Comitative P

Anna Maria Di Sciullo, Marco Nicolis, Stanca Somesfalean
Université du Québec à Montréal[*]

This chapter investigates the diachronic development of the Italian comitative preposition *con* 'with' and its pronominal complement. We verify the predictions of the Directional Asymmetry Principle, an independently motivated developmental universal, in the diachrony of Italian and argue that symmetry breaking reduces the choice between a valued and an unvalued variant of a functional feature associated with a functional head, here comitative P. As predicted by our hypothesis, this choice, which was available in earlier stages of Italian, is gradually reduced in Modern Italian. We relate variation in language to variation in evolutionary developmental biology. Because language variation is biologically grounded, and variation is a central concept in biology, a deeper understanding of linguistic diversity can be foreseen, that is an understanding that goes beyond explanatory adequacy.

Key words: diachrony of Italian, comitative P, P-Shell analysis, developmental universals, directional asymmetry principle, symmetry breaking

Purpose

We aim to understand grammar on the basis of notions that have been shown to shed light on the dynamics of complex systems such as biology and physics, namely the notions of symmetry, asymmetry and symmetry breaking. These notions, we claim, ensure essential conceptual unification between language and biology.

We build these notions into what we call a developmental universal, following Di Sciullo (2013), and explore the predictions of this universal for language diachronic variation. These notions, we claim, also ensure a connection between the operations of the Faculty of Language, experience, and third factor principles in the sense of Chomsky (2005) and related works.

Advances have been made on articulated PP structures (Den Dikken 2010, Noonan 2010, Svenonius 2010, Koopman 1997, Jackendoff 1990, a.o.). We consider a type of non-locative PP usually not considered in the split-PP framework of Cinque and Rizzi (2010)

and related works. We focus on the variation in the position of the prepositional head in PPs in the diachrony of Italian, targeting the cases where the head is comitative,[1] and the complement is pronominal.

Latin is strongly prepositional, and comitative P generally precedes the pronoun, (1), but may also follow it, (2)-(4). In Old Italian (13th and 14th centuries) a reduplicated form of commutative P may also be found in the PP.

(1)   Cvrcvlio
        […] tum isti Graeci palliati, capite operto qui ambulant,qui incedunt suffarcinati **cum libris, cum sportulis**, constant, conferunt sermones inter sese drapetae, obstant, obsistunt, incedunt **cum suis sententiis**, quos semper videas bibentes esse in thermipolio […]
                                                                    (Plautus, Curculio 2.3)
        'And then those Grecians with their cloaks, who walk about with covered heads, who go loaded beneath their cloaks **with books, and with baskets**, they loiter together, and engage in gossipping **among themselves**, the gad-abouts; you may always see them enjoying themselves in the hot liquor-shops'

 (2)   Cappadox
        Quid **mecum** est tibi?
        aut tibi?   (Plautus, Curculio 5.3)
        'What have you to do **with me**?
        Or what have you?'

(3)   Lyco
        Tecum oro et quaeso, qui has tabellas adferet tibi, ut ei detur quam istic emi virginem, quod te praesente isti egi teque interprete, et aurum et vestem.
                                                                    (Plautus, Curculio 3.1)

        'I beg and request **of you** [lit. with you] that, the person who delivers this letter to you, to him be given up the girl whom I purchased there (which I did there in your presence, and you being the negotiator), and the golden trinkets and clothes as well.'

(4)   Chrysalus
        […] senex in Ephesum íbit aurum arcessere, hic nostra agetur aetas in malacum modum, siquidem híc relinquet neque **secum** abducet senexmed et Mnesilochum quas ego hic turbas dabo!

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[1] Comitative prepositions, such as the Italian *con* (with) are associated with a wide range of interpretations, including the accompagnative, the conjunctive and the inclusive interpretation (Ladusaw 1989, McNally 1989, Schwartz 1985, Stolz et al. 2006, a.o.). We will not discuss the semantics of PP headed by a comitative P, the internal structure of the comitative P, nor the syntax-semantic mapping of comitative projections. We will concentrate on the diachronic variation in the distribution of the constituents of PPs headed by a comitative P.

'The old gentleman will be going hence to Ephesus to fetch his gold; here our life will be spent in a delicious manner, since the old man will leave me and Mnesilochus here, and not be taking us along **with him**'

We assume the basic methodological principle of Minimalism, according to which, all things being equal, the simplest explanation is the correct one. We propose an account for this variation in terms of the P-Shell structure, (5), which we take to be the minimal structure for functional categories, as in Di Sciullo (2000, 2005). The P-shell consists of two layers of asymmetric projections. The lower and the higher heads of the P-Shell host valued and unvalued features. The lowest P head is the locus of unvalued D features, [uD], Case features, as well as valued semantic features. The higher P head is the locus of valued semantic features, and it may also be the locus of [uD] in certain languages. The DP complement is a sister of the lower P head, and must be displaced for feature valuation. Since both P heads contribute to the semantics of the comitative PPs, to be interpretable at the CI interface the comitative shell cannot be deficient, that is, it cannot consist only of the projection of the lower P structure.[2]

(5)
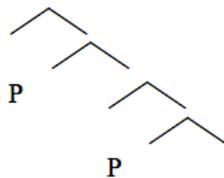
We provide evidence from the diachrony of Italian suggesting that with comitative Ps, at least two P-shells should be distinguished. The P-shells illustrated in (6) are projections of DP, but P shells can also be found in the left periphery of other functional projections, including vP.

(6)
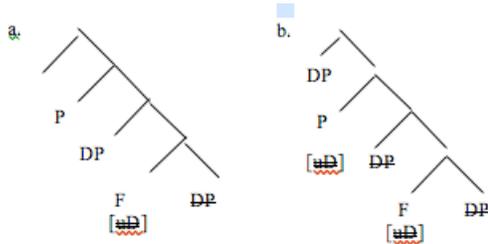
This work brings additional supports to the Shell analysis for functional elements including comitative Ps. It also brings support to recent cartographic work (e.g. works in Cinque and Rizzi 2010) showing that the structure of spatial Ps is highly articulated, thus

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[2] The trees in (5) and (6) have no category labels on the non-lexical nodes. We will not discuss label free syntax here as it is orthogonal to the purpose of our paper. See Chomsky (2013, 2015); Collins (2002, 2014).

following the fate of T, C, D. We aim to explain the variation in the position of the complement with respect to its comitative P head in the diachrony of Italian in terms of the triggering of displacement operations for feature valuing (Chomsky 1995, et seq). Moreover, we ask the question of why fluctuation in the position of the comitative P head with respect to its complement observed in previous stages of Italian is no longer possible in modern Italian. We provide an explanation to this phenomenon, which is neither construction nor language specific, in terms of the intervention of factors reducing complexity in the sense of Chomsky (2005, 2013).

We start by showing that the phenomenon is not language specific, and provide evidence from the diachrony of English, where a pronominal complement may precede or follow its P head, whether comitative or not, whereas this is no longer the case in Modern English. We then provide evidence from Old Italian that this is also the case for the pronominal complement of a comitative P head. We propose an analysis of the variation in terms of feature valuing within the comitative P-Shell. While pragmatic factors could play a role in the emergence of this variation, its gradual elimination is explained in terms of the Directional Asymmetry Principle (DAP), proposed in Di Sciullo (2011, 2012), as being a factor external to the language faculty that reduces complexity. We provide statistical evidence from Old Italian supporting the DAP in the last section.

We relate variation in language to variation in biology. Because language variation is biologically grounded, and variation is a central concept in biology, a deeper understanding of linguistic diversity can be foreseen, that is an understanding that goes beyond explanatory adequacy.

1. Variation in P

A striking fact in the development of the nominal domain in Indo-European languages is that while pre and post nominal instances of certain morpho-syntactic elements are possible in earlier stages of these languages, only one position is generally available in more recent stages. This phenomenon is neither language specific nor category specific, as it can be observed in the development of possessive adjectives from Ancient to Modern Greek and from Latin to the Romance languages (Di Sciullo 2011), the definite determiner and the pronominal objects in Romanian (Di Sciullo and Somesfalean 2013, Di Sciullo and Somesfalean 2015), and prepositions in the Indo-European languages (Di Sciullo and Nicolis 2013). For example, in the case of the position of a prepositional element with respect to its pronominal complement, while pre and post positions are possible in Old English (O.E.), as illustrated in (6a,b) and (7a,b), only one position survives in Middle English (M.E.), where expressions where the pronoun precedes the preposition, as in (6c), are not observed. The following examples are from Alcorn (2011:8).

(6) a. Þa   his gebroþru **to him** comon (O.E)
       when his brethren to   him   came
      'When his brethren came to him'
      (cocathom1,ÆCHom_I,_21:346.24.412)

b. ...oððæt se halga gast **him to** com (O.E.)
　　　until　the　holy　spirit　him　to　came
　　　'... until the holy spirit came to him'
　　　(cocathom1,ÆCHom_I,_21:346.24.412(7)

c. *When his followers **him to** came (M.E.)

(7) a. ba ...o..æt se halga gast **him to** com (O.E.)
　　　until the holy spirit him to came
　　　'... until the holy spirit came to him'
　　　(cocathom1,ÆCHom_I,_21:346.24.4121)

b. Pæt wif **him** cwæd a **to** (O.E.)
　　the woman him said then to
　　'the woman then said to him'
　　(coaelhom,ÆHom_5:21.690)

It is worth noting that pre and postpositional structures are not only observed with pronouns. Di Sciullo and Nicolis (2013) provide evidence from several languages including Old Armenian, Old Hittite and Homeric Greek to that effect. For example, the adposition *handerj* ('(together) with') is attested productively both prepositionally and postpositionally in the Old Armenian Gospels in Künzle (1984:394-395) (quoted in H&B p.168):

(8)　　a. *ašakertawk^c-n*　　　　**handerj**
　　　　Disciples-INSTR/PL-CL　with
　　　　"with the disciples"
　　　b. **handerj** *ašakertawk^c-n*
　　　　with　　　　　　disciples-INSTR/PL-CL
　　　　"with the disciples"

Di Sciullo and Nicolis (2013) provide empirical evidence that there is a general tendency in Indo-European languages and beyond to gradually eliminate structures where positional fluctuation is attested: P DP and DP P are both attested in older diachronic stages, but not in modern stages:

Language/time	Dominant	Fluctuating asymmetry	Direct. asymmetry in later stages/derived languages
Old Hittite 17th-16th c. BC	Pr (strongly)	**Yes**	**Yes**: New Hittite (14th-13th c. BC): Po only
Tocharian A Tocharian B 5th-8th c. AD	Po	**Yes**	**?**: No languages derived from Tocharian
Old Armenian 5th – 9th -c. AD	Po	**Yes**	**Yes**: Modern. Armenian (Po, few relics of Pr)

Homeric Greek **1000-800 BC**	Pr	**Yes**	**Yes**: Modern Greek (fully Pr)
Old Georgian **5th century**	Po	**Yes**	**Yes:** Modern Georgian (almost fully Po)
Albanian	Pr	**No**	**Yes:** Modern Albanian (Pr)
Old Persian **from 2nd millen. BC**	Po: Cuneiform Persian Pr: Gathic Pr: Younger Avestan	**Yes** **Yes** **Yes**	**Yes**: Persian (Pr) **No**: Pashto (still mixed, both Pr and Po)
Indo-Aryan **Vedic Sanskrit** **1200BC**	Po	**Yes**	**Yes**: Hindi (fully PostP)
Old Slavic	Pr	**Yes**	**Yes:** Czech, Serbian, Bulgarian **No:** Russian
Old Germanic	Pr	**Yes (OE)**	**Yes:** English (Pr only) **No:** Dutch (mixed)

Figure 1: Diachronic variation in the position of P with respect to its DP complement, Postposition (Po), Preposition (Pr), and fluctuation between Po and Pr, in a sample of Indo-European languages.

Figure 1 reveals that languages close to Indo-European either predominantly prepositional or predominantly postpositional went through a stage of fluctuation where both Pr and Po were attested in PPs, and that this fluctuation tends to be eliminated diachronically, as evidenced in Di Sciullo and Nicolis (2013). An explanation is required as for why such stage of fluctuation emerged and why it tends to be eliminated in time. We address these questions below. The next section presents evidence from Old Italian for the fluctuation in the position of the comitative P head and its pronominal DP complement.

2. Variation in comitative P in Old Italian

The analysis of Boccaccio's Decameron and of a corpus of 13th century Florentine[3] indicates the following distribution of P elements: P uniformly precedes its complement, except in the case of the comitative preposition *con* (with), where monosyllabic personal pronouns *me, te, se* (me, you, himself) are cliticized onto the preposition yielding *meco, teco, seco* (me.with, you.with, himself.with), (9)[4]. Instances where the comitative P *con* precedes a monosyllabic personal pronoun are also attested, (10).

(9) a. [...] e per li compagnoni che **teco** fuggiro, per li dei [...]   (Brunetto, Rettorica)
     'and for the friends who escaped **with you**, for the gods…'

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[3] The Corpus Taurinese contains Old Florentine texts and is based on *TLIO Tesoro della Lingua Italiana delle Origini*, www.vocabolario.org.
[4] In Latin, the cliticization on the comitative P was generalized to all personal pronoun independently of monosyllabicity: *mecum, tecum, secum*, but also *nobiscum, vobiscum* (ablative), and *noscum, voscum* (accusative) in late stages of Latin, see Rini (1990), a.o.

b. E sua bieltate è di tanta vertute, che nulla invidia a l' altre ne procede , anzi le face andar **seco** vestute di gentilezza , d' amore e di fede.   (Dante, Vita Nuova)
'And her beauty is so virtuous that there is no envy from the others, she made them go **with her**, with [lit. dressed of] kindness, love and faith.'

c. E poco stante venne contra lei un grandissimo cavaliere molto sformato e terribile a vedere, tutto armato d' arme nere , in su 'n un grandissimo destriere ; e avea **seco** tanta gente , che tutto 'l campo copriano   (Bono, Libro Vizi)
'And close by came a cavalier against her, very large, deformed and terrible to the sight, well armed with black weapons, on a very large horse; and he had **with him** so many people who were covering the entire field.'

(10)   a. neiente de lo mondo ; **con te** le tue parole voria conte avere...
                                             (Rinuccino, Sonetti)
'nothing of this world; **with you** your words I would like to have […]'

b. Ballata , i' voi che tu ritrovi Amore , e **con lui** vade a madonna davante , sì che la scusa mia, la qual tu cante , ragioni poi **con lei** lo mio segnore.
                                             (Dante, Vita Nuova)
'Ballata, I want you to find love again, and **with him** go to see the madonna in front, so that my excuse, which you sing, you reason **with her** my lord'

There are two subclasses for the *meco, teco, seco* cases. They can in fact either appear on their own, where *con* appears to function as a postposition, or as post-P complements of the preposition *con* (e.g. *con meco, con teco, con seco*).

(11)   a. E perciò ch' io so bene ch' assai val meglio che tu parli **con teco**, che né io né altri , sì fo io fine alla mia diceria.
                                             (Brunetto, ProLigario)
'And therefore I know that it is much better that you speak **with yourself** [lit. with you], rather   than neither with me nor with others, so that I put an end to my gossip.'

b. Gli altri tenea in pregione, e costui di fuori, **con seco**, e vestialo nobilemente.
                                             (Anonimo, Novellino)
'He was keeping the others in prison and this one outside **with him** dressed like a noble man.'

We argue that the head hosting *co-* is distinct from and lower than the head hosting *con*. Alongside structures like (11a), repeated here in (12a), structures like (12b) are also

attested, *esso* being a focalizer of the following DP, not the homophonous personal pronoun. Notice that *esso* occasionally modifies adjectives as well.[5]

(12) a. E perciò ch' io so bene ch' assai val meglio che tu parli **con teco**, che né io né altri , sì fo io fine alla mia diceria.

(Brunetto, ProLigario)

'And therefore I know that it is much better that you speak with yourself [lit. **with you**], rather   than neither with me nor with others, so that I put an end to my gossip.'

b. Non ti dar malinconia, figliuola, no, ché egli si fa bene anche qua; Neerbale ne servirà bene **con esso teco** Domenedio.

(Boccaccio, The Decameron)

'Don't be sad daughter, no, because he will do well here as well; Neerbale will do well **with you** [lit. with FOCALIZER you] Domenedio.'

By the time of Goldoni's comedies (18th c) two developments are observed: on one hand, cases like (11) are virtually unattested. On the other hand the cliticised forms are less frequent and *meco, teco, seco* alternate with *con me, con te, con se* at virtually 50% frequency[6]. The choice between the two does not appear to be regulated by any formal grammar principle, but rather by pragmatic factors whereby *seco* is used when the speaker wants to remark its higher social status and viceversa. The examples below, from Garcia (1999), illustrate this.

(13) Colombina : **Con me** puo parlarne con liberà, mentro sono una povera sevra.
'Colombina : **With me** you [Ella adress] can talk with freedom, since I am a poor servant.'

(14) [Situation : Marquis is however a higher nobility rank than count]
Cavaliere : Amici, che cos'è questo rumore ? Vi è qualche dissensione fra di voi altri ?
Conte : Si disputava sopra un bellissomo punto.
Marchese : Il conte disputa **meco** sul merito della nobilità.
'Chevalier : Friends, what is this noise ? Is there any dissension among you two ?

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[5] Other focalizers such as *stesso* (self) or *medesimo* (self), are also part of comitative PPs and express emphasis or opposition. Thus, *con esso me*, *con esso noi*, *con esso loro,* etc. seem to be equivalent to *con me*, *con noi*, *con loro*, etc.
(i)   Cominciano a cantare, e le valli **con esso loro** rispondono.
  (they) begin to sing , and the vallies with them answer
   'they begin to sing , and the vallies echo thier song' (Boccaccio)
While *con me stesso*, *con te stesso* and *meco stesso*, *teco stesso* are found, this is not the case for *con (lo) stesso me(co), con (lo) stesso te(co)*. Furthermore, *me medesimo*, *te medesimo* are also found (Boccacio, Decameron). Complex reflexives such as *medesimo, medesimi*, etc. can be analyzed as doubling focalizing constructions, as in *con esso seco medesimo* 'with FOCALIZER himself FOCALIZER' (Cavalca, Vite desi santi Padri). The derivation of these structures is orthogonal to the main topic of this paper, and we leave the properties of focalizers in PPs for further research.
[6] 134 instances of *con me* cases vs 125 *meco* in Garcia's (1999) corpus.

Count : A most interesting point under discussion.
Marquis : The Count discusses **with me** concerning the merit of the nobility.'

In the next section we propose an analysis of these facts, accounting for the position of PPs with comitative prepositions in terms of feature valuing in the P-Shell. Moreover, we'll bring additional evidence to the effects of the DAP as a complexity reduction mechanism that will force the resolution of a fluctuation induced by language-external factors in the history of Italian, to a single possibility attested in Modern Italian.

3. Analysis

We assume that prepositions and postpositions, circumpositions and particles belong to the same syntactic category P (Jackendoff 1973, Van Riemsdijk 1978, Emonds 1976, 1985, a.o.)[7]. We further assume that prepositions are functional categories, generated in extended projections of lexical categories (Sportiche 1998, Kayne 1997, 2005). All Ps project a PP, including semantically empty P heads, the locus of prepositional case features. Moreover, we assume that PPs are universally head-initial (Kayne 1997, 2005), and that all Ps minimally project the P-Shell structure, consisting of two layers of asymmetrical relations, as represented above in (5). All complements, including pronouns, are internally merged to the lower P position to check case features.[8] DPs can be remerged to the higher P projection for further functional feature checking, including the unvalued (u) Determiner D feature $[u\text{D}]$.[9]

Given these assumptions, the facts illustrated above in (9)-(12) are analyzed as follows. All objects DPs move to the lower P of the P-shell to check $[u\text{D}]$ on P, as well as unvalued Case features, as in (15), deriving *con me*. Further displacement of the DPpron
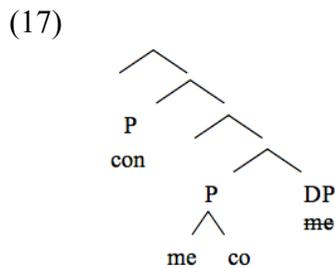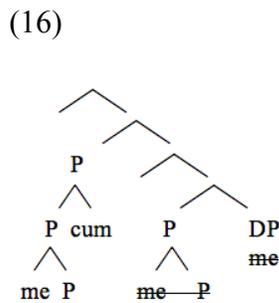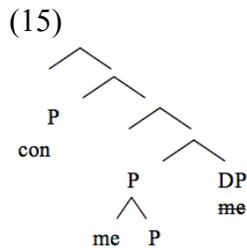
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[7] Circumpositional constructions can be found in the historical development of other languages, including the Germanic languages. This is mostly the case in directional PPs, see Huybregts and Riemsdijk (2001), den Dikken (2010), Koopman (1997), Noonan (2005), but also in static ones Noonan (2010).

[8] According to Wanner (1987), in Latin personal pronouns for various cases, including *me, te, se* for the accusative Case, are simple clitics. The clitic nature of the personal pronouns in comitative PPs in Old Italian is attested from the fact that in Old Italian poetry *me* alternates with *mi* in the same contexts, as illustrated in the following extract from Giacomo da Lentini, Poesie (1250 circa), included in the Biblioteca Italiana Zanichelli.

> [L]o viso **mi** fa andare alegramente,
> 'The face me makes go joyfully'
> lo bello viso **mi** fa rinegare;
> 'the beautiful face me makes deny'
> lo viso **me** conforta ispesament[e],
> 'the face me comforts often'
> l'adorno viso che **mi** fa penare.
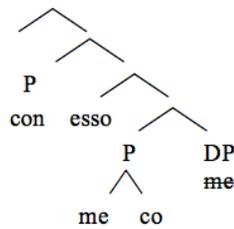> 'the beautiful face that me makes suffer'

[9] Each head in the P-Shell is interpretatively motivated, as it is the case in the Split PP projection of many of the articles in Cinque and Rizzi (2010), including Svenonium (2010), and related works. The higher and the lower P projections of the P-Shell may be analyzed as distinct aspectual dimensions of the comitative relation, along the lines of Di Sciullo (2001, 2005) and related works. See also the references mentioned in footnote 1 for different semantic analyses of comitative prepositions.

to the higher P position for [*u*D] checking on the higher P, as in (16), deriving *mecum*.[10] Circumlocutions are derived by the morphological spell-out of the lower as well as the higher P-head, as in (17), for *con meco*. The fact that intensifiers such as *esso* are observed in these complex comitative PPs, see (12b), provides evidence that there is an intermediate specifier position between the higher and the lower P-head, illustrated in (18) with *con esso meco*. The focalizer *esso* may also appear in the structure in (15), where the lower P head is not pronounced, as in *con esso me*.[11]

(15)

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        P
      con
              P       DP
                      me
           me   P
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(16)

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         P
      P cum     P       DP
     me  P     me   P    me
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(17)

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          P
        con
                P       DP
                        me
             me   co
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(18)

Thus, in Old Italian *con me* and *meco* are derived, (15)-(16), given the displacements for feature valuation in the P-shell, including two P heads, one of which is not spelled out. However, both heads can be spelled out at a given point of the historical development, giving rise to *con meco* and *con esso meco*, (17)-(18). Through the diachronic changes the only derivation that survived is the one requiring the fewer steps, viz., (15). Thus, only one possibility remains in Modern Italian: *con me*.[12]

We now turn to the question of why is this fluctuation possible and what drives the reduction to a single form in Modern Italian.

4. Diachrony and principles reducing complexity

Diachronic changes can be explained in terms of the interaction of the grammar internal pressure imposed by the initial position of the P head, on the one hand, and, on the other hand, by principles of efficient computation. While the computational procedure of the narrow language faculty is reduced to the minimum required by conceptual necessity, complexity may arise from experience (language acquisition, language contact, pragmatic factors, etc.) giving rise to choice points (symmetry) in functional feature structure, with the consequences of enlarging the set of possible derivations. Principles of parsimony, falling into the third factor (Chomsky 2005), will eliminate the complexity by breaking the symmetry brought about by experience. Principles of parsimony, external to the Language Faculty and to the learning systems, are part of the human cognitive system and act as soon as possible in language acquisition. Their effects are however gradual in language diachronic development, as environmental dynamics is not deterministically driven by genetic determinism. This view of language variation and acquisition can be

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[12] The Directional Asymmetry Principle (DAP, see section 4) predicts that choice points will be eliminated in language development. It does not predict when this will occur. Thus, while circumpositions or postpositions are eliminated in the development from Latin to Italian, this is not the case in the development from Latin to Spanish, which is still in a fluctuating period. Thus, Modern Spanish has similar forms like *conmigo* 'with me', *contigo* 'with you' and *consigo* 'with him/herself', with two copies of the same preposition spelled out at both sides of the pronominal element. However, according to Manuel Espanol Echevarria (p.c.) *conmi* can be attested but not *migo*. He also mentions the fact that non-anaphoric pronouns cannot be part of circumpositions, for example: *conelgo* 'with him' is not attested contrary to *consigo*, that follows the paradigm. We leave the detailed analysis of development of Spanish for further research. We expect similar facts to be found in other languages including Neapolitan, for example: *co tico* 'with you' and variants thereof.

related to other works in language change, including Lightfoot (1979, 1999) and Roberts and Roussou (2003), Biberauer, Holmberg and Roberts (2014), where the primary data triggering grammar consist of grammatical cues, such as the results of feature valuation on pieces of micro grammatical structures within functional projections, for instance PPs and DPs. The symmetry breaking view provides however a way to link language variation and acquisition to natural laws reducing complexity.

According to Di Sciullo (2011, 2013), evolutionary developmental universals emerge in language historical development in terms of the *Directional Asymmetry Principle (DAP)*:

(19) *Directional Asymmetry Principle (DAP)*
      Language development is symmetry breaking.

The DAP predicts the occurrence of oscillation between linguistic elements and the gradual elimination of the oscillation in language development. According to the DAP, diachronic variation goes from symmetrical stages, homologues to fluctuating asymmetry stages in evolutional developmental biology (Palmer 1996, 2004, 2009), to directional asymmetry stages recursively. Clearly, the DAP does not imply that there is a directionality in language diachronic development. With fluctuating asymmetry, the linearization of the shell structure will result in situations where a P head either precedes its complement or follows it. With directional asymmetry, only one linearization is possible.
      The DAP can be formulated as in (20), and for the case at hand, R is the H-Complement relation.

(20)   R(a,b) & R(b,a) > R(a,b) or R(b,a)

In the fluctuating asymmetry stage, the head may precede or follow its complement, whereas in the directional asymmetry stage it may only precede or only follow its complement.
      The DAP is grounded in evolutionary developmental biology, where symmetry breaking is a core aspect of evolution and change in different species (Graham, Freeman and Emlen 1999; Palmer 1996, 2004, 2009; Palmer and Lowentin 2004). Phylogenetic patterns of variance in the evolution of bilateral asymmetric species are discussed in Palmer (2004 et seq.), and the following stages of development are attested: symmetry > fluctuating asymmetry > directional asymmetry. The identification of parallels between language and biology leads to a further understanding of the biological basis of language, as well as of its unique properties.
      In the case of language variation, the effects of the DAP visible at the sensorimotor interface can be seen as the effect of symmetry breaking in the feature structure associated to functional categories. The constraints in (21) and (22), proposed in Di Sciullo (2012), are specific cases of the DAP, which provides an explanation for the fact that the order of a complement with respect to its head may oscillate at some stage of the historical development of languages, while in a subsequent stages only one of the two options is available. The DAP is compatible to formal approaches to linguistic variation,

including Kayne (2011) and Biberauer et al. (2012), where variation follows from formal properties of the derivations and from principles of efficient computation.

(21)   *Valued/Unvalued Feature Constraint (V/UFC)*
        In a functional feature structure F, [$_F$ [F][uF]], where [F] and [uF] are symmetrical with respect to F, the symmetry will tend to be broken in language development.

(22)   *Head Initial/Final Constraint (HI/FC)*
        In a configuration [$_X$ X YP], where X is a head and YP is its complement, if both < X, YP > and < YP, X > are possible SM linearizations resulting from different derivations, only one derivation/linearization will tend to survive in language development.

The empirical coverage of (21) and (22) goes beyond the diachronic variation in the prepositional domain. For example, it also covers the variation in the position of the determiner in the historical development of Romanian: in Old Romanian (OR), the determiner can be both valued [Case] and unvalued [uCase] for a functional Case feature, giving rise to a pre or a post nominal position of the definite determiner, as we illustrate here in (23). However, this choice between the valued and the unvalued Oblique case feature is gradually reduced through the development of Modern Romanian (MR), which manifests a strong tendency towards a prenominal (prepositional) expression of the Oblique case (24c). See Di Sciullo and Somesfalean (2013) for further discussions.

(23)   *muieriei   tale **ii**   Sara fi va ficior*   (OR)   (Coteanu 1956)
        wife,the.Dat/Gen your Dat/Gen Sara be will son
        'to your wife to Sara he will be son'

(24)   *a. ***ii** Sara*   (MR)
           the.Dat/Gen Sara
        *b. Sar**ei***
           Sara-the.Dat Gen
        *c. **lui** Sara*
           Dat/Gen Sara
           'to Sara / Sara's'

The predictions of the DAP, (25), for the development of P DP have been validated on a number of languages closely related to Proto-Indo-European, (26), in Di Sciullo and Nicolis (2013).

(25)   Predictions of the DAP
        A. Stable state / Directional asymmetry should be synchronically widespread.
        B. Oscillation / Fluctuating asymmetry should characterize older diachronic stages.

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(26)   Old Hittite > Middle Hittite > Late Hittite
         Old Armenian > Late Armenian
         Homeric Greek > Classical Greek > Modern Greek
         Latin > Umbrian > Old Italian > Modern Italian
         Old English > Early Modern English > Modern English

The diachronic development of languages displays a phase of fluctuation where a complement may precede or follow its P head. This is true even for languages that display a clear preponderance of prepositions or postpositions (Hewson and Bubenik 2006; Friedrich 1975). There is a clear tendency towards the gradual elimination of a fluctuating state and the development of a stable state in language diachrony.

Complexity reducing principles such as the DAP will manifest themselves overtly whenever grammatical principles will stop mandating certain operations. Independent evidence suggests that pragmatic factors are not 'wired-in' in the same sense formal grammar principles are. Belletti et al. (2007) show that L2 near-native speakers of Italian will still have trouble with the distribution of post-verbal subjects in Italian, whose distribution is regulated by pragmatic factors. Additional independent evidence comes from competing strategies for the interpretation of pronouns: binding and co-reference. Di Sciullo and Aguero (2008) show that the variation in the performance of children in the identification of antecedents for pronouns can be attributed to processing factors. We would like to propose that whenever the choice between two competing structures is not mandated by formal grammar principles, third factor principles exert their pressure re-shaping the system in a way that reduces choice points. Modern Italian will thus only display one option: P DP. A statistical analysis of Old Italian provides further support to the DAP, and we'll turn to it in the following section.

5. Additional support for the DAP: a statistical analysis
5.1. Data

The following charts have been plotted in Ruby on the basis of data obtained from Biblioteca Italiana Zanichelli, an online collection of over 1000 works covering the entire history of Italian literature. The collection includes a wide spectrum of genres, encompassing both prose and poetry. While the distinction may be somewhat murky in some cases, the collection's goal is to only include works written in Italian. It thus excludes works written in dialect. Some cases are clear-cut: for example 18th century Venetian comediographer Carlo Goldoni's work includes works in standard Italian and works in venetian dialect. The latter are excluded from the collection.

   Simple keyword based queries were created to identify instances of texts containing any of the structures under consideration: the *meco, teco, seco* series, the *con meco, con teco, con seco* series and the *con me, con te, con se* series. Since the system would only output HTML output of full text matching the queries (either an entire chapter or a an entire poem) and would often return results where the desired keyword was not in fact present, we wrote a Ruby script to automate the download of matched documents and

their processing (conversion to simple text, matching of just the sentence(s) containing the desired expressions). Care has been taken to include the orthographical variants we encountered upon preliminary manual inspection of a sample of the data (e.g. *con* is occasionally spelled *kon*, *co'* or *co*). Given the rather large amount of data gathered we did not check all the instances obtained, but we did not observe any major issues in the random sample we analyzed for consistency purposes. The goal of this quantitative analysis is to uncover the diachronic distribution of the three forms we are analyzing. The charts that follow illustrate very clearly that there are two different phases of fluctuation in the history of Italian:

1. Phase A: Fluctuation between *meco, teco, seco* vs. *con meco, con teco, con seco*. (13th, 14th, 15th century)
2. Phase B: Fluctuation between *meco, teco, seco* vs. *con me, con te, con se* (18th and 19th century).

In the 16th century the *meco, teco, seco* class is largely dominant, and so is the *con me, con te, con se* class in 20th century Italian, with the *meco, teco, seco* class almost exclusively attested in poetry.[13]

The charts are organized as follows: the top chart shows the number of instances of each case for each century (from 13th to 20th century). The bottom left chart illustrates the percentage of each class across time. The bottom right chart illustrates the same idea but it also visualizes more clearly which class is dominant in each period.

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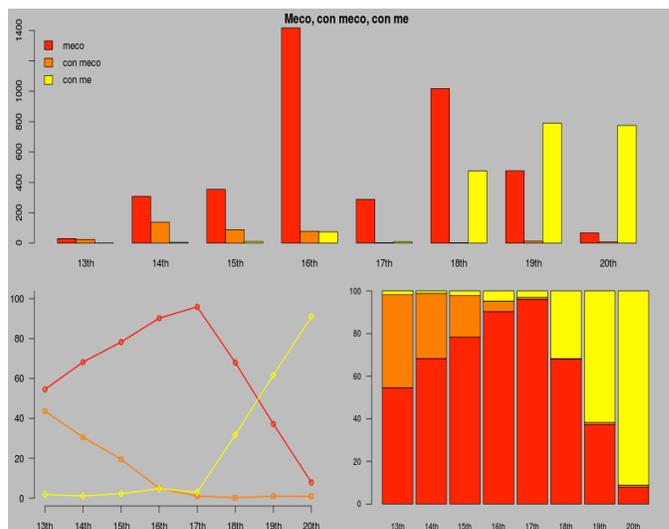
[13] An external reviewer suggested that differences between weak and strong pronouns à la Cardinaletti and Stake (1999) could be found in Old Italian. The focus of this paper is not the internal structure of pronouns. The corpus we examined offered evidence of comitative constructions with both strong and clitic pronouns, our predictions are thus not exclusive to one or the other of the forms. Moreover, recent works, such as Manzini (2014), suggest that the strong-weak distinction for pronouns is not justified, including for Italian.
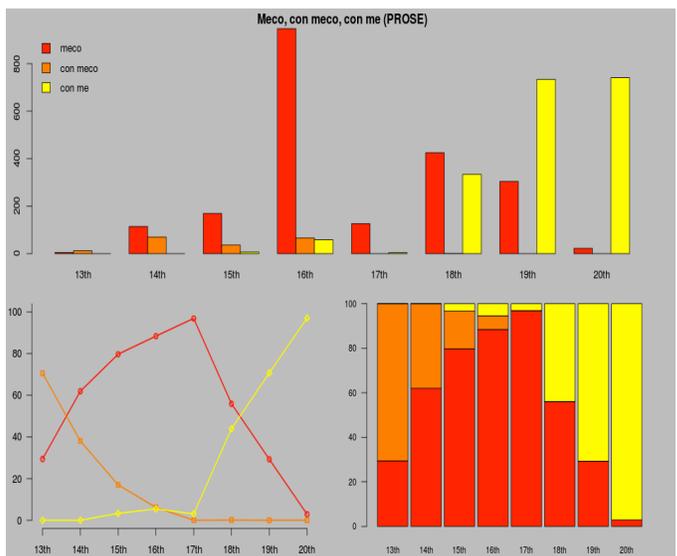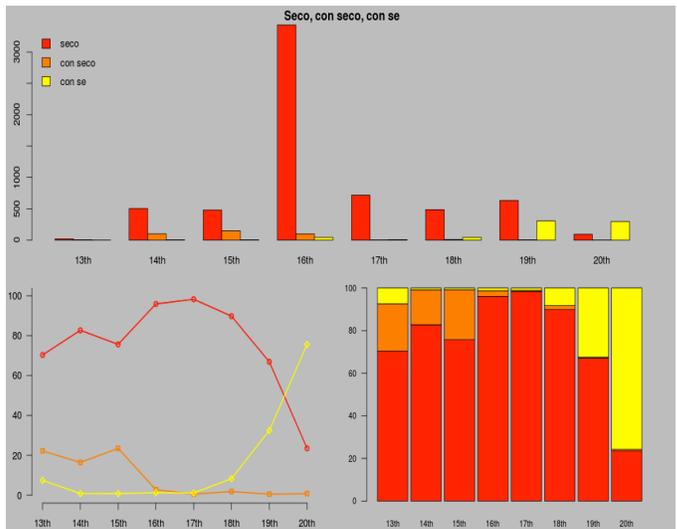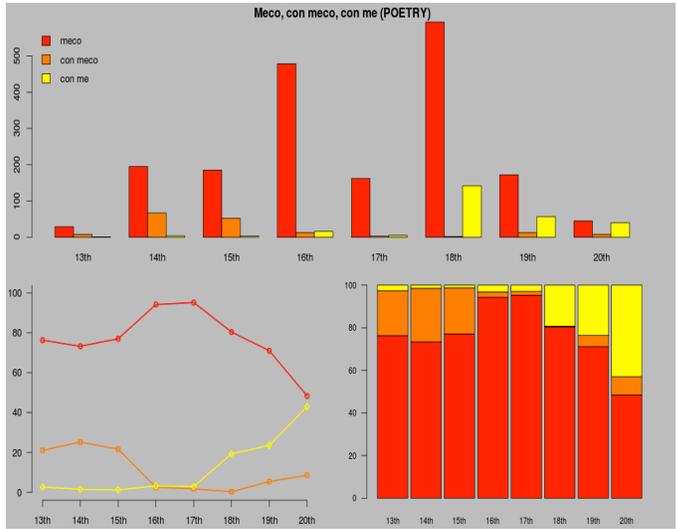
5.2. Discussion

The DAP implies that fluctuation and symmetry tend to be transient features in language development. Head dependencies should be asymmetric and directional. Any deviation from asymmetry and directionality will tend to be unstable.

Structures of the form *con (me,te,se)co* (with (me, you, self)with) where both P heads are spelled out, see (11) and (18) above, are also referenced in the literature as instances of circumpositional structures. As the charts presented above show, the first fluctuation in the history of Italian is between the Latin forms *meco, teco, seco* and the circumpositional forms *con meco, con teco, con seco*. From the perspective of the DAP both structures are marked: the *meco, teco, seco* series is marked because the headedness of the structure differs from that of the rest of the language; these cases instantiate post-positional structures, which contrast with the general head-initial status of Italian. Circumpositional structures are marked crosslinguistically. Furthermore, whenever two structures are in competition and an obvious distinguishing principle cannot be established (be it syntactic, semantic or other), we have optionality, which induces complexity, as it presents a choice between two competing structures. It is easy to find both *meco* and *con meco* being used by the same author, in the same work. For example in Boccaccio's Filocolo[14] the following two sentences occur a few lines apart:

(26) Questi sono giovani miei amici, i quali udendo la gran fama della vostra città, **con meco**, pellegrino, pellegrinando vollero venire a vederla.

(Boccaccio, Filocolo, Book 5, 50)

'These are young friends of mine, who becoming aware of the great fame of your city, they wanted to come **with me**, pilgrim, in pilgrimage to see it'

(27) Io ti priego per quella fede che tu a Lelio portasti, che tu co' tuoi compagni ad esser **meco** vegnate.

(Boccaccio, Filocolo, Book 5, 50)

'I am asking, for the faith you had in Lelio, that you with your friends come stay **with me**.'

While this pair may seem to suggest that *meco* is associated with statives (*ad esser meco vegnate* 'to come to stay with me'), and *con meco* with motion verbs (*con meco …vollero venire a vederla* 'they wanted to come with me to see it'), it is easy to find cases in the same work where *meco* is associated with the verb *venire* (to come).

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[14] Included in the Biblioteca Italiana Zanichelli,
http://dizionarionline.zanichelli.it/dizionariOnline/#bibliotecaitaliana

(28) Giulia, queste non sono le parole le quali a Roma nella nostra casa mi dicevi, quando di grazia mi chiedesti di volere venire **meco** nel presente viaggio

<div align="right">(Boccaccio, Filocolo, Book 1, 23)</div>

'Giulia, these are not the words you were saying to me at home in Rome, when you kindly asked me to come **with me** in this trip.'

Circumpositional structures are very rare crosslinguistically but they are attested much more frequently in language contact situations, where language change is made more likely by the contact between two or more different varieties. The WALS database contains no cases of circumpositional languages out of 1185 languages, while the APiCS database, a WALS-style database containing data for 76 Creole languages[15] has 3 cases of circumpositional structures. Circumpositional structures are complex, and under the DAP, they would tend to be eliminated. However, this developmental universal does not predict how gradual the elimination of a complex structure will be or when it will occur in language historical development.

5.3. Section summary

In this section we have presented additional statistical support to the predictions of the DAP, which we take to be a Universal that is part of Chomsky's third factors in language design. The DAP contributes to computational efficiency and intervenes in language development when complexity brought about by symmetry arises.

　　　The biolinguistic approach to language evolution opens new domains of inquiry. One such domain of inquiry is the restrictions that factors reducing complexity impose on narrow syntax. It is generally assumed that locality conditions, such as Derivation by Phase and the Minimal Search Condition limit computational complexity. We argued that derivational complexity can also be reduced by symmetry breaking in language historical variation.

6. Conclusion

We argued in favor of the P-Shell on the basis of the diachronic development of the Italian comitative preposition *con* 'with', a type of non-locative PP usually not considered in the split-PP framework of the articles contained in the volume edited by Cinque and Rizzi (2010) and related works. We provided cross-linguistic evidence for our analysis on the basis of the historical development of comitative P. We verified the predictions of the Directional Asymmetry Principle in the diachrony of Italian and argued that symmetry breaking reduces the choice between a valued and an unvalued variant of a functional feature associated with a functional head, here comitative P. As predicted by

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[15] As of May 2014.

our hypothesis, this choice, which was available in earlier stages of Italian, is gradually reduced in Modern Italian.

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