs/DPs[4] are assigned abstract case by a case-assigner (Haegeman (1991:156), Huang, Li and Li (2009:31)). Abstract case is thus related to subcategorisation and can be reformulated in terms of semantic roles and grammatical relations (Blake (1994:1-2), Baker (1988:5-7), Anderson (2006:2, 22), Primus (2009)).

Semantic roles are termed theta-roles in generative grammar and are equivalent to inherent case (Chomsky (1981:171, 1986a:193-194), Baker (1988:5), Haegeman (1991:41, 164-165), Blake (1994:61, 64), Webelhuth (1995:56), Butt (2006:49, 68)). They are subject to the Theta-criterion, which predicts a one-to-one correspondence between theta-roles and arguments (Chomsky (1981:36, 1982:6, 1986a:184), Stowell (1981:112), Haegeman (1991:46), Roberts (1987:2-3), Butt (2006:32), Anderson (2006:106), Primus (2009:262)):

2) Each argument is assigned one and only one theta-role, and each theta-role is assigned to one and only one argument (Chomsky (1981:36))

Grammatical relations, on the other hand, correspond to structural case in generative grammar (Chomsky (1981:47ff), Roberts (1987:2-3), van Kemenade and Vincent (1997:13-17), Kiparsky (1997), Anderson (2006:37), Inoue (2006:296), Carnie (2007:297), Primus (2009:261), Butt (2009:38-39)). They are subject to the Visibility Condition (Aoun (1979), Stowell (1981:111), Roberts (1987:3)), which states that structural case is essential for theta-role assignment:

3) all arguments must be case-marked in order to be 'visible' for theta-role assignment (Aoun (1979))

As arguments have unique theta-roles (2)), It follows from 3) that theta-roles/arguments have unique structural cases (Chomsky (1986a:93, 97), Stowell (1981:111), Roberts (1986:11), Li (1990:25), Haegeman (1991:177-179), Webelhuth (1995:31, 46-47), Marantz (2000:11)).

Section 1.1.2: morphological case:

Morphological case also marks complements and hence represents the subcategorisation of head predicates (Blake (1994:1-2), Fillmore (1968:2), Riemsdijk and Williams (1986:230), Pei and Gaynor (1969:35)), but since not all languages have it (e.g. Chinese (Li (1990:13, 2008:2), Huang, Li, Li (2009:31))), it is only one way in which abstract case is realised and is widely considered a typological alternative to other means of realising abstract case e.g. word order, case-markers, head-marking (Pei and Gaynor (1969:35), Blake (1994:13-18, 48), Kiparsky (1997), Anderson (2006:22-23, 36, 52-53, 211), Butt (2006:4-5), Malchukov and Spencer (2009:2), Siewierska and Bakker (2009)).

Section 1.1.3: abstract case vs morphological case:

Abstract case and morphological case do not have a one-to-one correspondence, despite their functional parity (see sections 1.1.1-1.1.2) (Blake (1994:2-7, 49, 55), Anderson (2006:2), Inoue (2006:298ff)): on the one hand, one morphological case can correspond to different theta-roles/grammatical relations e.g. the Latin accusative case (Libert (1992:20), Blake (1994:2-7, 21, 33,

[4] As Abney (1987) argues that all NPs are headed by D, DPs and NPs are nominal constituents to which the Case Filter applies.

49ff), Leumann, Hoffman and Szantyr (1972:372), Anderson (2006:19, 125)), which marks the direct object of transitive verbs and subsume different theta-roles in this function (4a-b)) (Blake (1994:10, 64), Anderson (2006:17)).[5] It also marks the complement of prepositions (4c)) (Blake (1994:6, 10), Anderson (2006:13, 19)) and the complement (4d)) or adjunct (4e)) of verbs of motion denoting 'directional goal' (Blake (1994:6), Anderson (2006:11)). Moreover, it marks adjunct time phrases denoting temporal extent (4f)) (Blake (1994:1-2, 5-6, 33)):

4a)	milit-es	vid-ent	urb-em		
	soldier-NOM.PL	see-PRES.3PL	city-ACC.SG		
	'The soldiers see the city.'				
4b)	Romul-us	urb-em	Rom-am	cond-idit	
	Romulus-NOM.SG	city-ACC.SG	Rome-ACC.SG	found-PERF.3SG	
	'Romulus founded the city of Rome.'				
4c)	milit-es	vad-unt	in	urb-em	
	soldier-NOM.PL	go-PRES.3PL	into	city-ACC.SG	
	'The soldiers go into the city.'				
4d)	vad-o	Rom-am			
	go-PRES.1SG	Rome-ACC.SG			
	'I go to Rome.'				
4e)	miss-i	legat-i	Athen-as	sunt	
	sent-NOM.PL	commander-NOM.PL	Athens-ACC.PL	be.PRES.3PL	
	'The commanders were sent to Athens.'				
4f)	regn-avit	is	pauc-os	mens-is	
	rule-PRET.3SG	he	few-ACC.PL	month-ACC.PL	
	'He ruled for a few months.'				

On the other hand, one grammatical relation can be realised by different morphological cases (Blake (1994:21, 49-51, 55)) e.g. the Latin direct object relation, which can be realised by the accusative (4a-b)), genitive (5a)), dative (5b)) and ablative (5c)) (Blake (1994:6-7, 10, 34-35)):

[5] In 4a-b), the two objects (*urb-em*, *urbem Romam*) represent two different theta-roles ('stimulus' and 'theme' respectively), despite being in the same grammatical relation (direct object).

5a)	die-i	memin-eri-t	consul
	day-GEN.SG	remember-FUT.PERF-3SG	consul.NOM
	'The consul will remember the day.'		
5b)	mihi	subven-isti	
	me.DAT	help-PERF.2SG	
	'You helped me.'		
5c)	gladi-o	ut-or	
	sword-ABL.SG	use-PRES.1SG	
	'I am using a sword.'[6] [7]		

The many-to-many correspondence between abstract case and morphological case makes their relationship intricately complex (cf Mcfadden (2004:22ff)). It is hence important to identify theta-roles and grammatical relations in analysing case (cf Libert (1992:20-22)).

Furthermore, it is a typological tendency that languages that have free word order also have morphological case (Stowell (1981:122), Kiparsky (1997:470), Butt (2009:28)). The converse is not true, since languages with morphological case do not necessarily have free word order (Kiparsky (1997:470), Butt (2008:28)). There are therefore three main types of languages: 1) languages with morphological case and free word order 2) languages with morphological case and fixed word order 3) languages without morphological case but with fixed word order. If a language has morphological case, it can have either free (1)) or fixed word order (2)), but if it does not, it must have fixed word order (3)).[8] [9] Morphological case therefore seems to have syntactic effects (Neeleman and Weerman (2009)).

Section 1.2.1: K(case): Lamontagne and Travis (1986, 1987, 1992, 1993):

The original postulation of K(case) as a functional category was proposed by Lamontagne and Travis (L & T) (1986, 1987, 1992, 1993), who note a cross-linguistic trend: when nominal complements are adjacent to their head predicates, their morphological case-endings can be optionally dropped (6a), 7a), 8a), 9a)), but when they are not adjacent, their morphological case-endings are obligatory (6b), 7b), 8b), 9b)):

[6] The direct object relation here (5a-c)) also encompasses a range of theta-roles (cf previous footnote), namely 'stimulus' (*diei*) (5a)), 'beneficiary' (*mihi*) (5b)) and 'instrument' (*gladio*) (5c)).

[7] Blake (1994:34-35) and Haegeman (1991:165ff) point out that cross-linguistically all cases apart from the accusative are not passivizable. Blake (1994:60), Haegeman (1991:165-166, 174-175) and Butt (2009:41) argue that these cases are assigned as inherent case and are part of the argument structure of individual verbs.

[8] This typology also applies to historical syntax, since when languages lose morphological case, they often attain fixed word order e.g. Latin/Romance (Ledgeway (2011a, 2012)), English (Lightfoot (1999:chapter 5), van Kemenade and Vincent (1997:12)).

[9] Exceptions are argued by Neeleman and Weerman (2009:276-277) to be numerically small and open to be alternative explanations.

Japanese (L & T (1986:54, 1987:174, 1992:158, 1993:75), cf Saito (1983a)):

6a)	John-ga	dare(-wo)	nagutta	no?
	John-NOM	who-ACC	hit	Q
6b)	dare*(-wo)	John-ga	nagutta	no?
	who-ACC	John-NOM	hit	Q

'Who did John hit?'

Turkish (L & T (1986:53, 1987:174, 1992:158, 1993:76), cf Kornfilt (1984)):

7a)	Hasan	dün	(bu)	pasta(-yi)	ye-di
	Hasan	yesterday	this	cake-ACC	eat-PAST
7b)	Hasan	*(bu)	pasta*(-yi)	dün	ye-di
	Hasan	this	cake-ACC	yesterday	eat-PAST

'Hasan ate (this) cake yesterday.'

Welsh (L & T (1986:54)), cf Lieber (1983)):

8a)	mae	'r	dyn	wedi	gweld	ci
	is	the	man	after	seeing	dog

'The man has seen a dog.'

8b)	gwelodd	y	dyn	gi
	saw	the	man	dog

'The man saw a dog.'[10]

Irish (L & T (1986:55), cf Guilfoyle (1985)):

9a)	chonaic	*(go-minic)	Chiaran	Máire
	saw	often	Chiaran	Máire

'Chiaran saw Maire often.'

9b)	tharla	(go-minic)	do	Chiaran	a-bheith	ar	an	anas
	happen	often	QUIRKY.CASE	Chiaran	be-FIN	on	the	poverty

'Chiaran (often) happened to be poor.'

[10] L & T (1986:54) analyse Welsh *gi* as a variant of *ci* and argue that this voicing (*ci* > *gi*) is equivalent to morphological case and is obligatory when the complement is not adjacent to the head predicate (8b)).

This distribution resembles other functional categories e.g. complementisers, which are omissible only when they are adjacent to their head predicates (10a), 11a)) and not elsewhere (10b), 11b)-d)):

Japanese (L & T (1986:56, 1987:1741992:159, 1993:76), cf Saito (1983b)):

10a) Mary-ga kinoo John-ni Koobe-ni iku (te) yuuteta (koto)
Mary-NOM yesterday John-DAT Kobe-DIRECTIONAL go COMP was.saying fact

10b) Mary-ga kinoo Koobe-ni iku *(te) John-ni yuuteta (koto)
Mary-NOM yesterday Kobe-DIRECTIONAL go COMP John-DAT was.saying fact
'Mary said to John yesterday that she was going to Kobe.'

English (L & T (1986:57, 1987:175, 1992:159, 1993:77)):

11a) John believes (that) Mary will win.

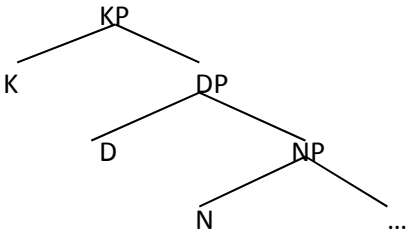
11b) John believes wholeheartedly *?(that) Mary will win

11c) That Mary will win, John believes with all his heart.

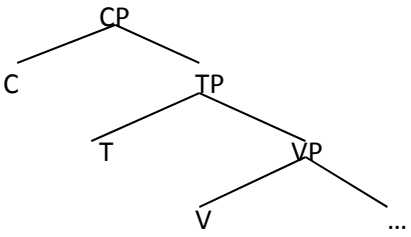
11d) *Mary will win, John believes with all his heart.

L & T (1986:57-58, 1987:175-177, 1992:159-161, 1993:79) therefore postulate a functional category for morphological case called K(case) on the left-edge of DPs (12)), just as complementisers are postulated on the left-edge of TPs (13)) (cf Yim (1984), Hale (1985), Lefevre and Muysken (1988:chapter 5), Anderson (2006:211)):[11]

12)



13)



Van Kemenade and Vincent (1997:6-7) argue that functional categories host functional morphology and lexical categories move to them in order to pick it up e.g. Infl (=T), which hosts verbal morphology and causes lexical verbs to move from V to T (Rizzi (1990:22-24), Chomsky (1991:421-

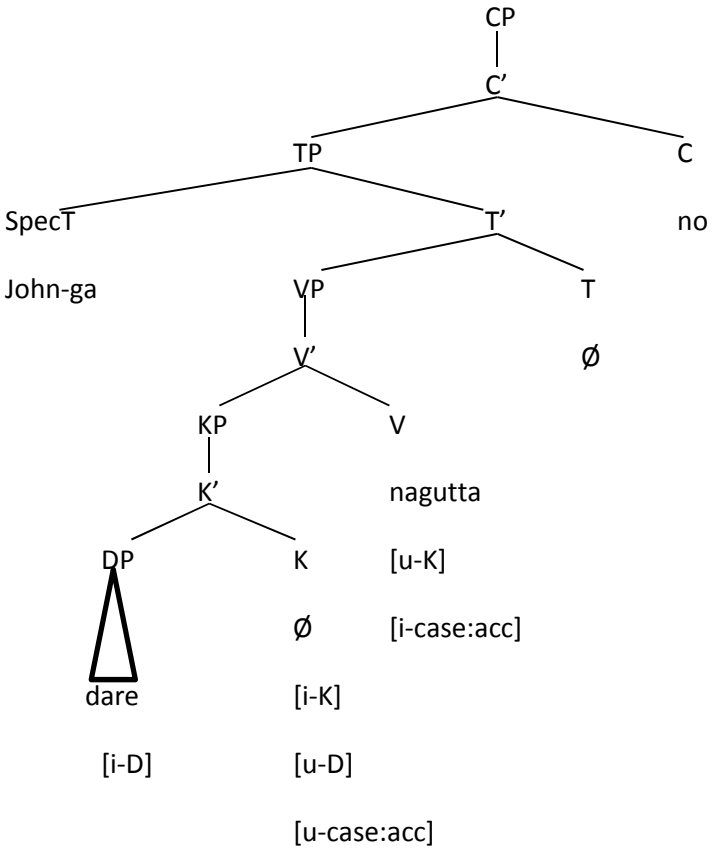
[11] This conforms to the generative assumption that functional categories head their own projections on eithere edge of their lexical complements (Ledgeway (2011a:409, 2011b:721), R & R (2003:19ff), van Gelderen (2011b)).

426, 430ff, 1993:27ff, 1995:133-138), cf Distributed Morphology (Halle and Marantz (1993)). Van Kemenade and Vincent (1997:20) similarly argue that K(case) hosts morphological case-endings and NPs/DPs with morphological case move to K(case) in order to have its case morphology licensed.[12]

Section 1.2.2: distribution of K(case):

In order to account for the distribution in section 1.2.1, L & T (1986:51, 58, 1987:175-180, 1992:160-163, 1993:80-81) assume: 1) binary branching (cf Kayne (1981, 1984)) 2) strict c-command: node A c(onstituent)-commands node B if neither A nor B dominates the other and the first branching node which dominates A dominates B (Reinhart (1976:32)) B) 3) 'Empty Category Principle' (ECP), which states that empty categories must be properly governed (Chomsky (1981:250), Stowell (1981), Travis (1984), Rizzi (1990:4ff), Hornstein and Weinberg (1995:246), cf Lasnik and Saito (1984:240)). Proper government is defined by L & T (1986:58-59, 1987:177-180, 1992:160-165, 1993:80) as c-command and feature recoverability (cf Travis (1984, 1991:351)), and L & T (1986:66-68, 1987:180, 1992:164-165, 1993:84-85) argue that features can only be recovered via sisterhood (cf Travis (1991:353ff)). The distributional facts in 6)-11) can therefore be explained, since under binary branching only KPs (6a), 7a), 8a), 9a)) and CPs (10a), 11a)) that are sisters (i.e. adjacent) to their head predicates are properly governed (c-commanded and feature-recovered) by their head predicates. By ECP, therefore, only these adjacent KPs/CPs can have empty functional heads (K/C):[13]

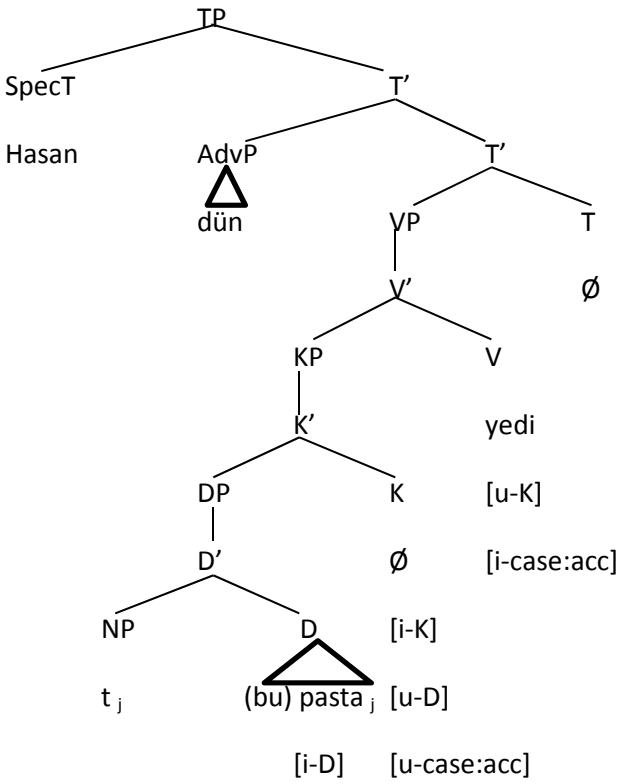
6a)



[12] Longobardi (1994) argues that Ns move to D as well (see footnote 4). In 12), one can argue that N moves successively to D and then to K(case). In this paper, I focus on movement to K(case).

[13] L & T (1986:58-59, 1992:160, 1993:78) also adopt Belletti and Rizzi's (1981) position that if a phrase is properly governed, its head is also properly governed.

7a)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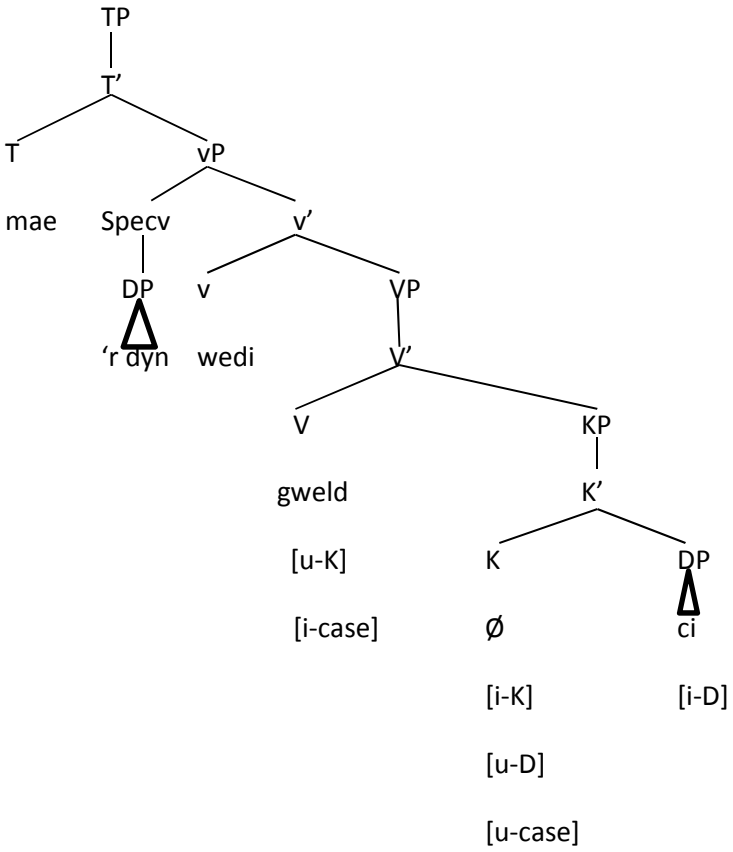
8a)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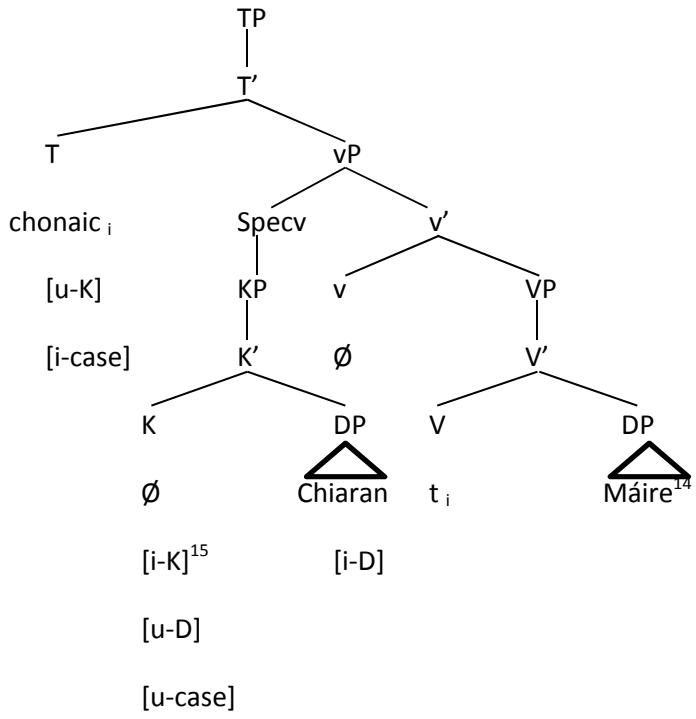
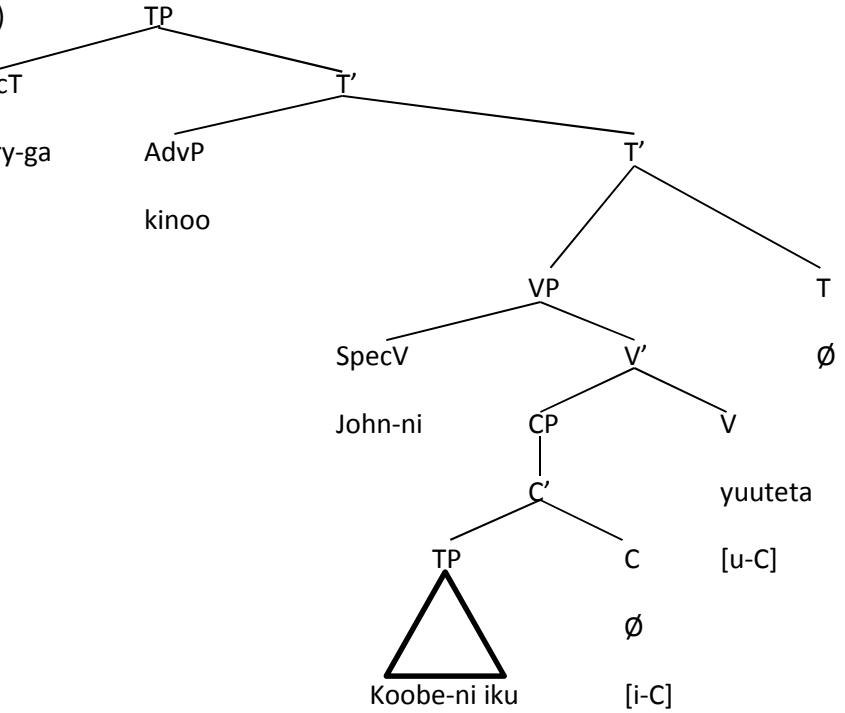
9a)



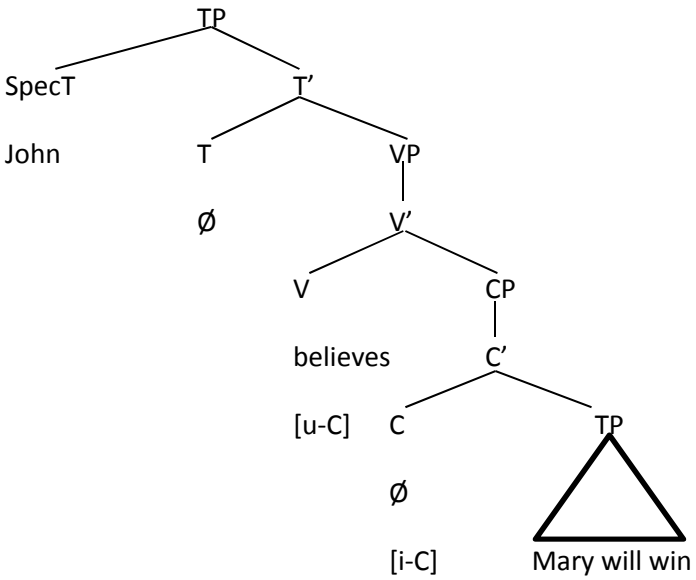
10a)



[14] In representing Celtic languages with verb-initial order (Welsh (8a)), Irish (9a))), I follow Carnie (2007:254ff), Adger (2003:235-238) and McCloskey (1983, 1991) in base-generating the subject in an internal vP position (Specv) and in moving the verb from V to T. This conforms to Koopman and Sportiche's (1991) 'VP-Internal subject hypothesis' (Carnie (2007:257ff), Butt (2006:53ff)). However, while Koopman and Sportiche (1991) place the subject in SpecV, I have placed it in Specv (cf Hale and Keyser (1993:69ff), Chomsky (1995:315), Adger (2003:205), Wu (2004:168ff) and Butt (2006:76-79) since SpecV is reserved for the third argument of three-place verbal predicates (Larson (1988:339)).

[15] Although the case-assigner (*chronaic*) and the case-assignee (Ø *Chiaran*) are not sisters in 9a), L & T (1992:170-173, 1993:93-100) argue that the features are checked between T and Specv via little v, which can only be achieved if there is no intervener (hence adjacency).

11a)



Section 1.3: K(case) and case theory:

There are some loose ends in L & T's account. First of all, although L & T posit K(case) to represent morphological case, they also state that they subsume the 'Case Filter' under ECP (L & T (1986:51-52, 1987:173, 181, 1992:157, 166, 1993:74, 85)), which entails that K(case) is equivalent to abstract case when abstract case and morphological case are not co-extensive (see sections 1.1.1-1.1.3). Secondly, while L & T use ECP to account for the adjacency between NPs/DPs without morphological case-endings (empty K) and their head predicates, they have nothing to say about the distribution of NPs/DPs with morphological case (lexically filled K) (L & T (1992:158, 174)), which can occur either adjacent to their head predicates or not and constitute free word order (see section 1.1.3). The key question is whether K(case) is equivalent to abstract case or morphological case and how this might account for the typological correlation between word order and morphological case.

Section 1.3.1: case-assignment and adjacency:

It is indeed attractive to argue that K(case) is equivalent to abstract case and is universal on all NPs/DPs, since L & T's use of ECP successfully explains why NPs/DPs without morphological case-endings (empty K) have to be adjacent to their head predicates and constitute fixed word order in languages that do not have morphological case (see section 1.1.3).[16] [17] [18] However, case-assignment in generative grammar is highly structural and configurational in that inherent case and structural case are assumed to occupy fixed positions (Chomsky (1981:42, 49-50, 1986a:193), Haegeman (1991:105), Blake (1994:59), Webelhuth (1995:55), Adger (2003:139), Anderson (2006:30-31), Legate

[16] Although there are word orders where the main verb and its object are not adjacent (e.g. VSO), Koopman and Sportiche's 'Internal VP subject hypothesis' base-generates the main verb in V (see footnote 14). In any word order, therefore, the main verb (V) and its object are initially adjacent.

[17] Cf Weerman (1997) and Neeleman and Weerman (1999), who argue that the loss of morphological case in the history of Dutch gave rise to empty K heads on NPs/DPs, which, due to ECP, became adjacent to their head predicates and constituted fixed word order in modern Dutch (van Kemenade and Vincent (1997:18-19), Weerman (1997:441-448), see footnote 8). In their analysis, K(case) is universal on all NPs/DPs and empty K heads are the motivation for fixed word order in Dutch.

[18] Cf Bittner and Hale (1996:3-6)'s K-filter which ensures that all governed NPs/DPs are headed by K(case), and Narita (2012) who posits K(case) for all nominal constituents.

(2008:56), Butt (2009:35-36, 38, 85), Carnie (2007:118ff, 295ff)). Inherent case is assumed to occupy theta-positions (Chomsky (1980:35-36, 1981:39, 44, 1982:5), Roberts (1987:3), Butt (2009:35-39)).[19] A strong version of this is formulated as the 'Uniformity of Theta Assignment Hypothesis' (UTAH):

> 14) Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D(eep)-structure (my underlining) (Baker (1988:46))[20] [21]

Structural case also occupies fixed A(rgument)-positions (Chomsky (1981:42, 44-51, 1982:5), Stowell (1981:93), Baker (1988:44), Webelhuth (1995:31), Lightfoot (1999:112-114), Anderson (2006:29-32), Butt (2009:38)), which are represented configurationally (Chomsky (1965:71, 1980:24-25, 1981:170), van Riemsdijk and Williams (1986:229-230), van Kemenade (1987:67), Blake (1994:59-60), Webelhuth (1995:43), Adger (2003:139), Anderson (2006:31), Butt (2006:28-29, 56ff, 2009:38), Inoue (2006:296, 314), Carnie (2007:118ff, 295ff), Li (1990:16, 2008:1), Bobaljik and Wurmbrand (2009:46)):[22]

> 15a) NP/DP is nominative when governed by Infl (=T)
>
> 15b) NP/DP is objective when governed by V
>
> 15c) NP/DP is oblique when governed by P and certain marked verbs (Chomsky (1980:25))

As the Theta-Criterion and Visibility Condition entail that arguments/theta-roles have unique structural cases (see section 1.1.1), it follows from 14) and 15) that arguments/theta-roles are governed in unique A-positions (Chomsky (1986a:93, 97), Stowell (1981:111), Roberts (1986:11), Li (1990:25), Haegeman (1991:177-179), Webelhuth (1995:31, 46-47), Marantz (2000:11)).[23] In modern

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[19] Cf the Projection Principle, which states that lexical information (e.g. semantic roles) is syntactically represented (Chomsky (1981:29, 1986a:84-85, 1995:187), Roberts (1986:7ff), Haegeman (1991:47), Webelhuth (1995:31), Hale and Keyser (1993, 2002), Anderson (2006:75), Butt (2006:56)).

[20] Cf Fillmore's (1968:22-24) proto-theta-criterion, which predicts one-to-one correspondence between NPs and abstract case positions, and Perlmutter and Postal's (1984) 'Universal Alignment Hypothesis', which predicts that semantic roles are assigned to fixed positions.

[21] In pre-Minimalist theories, inherent case is assigned at D(eep-)structure and structural case at S(urface-)structure (Chomsky (1981:38ff, 1995:187), Blake (1994:61), Roberts (1987:3), van Kemenade and Vincent (1997:14), Anderson (2006:29), Butt (2006:55ff)), and the derivation from the former to the latter is achieved via transformations (Chomsky (1981:38ff), van Riemsdijk and Williams (1986:225ff), Roberts (1987:2-4), Haegeman (1991:178ff), Anderson (2006:37)). In Minimalism, D-structure is abolished (Anderson (2006:76-77), Butt (2006:73)), but the derivation from inherent case to structural case is essentially the same since this is achieved via generalized transformations (van Kemenade and Vincent (1997:7-8), Butt (2006:73-74)).

[22] This approach is a big contrast to Lexical-Functional Grammar (LFG) (Butt (2008:36-37)), which states that a(rgument), f(unctional) and c(onstituent) structures all function independently and a- and f-structures are related independently of c-structure by 'linking' (Bresnan (2001:chapter 1), Butt (2006:chapters 5 and 8, 2009:37-40), cf Hale's (1983) Configurationality Parameter).

[23] Butt (2006:42) gives the following (simplified) correspondence:

Thematic Role	Grammatical Relation
Agent	Subject
Experiencer	Subject
Patient	Object
Theme	Object
Goal/Beneficiary	Indirect Object

Minimalism, government is achieved via feature-checking (Chomsky (2000, 2001), Pesetsky and Torrego (2001, 2004, 2011)), which, like L & T's account (see section 1.2.2), assume c-command and adjacency from many older theories (Stowell (1981:112-113), Chomsky (1986a:82, 1986b:12ff), Roberts (1986:6), Rizzi (1990:24-27), Haegeman (1991:77, 167-168), Li (1990:3), Williams (1995:104-105), Neeleman and Weerman (1999:2), Carnie (2007:115-117, 298ff), Bobaljik and Wurmbrand (2009:49)).[24] [25] Assuming adjacency, alternative representations without (empty) K(case) can be given for 6a-9a):[26]

Location	Oblique
Instrument	Oblique/Adjunct

[24] Many older definitions of government state that there cannot be any major category ('barrier') between the case-assigner and the case-assignee (Chomsky (1980:25, 1982:19, 1986b:8ff, 19ff, 1995:35, 78ff), Stowell (1981:32, 112-113), Lasnik and Saito (1984:248), van Riemsdijk and Williams (1986:231), Rizzi (1990:1, 7-8), Haegeman (1991:125), Webelhuth (1995:44), Bobaljik and Wurmbrand (2009:49)) e.g.

1) α is governed by β if α is c-commanded by β and no major category or major category boundary appears between α and β (Chomsky (1980:25))

A stronger definition of government is given by Lasnik and Saito (1984:240) and Aoun and Sportiche (1981), who define it as converse c-command, which necessarily predicts sisterhood (i.e. adjacency) (cf Chomsky (1986a:162, 1986b:14ff, 70ff), Haegeman (1991:77, 122-123), Williams (1995:104-105)):

2) α governs β if every maximal projection dominating α also dominates β **and conversely** (my bold)

Indeed, adjacency in case-assignment is already mentioned in the '*NP-to-VP filter' (Chomsky and Lasnik (1977)), which is identified as the precursor of the 'Case filter' (Bobaljik and Wurmbrand (2009:45), Freidin, Michaels, Otero and Zubizarreta (2008:ix)):

3) *[$_{\alpha}$ NP to VP], unless α is **adjacent to** and in the (c-command) domain of Verb or *for* ([-N]) (my bold and brackets)) (Chomsky (1980:19))

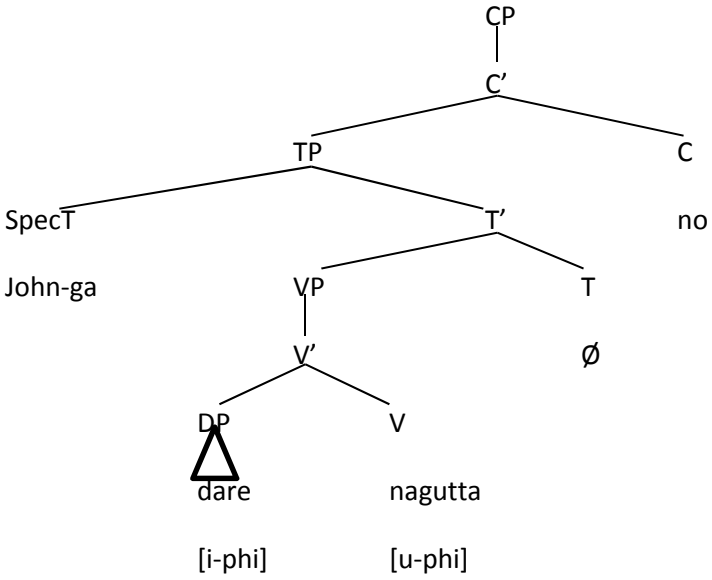
[25] Nominative case assignment (15a)) is a specifier-head relation which is not c-commanded (Haegeman (1991:147-148), Chomsky (1993:6-7), van Kemenade and Vincent (1997:Hale and Keyser (2002:12), Bobajlik and Wurmbrand (2009:50)). Nominative case-assignment is hence different from objective and oblique cases (Lasnik and Saito (1984:243), Weerman (1989), Williams (1995:105ff), Neeleman and Weerman (1999:chapter 2)). Hale and Bittner (1996:7) exclude nominative case from the K-filter (see footnote 17), and L & T (1986:62-64, 1992:168-170, 1994:90-92) point out that constituents with nominative case do not show adjacency effects (2)), unlike those with objective case which do (1a)-b)):

1a) We like books very much.
1b) *We like very much books.
2) They certainly are having fun.

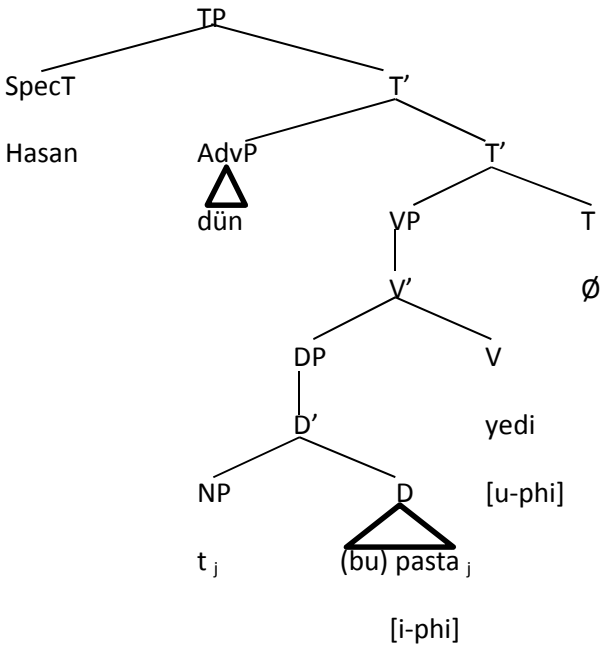
In section 1.2.1, ex. 9a-b), the nominative case assignment is not a specifier-head relation but quirky case-marking where the subject ((*do*) *Chiaran*) is c-commanded by its head (*tharla*) (see footnote 15).

[26] Although L & T (1986:51-52, 1992:157, 166) state that they derive adjacency in government via empty K and ECP (cf Weerman (1997)), it is possible to maintain adjacency in government as an independent principle of grammar without recourse to empty K and ECP, since many languages with morphological case also have fixed word order (see section 1.1.3), which suggests that even nouns with morphological case (lexically filled KPs) can be subject to adjacency in government and constitute fixed word order when these KPs are not conditioned by the ECP. Empty K and ECP therefore do not derive adjacency in government.

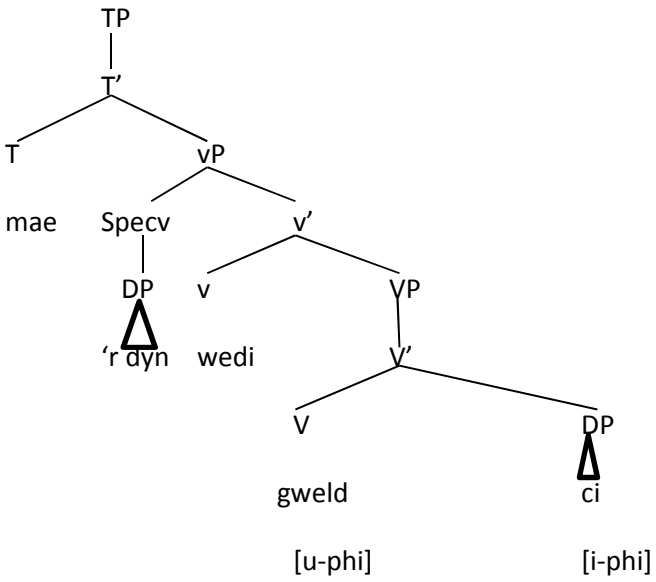
6a)


CP
C’
TP
C
SpecT
T’
no
John-ga
VP
T
V’
Ø
DP
V
dare
nagutta
[i-phi]
[u-phi]

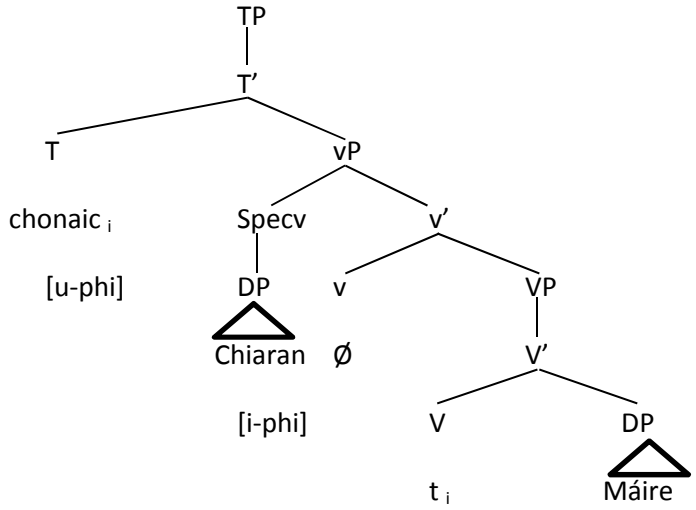
7a)


TP
SpecT
T’
Hasan
AdvP
T’
dün
VP
T
V’
Ø
DP
V
D’
yedi
NP
D
[u-phi]
t j
(bu) pasta j
[i-phi]

8a)



9a)



(see footnotes 15 and 25)

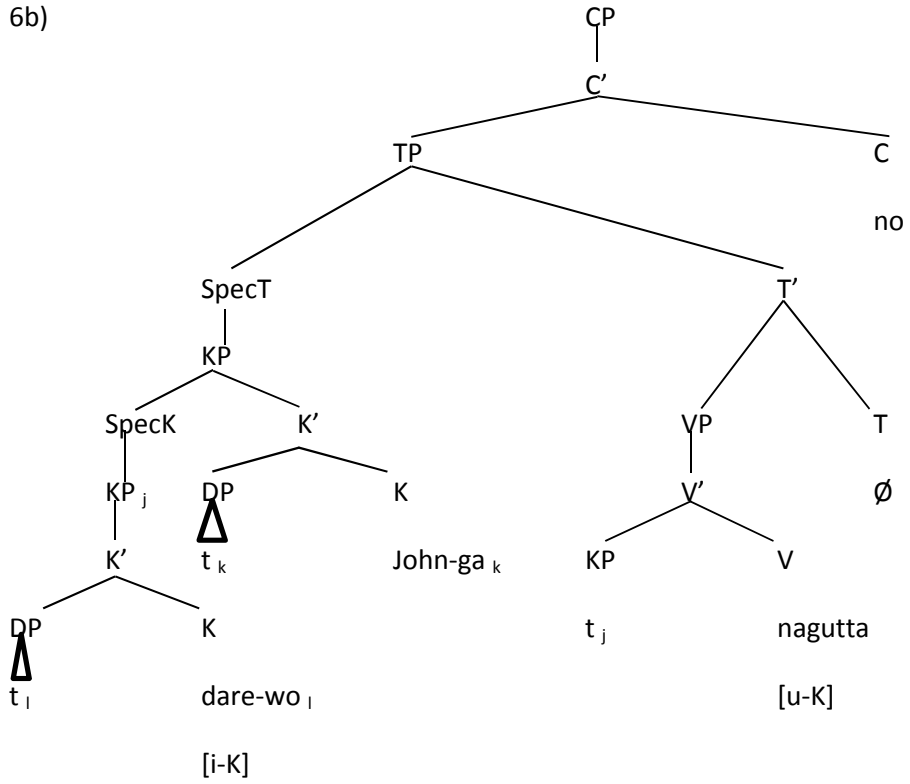
As adjacency is already assumed in case-assignment (see footnote 26), the real point of interest is not why NPs/DPs with or without morphological case are adjacent to their head predicates and constitute fixed word order, but why NPs/DPs with morphological case (KPs) can occur non-adjacent positions and constitute free word order (see section 1.2.1, 6b-9b)), as this seems to violate government (cf Chomsky (1986a:82, 88)).

Section 1.3.2: ‘scrambling’:

As case-assignment entails that complements are adjacent to their head predicates (see previous section), free word order is often attributed to ‘scrambling’, namely the process in which complements move from their base A-positions to non-argument A’-positions (Chomsky (1986a:80), Roberts (1986:10), Webelhuth (1995:31, 64-69), Baker (2001), Karimi (2008), Neeleman and

Weerman (2009:278ff), cf Kiparsky (1997)).[27] The non-adjacent KPs in section 1.2.1 can therefore be 'scrambled' thus:[28]

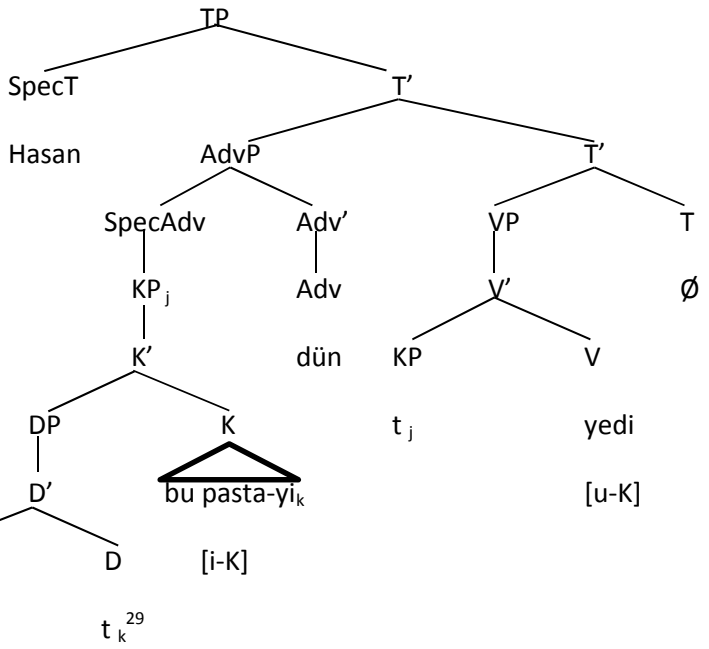
6b)



[27] Other models like LFG do not insist on a configurational representation of arguments (see footnote 22) and use 'flat' structures to account for free word order (Ledgeway (2011a, 2012:chapters 3-4)).

[28] In Ledgeway's (2012:chapter 5) recent account of Latin syntax, he accounts for the very high degree of free word order in Latin by moving constituents from their base-generated A-positions to various specifier positions, an operation called 'roll-up' which is equivalent to 'scrambling' (Ledgeway (2011a:396 footnote 16, 2012:181ff, 236ff), cf Legate (2002)). Ledgeway's use of configurational syntax and 'roll-up' for Latin is arguably superior to his use of 'flat' structures (see previous footnote), since he notes that the various Latin word orders are not identical as they seem to have different pragmatic and contextual nuances (Ledgeway (2012:35ff, 182ff), cf Marouzeau (1922:1), Adams (1976:99), Panhuis (1984:156)). 'Scrambling'/'roll-up' is therefore significant not only in terms of deriving multiple word orders but also in accounting for these semantic nuances e.g. topic-/focus-fronting (Ledgeway (2012:182-183, 192, 258ff, 269ff), cf Neeleman and Weerman (2009:278ff)).

7b)



[29]

'Scrambling' can therefore be attributed to morphological case (Karimi (2008:1273ff), Neeleman and Weerman (2009:278-284)), as one can insert [u-KP] and movement diacritics in A'-positions which attract KPs and derive multiple word orders.[30] When a language has morphological case, therefore, there are KPs which can (but do not necessarily) undergo 'scrambling', but when it does not, there are no KPs and so no 'scrambling' takes place. This explains the typological correlation between morphological case and word order (see section 1.1.3).[31] [32]

Section 1.4: synchronic and typological postulation of K(case):

L & T postulate K(case) to represent morphological case, just like other functional categories are postulated to represent functional morphology (see section 1.2.1). K(case) is therefore necessary for languages that have morphological case, and postulating K(case) for these languages allows us to

[29] 8b) and 9b) are omitted here since the non-adjacency in these Celtic examples is due not to 'scrambling' of the complement but to the fact that the main verbs (*gwelodd, tharla*) are raised from V to T (see footnote 14).
[30] My 'scrambling' differs from Ledgeway (2012:chapter 5) (see footnote 27), as he investigates the rise of head-initiality from Latin to Romance and consistently uses head-initial structures (SVO) in which leftward 'scrambling' occurs. I employ Travis' (1984) directionality parameter (see Tse (2011:footnote 48)) and admit head-final structures for head-final languages (6b), 7b)) in which 'scrambling' takes place (cf Baker (2001)).
[31] This account actually speaks against postulating KPs for languages that do not have morphological case (i.e. KPs with empty K heads) (see section 1.2.2, ex. 6a-9a)), since these KPs could in principle be 'scrambled' to A'-positions ([u-KP]) and derive multiple word orders, which goes against the typological trend. There therefore needs to be a formal distinction between nouns with morphological case (KPs) and those without, and the latter might be best analysed as non-KPs (though it is also possible to argue that only lexically filled KPs are susceptible to 'scrambling' while KPs with empty K heads are not).
[32] Cf Roberts (1997:397ff), who follows Kayne (1994) in using a universal SVO base and derives OV word order in Old English by 'scrambling', namely leftward movement of the object to the Specifier position of Agr(ee)O(bject)P(hrase) (cf footnote 30), which only applies to nouns with morphological case ([+N]). With the loss of morphological case ([+N]), 'scrambling' is no longer possible and the underlying VO word order (re-)surfaces (van Kemenade and Vincent (1997:14-15)). Roberts' strong [+N] features differ from Weerman's (1997) K(case) (see footnote 17), since although both represent morphological case, the former account for 'scrambling' and free word order in Old English while the latter account for fixed word order in modern Dutch (see Thráinsson (1997)).

account for 'scrambling' and free word order in some of these languages (see section 1.3.2).[33] For languages that do not have morphological case, on the other hand, there are alternatives, since we can either assume empty K(case) and use ECP to account for fixed word order (see section 1.2.2, ex. 6a-9a)), or we can dispense with K(case) and rely on government in case-assignment, which assumes adjacency (see section 1.3.1, ex. 6a-9a) and footnote 26). The latter scenario may be preferred, since it does seem superfluous and unnecessary to posit empty Ks and assume ECP when adjacency is already assumed by government (see footnote 26).[34] In the rest of this paper, I provide diachronic evidence from grammaticalization which supports the hypothesis that K(case) is not universal and should only be postulated for languages with morphological case.

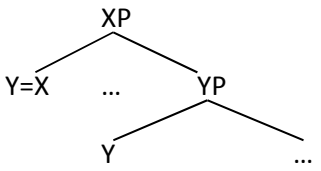
Section 2.1: Grammaticalization and Minimalism (Tse (2011)):

In Tse (2011), I argue that grammaticalization and 'lateral' grammaticalization, as represented in Minimalism, are similar yet different changes. R & R (1999, 2003), Roberts (2010) and van Gelderen (2011a) argue that grammaticalization is a natural type of change that occurs cross-linguistically, since they argue that grammaticalization always leads to 'simpler' structures which are favoured in language acquisition (see Tse (2011:sections 1.3)).[35] R & R (2003:201) and Roberts (2010:49) define 'simplicity' as the reduction of 'feature syncretisms', which are 'the presence of more than one formal feature in a given structural position: H [+F, +G…]', while van Gelderen (2011a:16-17) argues that uninterpretable features as 'simpler' than interpretable ones in having no feature values. R & R (2003:198-199) discover three types of grammaticalization (1-3)):

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

In 1) and 3), there is a loss of movement ($Y \ldots t_Y$, $YP \ldots t_{YP}$) and the grammaticalized item (Y) is shifted upwards (Y=X), while in 2) there is a loss of agreement ($X_F \ldots Y_F$) and features are shifted upwards (X_F). R & R (2003:202) therefore argue that grammaticalization is essentially an 'upward shift of features':

4)



[33] Mcfadden (2004:chapter 5) denies the connection between morphological case and 'scrambling' and proposes an alternative account where language acquisition/processing accounts for multiple word orders in languages with morphological case. It is beyond the scope of this paper to consider his alternative analysis, and so I maintain that free word order is derived via 'scrambling', which is still adopted by many (see footnotes 28, 32). Even Mcfadden uses K(case) to represent morphological case (K', which exists in Latin but not in English (Mcfadden (2004:155ff)), even though he denies that it plays a role in narrow syntax (cf Bobaljik (2008)).

[34] This conforms to the Minimal Structure Principle (Boskovic (2011:351)), which prefers representations with fewer projections (Law (1991), Boskovic (1997)) and fewer nodes (Safir (1993)) (cf Chomsky's (1991:426ff, 437ff, 1995:138ff) 'Least Effort' Strategy, which states that shorter derivations are preferred to longer ones). Empty K heads are therefore dispreferred, since they incur an extra projection (see section 1.2.2, ex. 6a-9a)) when adjacency in government can be realised without K (see section 1.3.1, ex. 6a-9a)).

[35] This is a key modification to Lightfoot's model of language change (1979, 1991, 1999, 2006) which predicts that language evolution should be 'random' with no cross-linguistic pathways when grammaticalization has strong cross-linguistic trends (see Tse (2011:sections 1.1, 1.3)).

As Roberts (2010:50-1) generalises between *Move* (1), 3)) and *Agree* (2)) by arguing that both consist of probe and goal features with the former triggering movement in *Move*, I argue that grammaticalization is an upward shift of goal features due to the loss of probe features (Tse (2011:section 1.3)).[36]

Section 2.2: 'Lateral' grammaticalization and Minimalism (Tse (2011)):

'Lateral' grammaticalization only partially conforms to the Minimalist accounts of grammaticalization. Simpson and Wu (S & W) (2002) and Wu (2004:chapter 4) analyse Chinese *de* in *shi-de* constructions, which display the following alternation (S & W (2002:169), Wu (2004:120)):

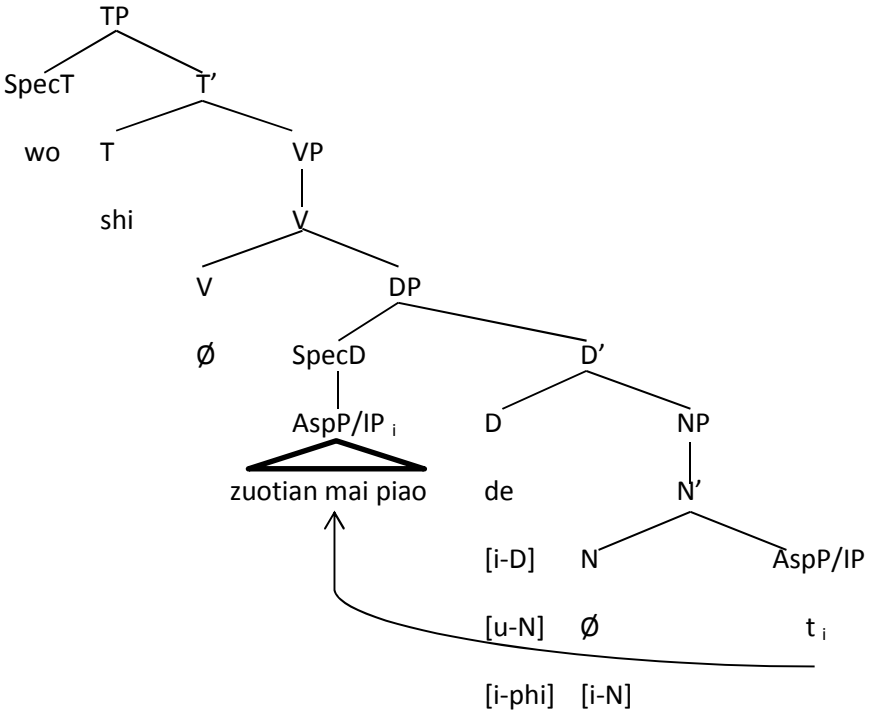
5)	wo	shi	zuotian	mai	piao	de
	I	be	yesterday	buy	ticket	DE
6)	wo	shi	zuotian	mai	de	piao
	I	be	yesterday	buy	DE	ticket

'It was yesterday that I bought the ticket.'

S & W (2002:171) and Wu (2004:122) argue that 6) is derived from 5) since 5) is attested earlier than 6) and 6) only occurs in certain dialects while 5) is pan-Chinese. One is therefore investigating why *de* has been preposed from sentence-final position (5)) to being a verbal suffix (6)) (S & W (2002:171-175, 190-191), Wu (2004:122-125)). In 5), *de* is analysed as a determiner (D) heading a complex noun phrase that contains a relative clause (*zuotian mai piao* 'to buy ticket yesterday') (Tse (2011:section 3.1, ex. 4)):

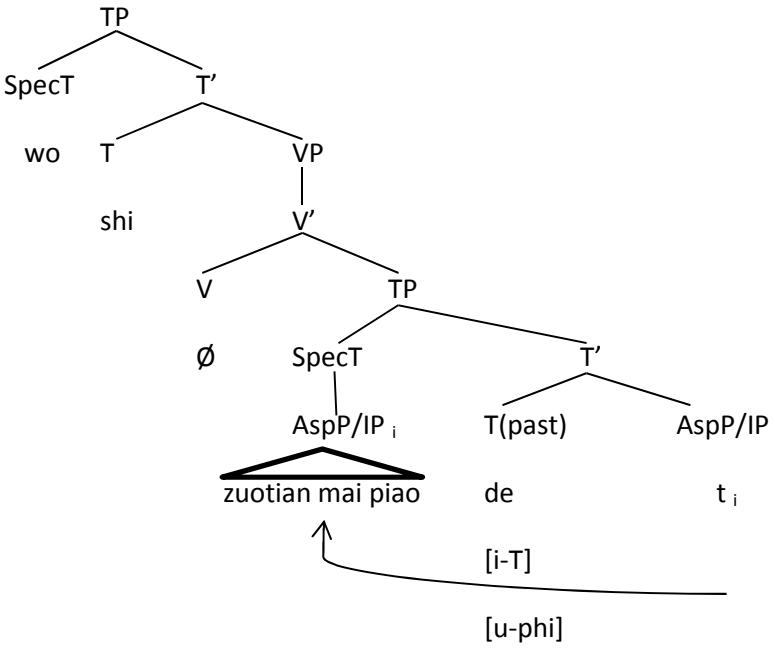
[36] In Tse (2011:sections 4.1-4.2), I point out that when *Move* is lost (1), 3)), the grammaticalised item is necessarily shifted upwards to the head position of the previous probe, but when *Agree* is lost (2)), the relative position of the grammaticalised item is irrelevant as long as previous goal features are shifted upwards to it. Grammaticalization is therefore not an upward shift of the grammaticalized item but of goal features, which are shifted upwards either along with the grammaticalized item when *Move* is lost or onto the grammaticalized item when *Agree* is lost (see Tse (2011:sections 4.2-4.3, 5.1, and footnote 39)).

5)



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') has already occurred, and so past tense is implied for the verb *mai* and *de* can be re-analysed as a past tense marker (S & W (2002:190), Wu (2004:141)). This is especially apparent when *de* is suffixed to the verb (6)), in which case the embedded clause (*zuotian mai-de piao*) obligatorily refers to the past and *de* must be base-generated in T(past) and move to the verb via movement-cliticization (S & W (2002:174-177, 190-197), Wu (2004:126-127, 141-146), Tse (2011:section 3.1, ex. 5)):

6)



6) is 'simpler' than 5), since *de* as a determiner (D) has an *Agree* relation ([u-N]) with its (empty) nominal complement, whereas as a past tense marker (T) this *Agree* relation is lost (S & W (2002:189-190), Wu (2004:140-141)). Furthermore, while *de* as a determiner (D) holds interpretable

phi-features [(i-phi)], as a past tense marker it holds uninterpretable ones [(u-phi)] which agree with the subject of the relative clause. The fact that this D-to-T re-analysis conforms to R & R's and van Gelderen's 'simplicity' is supported by the cross-linguistic distribution of D-to-T re-analysis (see footnote 35) e.g. determiners (D) > copula verbs (T) (Tse (2011:section 3.2, ex. 6-7))):

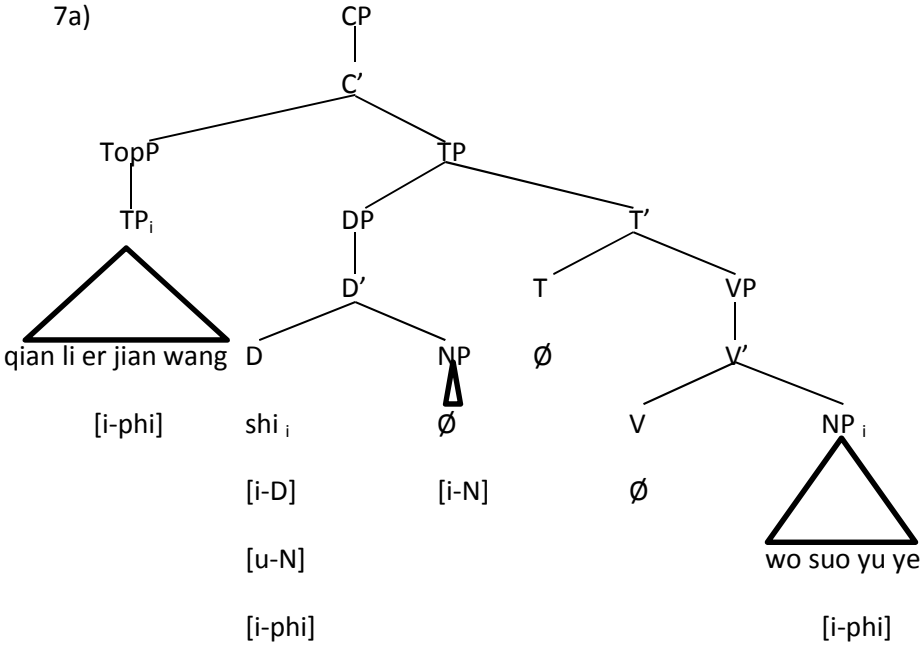
7)	qian	li	er	jian	wang
	thousand	mile	then	see	king
	shi	wo	suo	yu	ye
	this	I	NOMINALISER	desire	DECLARATIVE.PARTICLE

'To see the king after travelling a thousand miles, this (is) what I want.' (7a))

OR 'To see the king after travelling a thousand miles is what I want.' (7b))

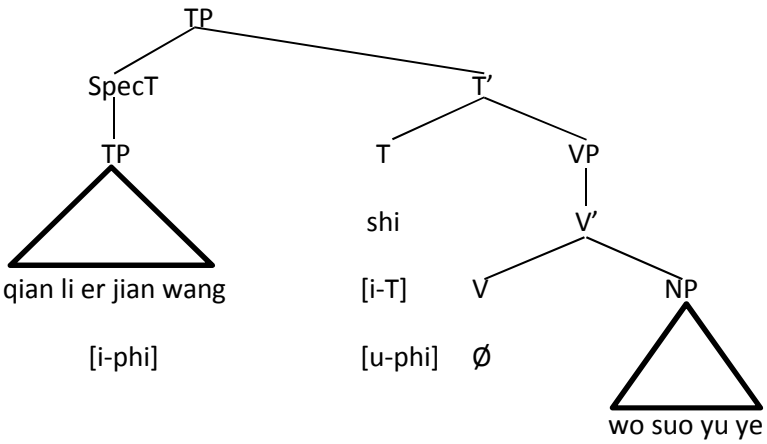
(Mencius, 4th century BC)

7a) is the original equational construction where *shi* 'this' is a demonstrative pronoun in subject position (SpecT) and is in apposition with the topic (*qian li er jian wang* 'to see the king after travelling a thousand miles') and the predicate (*wo suo yu ye* 'what I want') (Li and Thompson (1977:420), van Gelderen (2011:130), Feng (1993:284, 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 demonstrative pronoun, it is a determiner and hence holds [u-N] (Li and Thompson (1977:422-423)):



As identity is implied, *shi* can be re-analysed as a copula verb (T) linking the other two (7b)) (van Gelderen (2011:130-131), Feng (1993:301, 2003:30-35), Tse (2011:section 3.2, ex. 6-7)):

7b)



7b) is 'simpler' than 7a), since the *Agree* relation ([u-N]) between *shi* as a determiner and its nominal complement and that between the three nominal constituents originally in apposition are lost. Furthermore, the original interpretable phi-features ([i-phi]) of *shi* become uninterpretable [(u-phi)] which agree with the new subject (*qian li er jian wang*).

Chinese *de* and *shi* conform to R & R's and van Gelderen's 'simplicity', which accounts for their cross-linguistic distribution. However, neither of them conforms to R & R's 'upward feature analysis', since both of them acquire interpretable T features ([i-T]) that are not upwardly shifted but 'laterally' inferred from pragmatic implicature, namely the tendency for *shi-de* constructions to imply past tense (5-6)) and the implied identity between the three constituents in apposition in equational constructions (7a-b)).

Section 2.3: Grammaticalization and 'lateral' grammaticalization:

In Tse (2011:sections 3.3, 3.5, 4.2-4.4), the structural differences between grammaticalization and 'lateral' grammaticalization are used to explain their empirical differences, namely the lack of 'phonological weakening', 'univerbation' and 'semantic bleaching' in 'lateral' grammaticalization when these are diagnostic traits of grammaticalization (see Tse (2011:section 3)). Chinese *de* is toneless and univerbated both as a determiner (5)) and as a past tense suffix (6)) with no perceptible phonetic difference (S & W (2002:173-174, 186, 190-194), Wu (2004:123-124, 138-139, 142-144)).[37] There is no evidence for copula verbs derived from determiners undergoing 'phonological weakening' or 'univerbation' (see Tse (2011:section 3.3, footnote 71)).[38] [39] Furthermore, while 'semantic bleaching' is justified for grammaticalization in that the loss of the original probe features necessarily entails loss of semantic content (see section 2.1, Tse (2011:section 4.2.2)), in 'lateral' grammaticalization the grammaticalized item seems to gain

[37] See Tse (2011:section 3.3.1) for arguments why the greater univerbation of Chinese *de* as a past tense suffix (*mai-de*, section 2.2, ex. 6) vis-à-vis *zuotian mai piao-de*, section 2.2, ex. 5)) does not constitute evidence for 'phonological weakening'.

[38] Chinese *shi* is still toned (tone 4) in modern Mandarin i.e. syntactically and phonologically full (see Tse (2011:footnote 70)).

[39] In grammaticalization, when *Move* is lost, the grammaticalized item is shifted upwards and undergoes 'phonological weakening'/'univerbation' (e.g. Romance future (Latin *habere* (V) > clitic ($Mod_{obligation/necessity}$) > affix (T(future))) (cf Cinque's (1999, 2004) functional hierarchy (T-Mod-V)) (see Tse (2011:section 3.5.2))), and when *Agree* is lost, goal features are shifted upwards to the grammaticalized item (see footnote 36), which also causes 'phonological weakening'/'univerbation' (e.g. Greek [$_{CP}$ *hina* [$_{MP}$ [$_{T}$ [$_{V}$ V + $affix_{subjunctive}$] > [$_{CP}$ [$_{MP}$ $na_{subjunctive}$ [$_{TP}$…] (see Tse (2011:sections 4.1-4.2))].

interpretable features ([i-T]) from pragmatics that are not in the original 'cue' (see section 2.2, Tse (2011:section 4.4)). In Tse (2011:sections 4.2-4.4), I therefore argue that the loss of probe features constitutes 'semantic bleaching' and the upward shift of goal features causes 'phonological weakening'/'univerbation' (see footnotes 36 and 39), all of which occur in grammaticalization but not in 'lateral' grammaticalization.

Section 2.4: Formalism vs functionalism:

In Tse (2011:section 5.2), I argue that formalist (R & R's and van Gelderen's 'simplicity') and functionalist (the 'cues' in re-analysis) factors are not mutually exclusive in explaining the cross-linguistic distribution of grammaticalization and 'lateral' grammaticalization, since while all the cross-linguistic examples undergo 'structural simplification', their 'cues' also display strong parallels (see Tse (2011:sections 2.8, 3.2)). I also argue that formalism and functionalism mutually complement each another, since while formalism elegantly accounts for the empirical similarities and differences between grammaticalization and 'lateral' grammaticalization (see sections 2.2-2.3), functionalism supports formalism by determining the sub-types of functional elements whose geneses have to be accounted for by pragmatic implicature (Tse (2011:section 5.2)).[40]

In the rest of this paper, I test my hypotheses in Tse (2011) with the grammaticalization of case-markers (K).[41] I compare the grammaticalization of case-markers in two typologically different languages: Latin/Romance, which has morphological case historically, and Chinese, which has never had morphological case.[42] The grammaticalization of case-markers in these two languages should yield decisive evidence as to whether K(case) exists universally (see section 1.4).

Section 3.1: Functional prepositions:

In generative and non-generative models, there is a distinction between lexical and functional prepositions (Cinque (2010:3-11)), the former of which have argument structure and spatial features while the latter are governed by their head predicates and are non-spatial (Huddleston et alii. (2002:647ff), Rauh (2002:16ff), Abraham (2010:261-272), Koopman (2010:28 footnote 7, 61), Terzi (2010:205), Cinque (2010:7), Aboh (2010:229-230)) e.g. English *rely on his help* (Rauh (2002:18), Abraham (2010:272)), where *on* is governed by the main verb (*rely*) and marks its

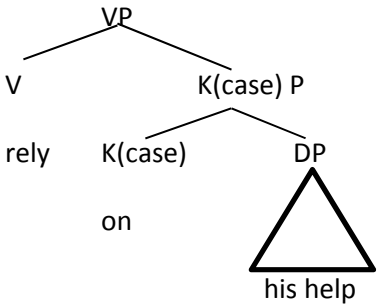
[40] E.g. Latin *habere* and English *have*, both of which are grammaticalized as $Mod_{obligation/necessity}$ and $Asp_{Perfect}$ (see Tse (2011:section 5.2)). As the same lexical source can be grammaticalized as different functional elements, it is impossible to predict from the outset the outcome of grammaticalisation (i.e. the resultant sub-type of functional element) unless one takes functionalist factors (i.e. the precise pragmatic implicatures in individual constructions) into account (see Tse (2011:section 5.2, especially footnote 78)).

[41] As K(case) is postulated to represent morphological case (see sections 1.2-1.4), any morpheme that is functionally parallel to morphological case can be analysed as a morphological spell-out of K(case) i.e. a case-marker (Bittner and Hale (1996:4), van Kemenade and Vincent (1997:18ff), Anderson (2006:51-53, 211), Ashbury (2008), Butt (2009:39), Moravcsik (2009:231-232)) (cf other functional categories (T/C/D), which host free morphemes as well as bound affixes (R & R (2003:23))).

[42] The initial prediction is that Latin/Romance has K(case) from the outset while Chinese does not (see section 1.4). Haegeman (1991:144) argues that 'abstract case is part of universal grammar… the degree of morphological realization of abstract case varies *parametrically* from one language to another.' (my italics) (cf sections 1.1.1-1.1.3). Adopting R & R's (2003:9-17) approach which restricts parametric variation to functional categories and treats grammaticalization as parameter (re)setting (see Tse (2011:section 1.3)), the main question here is whether the grammaticalization of case-markers (K) displays 'upward feature analysis' (grammaticalization) or 're-analysis of features from pragmatics' ('lateral' grammaticalization).

non-spatial complement (*his help*) ('instrument/theme') (Abraham (2010:272), Rauh (2002:18), cf Huddleston et al. (2002:660)):[43]

1)



(Abraham (2010:272))

on in *rely on* is represented as K(case),[44] [45] [46] which is supported by the fact that functional prepositions are often syntactically equivalent to morphological case (KPs) (Chomsky (1988:104), Huddleston et alii. (2002:601), Anderson (2006:48ff), Abraham (2010:261-3, 272), van Kemenade and Vincent (1997:18-21), cf footnote 41) e.g.

2) milit-es Graec-i super-at-i sunt Roman-is

soldier-NOM.PL Greek-NOM.PL overcome-PERF.PTCP-NOM.PL be.PRES.3PL Roman-ABL.PL

'The Greek soldiers were beaten by the Romans (=*Romanis*).' (my brackets)

(Latin, in Abraham (2010:272))

English *by* here (*by the Romans*) marks the non-spatial subject of the active equivalent (*beat*) ('agent') and is equivalent to the Latin ablative case (*Roman-is*). *by* is hence analysed as a functional preposition (K) (Huddleston et alii. (2002:601), Anderson (2006:38, 48-53)).

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[43] Cf English *of* in *dispose of*, which is obligatorily selected by *dispose* (**they disposed the box*) and is non-spatial, as it does not show spatial co-variance: **they disposed at/below/on/through/under the box* (Huddleston et alii (2002:647)).

[44] Cinque (2010:8ff), Koopman (2010:44ff) and Svenonius (2010:130ff)) propose the following hierarchy for prepositions where non-spatial prepositions are lower than spatial ones:

1) $[P_{Dir}\ [P_{Stat}\ [P_{AxPart}\ [P/K\ [DP]]]]]$

English *of* comes below spatial prepositions (e.g. *outside of the house* / *in front of the house*) and is analysed as a functional preposition (K) (Svenonius (2010:130ff)), since it is non-spatial and is governed by the lexical prepositions (*outside, in front*) (cf Huddleston et alii (2002:658-659), Terzi (2010:205)).

[45] Cf Stowell's (1981) 'Case Resistance Principle', which states that case-assigners (e.g. lexical prepositions (P)) cannot occur in case positions. Prepositions that appear in case positions (i.e. governed) are therefore not case-assigners and do not have argument structure.

[46] Some functional prepositions seem to assign morphological case e.g. English *of* in *proud of him* where *of* assigns accusative case to its complement *him* (Blake (1994:61-63), Abraham (2010:263)). However, as *him* is the complement of *proud*, *of* is best analysed as a case-marker (K) marking the complement (*him*) of the head predicate (*proud*) (Blake (1994:60-61), Lightfoot (1999:116), Rauh (2002:17), Abraham (2010:262)). Caha (2009:23ff) proposes a functional hierarchy of K elements: K(comitative)-K(instrumental)-K(dative)-K(genitive)-K(accusative)-K(nominative)-DP. As K(genitive) is higher than K(accusative), *of*, which is traditionally analysed as a genitive case-marker (Lightfoot (1999:121), Huddleston et al (2002:658-659)), can be merged in K(genitive) while its complement (e.g. *him*) moves to K(accusative) to receive accusative case (Caha (2009:40-41).

However, syntactic equivalence to morphological case is not reliable, since there are morphological cases which mark spatial relations e.g. Latin locative case (Blake (1994:23), Luraghi (2010:21ff)):

3) non in hort-is aut suburban-is su-is,
not in country.seat-ABL.PL or suburban.villa-ABL.PL their-ABL.PL
sed Neapol-i, in celeb-errim-o oppid-o
but Naples-LOC in crowded-SUPERLATIVE-ABL.SG town-ABL.SG
'… not in their country seats or their suburban villas, but in Naples, a very much-frequented town.' (Cicero, *Rabirius Postumus* 26-27)

The *in*-PPs here (*in… suis… in… oppido*) are syntactically equivalent to the locative case (*Neapol-i*), as shown by their co-ordination (*sed*), but since the Latin locative case are spatial (Blake (1994:23, 33-35)), Latin *in*-PPs cannot be classified as KPs. Equivalence to morphological case is therefore not a key diagnostic,[47] and it is necessary to make sure that the functional preposition is non-spatial.

3.2: Romance functional prepositions: *de* and *ad*:

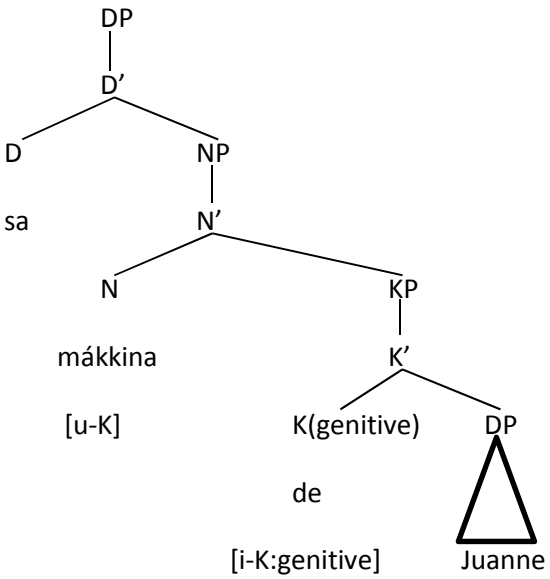
Romance *de* marks the non-spatial complements of nouns e.g. 'possessor' (4-5)) and 'part' (6)). It therefore represents the oblique relation[48] and corresponds to the Latin genitive case (Blake (1994:6), Väänänen (1981:89), Pinkster (1990:195), Adams (2011:263-268, 2013:267-273), Salvi (2011:335-336)):

[47] Blake (1994:32-35) and Anderson (2006:15, 95) make a distinction between grammatical and semantic/local morphological cases, the former of which include nominative, accusative, ergative, genitive and dative, while the latter consist of locative, ablative, allative, perlative, instrumental, comitative. As locative is a semantic/local case, Latin *in*-PPs that are syntactically equivalent to it cannot be classified as functional (KPs).
[48] Chomsky's (1974) and Jackendoff (1977) argue that nouns and adjectives ([+N]) do not assign case directly (cf Stowell (1981:22ff, 127), Huang, Li, Li (2009:31-32)). Van Riemsdijk (1983:249) postulates a hierarchy of case-assigners (verb>preposition>adjectives>nouns) where the lower heads tend to assign oblique cases. In Romance, nouns and adjectives require case-markers (K) to mark their complements (L & T (1986:58, 1987: 181-182, 1992:166), Blake (1994:60-61)).

4) s-a mákkina de Juanne

DEF.ART-FEM.SG car.FEM.SG DE Juanne

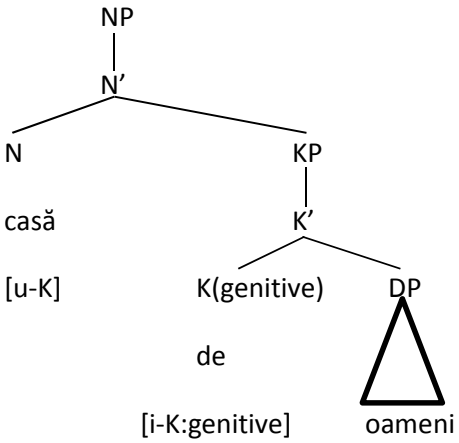
'The red car of Juanne' (Sardinian, in Ledgeway (2011a:442))



5) cas-ă de oameni

house-FEM.SG DE people

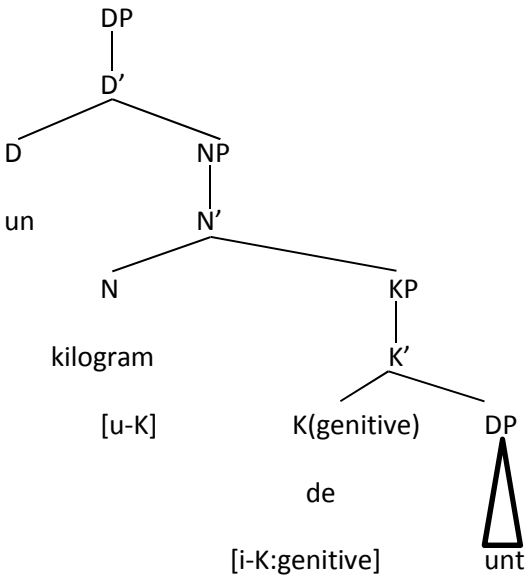
'House of people' (Romanian, in Salvi (2011:336))



6) un kilogram de unt

one kilogram DE butter

'one kilogram of butter' (Romanian, in Salvi (2011:336))



Romance *ad*, on the other hand, marks the third argument of three-place verbs, which subsumes various non-spatial semantic roles ('recipient', 'beneficiary'). It therefore represents the object2 relation and corresponds to the Latin dative case (Jaeggli (1982), Starke (1993), Salvi (2011:338-343), Adams (2011:263-267, 2013:278-294)):

7) les teng-o que regal-ar

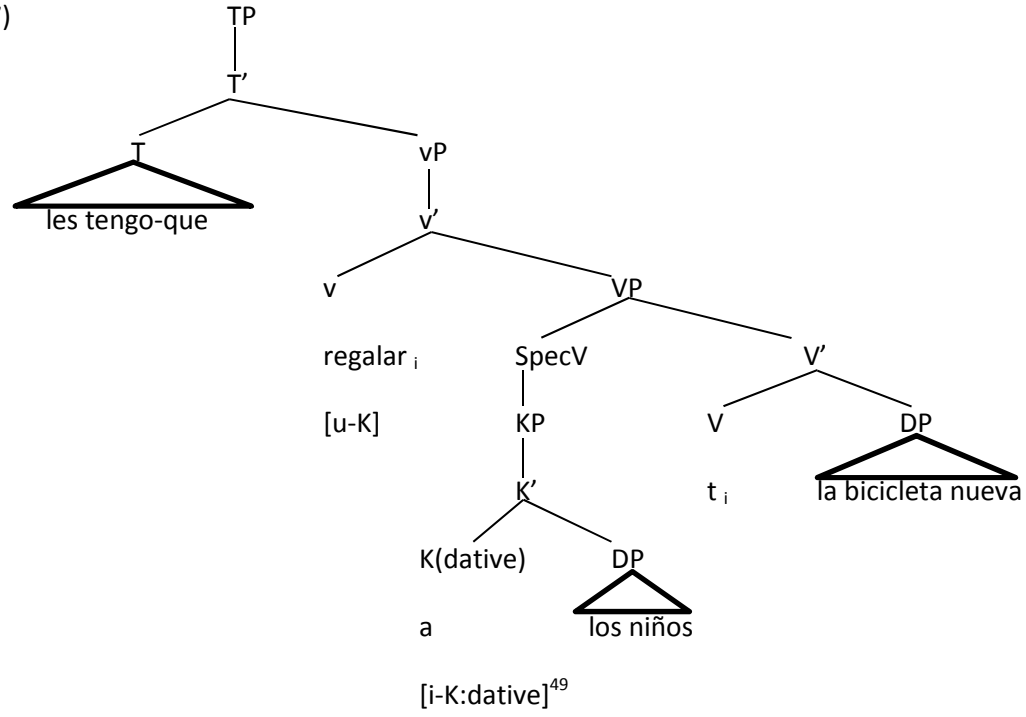
them.DAT have-1SG.PRES that give-INF

a los niñ-os la bicicleta nuev-a

AD DEF.ART.MASC.PL child-MASC.PL DEF.ART.FEM.SG bicycle.FEM.SG new-FEM.SG

'I have to give the children a new bike.' (Spanish, in Ledgeway (2011a:436))

7)



[49]

3.2.1: the grammaticalization of Latin/Romance *de*:[50]

Latin *de* is originally a lexical preposition denoting 'separation' (Väänänen (1981:89-94, 98-99), Salvi (2011:335-336), Adams (2011:267-268, 2013:269-270)) e.g.

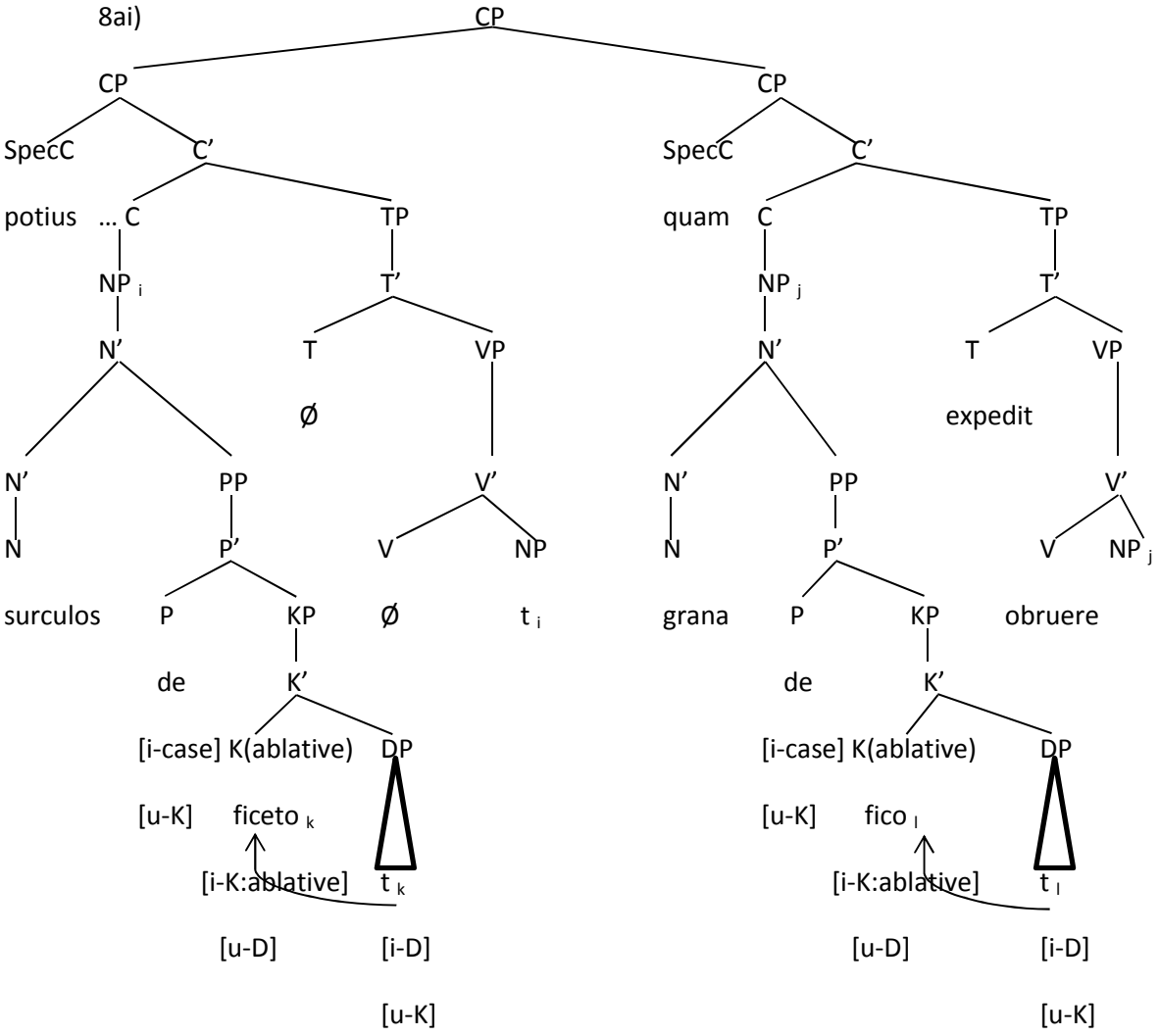
[49] I have placed the indirect object (*les… a los niños*) in SpecV, following Larson's VP-shell (1988). However, while Larson (1988:339, 342ff) places the English direct object in SpecV and the indirect object as the complement of V, I have analysed the direct object (*la bicicleta nueva*) as the sister of V and the indirect object as SpecV (cf Adger (2003:131ff), Feng (2005:9-10), Li (2006:377-379, 386-388, 403), Huang, Li, Li (2009:96)). This conforms to many approaches which analyse SpecV and the sister of V as theta-/A-positions for both indirect and direct objects (Hale and Keyser (2002:160-163), Anderson (2006:43, 84-86, 270-271)).

[50] In tracing the grammaticalization process, I provide the three steps of 're-analysis' in Tse (2011:section 1.2):
a) there are examples where, due to their semantic overlap, two interpretations/structures co-exist
b) 're-analysis' occurs in a particular context where the old interpretation is weakened
c) after 're-analysis', there are examples where only the new interpretation/structure is likely/possible

8a)	potius	…	surcul-os	de	ficet-o	
	rather		shoot-ACC.PL	from	fig.plantation-ABL.SG	
	quam	gran-a	de	fic-o	exped-it	obru-ere
	han	seed-ACC.PL	from	fig.tree-ABL.SG	be.useful-3SG.PRES	destroy-INF

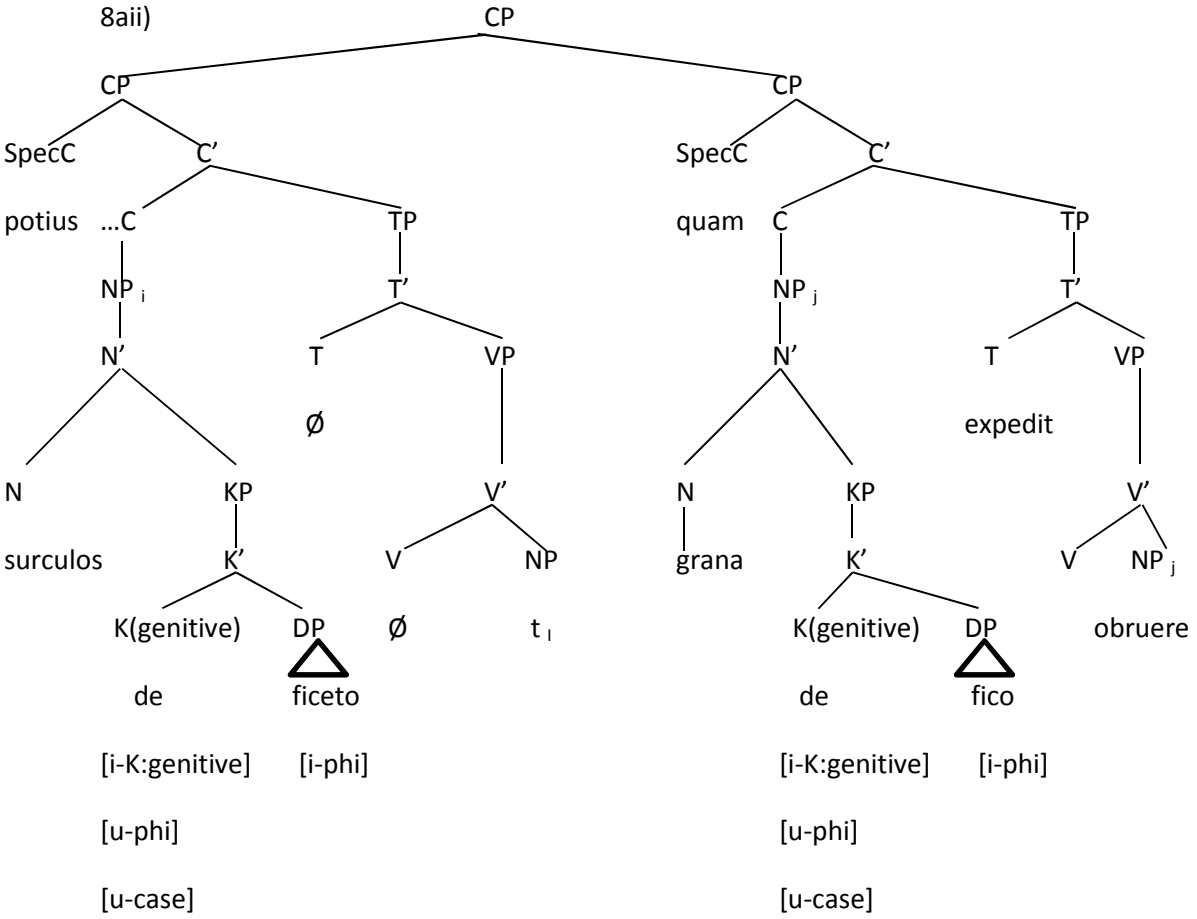
'It is better to destroy the shoots from the fig-plantation rather than the seeds from the fig-tree.' (*de re rustica* 1.41.5, Varro, 116 BC-27 BC)

de here specifies the source (*ficeto* 'fig-plantation', *fico* 'fig-tree') from which the objects of the verb *obruere* (*surculos* 'shoots', *grana* 'seeds' respectively) are taken. These *de*-PPs should therefore be analysed as PP-adjuncts of the object nouns. Latin *de* assigns ablative case to its complement and so there is an *Agree* relation ([u-K]) between *de* (P) and its KP complements (K(ablative): *ficet-o*, *fic-o*). The K head (K(ablative)) also has a *Move* relation ([u-K]) with its DP complement, since the latter needs to move to K in order to receive morphological case (see section 1.2.1):



These two *de*-PPs are semantically very close to a possessive/partitive genitive, since if the shoots and seeds are taken from the fig plantation and fig tree respectively, they naturally belong to it and are part of it (Väänänen (1981:92-99), Adams (2011:268, 2013:269)). They can therefore be re-

analysed as genitive KPs, which are complements of the object nouns (> 'it is better to destroy the shoots of the fig-plantation rather than the seeds of the fig-tree') (cf section 3.2, ex. 4-6)):



8aii) is 'simpler' than 8ai), since the *Agree* relations ([u-K]) between *de* (P) and its KP-complements and the *Move* relations ([u-K]) between K(ablative) and DP are lost. Furthermore, as *de* is re-analysed from being a preposition to a case-marker, its interpretable case features ([i-case]) become uninterpretable ([u-case]).[51] [52] Interpretable K features ([i-K]) are shifted upwards from the KP complements of *de* (*ficeto*, *fico*) to *de* itself.[53] However, Adams (1995:431ff, 2011:268, 2013:269) points out that *de* in 8a) retains its spatial force of 'separation', especially in *surculos de ficeto* 'shoots (taken) from the fig-plantation', since shoots are not an intrinsic part of fig-plantations and should be interpreted as being extracted from them rather than being a part of them. This is step a).

Step b) occurs when the spatial meaning of *de* is undermined. The earliest example of this is found in Pelagonius (4th century AD) (Adams (1995:431-434, 2011:268, 2013:271)):

[51] In modern Minimalism (Chomsky (2001), Pesetsky (2001, 2004)), head predicates have interpretable case features while complements have uninterpretable case-features which agree with their head predicates. When *de* is a lexical preposition, it is a case-assigner and has interpretable case features, but when it is a case-marker, it is a complement and has uninterpretable case-features (cf Narita (2012:147ff)).

[52] Adjuncts also incur an extra node in X'-theory (R & R (2003:106)), and so KP-complements are 'simpler' than PP-adjuncts.

[53] See section 2.1, ex. 2) and footnote 36 where I point out that when *Agree* is lost in grammaticalization, goal features are shifted upwards to the grammaticalized item regardless of the latter's relative positions.

8b) si valid-ius dol-uerint,

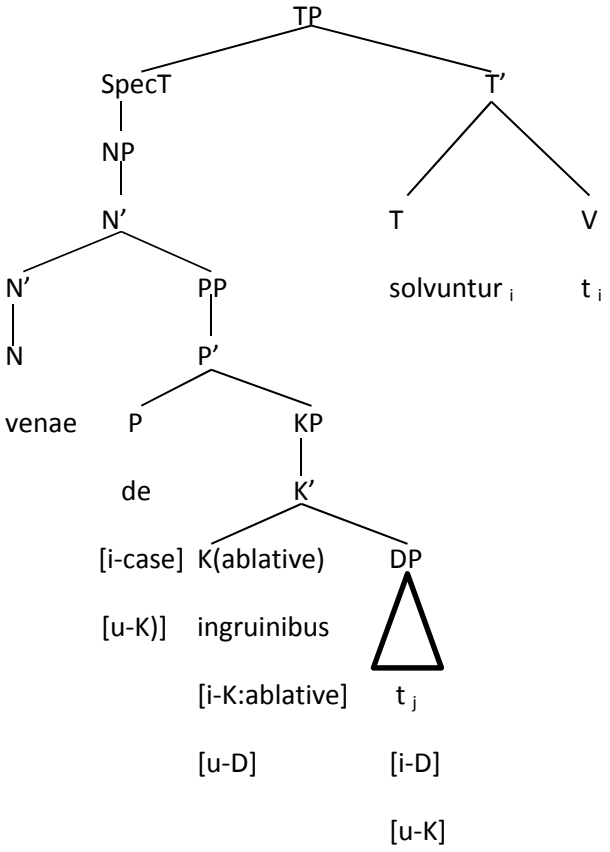
if strong-COMPARATIVE.ADV hurt-PERF.SUBJ.3PL

ven-ae de inguinibus solvuntur

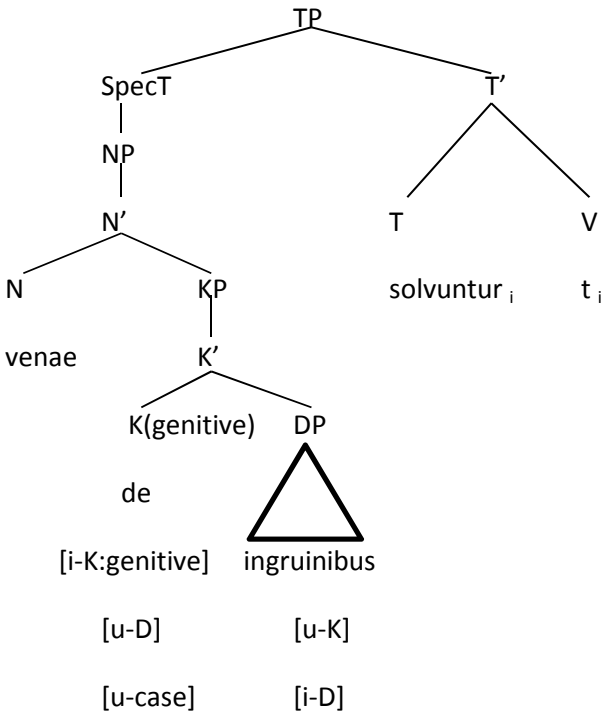
veins from groin-ABL.PL open-PRES.PASSIVE.3PL

'If they hurt more, the veins from the groins are opened up.' (Pelagonius 217)

8bi)



8bii)



The veins (*venae*) are from the groins (*de ingruinibus*) (8bi)), and so they are part of them ('the veins of the groins') (8bii)). As veins are inseparable from the groins, the spatial force of *de* (8bi)) is undermined (Adams (2011:268, 2013:271)).

Step c) occurs when *de* is non-spatial and unambiguously marks genitive case, which is found in the *Edictum Rothari* (643 AD):

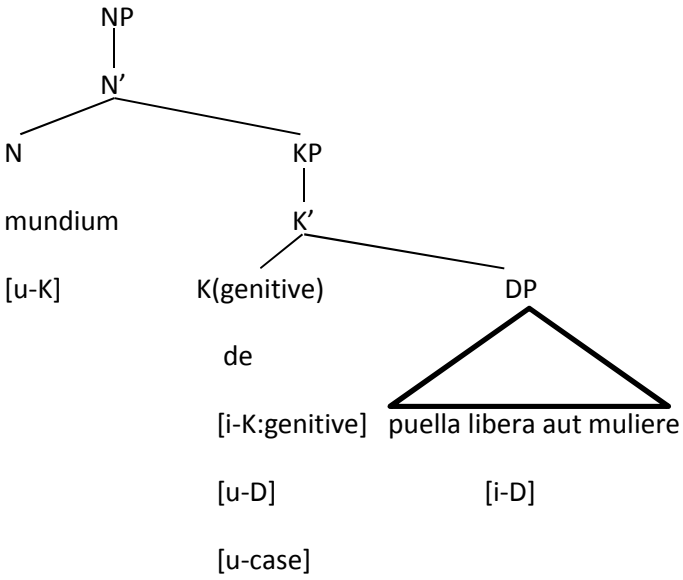
8c)	si	quis	mundi-um	de	puell-a	liber-a
	if	anyone	guardianship.ACC	DE	girl-FEM.ABL.SG	free-FEM.ABL.SG
	aut	mulier-e	habens		eam-que	strig-am…
	or	woman-FEM.ABL.SG	have-PRES.PTCP		her-and	witch.ACC.SG
	clama-verit,	excepto	pater	et	frater,	
	call-PERF.SUBJ.3SG	unless	father	and	brother	
	ammitt-at	mundium	ips-ius			
	lose-PRES.SUBJ.3SG	guardianship-ACC	her-FEM.GEN.SG			

'If anyone who has the guardianship of a free girl or woman and calls her a witch, let him lose his guardianship of her, unless he is her father and brother.'

de marks the non-spatial complement (*puella… muliere* 'girl… woman') of the head noun (*mundium* 'guardianship (of the girl/woman)') ('patient'/'theme') and is hence equivalent to an objective

genitive (Adams (2011:268, 2013:273)), as indicated by the use of the resumptive pronoun in the genitive case (*mundium ipsi-us* 'guardianship of her'):[54]

8c)



The grammaticalization of Latin/Romance *de* therefore conforms to R & R and van Gelderen's 'simplicity' and 'upward feature analysis' (see footnote 53).

Section 3.2.2: the grammaticalization of Latin/Romance *ad*:

Latin *ad* is originally a lexical preposition denoting 'direction'.[55] Its use with trivalent verbs is found as early as Plautus (254-184 BC) (Pinkster (1990:197-202), Salvi (2011:339), Adams (2011:266, 2013:278-279)):

9a)	qu-ae	ad	patr-em	v-is	nunti-ar-i
	which-N.PL.ACC	to	father-ACC.SG	want-PRES.2SG	report-INF-PASS

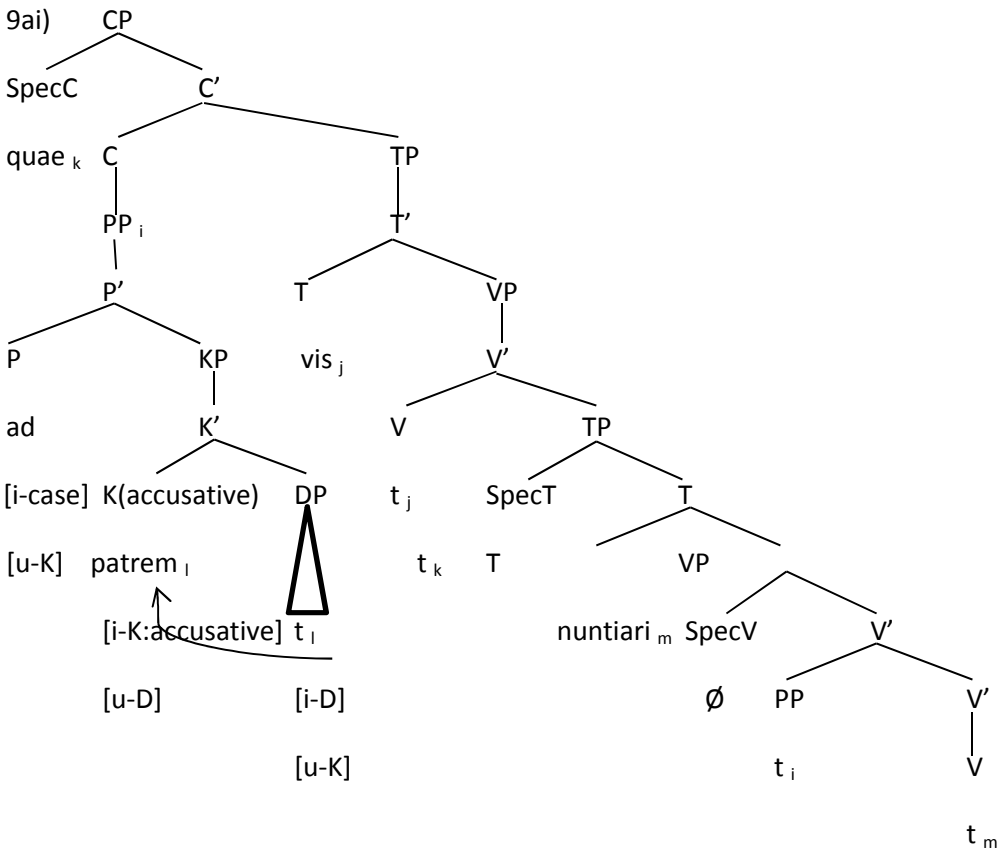
'… the things which you want to be reported towards your father.' (Plautus, *Captivi* 360)

[54] Modern Romance *de* also marks the arguments of nouns (1-2)), which corresponds to the Latin subjective (3)) and objective genitive (4)) respectively (Salvi (2011:335-336)):

1) Explozie de mânie
   Explosion DE rage
   'Explosion of rage' (Romanian, in Salvi (2011:336))
2) strângere de semnături
   gathering DE signatures
   'Gathering of signatures' (Romanian, in Salvi (2011:336))
3) flet-us omn-ium
   weepin.NOM.SG all-GEN.Pl
   'The weeping of everyone' (Latin, in Salvi (2011:335))
4) cupidit-as regn-i
   desire-NOM.SG reign-GEN.SG
   'The desire of reign' (Latin, in Salvi (2011:335))

[55] Radford (1997:45) argues that lexical categories are semantically stronger than functional categories in having antonyms (see Tse (2012:section 3.3)). The antonymity of Latin *de* 'from' and *ad* 'to' highlights their spatial meaning and is another reason for analysing them as lexical prepositions.

ad assigns morphological case (accusative) to its KP complement (*patr-em*) and so there is an *Agree* relation between them ([u-K]):

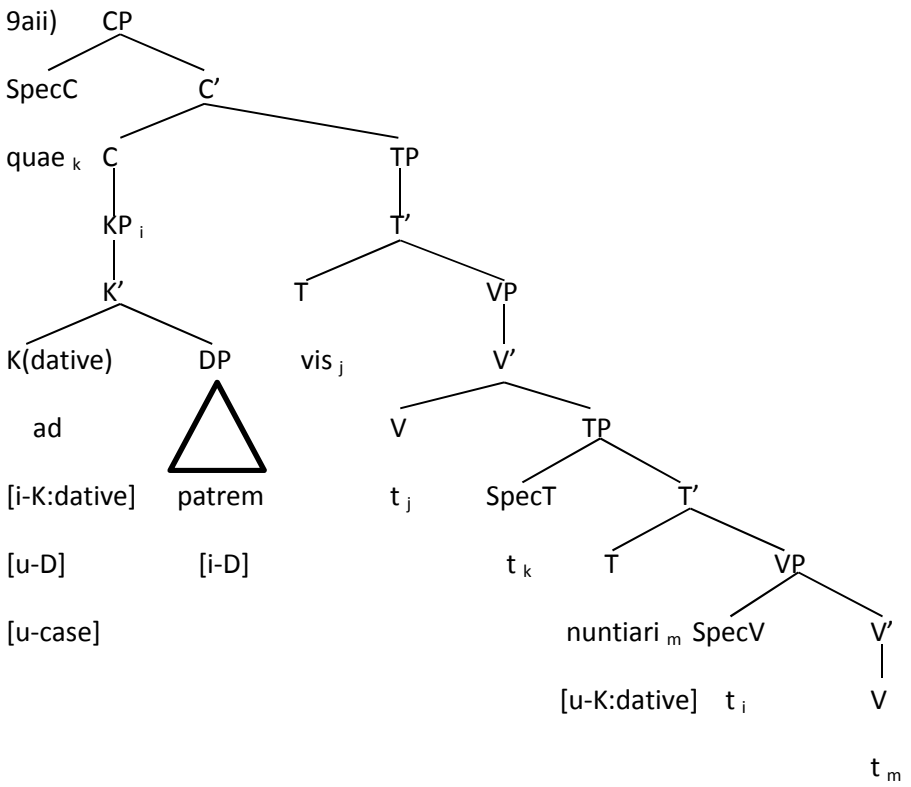


As *ad* marks the 'direction' in which the message is to be conveyed, its complement (*patrem* 'father') can be re-analysed as the 'recipient'/'beneficiary' of the main verb (*nuntiari* 'to be announced') i.e. its indirect object ('to be announced to your father'), which is marked by the dative in Latin (Blake (1994:6)).[56] The *ad*-PP here can therefore be re-analysed as a dative KP (cf section 3.2, ex. 7)):

[56] In the same passage, the same construction (*vis… nuntiari*) is used with the dative (*patri*):

1)	numquid	aliu-d	v-is	patr-i	nunti-ar-i
	whether	another-N.SG.ACC	want-PRES.2SG	father-DAT.SG	report-INF-PASS

'whether you want another thing to be reported to your father.' (Plautus, *Captivi* 400)



9aii) is 'simpler' than 9ai), since the *Agree* relation ([u-K]) between *ad* and its KP complement and the *Move* relation [(u-K)] between K and its DP complement are lost. Furthermore, the interpretable case features ([i-case]) of *ad* become uninterpretable ([u-case]) (see footnote 51). This adjunct *ad*-PP is hence re-analysed as a KP-complement (see footnote 52). The interpretable K features ([i-K]) are shifted upwards from the KP complement of *ad* (*patrem*) to *ad* itself (see footnote 53). Adams (2011:266, 2013:279) and Pinkster (1990:202) argue that in this example *ad* retains its directional force, since the recipient (*patrem*) is not in the scene and the message has to be delivered to him abroad.[57] The *ad*-PP here is stronger than the morphological dative (cf footnote 56). This is step a).

Step b) occurs when the spatial force of *ad* is weakened, and this is found in very late Latin (Adams (2011:267, 2013:282ff)) e.g.

[57] This is contextually evident:

1)	qu-ae	nunti-are	hinc	te	vol-o
	REL.PRO-N.PL.ACC	announce-INF	from.here	PRO.2SG.ACC	want-PRES.1SG
	in patri-am	ad patr-em			
	into homeland-ACC.SG	AD father-ACC.SG			

'the things which I want you to announce to your father from here to your homeland.' (*Captivi* 383)
The spatial force of delivering the message (*nuntiare*) to the recipient (*ad patrem*) is evident in *hinc* 'from here' and *in patriam* 'to your homeland'. (cf *Captivi* 365)

9b) dix-erunt ad Petr-um et ad reliqu-os apostol-os

say-PERF.3PL AD Peter-ACC.SG and AD rest-ACC.PL apostle-ACC.PL

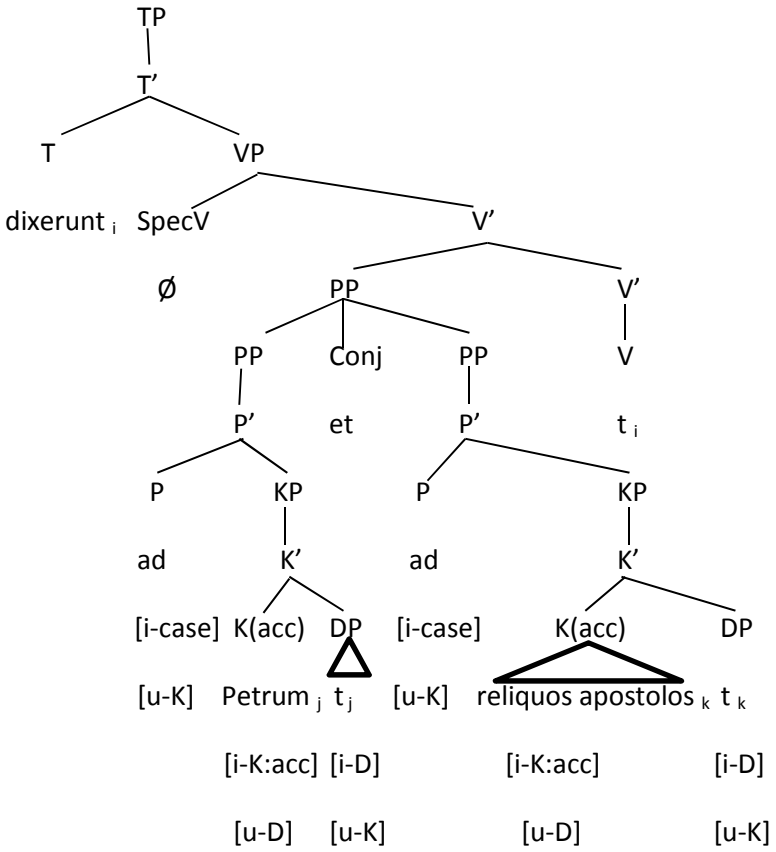
quid faci-e-mus

what do-FUT-1PL

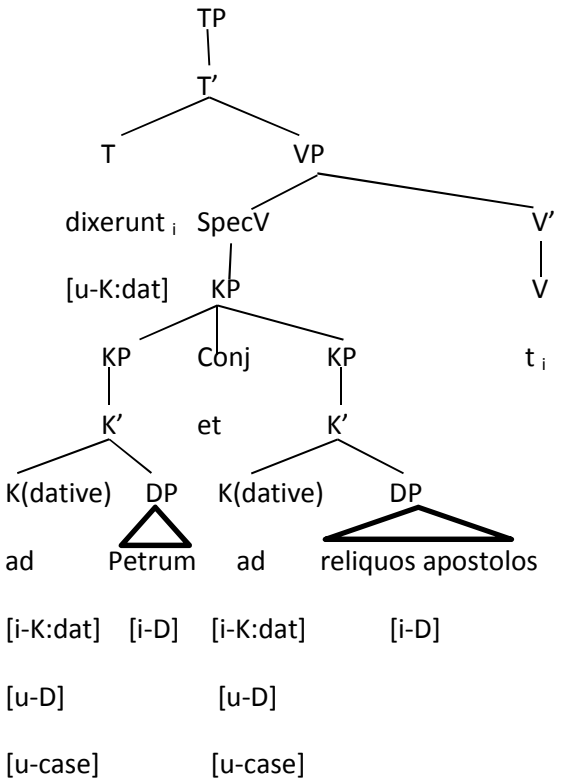
'… they said to Peter and to the rest of the Apostles what we would do…'

(The Latin Vulgate Bible, *Actus Apostolorum* 37, 6th century AD)

9bi)



9bii)



Here there is no question that the 'recipients' (*Petrum… reliquos apostolos*) are immediately present in the scene, and so the spatial force of *ad* (9bi)) is undermined.

Step c) occurs in the Merovingian documents (7th-8th century AD). Adams (2011:266-267, 2013:278ff) argues that the use of *ad*-PPs with trivalent verbs is mainly attested with verbs of saying in the history of Latin. In the Merovingian documents, there are the first attestations of *ad*-PPs being used with other trivalent verbs e.g. verbs of giving (Vielliard (1927:201)). This analogical spread suggests that *ad*-PPs have already been re-analysed as dative KPs:

9c) ad monasthyrio condona-v-erunt

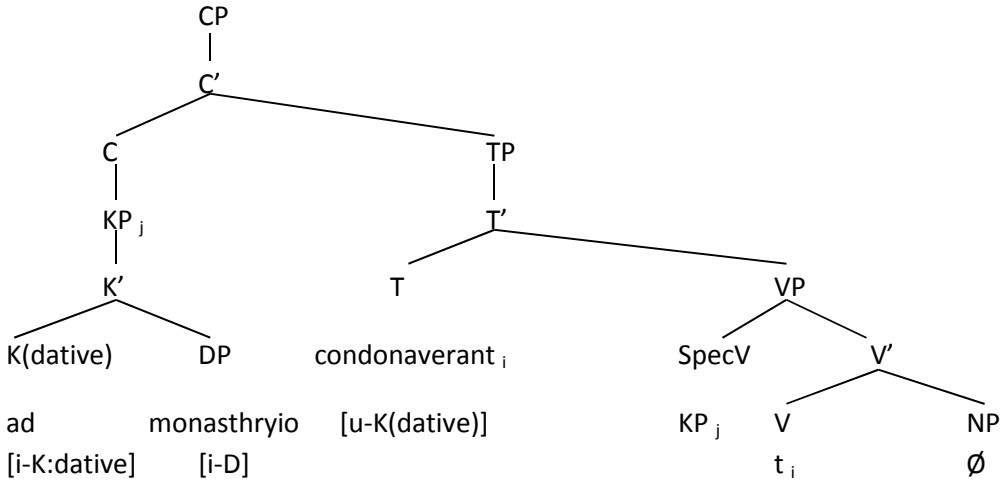
AD monastery grant-PERF-3PL

'They granted to the monastery…' (Merovingian documents 29.11)[58]

[58] The morphological dative is retained with pronouns (Vielliard (1927:191 footnote 4)) e.g.

1) ei da-re debir-it
PRO.3SG.DAT give-INF must-3SG
'He must give him…' (Merovingian documents 21.11)

9c)



Latin/Romance *ad* also conforms to R & R's and van Gelderen's 'simplicity' and 'upward feature analysis', since Latin prepositions assign morphological case to their complements (KPs) (Ernout and Thomas (1951:9), Blake (1994:10), Baldi (2002:88)), and so when *de* and *ad* are re-analysed as case-markers (K), the *Agree* relations ([u-K]) between these prepositions (P) and their KP complements are lost. Interpretable K features ([i-K]) are hence shifted upwards from the KP complements to the prepositions themselves (see footnotes 44 and 53).[59] [60]

Section 3.3: Chinese case-markers:

Several morphemes in Chinese have been analysed as case-markers: verbs of 'taking/holding' marking direct object (*ba*/*jiang*/*qu*/*na*) (Li (2006), Huang, Li, Li (2009:154ff), Chappell and Peyraube (2011:789)), verbs of 'giving/helping' marking indirect object (*gei*/*bang*/*dai*) and the subject of passive sentences (*gei*) (Chappell and Peyraube (2011:789)), verbs of 'sharing/accompanying' marking indirect object (*gong*/*tong*/*gen*) (Chappell and Peyraube (2011:789)), verb of 'receiving' marking the subject of passive sentences (*bei*) (Feng (1998), Huang, Li, Li (2009:112ff)). Space constraints prevent me from analysing all of them. In this section I focus on the grammaticalization of Chinese *ba*, which has received by far the most scholarly attention and may be taken as representative of all Chinese deverbal case-markers (see Chappell and Peyraube (2011:787), Huang, Li, Li (2009:153-167)).

[59] Although the Latin morphological case dies out in Romance, Ledgeway (2012:21-23) points out that it is retained in very late Latin in the complements of prepositions. The *Agree* relation ([u-K]) between P and its KP complement is therefore present from Latin to Romance and one can certainly postulate an 'upward shift' of interpretable K features from the KP complements to the functional prepositions. K(dative) is higher than K(accusative) in Caha (2009) (see footnote 46), and so when *ad* is merged in K(dative), its complement can still move to K(accusative) and receive accusative case (see ex. 9)).

[60] Cf the grammaticalization of Latin/Romance and English prepositional complementisers (Tse (2011:sections 2.7, 2.8)), which are also re-analysed from PP-adjuncts to CP-complements.

Section 3.3.1: Chinese *ba*:

In Chinese, there are alternations between placing the object after the main verb (10a), 11a), 12a)) and before it where it is marked by a deverbal case-marker (K) (10b), 11b), 12b)):

10a) ma jie

scold street

10b) zai jiedao-shang ma ren

at street-LOCALIZER scold people

'Scold people on the streets.' (Feng (2005:8))

11a) qie zhe ba dao

cut this CLASSIFIER knife

11b) yong zhe ba dao qie rou

use this CLASSIFIER knife cut meat

'Cut meat with this knife.' (Feng (2005:8))

12a) da guojia dui

play country team

12b) gen guojia dui da qiu

with country team play ball

'Play ball with the national team.' (Feng (2005:8))[61]

The same alternation is found with *ba*, which marks the object when it precedes the main verb (13b)) (Li (1990:193, 2006:377), Huang, Li, Li (2009:153, 172), Chappell (2014a:4)):

13a) Lisi sha-le na-ge huaidan

Lisi kill-PERF that-CLASSIFIER scoundrel

13b) Lisi ba na-ge huaidan sha-le

Lisi BA that-CLASSIFIER scoundrel kill-PERF

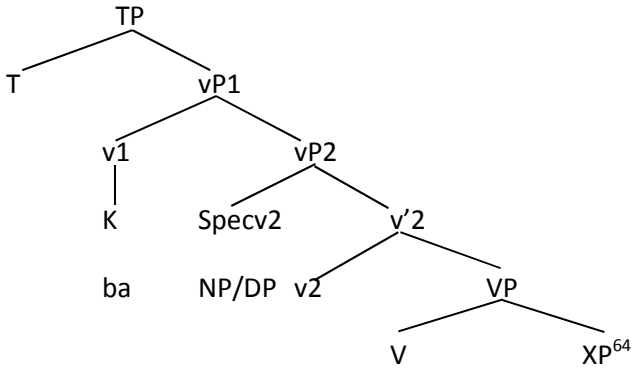
'Lisi killed that scoundrel.'

Feng (2000, 2005:4, 7, 10) argues that the main verb (*ma*, *qie, da*) undergoes V-to-v movement in 10a), 11a) and 12a) (cf Huang (1997)) while in 10b), 11b) and 12b) these deverbal case-markers (K)

[61] *zai, yong* and *gen* are verbs synchronically and have undergone re-analysis (*zai* 'to be at' > 'at', *yong* 'to use' > 'with', *gen* 'to follow' > 'with'). They represent K(locative), K(instrumental) and K(comitative) respectively.

(*zai*, *yong, gen*) are merged in little v and hence block V-to-v movement. *ba* can therefore also be analysed as a case-marker (K) merged in little v (cf Zou (1995:74-88), Li (2006:381-382), Huang, Li, Li (2009:27-28, 166), van Gelderen (2011a:175)):[62] [63]

13)



[62] As these alternations (10a-b), 11a-b), 12a-b), 13a-b)) all have the same number of nominal constituents and head predicates, by the theta-criterion (see section 1.1.1, ex. 2)) these deverbal elements cannot have argument structure (cf Li (1990:193-196, 2006:379-381, 407), Huang, Li, Li (2009:5, 167-174)). They therefore cannot be analysed as lexical verbs and can be analysed as case-markers.

[63] Although Li (1990) and Zou (1995) deny that *ba* is a case-marker and propose that it is a preposition instead, the fact that it does not have argument structure (see previous footnote) entails it is a functional preposition, which is identical to case-markers (K) (see section 3.1).

[64] This structure is supported by the following constituency test (Li (2006:382), Huang, Li, Li (2009:166)):

1) ta ba men xi-hao, chuanghu ca-ganjing-le
he BA door wash-finish window wipe-clean-PERF
'He washed the door and wiped the windows clean.'

The complement of *ba* (*men* 'door', *chuanghu* 'window) and the main verbs (*xi-hao* 'wash', *ca-ganjing-le* 'wipe clean') are co-ordinated to the exclusion of *ba* (*men xihao*, *chuanghu caganjingle*), which suggests that they form constituents by themselves ([*ba* [NP/DP VP]]) (Li (2006:382), Huang, Li, Li (2009:166), van Gelderen (2011a:175)). Furthermore, Zou (1995:35ff), Li (1990:196, 2006:408-413) and Huang, Li, Li (2009:174-178) argue that while adverbs can occur on either side of *ba* (2a-b)), they can only precede the main verb (2c-d)), which suggests that *ba* is merged higher than the V-to-v landing site:

2a) wo xiaoxin-de ba beizi na-gei-ta
I carefully-ADV BA cup bring-give-him

2b) wo ba beizi xiaoxin-de na-gei-ta
I BA cup carefully-ADV bring-give-him

2c) wo xiaoxin-de na beizi gei-ta
I carefully-ADV bring cup give-him

2d) *wo na beizi xiaoxin-de gei-ta
I bring cup carefully-ADV give-him
'I gave the cup to him carefully.'

The exact position of *ba* is difficult to pinpoint, since it comes after tense (T) (3)), modal auxiliaries (Mod) (4)), $Asp_{Perfective}$ (5)) and $Asp_{Continuous}$ (6)) but before $Asp_{Completive}$ (7)) and $Asp_{Progressive}$ (8)):

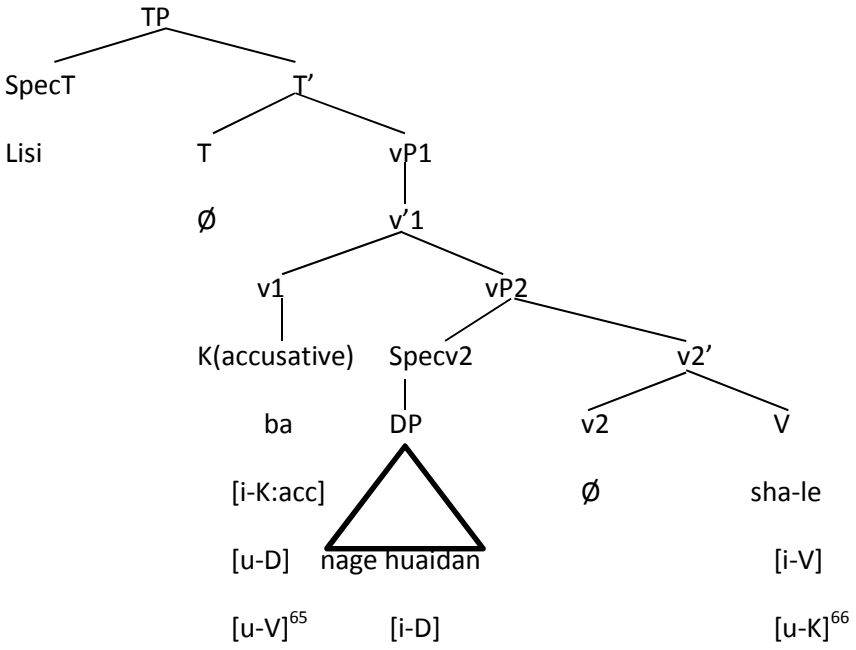
3) ta hui ba dongxi chi-guang
he FUT BA thing eat-empty
'He will eat it all.' (Li (2006:390))

4) wo yao ba ta da-duan tui
I want BA him/her hit-break leg
'I want to break his leg.' (Li (2006:380))

5) Lisi mei-you ba laohu da-si
Lisi NEG-have BA tiger hit-dead
'Lisi has not killed the tiger.' (Huang, Li, Li (2009:175)

A canonical *ba*-construction can therefore be represented thus:

13b)



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6) Linyi zai ba yifu bao-cheng yi-ge da bao
Linyi PROG BA clothes wrap-into one-CLASSIFER big bundle
'Linyi is wrapping the clothes into one big bundle.' (Huang, Li, Li (2009:175))

7) ta ba ni hai-le
He BA you hurt-COMPLETIVE
'He hurt you.' (Li (2006:381), Huang, Li, Li (2009:164))

8) qing ba ta bao-zhe
Please BA it hold-PROG
'Please hold on to it.' (Li (2006:396))

I therefore posit another little v node (v1) between T and little v (v2) for *ba* (cf Zou (1995:85-87), Li (2006:410-412), Huang, Li, Li (2009:176-178)).

[65] *ba* holds uninterpretable verb features ([u-V]) since it cannot be used independently without a main verb (Zou (1995:70), Li (1990:186, 2006:380)):

1) *ba shui
BA water

[66] The main verb (here *sha-le*) is a V and does not form a VP since it subcategorises for the *ba*P ([u-K]) and cannot select any other complement, even if it co-refers to the complement of *ba* (Li (2006:381), Huang, Li, Li (2009:165)):

1) *ta ba $Lisi_i$ hai-le ta_i
he BA Lisi hurt-PERF him
'He hurt Lisi.'

The use of a co-referent resumptive pronoun in the main VP exists in modern Shanghai, Wuhan and Cantonese dialects (Li (2006:379 footnote 11), Huang, Li, Li (2009:163 footnote 15)) e.g.

2) chinkei ng hou jeung di taufaat yim-hak keuih
be.sure NEG IMP JEUNG CLASSIFIER hair dye-black PRO
'Be sure not to dye your hair black.' (Cantonese) (Chappell (2014b:12))

jeung is related to Mandarin *ba* (Chappell and Peyraube (2011:787)), and its complement here (*di taufaat*) is co-referent with the object resumptive pronoun (*keuih*) of the main verb (*yimhak*).

It is also possible for the main verb to have an independent complement and form a VP, in which case *ba* does not mark the direct object e.g. a related 'outer' object (3)); the indirect object (4)) (see Li (2006:383-391)):

3) wo ba juzi bo-le pi
I BA orange peel-PERF skin
'I peeled the orange skin.' (Zou (1995:32-33, 38))

Section 3.3.2: the grammaticalization of Chinese *ba*:

Chinese *ba* is originally used as a lexical verb 'to take/hold' in serial verb constructions in medieval Chinese (Bennett (1981), Feng (2002:128), Li (1990:183, 2006:379), Huang, Li, Li (2009:162-163), Chappell and Peyraube (2011:787ff)):[67]

14a)	ba	gan	zhui	niao	que
	BA	stick	chase	bird	sparrow

'He takes a stick and chases sparrows.' (*Chu Guang Yi*, 8th century AD) (Feng (2002:127))

---

4)	wo	ba	ta	wen-le	yi-dai-dui	hen-nan-de	wenti
	I	BA	him	ask-PERF	one-big-pile	very-difficult-DE	question

'I asked him a lot of difficult questions.' (Li (2006:383))

ba can also be used as a causative verb (Zou (1995:42ff), Li (2006:378). Huang, Li, Li (2009:168ff)):

5)	zhe-ping	jiu	ba	ta	zui-dao-le
	this-bottle	wine	BA	he	drunk-fall-PERF

'This bottle of wine made him drunk.'

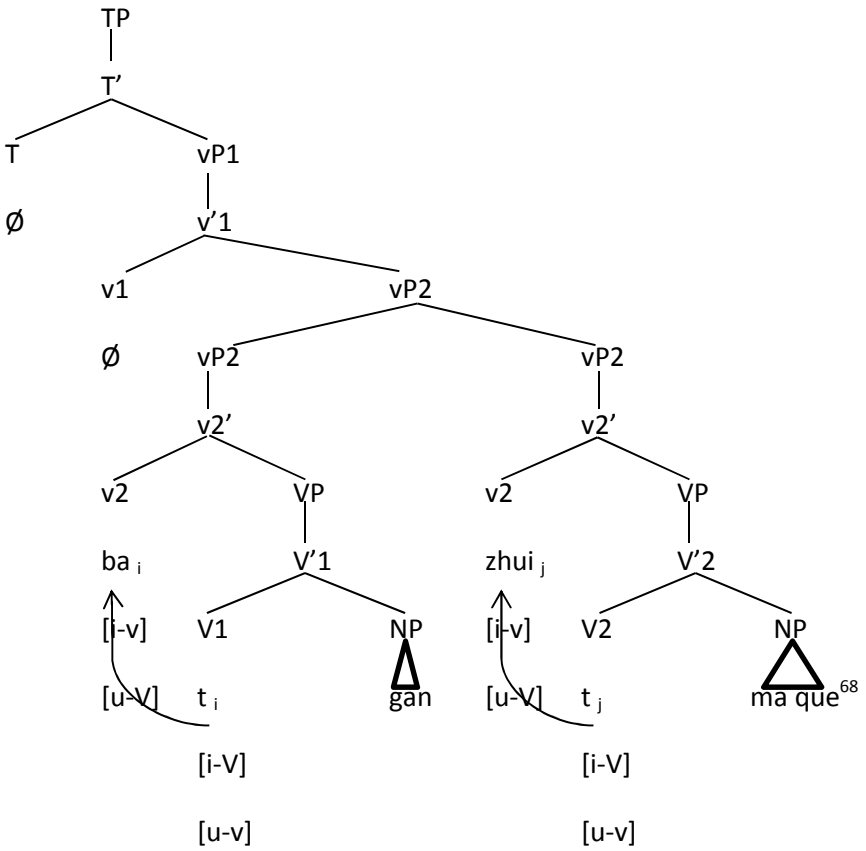
In this paper, I focus on the grammaticalization of *ba* as K(accusative). Other usages are left for future research.

[67] In medieval Chinese, there are examples where *ba* is used independently, which suggests that synchronically medieval Chinese *ba* is a lexical verb (V) (cf footnote 65).

1)	zuo	shou	ba	qi	zhou
	left	hand	BA	his	sleeve

'He held his sleeve with his left hand.' (Yan Ce, 8th century AD) (Feng (2002:127))

14ai)



It is possible to re-analyse the first VP (*ba gan* 'take a stick') as the 'instrument' of the second VP (*zhu niao que* 'chase sparrows') ('he takes a stick and chases sparrows > he chases sparrows with a stick') (Feng (2002:127-129)):

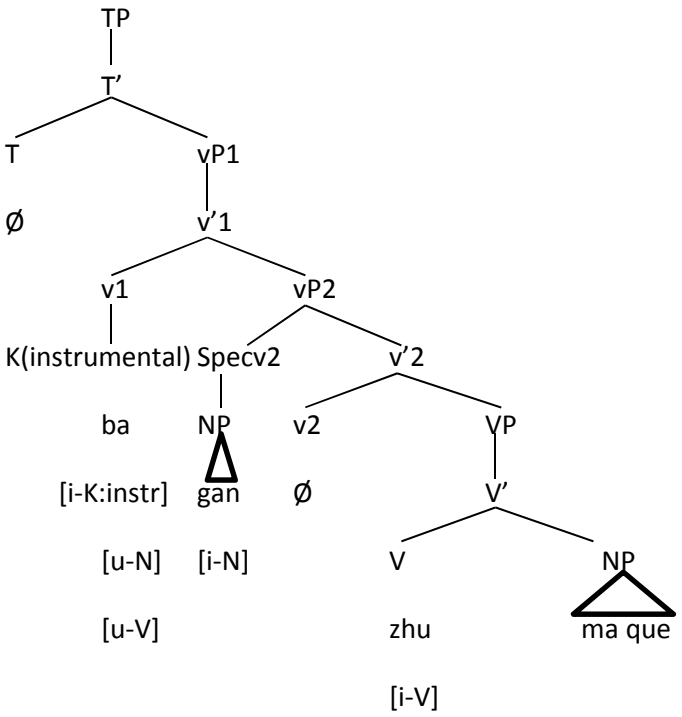
[68] In representing serial verb constructions, I have postulated one T node for both vPs, since it is widely assumed that serial verb constructions denote a single event (R & R (2003:126), Givón (2006:4-5), Muysken and Veenstra (2006:238ff), van Gelderen (2011a:189-191)). Furthermore, the subject argument is shared between the two verb phrases (*ba gan* 'take a stick', *zhu niao que* 'chase sparrows' i.e. '(he)$_i$ takes a stick and (he)$_i$ chases the sparrows'). Within the two vPs, the two verbs (*ba*, *zhu*) undergo V-to-v movement (van Gelderen (2011a:189-191)). This serial verb construction (14ai)) is retained in modern Mandarin, since when *ba* is used as a case-marker, it is possible to prepose it and its complement together, which suggests that they form a constituent (Huang, Li, Li (2009:178)) (cf footnote 64) e.g.

1a)	ni	ba	zhe-kuai	rou	qie-qie…	ba	
	you	BA	this-CLASSIFIER	meat	cut-cut	SFP	
1b)	ba		zhe-kuai	rou,	ni	xian	qie-qie	ba
	BA		this-CLASSIFIER	meat	you	first	cut-cut	SFP

'You cut the meat and wash the vegetable.' (Li (2006:382), Huang, Li, Li (2009:166-167))

Huang, Li, Li (2009:178-179) argue that the preposed *ba*P here (*ba zhe-kuai rou*) is a VP (cf Li (2006:410-413) for Taiwanese *ka*), which coincides with 14ai) (see Tse (2011:section 2.4) for the retention of pre-grammaticalized properties in grammaticalization, which is very common).

14aii)



14aii) is 'simpler' than 14ai), since both verbs (*ba, zhu*) lose their *Move* to their respective v2.[69] Furthermore, the interpretable verb features of *ba* ([i-V]) become uninterpretable ([u-V]) (see footnote 65). However, *ba* cannot be analysed as K(accusative), as the second main verb (*zhu*) has an explicit object (*ma que*) with which it forms a VP (*zhu ma que*).[70] This is step a).

Step b) occurs when the argument of the second verb is omitted, and Feng (2002:127, 132ff), Peyraube (1989) and Chappell and Peyraube (2011:788) identify this in examples where the second verb denotes purpose e.g.

14b)	xian	chang	ba	qin	nong
	leisure	often	BA	lute	play

'In my leisure, I often take a lute to play.' (*Ji Du Shi Yi*, 8th century AD)

It is possible to analyse *ba* as a lexical verb 'to take/hold' if one assumes an empty argument in the second VP:

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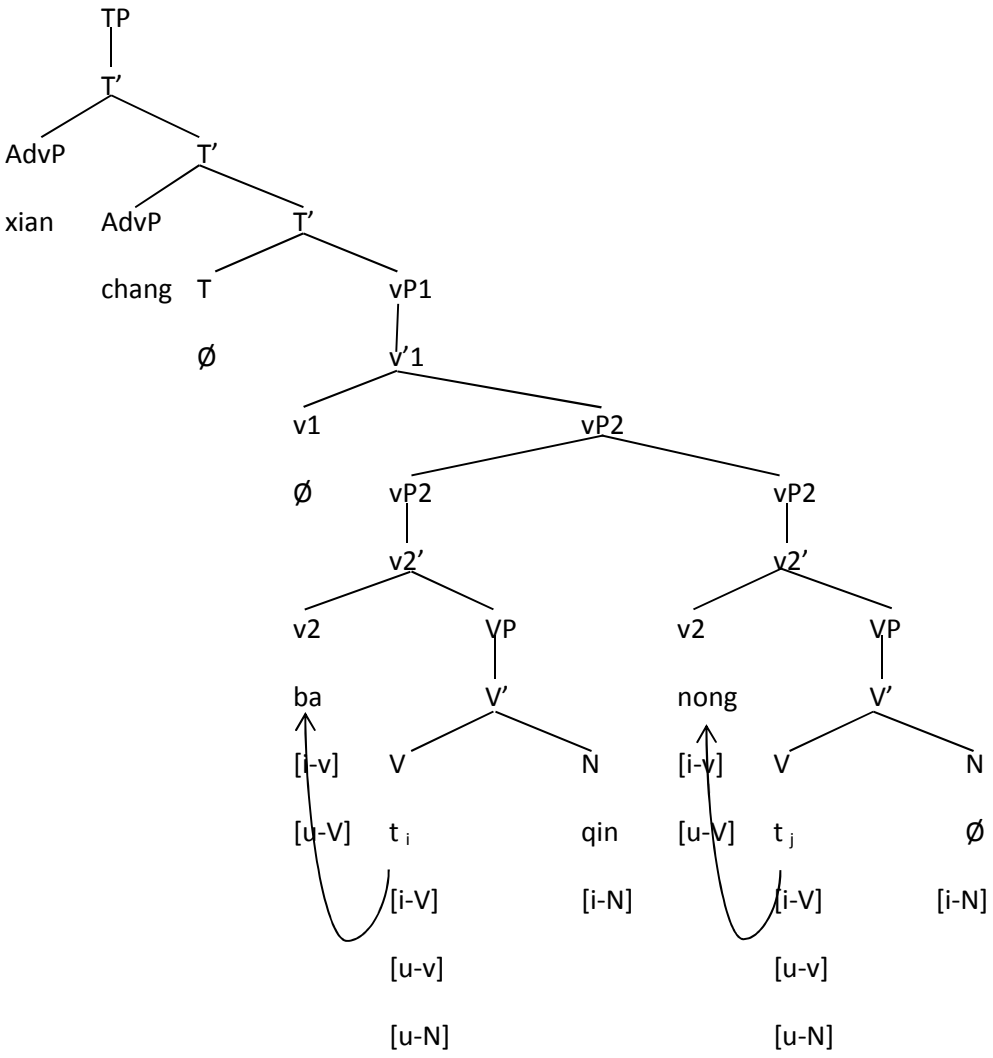
[69] The second main verb may move to v2 to receive aspect (see footnote 64, ex. 7-8)). This *Move* is omitted here for simplicity. In any case, *ba* loses its *Move* and is hence 'simpler'.

[70] The use of *ba* as K(instrumental) still exists in modern Mandarin (Zou (1995:47)):

1)	wo	ba	shu	fang-man-le	shujia
	I	BA	book	put-fill-PERF	bookshelf

'I filled the bookshelf with books.'

14bi)



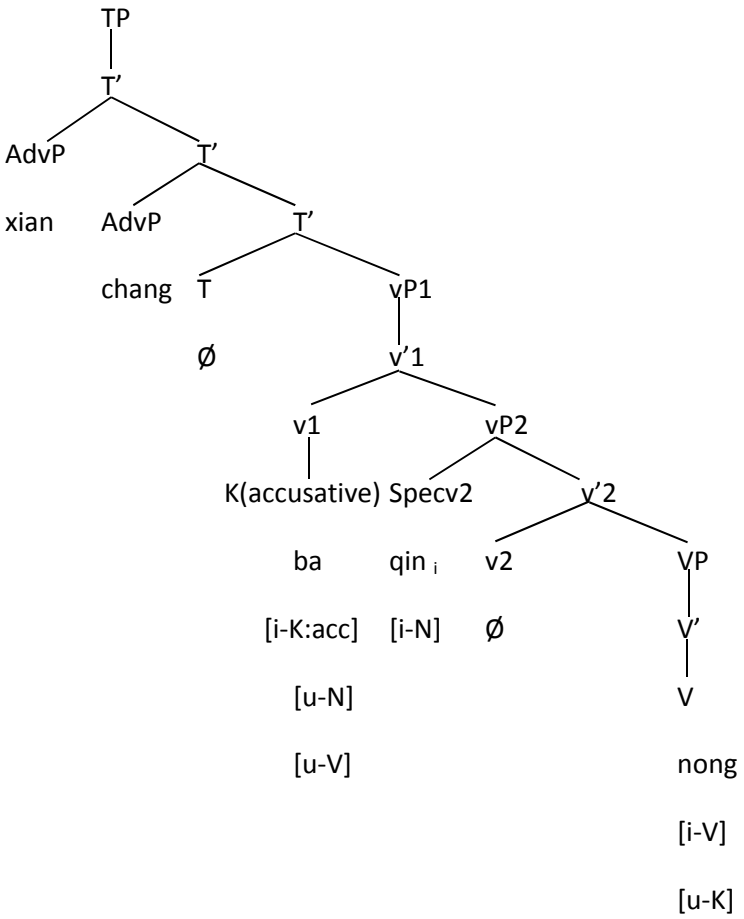
However, with the omission of the argument in the second VP (*nong* Ø) there now seems to be co-reference between the complement of *ba* (*qin* ‘lute’) and the object of the second verb (*nong Ø* ‘to play (something i.e. lute)), which makes *ba* re-analysable as an accusative case-marker (‘I often take a lute to play > I often play a lute’) (cf ex. 13b)) (Feng (2002:132)):[71]

[71] At an earlier stage, a resumptive pronoun is used as the complement of the second verb (Chappell and Peyraube (2011:788)):

1) ru jiang ci ren anxu sha zhi wu sun pi rou
PRO.2SG take DEM.PRO man careful kill PRO.3SG NEG damage skin flesh
‘You take this man$_i$ and kill him$_i$ carefully without damaging his skin and flesh.’ > ‘you kill this man without damaging his skin and flesh.’ (Fo Shuo Chang A Han Jing, 4th-5th century AD)

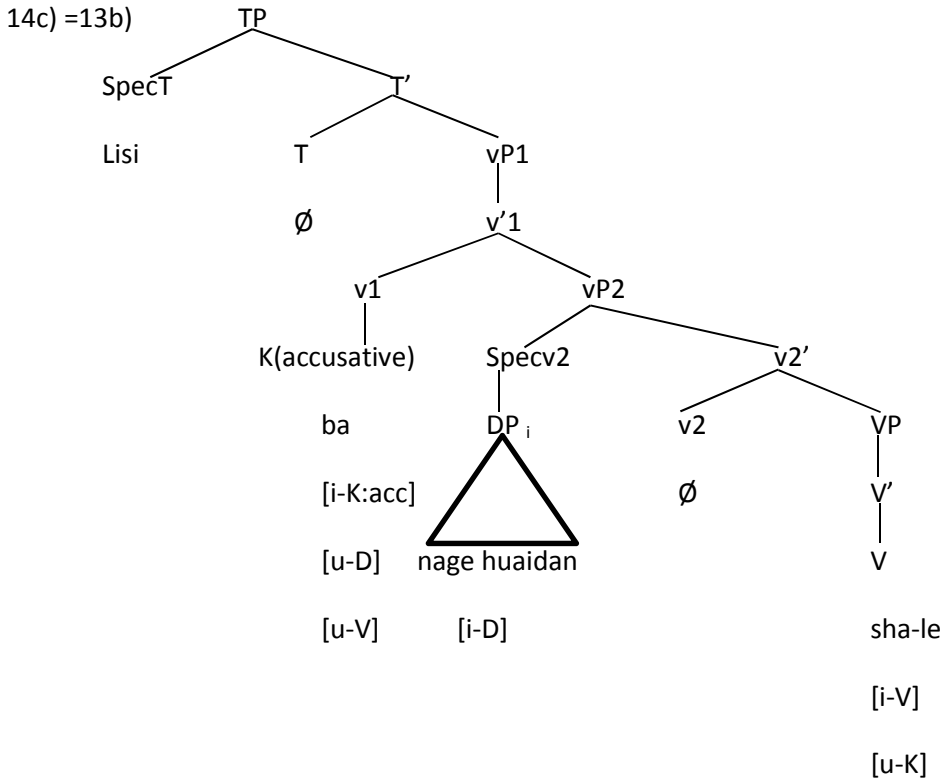
The pronoun here (*zhi* ‘him’) is the object of the second verb (*sha*…) and is co-referent with the complement (*ci ren ‘*this man’) of the first verb (*jiang*). This resumptive pronoun is retained in modern Chinese dialects (see footnote 66, ex. 2) for Cantonese *jeung* (< *jiang*)), and its omission leads to the re-analysis in 14b).

14bii)



14bii) is 'simpler' than 14bi), since both verbs (*ba*, *nong*) lose their *Move* to their respective little v (v2) and the interpretable verb features ([i-V]) of *ba* become uninterpretable ([u-V]) (see footnotes 65 and 69). Furthermore, as *ba* now marks the object (*qin*) of the second main verb (*nong*), the main verb (*nong*) subcategorises ([u-K]) for the *ba*P and cannot select any other complement (cf footnote 66, ex. 1)). The second VP is hence simplified as V.

Step c) occurs in modern Mandarin where *ba* is no longer a lexical verb but a case-marker (see footnotes 62, 63 and 65):



The grammaticalization of Chinese *ba* therefore conforms to R & R's and van Gelderen's 'simplicity'. However, it only partially conforms to R & R's 'upward feature analysis', since although *ba* is shifted upwards from V to v1, it holds interpretable K features ([i-K]) that are not upwardly shifted, as Chinese has never had morphological case (see section 1.4), but inferred from pragmatics, namely the possibility to re-analyse the first VP of serial verb constructions as the complement of the second verb. It therefore conforms to 'lateral' grammaticalization (see section 2.2). More about this below.

Section 3.4: cross-linguistic distribution:

The fact that the grammaticalization of Romance and Chinese case-markers conforms to R & R's and van Gelderen's 'simplicity' is supported by their cross-linguistic distribution (see section 2.1, footnote 31). Cross-linguistic counterparts for Latin/Romance *de* and *ad* are English *of* and *to*, which are likewise derived from lexical prepositions denoting 'separation' (15)) and 'direction' (16)) respectively (Traugott (1972:77), Lightfoot (1999:121), Huddleston et alii. (2002:658)):

15)	Þæt	wæs	nigon	hung	þusenda	of	Persa
	that	was	nineteen	hundred	thousand	from	Persian.DAT.PL

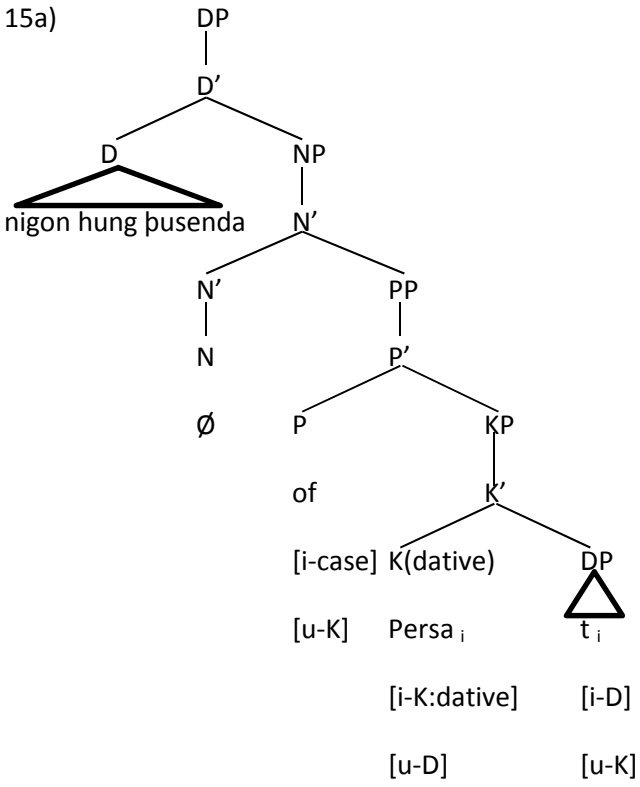
'That was nineteen hundred thousand men from the Persians.' (15a))

'That was nineteen hundred thousand of Persians.' (15b))

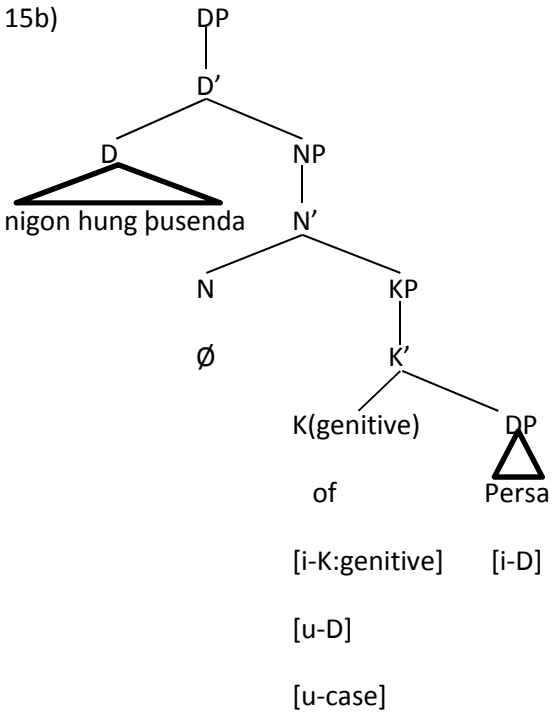
(King Alfred's *Orosius* 84.29, 849-899 AD)

As these nineteen hundred thousand men are selected from a group of Persians (*of Persa*) (15a)), they are naturally part of it (15b)). *of* is therefore either a lexical preposition denoting 'separation' (15a)) or a functional preposition denoting 'possession/partition' (15b)):[72]

15a)



15b)



[72] This partitive usage is synchronically paralleled by the genitive case:

1)	þa	gefengon	hie	þara	þreora	scipa	tu
	then	captured	they	those.GEN.PL	three.GEN.PL	ship.GEN.PL	two

'Then they captured two of those three ships.' (*Two of the Saxon Chronicles Parallel* 90.26, 897 AD)

English *to* is used with trivalent verbs (e.g. *brohte* 'brought'):

16)	his	suna	twegen	mon	brohte	to	þæm	cyninge
	his	sons	two	one	brought	to	that.DAT	king.DAT

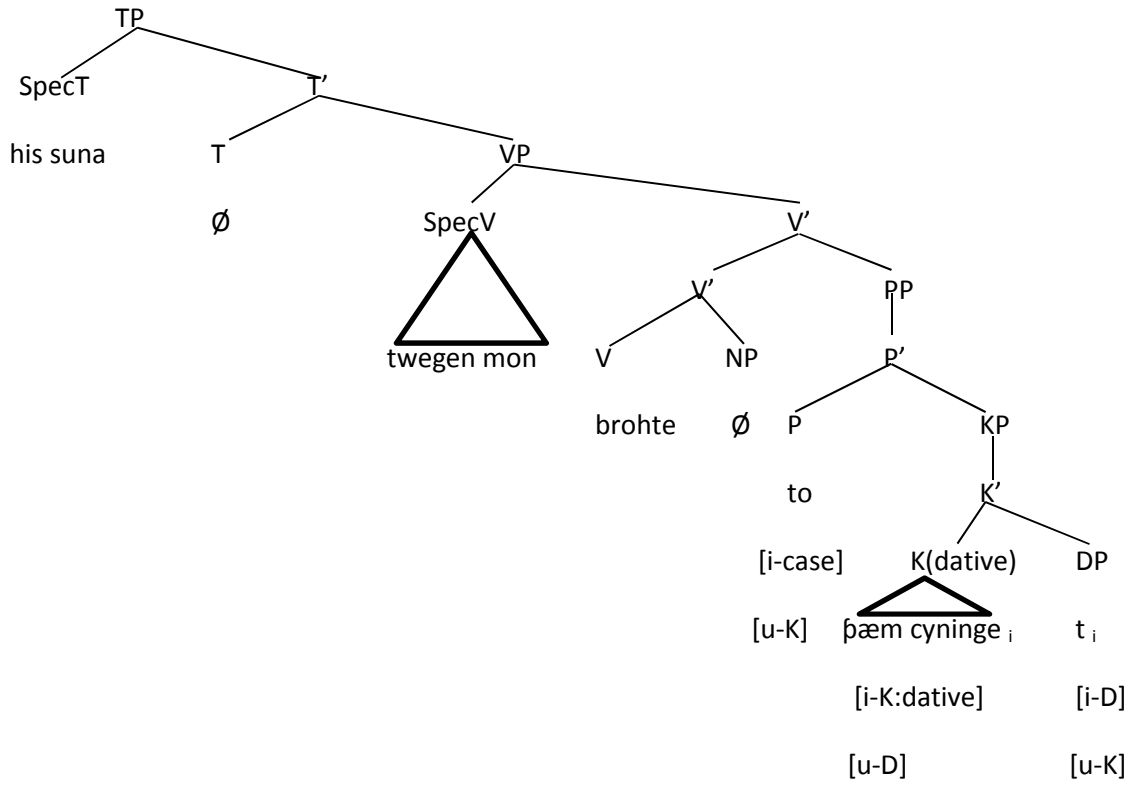
'His sons brought one of the two towards that king.' (16a))

'His sons brought one of the two to that king.' (16b))

(*Two of the Saxon Chronicles Parallel* 86.26, 894 AD)

As English *to* denotes 'direction' (16a)), its complement (*þæm cyninge* 'that king') is re-analysable as the 'recipient/beneficiary' of the main verb (*brohte*), in which case *to* is K(dative) (16b)):[73]

16a)

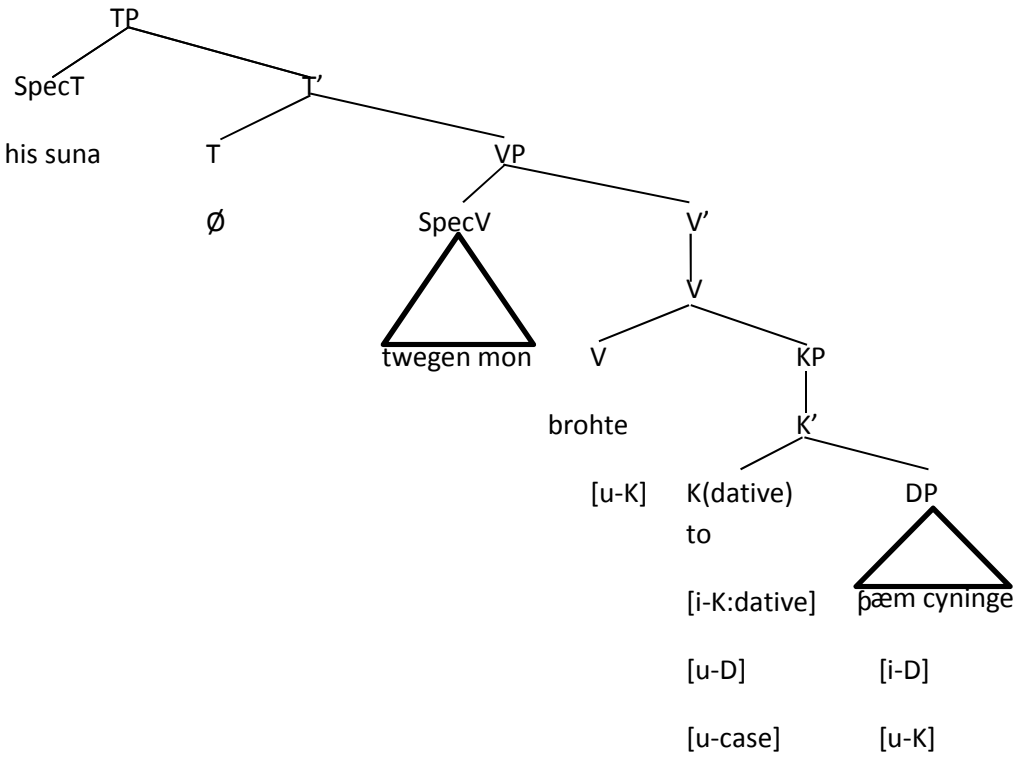


[73] The same verb (*broht-*) is found synchronically with the same complement in the dative (*þæm cyninge*):

1)	þa	teð	hie	brohton	sume	þæm	cyninge
	those	teeth	they	brought	some	that.DAT	king.DAT

'They brought some of those teeth to that king.' (King Alfred, *Orosius* 18.1, 849-899 AD)

16b)



15b) and 16b) are 'simpler' than 15a) and 16a) respectively, since, like Latin/Romance *de* and *ad* (section 3.2, ex. 8a-b), 9a-b)), English prepositions (*of*, *to*) originally subcategorise for complements with morphological case (KPs) (Traugott (1972:80-81)), and when they are re-analysed as case-markers (K), the *Agree* relations ([u-K]) between these lexical prepositions and their KP complements and the *Move* relations between K and DP are lost. Interpretable K features ([i-K]) are 'upwardly shifted' from the KP complements to the prepositions themselves (see footnotes 36 and 53).[74]

As for Chinese *ba*, there are many cross-linguistic examples of lexical verbs 'to take' being grammaticalized as accusative case-markers e.g.

Fong *so* (a Kwa language spoken in Benin) (Zou (1995:79-80)):

17) Koku so ahan o nu

Koku take wine DET drink

'Koku drank the wine.'

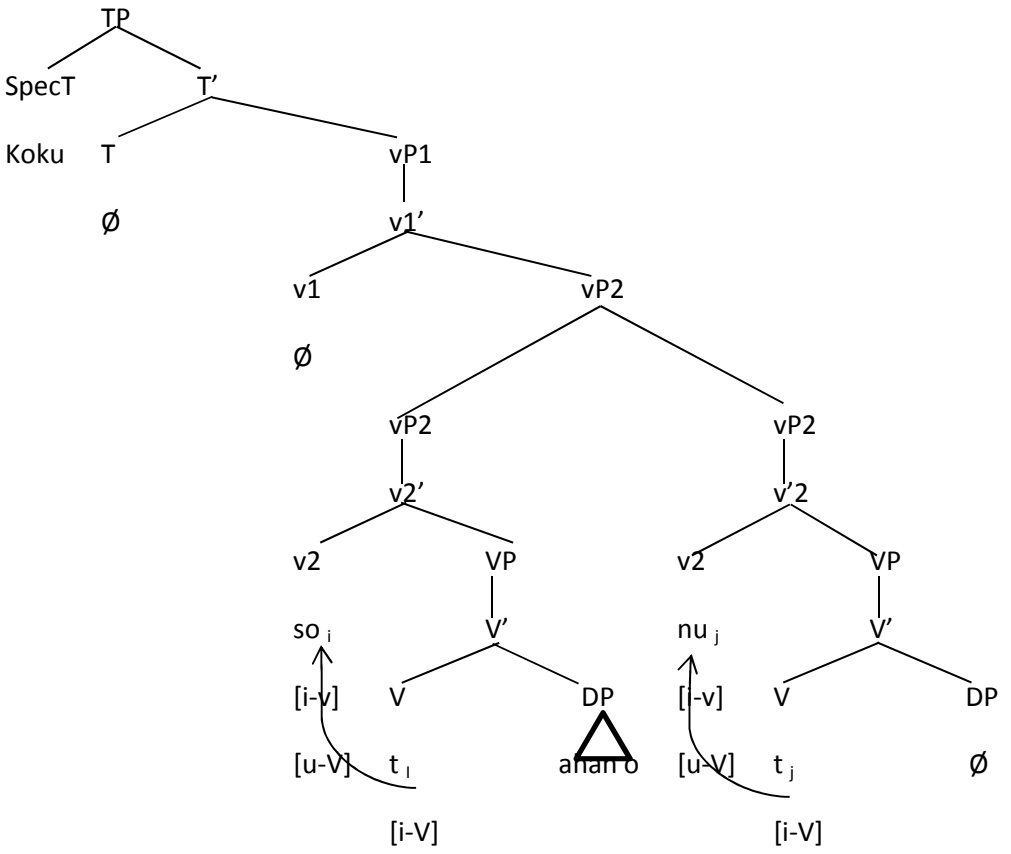
As *so* is still used as a lexical verb 'to take',[75] 17) can be reconstructed as a serial verb construction:

---

[74] Old English and Latin also have free word order, which is lost in modern English and Romance due to the loss of morphological case (see footnote 8). K(case) should therefore be postulated for Latin and old English, not only because they have morphological case but also because K(case) accounts for 'scrambling' in these two languages (see sections 1.3.2, 1.4).

[75] E.g. Koku so ason
Koku take crab
'Koku took a crab.' (Zou (1995:79))
Chinese *ba* is exceptional in having well-attested historical examples. The grammaticalization of deverbal case-markers in other languages has to reconstructed (Lord (1993:1)).

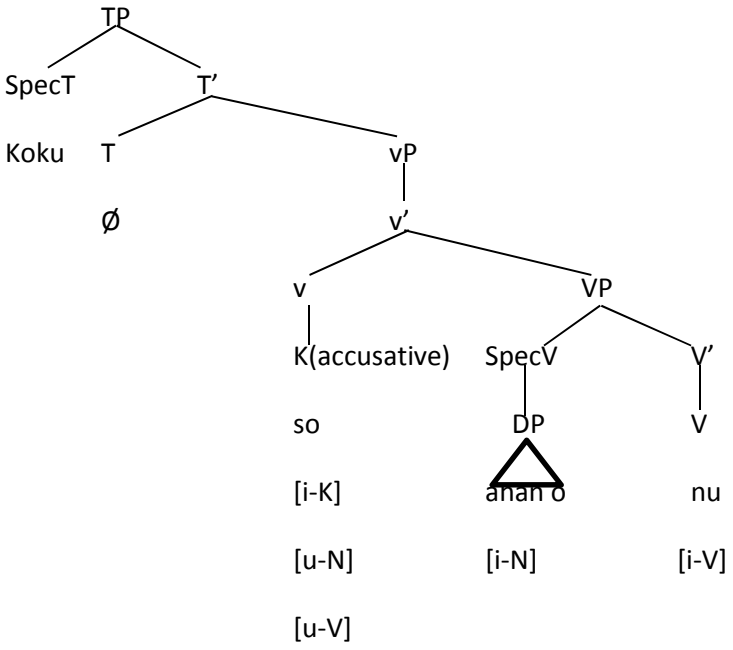
17a)



‘Koku took the wine and drank it.’

In modern Fong, *so* is re-analysed as K(accusative) (> ‘Koku drank the wine’):

17b)



17b) is ‘simpler’ than 17a) since both verbs (*so*, *nu*) lose their *Move* to their respective vPs and the interpretable verb features ([i-V]) of *so* become uninterpretable ([u-V]). The cross-linguistic examples of Latin/Romance *de*/*ad* and Chinese *ba* undergo ‘structural simplification’ as well, which conforms to Minimalist accounts of grammaticalization (see section 2.1).

Section 3.5: formalism vs functionalism:

The cross-linguistic distribution of case-markers shows that while they all go through 'structural simplification', the 'cues' in their re-analysis are also strikingly similar: both Romance *de* (8a)) and English *of* (15a)) denote 'separation' and 'possession/partition' simultaneously and both subsequently lose their spatial force (8b), 15b)); both Romance *ad* (9a)) and English *to* (16a)) denote 'direction' and 'recipient/beneficiary' simultaneously and both also lose their spatial force (9b), 16b)); both Chinese *ba* (14a)) and Fong *so* (17a)) are used as the first verb 'to take' in serial verb constructions where they are re-analysed as marking the direct object of the second (main) verb (14b), 17b)). These are strong cross-linguistic trends and confirm my argument in Tse (2011:section 5.2) that formalism and functionalism are not mutually exclusive in explaining the cross-linguistic distribution of grammaticalization (see section 2.4).[76]

Functionalism also predicts sub-types of K(case), since some of these lexical sources are grammaticalized as more than one type of K(case) (see section 2.4 and footnote 40) e.g. Latin/Romance *ad.* In numerous Romances branches, *ad* not only marks indirect objects but direct objects as well (Rohlfs (1971), Sornicola (1997, 1998)) e.g. Romance **clamare* 'to call':

Medieval Spanish (Zorraquino (1976:561)):

18a)	a	Minaya	Albar	Fáñez	e	a	Per	Vermudoz
	AD	Minaya	Albar	Fáñez	and	AD	Per	Vermudoz
	los	llam-ó						
	them	call-PRET.3SG						

'He called Minaya Albar Fáñez and Per Vermudoz.' (*El Cid* 1894-1895)

Medieval Italian (Sornicola (1997:73)):

18b)	allora	Elia	chiamoe	a	Dio
	then	Elia	call-PRET.3SG	AD	God

'Then Elia called God.' (*Fra Giordano*)

Medieval Sicilian (Sornicola (1997:67-73)):

18c)	appressu	clam-au	a	lu	primu	vinchituri
	then	call-PRET.3SG	AD	DEF.ART	first	wave

'Then he called the first wave.' (*La istoria di Eneas* 91, 46)

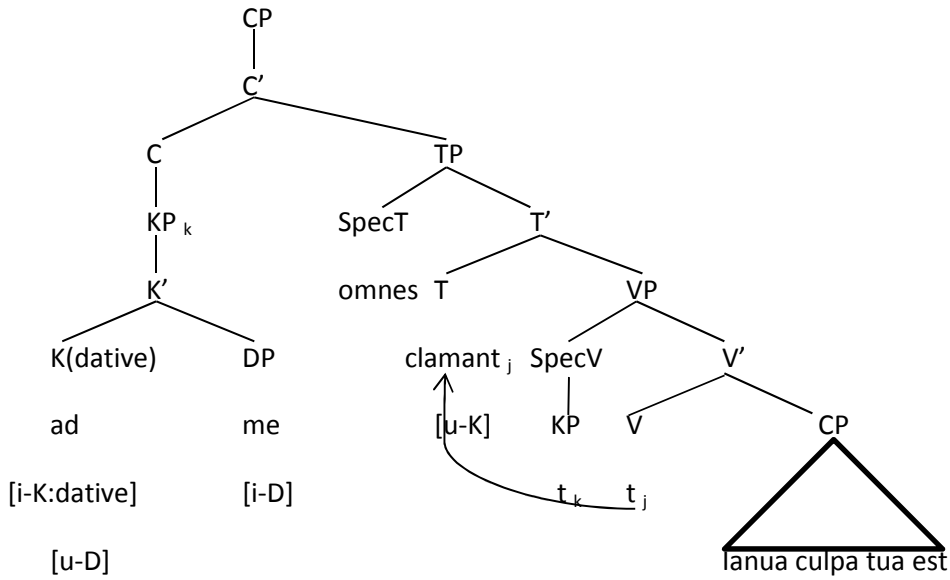
[76] Heine and Kuteva (2002:32-33, 37-38) gives cross-linguistic examples for preposition 'from' > genitive marker and preposition 'to' > dative marker. Cross-linguistic examples of verbs 'to take' > object marker are given by Lord (1989:chapter 5), Heine and Kuteva (2002:289-290), Muysken and Veenstra (2006:243, 248) and Heine (2009:463).

The Latin antecedent for proto-Romance *_clamare_* is _clamare_ ‘to shout’:

19)	ad	me	omn-es	clam-ant	
	AD	me.ACC	all-NOM.PL	shout-PRES.3PL	
	Ianua	culp-a	tu-a	est	
	Ianua	fault.FEM.NOM.SG	your.FEM.NOM.SG	be.PRES.3SG	

‘Everyone shouts at me: Door, it is your fault!’ (Catullus poem 67:14, 84-54 BC)

As Latin _clamare_ is attested with two objects (_Ianua culpa tua est_, _ad me_), it must be analysed as a three-place predicate.[77]



At a later stage, there are numerous attestations where the direct object is omitted:

20)	clama-vit	ad	domin-um	Ies-um	Christ-um
	shout-PERF.3SG	AD	Lord-ACC.SG	Jesus-ACC.SG	Christ-ACC.SG

‘He shouted (something) at Lord Jesus Christ…’ (20a))

‘He called Lord Jesus Christ…’ (20b)) (_Actus Petri cum Simone_ 83.14, 6th century AD)

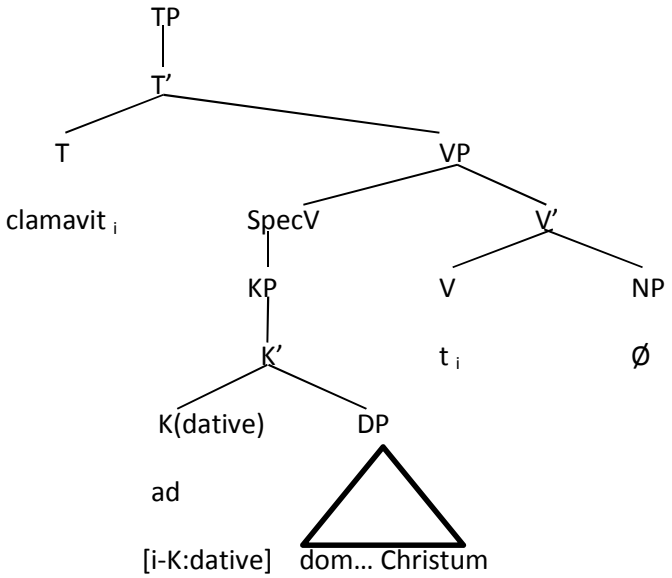
[77] The _ad_-PP here (_ad me_) is functionally parallel to an indirect object in the dative (_mihi_) (cf footnotes 56-58):

1)	clam-o	mihi	ipse:	numer-a	ann-os	tu-os
	shout-PRES.1SG	me.DAT	myself	count-IMPERATIVE.2SG	year-ACC.PL	your-ACC.PL

‘I shout to myself: count your years!’ (Seneca, _Epistulae Morales ad Lucilium_ 27, 4 BC –65 AD)

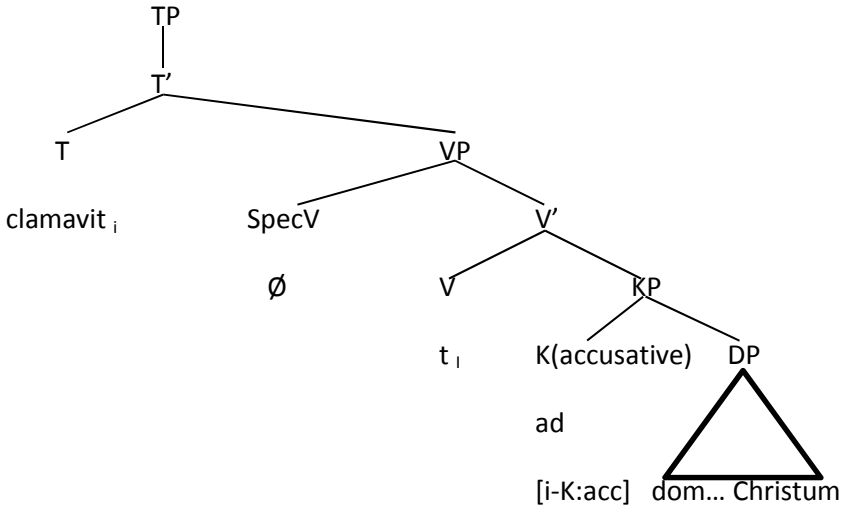
clamare can still be analysed as a three-place predicate if one assumes an empty direct object (20a)):

20a)



Alternatively, *clamare* 'to shout' can be re-analysed as a two-place predicate 'to call' (20b)) in anticipation of Romance (18a-c)) (Meier (1948:123)), in which case *ad* is K(accusative):

20b)



Latin/Romance *ad* has therefore undergone a dual grammaticalization as K(dative) and K(accusative) (Sornicola (1998:420-421)).[78] [79] [80] Formalism alone, therefore, cannot account for the grammaticalization of K(case) completely, as there are sub-types of K(case) whose geneses have to be accounted for in terms of functionalist factors (see footnote 80).

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[78] The re-analysis of indirect objects as direct objects is a strong cross-linguistic trend (Kahr (1976:134-135), Bossong (1991), Sornicola (1998:420-421), Heine and Kuteva (2002:38-39), Heine (2009:467)).

[79] Chinese *ba* is also grammaticalized as different K elements: K(accusative) (section 3.3, ex. 13a-b), 14b)), K(dative) (see footnote 66) and K(instrumental) (section 3.3, ex. 14a) and footnote 70).

[80] See footnote 49 where I argue that SpecV and sister of V can both hold direct (K(accusative)) and indirect (K(dative)) objects. It is therefore impossible to distinguish K(accusative) and K(dative) structurally, since both can occur in SpecV and sister of V. The same applies to Chinese *ba* (see previous footnote), as it is merged in little v (see footnote 64) where there is no structural differentiation between different types of K(case). The sub-types of K(case) cannot therefore be determined structurally and must be determined by functionalist factors, namely the different pragmatic implicatures in different constructions (see footnote 40).

Section 3.6: grammaticalization vs 'lateral' grammaticalization (1):

I argue in Tse (2011:sections 3.3-3.6, 4.2-4.3) that the loss of probe features in *Move*/*Agree* constitutes 'semantic bleaching', and this leads to 'upward feature analysis' of the goal features, which gives rise to 'phonological weakening'/'univerbation' (see sections 2.1, 2.3). In 'lateral' grammaticalization, the grammaticalized items hold interpretable features that are derived from pragmatics, and so none of these phenomena occur (see sections 2.2, 2.3, Tse (2011:section 4.4)).

In the case of P > K, Latin/Romance and English prepositions (P) originally subcategorise ([u-K]) for complements with morphological case (KPs) (section 3.2, ex. 8-9), section 3.4, ex. 15-16), section 3.5, ex. 19-20)). 'Semantic bleaching' is therefore justified since the probe features ([u-K]) in the *Agree* relation between these prepositions (P) and their complements (KPs) are lost. Interpretable K features ([i-K]) are hence shifted upwards from the KP-complements of these prepositions to the prepositions themselves (see footnotes 36 and 53), which is empirically supported by 'phonological weakening' e.g. English *off* > *of*. Modern English *off* and *of* are etymologically related to Old English *of* (Blake (1994:174), Huddleston and al (2002:658)), and while the former is a spatial/lexical preposition and has retained its full pronunciation [ɔf], the latter is a functional preposition and has clearly undergone 'phonological weakening' [əv]. K(case) is therefore justified for these languages, not only because they have morphological case and free word order historically (see footnote 74) but also because there is empirical evidence ('phonological weakening') which attests to an 'upward shift' of interpretable K features.

In the case of V > K, on the other hand, Chinese *ba* acquires interpretable K features which are 'laterally' derived from pragmatics (see section 3.3, ex. 14)). There therefore should not be 'phonological weakening', 'univerbation' or 'semantic bleaching', which is empirically supported: all Chinese deverbal case-markers are phonologically and morphosyntactically strong in modern Mandarin: *ba* (tone 3), *jiang* (tone 1), *qu* (tone 3), *na* (tone 2), *gei* (tone 3), *bang* (tone 4), *dai* (tone 4), *gong* (tone 4), *tong* (tone 2), *gen* (tone 1), *bei* (tone 4) (see section 3.3). I have found no evidence for 'phonological weakening'/'univerbation' in related dialects either.[81] [82] [83] The 'lateral' grammaticalization of Chinese case-markers is therefore empirically supported, which further entails that K(case) does not exist in Chinese, since interpretable K features seem to be 'laterally' inferred from pragmatics rather than from below. K(case) should therefore only be postulated for languages which have morphological case (Latin/Romance/English) and not elsewhere (Chinese), since there is evidence to suggest that K(case) is 'upwardly' grammaticalized in the former but 'laterally'

[81] Zou (1995:77) argues that *ba* is retained as a lexical verb (V) in the certain dialects and is pronounced differently ([ba]) from its use as a case-marker (K) (optionally [bai]). As it is hard to argue that [bai] is 'phonologically weaker' than [ba], these are best analysed as a variant pronunciations rather than 'phonological weakening'.

[82] Feng (2002:134-136) points out that in the grammaticalization of Chinese *ba* there is a prosodic shift away from *ba* to the second main verb. However, as this loss of prosodic focus does not seem to have caused any loss of phonological/phonetic segment in *ba*, prosody is best analysed as extra-phonological here.

[83] Many deverbal case-markers in languages that do not have morphological case are also phonologically and morphosyntactically strong e.g. Engenni *kye* (Lord (1993:38ff)), Ewe *ná* (Heine and Kuteva (2002:54, 153)), Thai *haj* (Heine and Kuteva (2002:149)), Twi *de* (Lord (1993:65ff)), Twi *kyere* (Lord (1993)), Yoruba *fún* (Lord (1993)).

grammaticalized in the latter. K(case) is therefore not equivalent to abstract case but to morphological case (see section 1.4).[84]

Section 4: grammaticalization vs 'lateral' grammaticalization (2):

Although the evidence presented in section 3.6 seems to support the typological and synchronic distribution of K(case) in section 1.4, the empirical evidence is somewhat weak, since the only convincing evidence for 'phonological weakening' in the grammaticalization of case-markers comes from one functional preposition (English *off* > *of*).[85] Furthermore, as 'phonological weakening'/'univerbation' is argued to be probabilistic (see footnote 85), the lack of it need not entail 'lateral' grammaticalization. In this section, I support my partition by looking at 'upward feature analysis' in Chinese and in some cross-linguistic examples of deverbal case-markers.

Section 4.1: grammaticalization in Chinese:

The grammaticalization of Chinese resultative constructions displays 'upward feature analysis' (V > Asp) as well as 'phonological weakening', 'univerbation' and 'semantic bleaching' e.g. *liao* > *le*:

1) Zixu jie meng liao

Zixu interpret dream finish

'After his interpretation of the dream finished…' (1a))

'After he interpreted the dream…' (1b))[86] (*Transformation Texts*, 10th century AD)

Chinese *liao* is originally a lexical verb 'to finish' (1a)) (Shi (1989:100), Sun (1996:85)), and in temporal clauses ('after…') it denotes the end of an activity (*Zixu jie meng* 'Zixu interpreting the dream'), which is hence the subject of the clause (Shi (1989:100-102)):

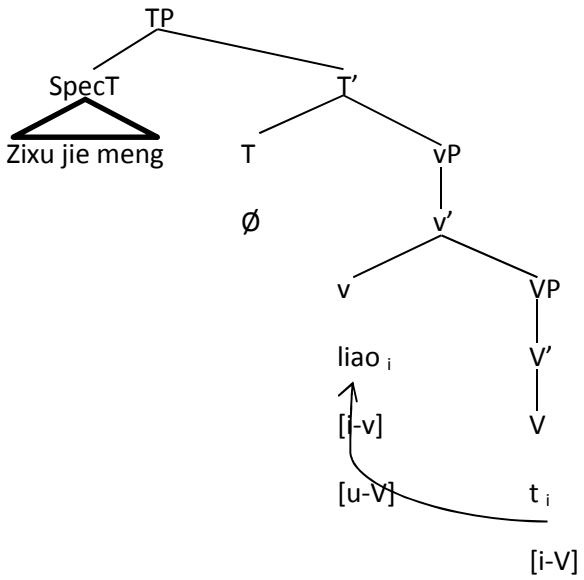
[84] If K(case) were universally postulated as representing abstract case, Chinese *ba* would subcategorise ([u-K]) for a KP complement with interpretable K features ([i-K]) (see sections 1.2-1.4), and when *ba* is re-analysed as a case-marker (K), this *Agree* relation ([u-K]) would be lost and interpretable K features ([i-K]) would be shifted upwards from the complement of *ba* to *ba* itself. All this would entail 'phonological weakening', 'univerbation' and 'semantic bleaching', which does not seem to hold true.

[85] That said, 'phonological weakening' is argued to be a probabilistic tendency rather than an absolute universal in grammaticalization (Campbell (2001:121-122), van Gelderen (2011:6), Heine (1993:109)). Negative evidence does not disprove grammaticalization whereas any positive evidence, however insubstantial, should be sufficient to support it (cf Tse (2011:section 2.4, especially footnote 20)). Furthermore, all the prepositions in sections 3 (Latin/Romance *de*, *ad,* English *off*/*of*, *to*) are already monosyllabic before grammaticalization, which makes them phonologically sub-minimal (Nespor and Vogel (1986:134-136), Kentowicz (1994:640ff)). 'Phonological weakening' is therefore somewhat unlikely. English *off* > *of* is therefore a striking example of 'phonological weakening', which may constitute strong evidence for 'upward feature analysis'.

[86] *liao* here corresponds to *–le* in modern Mandarin, which is a verbal suffix (Shi (1989:100)):

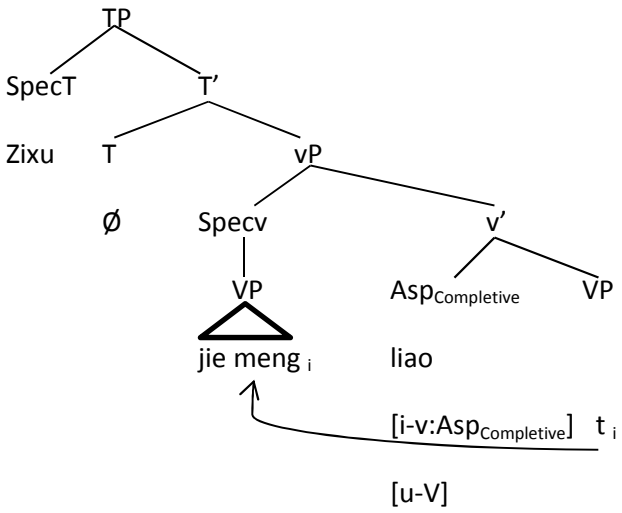
1) Zixu jie-le meng
Zixu interpret-COMPL dream
'Zixu has interpreted the dream.'

1a)



liao can be re-analysed as a completive aspectual marker in little v (Shi (1989:102-103)) (1b)), in which case the verb of the subject clause (*jie meng* 'interpret dream') is re-analysed as the main VP raised to Specv (Wu (2004:187-188, 206-215)):

1b)



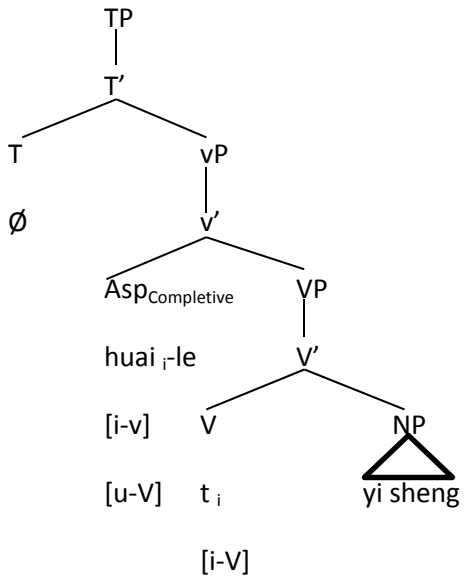
1b) is 'simpler' than 1a), since the probe features ([u-V]) for V-to-v *Move* are lost and *liao* is upwardly shifted from V to v ($Asp_{Completive}$) where its interpretable verb features ([i-V]) become uninterpretable ([u-V]). It thus becomes a verbal suffix to the main verb (Shi (1989:103-104), Wu (2004:211-213)):

2) huai-le yi sheng

ruin-PERF one life

'… you will have ruined your life.' (*Zhuxi's quotations*, 12th century AD) (cf footnote 86)

2)



liao displays 'upward feature analysis' (V > Asp) as well as 'phonological weakening', 'univerbation' (> *-le*) and 'semantic bleaching' (loss of probe feature ([u-V])).[87] 'Phonological weakening' and 'univerbation' are therefore real possibilities in Chinese, especially in 'upward feature analysis'. Their absence in Chinese case-markers is hence striking, since although *ba* is shifted upwards from V to little v as well (section 3.3, ex. 14a-b)), it does not display 'phonological weakening' or 'univerbation', which supports the argument that it has undergone 'lateral' grammaticalization (see section 3.6).

Section 4.2: cross-linguistic examples of deverbal case-markers:

The grammaticalization of deverbal case-markers in languages that have morphological case also displays 'upward feature analysis', 'phonological weakening', 'univerbation' and 'semantic bleaching' e.g. Ute, which is a head-final language (Givón (2006:14, 2011:chapter 5)):

3) kani-vaa-tux qxáar~~u~~-p~~u~~ga
house.OBL-LOCATIVE-GO run-3SG
'He/she ran to the house.'

4) mamachi-vaa-chux qxáar~~u~~-p~~u~~ga
woman.OBL-LOCATIVE-GO run-3SG
'He/she ran to the woman.'

These two deverbal case-markers (*-tux*, *-chux*) are selected by the main verb (*qxáar~~u~~-p~~u~~ga*) and mark its complement (*kanivaa-tux*, *mamachivaa-chux*). The locative ending (*-vaa*) which precedes

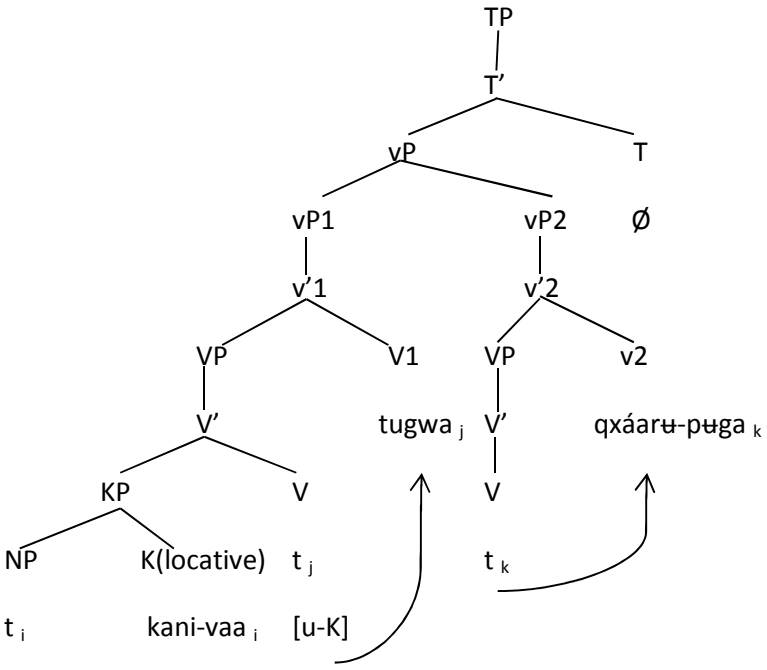
[87] Although Wu (2004:234-235) argues that *liao* is 'univerbated' before undergoing 'phonological weakening' (see Tse (2011:footnote 70)), 'phonological weakening' is beyond question here (*liao* (tone 3) > *le* (tone 0)) and so her argument does not contradict my argument that 'upward feature analysis' causes 'phonological weakening'/'univerbation', even if 'phonological weakening' is not a necessary condition for 'univerbation'. Wu (2004:201) also argues that verbal suffixes in resultative constructions do not display 'phonological weakening', when many of them do (Shi (1989:103)).

them suggests that they originally subcategorise for KP complements in the locative case (Givón (2011:chapter 5)).[88] One can hence reconstruct the following examples (see footnotes 75 and 88):

3a) *kani-vaa-tugwa qxáarʉ-pʉga

house.OBL-LOCATIVE-go run-3SG

'He/she ran and went to the house.'



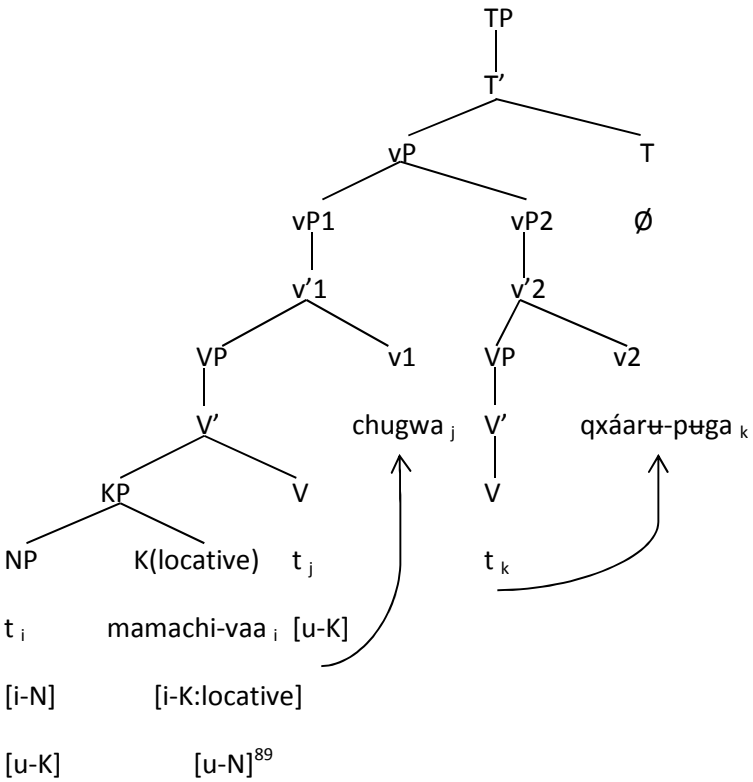
[88] These two case-markers (*-tux*, *-chux*) are retained as lexical verbs (*tugwa* 'to go', *chugwa* 'to go') in modern Ute and still subcategorise for complements with morphological case (KPs) (Givón (2011:chapter 5)) e.g. locative (*-vwaa*) (1)) and oblique (*uwa*) (2)):

1) 'u-vwaa-tugwa-pʉga
there-LOCATIVE-go-3SG
'He/she went there.'
2) 'uwa-chugwa-qa-kʉ
PRO.3SG.OBL-go-1PL-EMPH
'Let's go to him.'

4a) *mamachi-vaa-chugwa qxáar~~u~~-p~~u~~ga

woman.OBL-LOCATIVE-GO run-3SG

'He/she ran and went to the woman.'

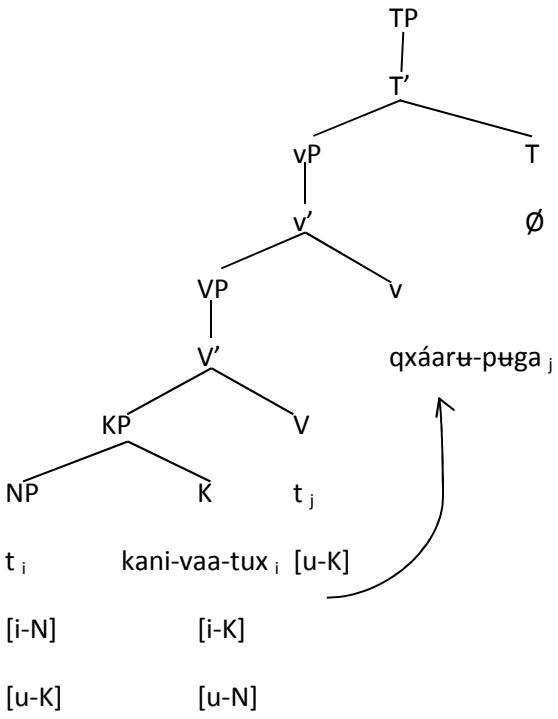


When *tugwa* and *chugwa* are re-analysed as case-markers ('he/she ran and went to the house' > 'he/she ran to the house'; 'he/she ran and went to the woman' > 'he/she ran to the woman'), they become new morphological case-endings:[90]

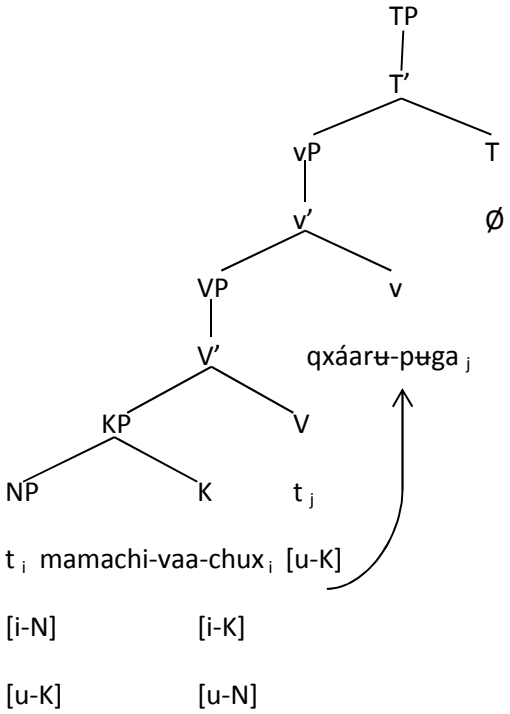
[89] Cf footnote 68 for the structure of serial verb constructions.

[90] The 'stacking' of new morphological endings (*-tux*, *-chux*) onto older ones (*kani-vaa-tux*, *mamachi-vaa-chux*) is very common in the grammaticalization of morphological case (Kulikov (2008:439, 445)).

3b)



4b)



3b) and 4b) are ‘simpler’ than 3a) and 4a) respectively, since the *Agree* relations ([u-K]) between *tugwa* and *chugwa* (V) and their KP complements (*kani-vaa*, *mamachi-vaa*) are lost and the interpretable K features ([i-K]) are shifted upwards from the KP complements (*kani-vaa*, *mamachi-vaa*) to the verbs themselves, which has resulted in ‘phonological weakening’ and ‘univerbation’ (**kani-vaa-tugwa* > *kani-vaa-tux*, **mamachi-vaa-chugwa* > *mamachi-vaa-chux*) (see footnote 90). Indeed, all deverbal case-markers in Ute are ‘phonologically weakened’ and ‘univerbated’ (Givón (2006:24), Heine (2009:463)):

Morphological case-ending	Source-verb
-va/-pa ‘at’	-paa ‘pass (through)’
-kwa ‘to’	-kwa ‘go to’
-chux ‘to (animate object)’	-chugwa ‘meet (animate object)
‘tux ‘to (inanimate object)’	-tugwa ‘go to’
-mana ‘from’	-mana ‘leave’
-caw ‘toward’	-cawi ‘come to’
-naagh ‘in’	-naagha ‘enter’
-tarux ‘on (top)’	-tarugwa ‘climb’
-pa’agh ‘on (top)’	-pa-agha ‘ascend’
-t̶u̶vwa ‘down’	-t̶u̶vwa ‘descend’
-ruk ‘under’	-rukwa ‘descend’
-yaakwi ‘down into’	-yaakwi ‘descend into’
-paw ‘down’	-pawi ‘descend’

‘Phonological weakening’ and ’univerbation’ are therefore also possible in the grammaticalization of deverbal case-markers, as they have occurred in a language which has morphological case (Ute) where there is ‘upward feature analysis’ of interpretable K features ([i-K]) from the KP complements to the lexical verbs due to the loss of the *Agree* relation ([u-K]) between them. This is a contrast to Chinese deverbal case-markers (see sections 3.3, 3.6, and footnote 84), which supports the hypothesis that they are ‘laterally’ grammaticalized.

Conclusions:

The grammaticalization of K(case), a relatively new functional category (see introduction, sections 1.2), has turned out to be very interesting, since not only does it conform to the Minimalist accounts of ‘simplicity’ and ‘cross-linguistic distribution’ (see sections 2.1, 3.2-3.5), there is also evidence which suggests that it conforms to ‘lateral’ grammaticalization in languages that do not have morphological case (e.g. Chinese), since these case-markers display a conspicuous lack of ‘phonological weakening’, ‘univerbation’ and ‘semantic bleaching’ (see sections 2.2, 2.3, 3.3, 3.6). A wider typological investigation is needed to verify these claims,[91] but the typological evidence provided in this paper suggests that K(case) may well have been ‘laterally’ grammaticalized in languages that do not have morphological case, in which case K(case) represents morphological case rather than universal abstract case (see sections 1.3-1.4 and footnote 84). The ‘lateral’ grammaticalization of case-markers yields additional evidence for rejecting the traditional assumption that functional categories are inherently defective at the interfaces (see Tse (2011:conclusion)), since ‘lateral’ grammaticalization seems to produce functional elements that are phonologically, morphosyntactically and semantically strong. The time is now ripe to revise the theoretical conception of functional categories and the linguistic interfaces between syntax and other components of grammar, and the conclusion that can be drawn from this paper and Tse (2011) is that functional elements are only weak when there is ‘upward feature analysis’ (grammaticalization) but strong when there is ‘re-analysis of features from pragmatics’ (‘lateral’ grammaticalization). All this is left for future research.

[91] The grammaticalization of case-markers is traditionally analysed as grammaticalization and there are many typological examples (see, for example, Lord (1993)). In Tse (2011:conclusion), I similarly conclude that a wider investigation is needed for the ‘lateral’ grammaticalization of copula verbs derived from determiners, since although I analyse it as ‘lateral’ grammaticalization (see section 2.2), it is traditionally subsumed under grammaticalization for which there are many typological examples (see Tse (2011:footnote 70)).

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