On the development of two different complementation systems [1]

(1) ***Syntactic Structure of the left periphery*** **(C-Domain)**   (Öhl 2004: 165; Öhl & Korn 2006: 172; Öhl 2009: 22)

matrix: [ForceP [hanging topic [scene setting adv. [left dislocation [list interpr. [contr.foc1 [contr.foc2 [inform. foc [FinP
· · ·]   (Beninca&Poletto 2004: ex. 58)

embedded: [CP [… [ModP [… [Neg [FinP · · ·]

➢ According to cross linguistic evidence, these *potential* positions in the C-system are more or less specified for the following kinds of features they can host:

(2)   (Öhl & Korn 2006: 172; adapted from Rizzi 1997)
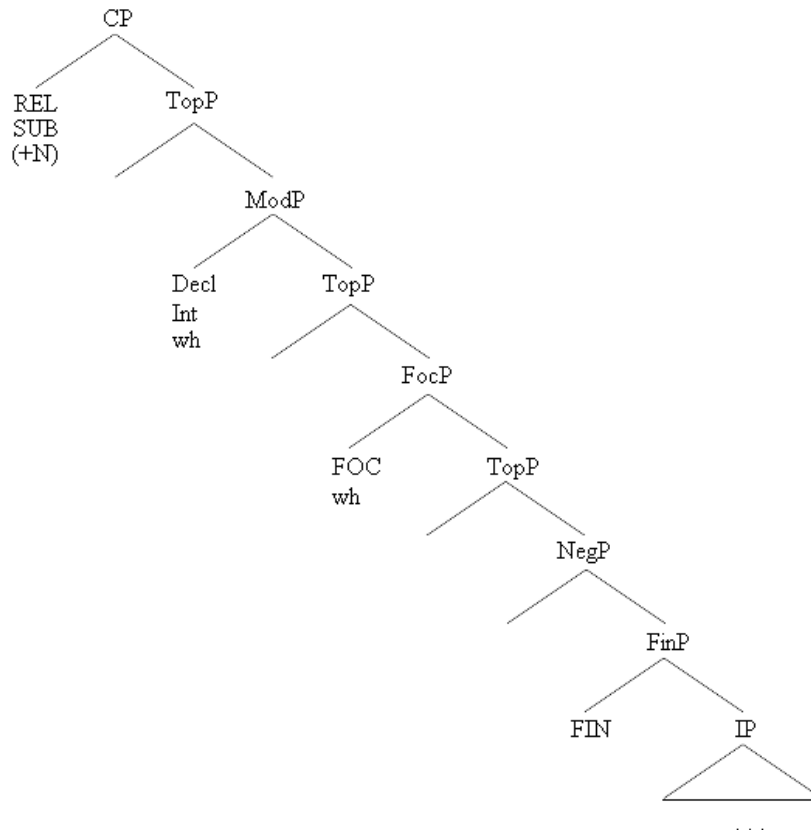
1.1.   Types of Complementisers and their Distribution: some Hypotheses

(3) a. (Man) midānestam ***ke*** pesar zabanšenāsi xāhad xānd.   (Ahmad R. Lotfi, p.c.)
       I − knew − **SUB** *– boy − linguistics – will − study*   *(object clause)*

   b. ū hame-ye pul-esh-o pasandaz-kard ***ke*** pesar-esh betune zabānšenāsī bexune.   (Ahmad R. Lotfi, p.c.)
      he − all-EZAFE *− money*-POSS-ACC *− save*-AUX *−* **SUB** *− boy*-POSS *− can*-SUBJ *− linguistics − study*-SUBJ

      'He saved all his money **for** his boy to be able to study linguistics.'   *(purpose clause)*

   c. raftam ***ke*** ān ketāb-rā bexaram.   (Lazard 1992: 218)
      went – **SUB** *– DEM – book*-ACC *– buy*-SBJ

      'I went away **to** buy the book.'   *(purpose clause)*

   d. nazdīk-e zohr būd ***ke*** mā vāred-e qūčān šodīm.   (Lazard 1992: 239)
      near-EZF *– noon – was –* **SUB** *– we – entering*-EZF *– Qūčān – AUX*

      'It was almost noon, **when** we arrived at Qučan.'   *(temporal clause)*

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e. tū otāq **ke** bāše kamtar aziyat mīkone.   (Lazard 1992: 239)
in – room – SUB – be-SBJ – less – disturbance – makes

'**If** he [a dog] is in the room, he causes less disturbance.'   *(conditional clause)*

f. lotfan marqūm farmāīd **ke** bā'es-e kamāl-e tašakkor xāhad šod.   (Lazard 1992: 244)
please – write – deign – SUB – cause-EZF – fully-EZF – thank – will – be

'Please send it to me, I shall be very thankful for it.'   *(~consecutive clause)*

g. ajale kon **ke** dīr šode ast.   (Behzad & Divshali 1999: 211)
Eile – mach – SUB – spät – geworden – ist

'Hurry up, we are late.'   *(~causal clause)*

(4) a. ū porsīd [CP **ke** [ModP **āyā** [FinP [IP man zabānšenāsī xānde būdam]…]   (Persian; cf. Öhl 2004: 165)
he/she – asked – SUB – INT – I – linguistics – studied-had

b. Muje malum nahin [CP **ki** [ModP **kya** [FinP [IPwo ladke bhasha padh raha hai]…]   (Hindi; cf. Öhl 2004: 165)
me-DAT – know – NEG-is – SUB – Q – DEF – boy – language – study – is

'I do not know **if** boy studies linguistics.'

c. Ami nije-ke jiggEsh kori [CP **je** [TopP chele-TA [ModP **ki** [FinP [IP lingwistiks pORe]…]   (Bengali; cf. Öhl 2004: 165)
I – me-DAT – question – do – SUB – boy-DEF – Q – Linguistics – reads

'I wonder **if** the boy studies linguistics.'

➢ Elements indicating the clause type are generated in a position deeper than that of mere subordinators. The phrase hosting the type feature is dominated by a phrase hosting some feature of syntactic subordination.

(5) Nomízo [CP [TopP (ta míla) [ForceP **óti** [TopP (ta míla) den [FinP **tha** to [IP fai o Pétros]…];   (cf. Roussou 2000: 79)
think-1.sg – DET – apples – COMP – NEG – FUT – ObjCl – eat-3rdsg – DET – Peter

'I do not think Peter will eat those apples.'

(6) a. Nomizo [CP [ForceP **oti** [den [FinP **tha** [IP to agorasi]…]   (cf. Roussou 2000: 66)
think-1stsg – COMP – NEG – FUT – ObjCl – buy-3rdsg

'I think he won't buy it.'

b. Anarotjeme [CP [ForceP **an** [FinP **tha** [IP to agorasi]…]   (cf. Roussou 2000: 79)
wonder-1stsg – COMP – FUT – ObjCl – buy-3rdsg

'I wonder whether he will buy it.'

(7) a. *xarika [to petros [CP **pu** [IP efevɣe]…]
happy-PRET-1stsg – DET – Peter – COMP – leave-IMPERF

b. xarika [CP **pu** [TopP [ForceP [IP efevɣe to petros]…]   (cf. Nicholas 1998: 60)

'I was happy that Peter was leaving'.

(8) a. *Credo, a Gianni, **che** avrebbero dovuto dirgli la verità.   (Italian; cf. Rizzi 2001: 289)
think-1stsg – DAT – G. – that – AUX-PQP-SUBJ-3.pl – must-PII – say-INF – DET – truth

'I think **that** they should have told the truth to John.'

b. Non so, [CP [TopP a Gianni [IntP **se** [[IP avrebbero potuto dirgli la verità]…]   (cf. Rizzi 2001: 289)
NEG – know-1stsg – DAT – G. – if – AUX-PQP-SUBJ-3rdpl – can-PII – say-INF – DET – truth

'I do not know **if** they could have told the truth to John'.

⇒ It. **che** is no *complementiser* indicating the clause type, but a mere *subordination marker* (as is Persian **ke**).

(9) Credo, [CP **che** [TopP a Gianni [ModP [FocP [FinP [IP avrebbero dovuto dirgli la verità]…]
think-1stsg – DAT – G. – SUB – AUX-PQP-SUBJ-3.pl – must-PII – say-INF – DET – truth

➢ In the absence of markers of clause mood, the clause type is interpreted by default.

(10) a. (Man) midānestam [**(ke)** [pesar zabanšenāsi xāhad xānd]]   (Persian)
      I - knew - SUB - boy - linguistics - FUT - studied

      "I knew that the boy would study linguistics."

    b. maiN jaantaa thaa [**ki** [laṛkaa bhaasaa-vijnan paṛhegaa]]   (Hindi)
      I - know - was - SUB - boy - linguistics - study(FUT)

      "I knew that the boy would study linguistics."

    c. Ami bol-lam [**je** [chele-TA lingwistiks pORe]]   (Bengali)
      I − said − SUB − boyDEF − linguistics − studies

➢ Subordination markers but not complementisers indicating the clause type are used as relativisers.

(11) kesī **ke** to dīde-ī emrūz raft.   (Persian; Lazard 1992: 229)
     someone – SUB – you – have -seen – today – went

    'Someone that you saw went away today.'

(12) Un oumo ***che*** ritengo potergli parlare.   (Italian; Rizzi 1997: 310)
     a – man – SUB – believe-1stsg *– can-to – talk*

    'A man of whom I believe that you can talk to him.'

(13) Thelun éna voitho **pu** ta anglika **na** (to) milai kala.   (Roussou 2000: 78)
     want-1stpl *– an – assisstant – SUB – DET – English – SBJ – (ObjCl) – speaks – well*

(14) The man ***that*** you saw yesterday went away today.   (English)

(15) a. Der Mann, **den** ich sehe.   (German)
      the – man – who – I – see

    b. *Der Mann **dass** ich sehe.
      the – man – SUB – I – see

(16) a. *de man ***dat*** ik zie   (Dutch)

    b. de man ***die*** ik zie   (Dutch; Joost Kremers, p.c.)
      the – man – who – I – see

(17) Ze weet [$_{CP}$ **wie** [$_{ModP}$ **of** [$_{FinP}$ **dat** [hij had willen opbellen]]]]   (cf. Bayer 2004: 65f; Hoekstra 1993)
     she – knows – who – if – that – him – has – want – call

    'She knows who wanted to call him.'

(18) ***Feature Scattering Principle***   (Giorgi & Pianesi 1997: 15)
    Each feature can head a projection.

(19) ***Principle of Feature Syncretism***   (Öhl 2003: 90; 2009: 24)
    F_1 and F_2 can syncretise a node F° iff there is no $F_3 \neq F_1 \vee F_2$ logically superordinate to F_2 and subordinate to F_1. F_α and F_γ may not syncretise if there is a F_β and a logical hierarchy α > β > γ.

➢ Distributional variation of complementisers follows from different positions in a parametrically variant C-Domain, where functional phrases are ordered corresponding to the conceptual hierarchy of the features projecting them.

1.2.   Other modal features in embedded clauses

• Complementary distribution of ***na*** (subjunctive PTC) and (declarative CMP) ***óti*** in Greek:

(20) Theli [$_{CP}$ (*oti) [$_{ForceP}$ **na** min [$_{FinP}$ to [$_{IP}$ agorasi]…]   (cf. Roussou 2000: 79)
     want-3rdsg *– (*CMP) – SBJT – NEG – ObjCl – buy*-3rdsg

    'I do not want him to buy it.'

- Volitional verbs select a specific CMP in Latvian (Öhl 2003: 306).

(21) a. Es domāju, **ka** zēns kādreiz mācīsies lingvistiku
   I – think – CMP – boy – once – study-FUT – *linguistics*

   b. Es vēlos **lai** viņš nemācās lingvistiku
   I – demand – CMP *– he –* NEG*studies – linguistics*

- Russian '*čtob(y)*' (Öhl 2004b; cf. Meyer 1999, 167):

(22) a. Ja ožidaju, **čto** mal'čik budet izučat' lingvistiku.   (Öhl 2004b: 163)
   I – expect – SUB *– boy – will – study – linguistics*

   b. Ja trebuju, **čtob** ty izučal lingvistiku.
   I – demand – CMP *– you – study – linguistics*

(23) a. Ja dumaju, [$_{CP}$ **čto** [$_{TopP}$ lingvistiku [$_{FinP}$ [$_{IP}$ mal'čik [$_{I'}$ **budet** [$_{VP}$ izučat']···]
   I – think – SUB *– linguistics – boy – will – study*INF

(24) Ja xotela **by**, [$_{CP}$ **čto** [$_{ModP}$ **by** [ja byla tam]···]
   I – wished – SBJT – COMP – SBJT *– I – was – there*

- In Finalsätzen:

(25) a. Xans govorit očen' tixo **čto**-**by** ne razbudit' Franca
   Hans – speaks – very – softly – CMP – SBJT – NEG *– wake – up – Franz*

   b. Pauls runā ļoti klusu **lai** nemodinātu Jāni
   Paul – speaks – very – softly – CMP – NEG*awake*FUT *– John*

   'Hans spricht sehr leise, um Franz nicht aufzuwecken.'

1.3.   Grammaticalisation

- *Clines* (cf. Lehmann 1995: 309):
   autonomous > dependent (pragmatic marker > CMP)
   concrete > abstract (REL > SUB)

- *Language Change and Economy*:

(26) ***Least Effort Strategy*** (LES)   (Roberts 1993: 10)

   Representations assigned to sentences of the input to acquisition should be such that they contain the set of the shortest possible chains (consistent with (a) principles of grammar, (b) **other aspects of the trigger experience**).

(27) **move > merge**   (Roberts&Roussou 2003: 194ff)

(28) ***Heads-over-Phrases***   (van Gelderen 2004: 61)

   Be a Head rather than a phrase (if possible).

(29) ***Late Merge***   (ibd.)

   Merge as late as possible.

(30) ***Maxime of cognitive economy***   (cf. Öhl 2009: 26)

   Generate minimal structures converging with sufficient specification of logical interpretation.

(31) ***Competing Principles of Cognitive Economy***   (cf. Öhl 2009: 27)

   a) structures are minimal wrt the generative expense

   b) structures are sufficiently specified wrt the logical interpretation

Effects on speech production/performance:

⇒ (a) structural simplification

⇒ (b) creative use of linguistic means (e.g. *lexical* elements that imply *functional* meaning, s.b.)

Effects on language acquisition (grammar/parametrisation):

⇒ (a) structural simplification

⇒ (b) assignment of functional features to lexical items by language learners

➢ Does (b) presuppose innate knowledge of functional features (e.g. in the C-Domain)?

1.4. Integration: Performance and Parametrisation

➢ The basic rules of a grammar can't be changed, created or get lost but through language acquisition (*abductive change*; cf. Andersen 1973: 774ff).

➢ Variation in performance serves the optimisation of the functioning of a language (langue/parole):

▪ When applying of the rules of grammar, speakers seek to economise speech production and be at the same time expressive.

➢ Performance based changes modify the input for language acquisition. Therefore, in processes of grammaticalisation, changes of the *core grammar* are often initialised by '*functional variation at the fringe*'.

➢ *Regularisation/ generalisation* may take place via parameter resetting.

2. Grammaticalisation of *ke* and *āyā*

(32) ***Distribution of Markers in the C-Domain of Embedded Clauses***　　　　　(Öhl & Korn 2006: 172)

CP: subordination markers; relative elements

ModP: elements that indicate clause mood (and may indicate subordination) (particles, complementisers, *wh*-elements(?))

➢ Mere markers of subordination often arise through the structural reanalysis of relative constructions due to economy principle (31a) and the correlated loss of semantic features (cf. also Öhl 2010 for Latin; Lühr 1989: 156ff & Lühr 2005 for Latin and other Indoeur. languages).

➢ Elements indicating the clause type may originate from elements that did not necessarily belong to the C-domain of a clause; they arose through the replacement of concrete semantic features by abstract functional features due to recategorisation as functional heads representing features of *clause mood* – which requires (innate) knowledge of these functional categories.

E.g.: Romance *si* originally was a Lat./IE demonstrative adverb or discourse marker indicating expectation (cf. Brugmann 1904: 670, 696; comp. Lat. *sic,* Engl. *so*). It could indicate *prospectivity* and was the source for reanalysis of a whole range of nonveridical markers (→ interrogative & conditional complementisers) (cf. Öhl 2009: 28ff.).

(33) a. sto expectans **sī** quid mi imperent　　　　　(Brugmann 1904: 696)
　　　 *stand*1stSg – *expecting* – '**so**' – *what* – *to-me* – *order*.SUBJ.3rdPL

　　　 ≈'I stand waiting – so what may they order me?'

　 b. **sī** nunc se nobis ille aureus arbore ramus ostendat nemore　　　　　(Verg., Aen. 6, 187)
　　　 '**so**' – *now* – *itself* – *to-us* – *that* – *golden* – *tree*-Abl – *leave* – *show*-SBJT – *grove*-ABL

　　　 ≈'So that golden leave from the tree of the grove shall now appear to us.'　　　　　(⇒ INT-PTC?)

(34) a. Captīvī cōnābantur, **sī** effugere possent.   (Bayer & Lindauer 1990, 221)
       prisoners – tried – CMP *– escape – could*

       'The prisoners tried out, if they could escape.'   ($\Rightarrow$ INT-CMP?)

     b. **Sī** tacuisses, philosophus mansisses.   (Boethius, Cons., II/7)
       CMP *– be-silent.*PLQPERF.2NDSG *– philosopher – remain.*PLQPERF.2NDSG

       'If you had been silent, you would have remained a philosopher.'   ($\Rightarrow$ COND-CMP?)

2.1.   Structural Simplification: REL > SUB and the *LES*

- Persian (cf. Korn & Öhl 2006: 184ff.)

1. REL **'$k\bar{u}$'** [+*wh*] > PTC **'$k\bar{u}$'** [+*wh*]   (*move > merge;* →loss of LOC)

(35) abāz ward **kū** āmad hē   (cf.21a; M 2 I R ii 28)
       *back – turn.*IPR *–* SUB *– come-have.*2SG

       'Return to where ([the place] that) you came from!'

(36) gyāgīhān **kū**-šān passazag   (cf.21b; M 8251 I V 4)
       places – SUB-PRON3PL *– fitting*   (Transliteration s. Andreas & Henning 1933: 310)

       'the places where [it is] (= that [are]) fitting for them'

2. PTC **'$k\bar{u}$'** [+*wh*] > SUB **'$k\bar{u}$'** [−*wh*]   (loss of *wh*)

(37) u-mān kāmag **kū** ōy ō dar ī amā frēstēh   (cf.19; *Kārnāmag ī Ardašīr ī Pābagān* 2: 7, DDM 291)
       and-PRON1PL *– wish –* SUB *–s/he – to – court –* EZF *– we – send.*2SG

       'And it is our wish that you send her/him to our court.'

3. REL **'$k\bar{e}$'** [+*wh*] > SUB **'ki'** [−*wh*]   (*move > merge;* → loss of *wh*)

(38) spāh Kirm **kē** pad diz būd   (cf.17; *Kārnāmag ī Ardašīr ī Pābagān* 10: 17)
       *army – PN – which – in – castle – was.*3SG

       'the army of Kirm, which was in the castle'

(39) šenīdam **ke** ū xāhad āmad.   (cf.1; Lazard 1992: 222)
       *heard.*1SG *–* SUB *– s/he – will.*3SG *– come*

       'I heard that s/he will come.'

4. ~~SUB **'$k\bar{u}$'** [−*wh*]~~ → SUB **'ke'** [−*wh*]:   (*lexical economy*: ousting of synonyms)

5. ~~CMP **ka** [CND/TMP]~~ → SUB **'ke'** [−*wh*]:   (*lexical economy*: ousting of synonyms)

(40) ud **agar** ardīkkār īg wizēšt windān [...] taxtīhā(h) padīrag dušmenūn kōšān   (M 171 V 5ab;
       and – if – warriur – EZF *– strong – find.*1SG-SBJ *– hard – against – enemies – kill.*1SG   DDM 329)

       'If I found a strong warrior, I would act against my enemies hard and deadly.'

(41) nazdīk **ke** āmad ū-rā šenāxtam.   (cf.3a; Lazard 1992: 238)
       near – SUB *– came.*3SG *– s/he*-FOC *– recognised.*1SG

       'When s/he came near I recognised her/him.'

2.2.   *āyā* – a Case of Gaining Functional Features due to Reinterpretation

- Development of NPrs. **āyā**: *reduction, structural reanalysis* and *recategorisation* (**ayāb > yā > āyā**):

1. X **ayāb** Y > X **yā** X   (performance based change: *phonological reduction*)

(42) kahas ī mard pad zamīg ī xwēš **ayāb** pad zamīg ī hambaragān kunēd   (cf.29; Farroxmard ī Wahrāmān § 85: 8)
canal – EZF – *man* – *in* – *ground* – EZF – *own* – AYAB – *in* – *ground* – EZF – *cooperative* – *make*.3SG

'The canal which a man makes on his own piece of land or on the piece of land of a cooperative ...'

2. X *ayāb* ¬X > X *yā* ¬X   (performance based change: *conventionalisation of formulae*):

(43) ud nē dānēd, kū dōš ka man bē āmad ham, ānōh būd **ayāb** **nē**   (cf.31; *Šāyast-nē-šāyast* II: 72)
and – *not* – *know*.3SG – SUB – *yesterday* – *when* – *I* – PTC – *come-have*.1SG – *there* – *was*.3SG – AYAB – *not*

'And s/he does not know: When I came yesterday, was it there [already] or not?'

(44) šomā tašrīf mīārīd **yā na**?   (cf.27; Lazard 1992: 212)
you – *honour* – *bring*.2PL – YA – NEG

'Will you give [us] the honour or not (i.e.: Will you come to our house?)'

!   The construction is conventionalised as an indicator of interrogatives in *Farsi* (standard modern Persian).

3. *agar* X *yā* Y > *yā* X *yā* Y   (*structural reanalysis & lexical recategorisation*)

(45) ... tā (...) wāspuhr (...) wēnam (...) **agar** zī(wa)ndag **ayāb** murdag   (cf.32; *Ayādgār ī Zarērān* 79, DDM 332)
that – *(...)* – *Waspuhr* – *see*.1SG – *(...)* – *if* – *living* – AYAB – *dead*

... that I may see Waspuhr, whether/either alive or dead.'

(46) **agar** dād xāhī hamē **yā** sitam   (cf.33; *Šāhnāma* II: 83, Z. 139)
if – *right* – *order* – *give*.SUBJ2SG – *if* – *wrong*

'whether you command the right or the wrong thing'

(47) gomān mīkonam **yā** emrūz **yā** fardā.   (cf.28; Behzad & Divshali 1999: 90)
assumption – *make*.1SG – YA – *today* – YA – *tomorrow*

'I assume [s/he comes] (either) today or tomorrow.'

4. *yā* > *āyā*:   (*structural reanalysis*)

- Development of an interrogative particle out of a phonematically distinct derivative of *yā*:

Phonological cliticisation to the matrix verb ⇒ *structural ambiguity* facilitating reanalysis:

(48) guft-**ā** **yā** buzurg ast **yā** kučik?   (cf.39)
uttered.3SG-A – YA – *big* – *is* – YA – *small*

> guft **āyā** buzurg ast **yā** kučik?
uttered.3SG- AYA – *big* – *is* – YA – *small*

(49) nemīdānam **āyā** beravad **āyā** naravad.   (cf.12; Najāfī 1999: 43)
NEG*know*.1SG – AYA – *go*.SUBJ3SG – AYA – NEG.*go*.SUBJ3SG

'I don't know whether s/he goes or not (lit.: [or] whether s/he does not go).'

5. *āyā* X (*yā* Y)   (*parametric change: (re)categorisation*)

- Use of *āyā* as interrogative marker from the 14th ct on:

(50) ānān ki xāk-rā ba nazar kīmiyā kunand   (*Ḥāfiẓ*, 14th ct. AD)
DEM.PL – REL – *earch*-RA – *to* – *glance* – *alchemy* – *do*.3PL

āyā buvad ki gūša-yi čašmī ba mā kunand   (cf.10)
AYA – *be*.SUBJ3SG – SUB – *corner*-EZF – *eye* – *to* – *we* – *do*.3PL

'Those who through a glance transform the earth to something precious, would it [ever] happen that they look at us?'

- What the language learners had at their disposal for acquiring a new parametrical realisation of Mod° was:

1. (Innate?) knowledge of functional features in the left periphery (*C-Domain*).

2. Logically underspecified or even ambiguous input with the combination of ***yā*** and other particles, interpretable as interrogative expressions.

3. At least one possibility to reanalyse ***āyā*** from ***yā*** in order to find a lexeme in the input that could be categorised as interrogative particle.

3.   Conclusion

- The reason why there is a construction like [$_{CP}$ ***ke*** [$_{ModP}$ ***āyā*** …] in SNPrs. is that ***āyā*** was not grammaticalised as a CMP, because it was not assigned a feature SUB. This is because Persian has a generalised marker of subordination ***ke*** that does not carry typal or modal features.

- It was shown that both markers developed through processes of structural reanalysis and (re)categorisation. These were supported by preceding performance based changes creating the suitable input conditions for parametric changes.

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