

The Definite Determiner in Romanian: a Biolinguistic Perspective

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Abstract:

We present a new biolinguistic explanation for the evolution of the Nom/Acc and Gen/Dat forms of the Romanian definite determiner, thus providing further evidence to the hypothesis that the Directional Asymmetry Principle provides an explanation for the variation and evolution of the order of head-dependent constituents. As predicted, the choice between a valued and an unvalued variant of a functional feature, which was available in Old Romanian, is gradually reduced through the development of Modern Romanian. We provide an explanation for this evolution in terms of a more general natural complexity-reduction phenomenon.

Keywords: definite determiner, historical development, directional asymmetry, symmetry breaking, Romanian

1. Purpose

In Old Romanian (OR), pre- and post-nominal definite determiners are possible, (1). However, in Modern Romanian (MR), the definite determiner is post-nominal, (2).

- (1) *muieriei tale ii Sara fi va ficior* (OR) (Coteanu 1956)
wife,the.Dat your Dat Sara be will son
'to your wife to Sara he will be son'
- (2) *copilul, copilei* (MR)
boy,the.Nom/Acc, girl,the.Gen/Dat
'the boy', 'to the girl'

These facts have been described in terms of language change processes such as grammaticalization (Roberts and Roussou 2003, a.o.), we will consider them as instances of language evolution processes. The notion of language evolution goes beyond the classical notion of language change and grammaticalization by incorporating recent results from evolutionary developmental biology. This incorporation has both descriptive and explanatory advantages over classical notions of language change and grammaticalization. The descriptive advantage is that fluctuating stages are predicted to occur and can be described systematically. The explanatory advantage is that questions such as why languages change and why grammaticalization exists can be addressed on the basis of the existence of general laws governing the development and evolution of biological forms. In this paper, we present a new biolinguistic explanation for this development, bringing together the evolution of bipartite organisms in the natural world and the evolution of the position of the determiner with respect to the noun in the evolution of Romanian.

Several works in evolutionary developmental biology provide evidence that variation and change in biology is symmetry breaking (Lewontin 1970, 1974, a.o.; Graham, Freeman and Emlen 1993; Palmer, 2004, a.o.). Symmetry breaking laws, such as (3), are part of the natural laws reducing complexity in the natural world.

(3) Selecting for asymmetry.

Palmer (1996, 2004) identifies phylogenetic patterns of variance in the evolution of bilateral symmetric species. The following three stages have been systematically observed in the evolution of bipartite organisms.

- (4) a. The first symmetrical stage: there is no left or right difference in the organism.
b. The following fluctuating asymmetry stage: there is random prominence of the right or the left side of the organism.
c. The last, directional asymmetry stage: there is prominence only to the right or only to the left of the organism.

Symmetry breaking is part of the natural laws affecting the evolution of the shape of biological organisms. Seen as a dynamic force external to the Language Faculty, it provides a biolinguistic explanation for language variation and evolution with respect to the position of a head and its dependent. Suppose that a head-dependent structure is an organism including a prominent element, the head (H). H can be to the right or to the left of its dependent (XP), as in (5), which depicts the position of H with respect to its sister for simplicity; however the position of H with respect to XP is set in an extended projection chain of H. It has been observed that both (5a) and (5b) are attested at some stage of the historical development of languages, while in a subsequent stage only one of the two options is available. In order to account for this phenomenon, the Directional Asymmetry Principle is formulated in Di Sciullo (2011).



- (6) *Directional Asymmetry Principle*
Language evolution is symmetry breaking:
fluctuating asymmetry is followed by directional asymmetry.
Fluctuating asymmetry (random left or right positioning of a head) > *Directional asymmetry* (exclusive left or right positioning of a head).

Di Sciullo (2011) provides evidence that the Directional Asymmetry Principle makes correct predictions for language historical evolution on the basis of the development of possessive pronouns from genitives in the evolution of Classical Greek to Modern Greek and Greek dialects, as well as in the evolution of Latin to Italian and Italian dialects. For example, the pre- and post-nominal positions are possible for the genitive theme in Classical Greek, while only the post nominal position is possible in Modern Greek. In Di Sciullo and Nicolis (2011) this hypothesis is further supported on the basis of the variation observed in the development of prepositions in the phylogeny of Indo-European languages. For example, Old Hittite (17th-16th c. BC) is strongly prepositional and it goes through a stage of fluctuating asymmetry, where pre- and post-positions are observed. In New Hittite (14th-13th c. BC) only postpositions are observed. This is also the case in the evolution from Old Armenian (5th – 9th c. AD) to Modern Armenian. In Modern Armenian, only a few relics of prepositions remain in a predominantly prepositional system.

According to the Directional Asymmetry Principle, language evolution is symmetry breaking. We take symmetry breaking as part of the factors reducing complexity in the language design (Chomsky 2005, Di Sciullo 2011). Symmetry introduces choice-points, thus instability in a system that

seeks to eliminate it in order to reinstate an asymmetrical stable state. Symmetry breaking is part of the factors reducing complexity, as it reduces the choice points between pre- and post- positions for a given category in a projection chain. The effects of symmetry breaking in language historical development are legible at the sensory motor interface. Assuming that word order is derived by the feature checking theory of movement (Chomsky 1995) and that under-specification [u/iF] is part of the feature system¹, fluctuating asymmetry is a stage of feature under-specification (7)-(8), and directional asymmetry is a subsequent stage where features are specified as either interpretable/valued [iF] or uninterpretable/unvalued [uF], (9)-(10).

Fluctuating asymmetry:

- | | | | |
|-----|--------------|-----|----------|
| | SM interface | | features |
| (7) | a. XP H | (8) | [u/iF] |
| | b. H XP | | |

Directional asymmetry:

- | | | | |
|-----|--------------|------|----------|
| | SM interface | | features |
| (9) | a. XP H | (10) | a. [uF] |
| | b. H XP | | b. [iF] |

In this paper we further substantiate the hypothesis that the Directional Asymmetry provides a biolinguistic explanation for the variation and evolution of the order of head-dependent configurations, on the basis of the development of the Romanian definite determiner. Symmetry breaking eliminates the choice between the prenominal or postnominal position of a functional head, here the definite determiner in Romanian, to a unique pre- or postnominal position in the course of historical development.

First we sketch a brief historical evolution of Romanian definite determiner. Second, we provide empirical evidence for the existence of symmetry breaking in the evolution of the Nom/Acc and Gen/Dat forms of the Romanian determiner. Third, we provide an analysis of the Dative constructions. We conclude summarizing our results and drawing some consequences for an explanatory evolutionary developmental theory of language.

2. Romanian definite determiners – historical evolution

It is well known that Romanian took a different path than the other Romance languages in the grammaticalization of the Latin demonstrative *ille / ipse*. This process is assumed to have started in the 6th century and to be due to the weakening of the nominal case inflection (Giusti, 1993, Holmberg 1993), yielding the collapse of the word endings and a subsequent process of disambiguation, once the homonymies multiplied (Nicolae 2009, Aldea, 2005)². However, Romanian offers a counter-argument to linking the rise of the article with the loss of nominal morphology, in that this language preserved both the case morphology of Latin in addition to developing enclitic and proclitic articles. Vincent (1997) argues that the partial complementary distribution between case morphology and articles does not hold, for instance Ancient Greek had both determiner and Case markers (as does Modern Romanian), while languages such as Chinese have neither case morphology nor articles.

Both pre-nominal and post-nominal adjectives and demonstratives were used in Latin (*hic liber* ‘my book’, *iber hic* ‘book my’) and the grammaticalization of the demonstrative proceeded in Romanian

¹ Reiss (2012) argues for a model of the grammar including underspecification on the grounds of simplicity.

² Aldea (2005) equally assigns the increased use of the preposition to the process of disambiguation.

on the N-Adj / Dem order³ (Graur, 1967, Renzi, 1993, Rosetti 1986, Manoliu-Manea 1990, among others). Moreover, the substratum Thracian language that Latin coexisted with for about four centuries strongly preferred N-Adj word order^{4,5}. A process of reanalysis followed: in a three term construction such as (12), the demonstrative is not in focus, the focal stress shifts to the last term and the demonstrative is reanalysed as an affix.

- (11) *homini illi bono dixit* (Lat.)
 man this good said
 'he said to the man, the good one'
- (12) *homo ille-bonus* (Lat.) > *homo-ille bonus* > om-ul bun (Ro.)
 man this-good > man-this good > man-the good

Croitor (2009) points out that coordination structures support the analysis – such as the one proposed by Graur (1929) – of enclisis as a reorganisation of the N+D+A sequence. In the constructions in (13) below, the presence of the demonstrative is necessary for the second conjunct, which means that the adjective is grouped with the definite article that precedes it: *floarea galbenă* < *floare a/cea galbenă*, *băiatul istet* < *băiatu l/cel istet*. A process of regrouping of the definite article with the preceding noun derives structures [N+D]+A from N+[D+A].

- (13) a. *floarea galbenă si cea rosie*
 flower,the yellow and def,fem.sg red
 'the yellow flower and the red one'
- b. *băiatul istet si cel vorbăret*
 boy,the smart and def,masc.sg talkative
 'the smart boy and the talkative one'

According to Roberts and Roussou (2003), the change from the Latin demonstratives to the definite articles of Romance languages satisfies all the phases of standard grammaticalization processes: morphophonological reduction (*ille>le*), followed by semantic bleaching (loss of demonstrative property) and finally categorial change (demonstrative > article), accompanied by structural change, typically upward. As mentioned in section 1, historical descriptions of the evolution of the definite determiner in Romanian do not predict the occurrence of this phenomenon, as well as they do not provide an explanation as for why the variation in its position occurred and why it occurred in the way it did. A biolinguistic explanation for this evolution may provide such an explanation.

3. Directional Asymmetry Principle and the Romanian Nom/Acc and Gen/Dat evolution

According to the Directional Asymmetry Principle (Di Sciullo 2011), the position of a syntactic constituent may go through a stage of fluctuating asymmetry, where it may precede or follow a functional head, to a stage of directional asymmetry, where only one position is possible. According to Di Sciullo (2011), this Principle reduces the complexity brought about by two possible derivations for a linguistic expression. The derivations differ in their derivational path. This choice is no longer available

³ Without the associated focused interpretation that seems to be needed for the Latin examples, see Nicolae (2009).

⁴ See Nicolae (2009) for more discussion.

⁵ According to Pisani (1959:105-106), cited in Rosetti (1986:236) the enclitic definite determiner must have existed in Thracian.

in the directional asymmetry stage. Interestingly, evidence for this directionality can be found in first language acquisition.

Assuming that the elements of linguistic variation are those that determine the growth of language in the individual (Chomsky 2005), fluctuating asymmetry stages are also part of language development. For example, new compounds can be coined in any language. Children produce these forms quite early, around age two or three (Clark and Barron 1998, Hiramatsu et al. 2000, Nicoladis 2007), sometimes with meanings that they are unlikely to have heard before, and always without any formal instruction. Around three, children consistently produce compounds of the type V-N instead of N-V-er, they go through an intermediate V-N-er stage, e.g., *bounce-ball*, *bounce-baller*, *ball-bouncer*. Data from language development show that there is fluctuating asymmetry followed by directional asymmetry in the development of compounds.

The fact that the fluctuating asymmetry observed in ancient languages in the position of a constituent to the right or to the left of a head is eliminated in later stages of the languages can be seen as an instance of complexity reduction. Moreover, the development of the directional asymmetry is attested to be constant across a number of Indo-European languages. Di Sciullo and Nicolis (2011) show that later developmental stages of the examined languages (e.g. Classical Greek as opposed to Homeric Greek) and languages derived from them develop full directional asymmetry in the vast majority of cases. However, developing fluctuating asymmetry after the language has reached full directional asymmetry is unattested in the languages examined.

We thus expect Romanian to obey to the prediction that a directionality exist in the development of the definite determiner, namely from a fluctuating asymmetry stage to a directional asymmetry stage. Interestingly, the Romanian data allows the identification of two patterns of evolution: the Nominative/Accusative forms, in (14) below, and the Oblique (Dative/Genitive) forms, in (15) below.

(14) Evolution of the **Nominative/Accusative** form of the definite determiner:

Phase 1, **fluctuating asymmetry**:

Latin /Thracian prenominal and postnominal demonstratives

Prenominal:

- (i) *homo ille bonus* (Lat.)
man.Nom that.Nom good.Nom
'That good man.'

Postnominal:

- (ii) *ille homo bonus* (Lat.)
that.Nom man.Nom good.Nom
'That good man.'

Phase 2, **directional asymmetry**:

Stabilization of postnominal definite determiner in Old and Modern Romanian⁶

- (i) a. *om-ul bun* (MR)
man-the.Nom/Acc good
'the good man'
- b. *carte-a din librărie*
book-the.Nom/Acc from bookstore
'the book from the library'
- (ii) a. *acesta iaste ce aud cuvînt-ul [...]* (OR 16th century)
this is what hear word-the.Acc
'this is the word I hear.'

⁶The earliest traces of Romanian Nom/Acc enclitic determiners date back to the 14th century, by which stage the grammaticalization process seems to have been completed and the paradigm of the definite article is enclitic.

- b. (sa nu poftesti vecinului tau [...]),
 (you shall not covet to your neighbor)
nece fecior-ul, nece bo-ul, nece asin-ul, [...]
 neither boy-the.Acc nor ox-the.Acc nor ass-the.Acc
 'You shall not covet the boy, the ox or the ass who are your neighbour's.'
- (iii) **ul om bun* -prenominal Nom/Acc not attested in OR or MR
 the.Nom/Acc man good
 'the good man'

(15) Evolution of the **Oblique Genitive/Dative** form of the definite determiner:

Phase 1, **fluctuating asymmetry**:

Prenominal and postnominal definite determiners in Old Romanian⁷

Prenominal:

- (i) *lui Hotchevici*
 the,Dat/Gen(masc.sg.) Hotchevici
- (ii) *ei Maria*
 Dat/Gen Maria
 the,Dat/Gen(fem.sg.) Maria

Postnominal:

- (iii) *Radu-lui*
 Radu-the,Dat/Gen(masc.sg.)
- (iv) *Mari-ei*
 Maria-the,Dat/Gen(fem.sg.)
- (v) *baiatu-lui*
 boy-the,Dat/Gen(masc.sg.)
- (vi) *copil-ei*
 girl-the,Dat/Gen(fem.sg.)

Phase 2, (**strong tendency of**) **directional asymmetry**:

Prenominal definite determiner /prepositional marker in Modern Romanian^{8,9}

- (i) *lui / lu' Ioan*
 Dat/Gen(masc.sg.) Ioan
- (ii) *lui / lu' copil /copilul*¹⁰
 Dat/Gen(masc.sg.) boy/the girl
- (iii) *lui / lu' fată /fata*
 Dat/Gen(masc.sg.) girl/the boy

In fact, the tendency of Modern Romanian is towards a prenominal (prepositional) expression of the Oblique case. Thus, in the pre-nominal use, the definite article becomes purely a prepositional case marker: this is evidenced by the fact that agreement no longer holds between the case marker and the accompanying noun: the prepositional markers are masculine forms while the accompanying nouns

⁷ 16th to 18th century

⁸ *lu'* is a phonetically shortened form of *lui*.

⁹ *la* is also a possible Dative case marker that can be employed with both masculine and feminine forms. However, while for most speakers *lu(i)* is best followed by a definite noun, *la* is mostly followed by an indefinite.

¹⁰ When the prepositional marker is used, the definite forms seem to be more easily acceptable than the indefinite forms.

Still, for some speakers of Romanian the following constructions are acceptable :

- i. *I-am spus lu' copil să nu întârzie.*
 I have told to boy not to be late.
- ii. *I-am spus si la fată.*
 I have told it to girl as well.

are feminine. Additional evidence is provided by the division of labour between the pre-nominal Dative marker and the Nom/Acc form of the definite determiner, which is post-nominal.

- (16) a. *i - am trimis lui mama o scrisoare* Colloquial (prepositional Dative)
 her.Dat have.1p. sent Dat.masc. mother,the a letter
 I have sent mother a letter.
- b. *i - am trimis mam-ei o scrisoare* Literary (morphological Dative)
 her,Dat have.1p. sent mother,Dat a letter
 I have sent mother a letter.
- (17) a. *mama lu' fata aceea* Colloquial (prepositional Genitive)
 mother,the Gen.masc girl,the that
 the mother of that girl
- b. *mama fet-ei aceea* Literary (morphological Genitive)
 mother,the girl,Gen that
 the mother of that girl

The examples above provide empirical support to the Directional Asymmetry Hypothesis. A stage of fluctuating asymmetry where the definite determiner/Case may precede or follow the nominal head followed by a stage where only one position tends to be available can be explained by our hypothesis, as being an instance of the symmetry-breaking tendency of natural systems to reduce complexity. In the next section, we provide a derivational account for the fluctuating asymmetry, illustrating the phenomenon with the Romanian Oblique cases, namely the Dative constructions.

4. Analysis of the Dative constructions

4.1. A split KP/DP projection

The works of Longobardi (1994), Dobrovie-Sorin (1987), Grosu (1988), Giusti (1993), Cornilescu (1993, 2003), among others, have led to the analysis, in a Minimalist setting, of the enclitic nature of the Romanian definite article as a strong N-feature on the D which attracts a noun or an adjective carrying a [+N] feature. Thus, there is either an N-to-D movement of the N, or a movement of the adjectival phrase to the (Spec,DP), having as a result the first of the N-A or A-N pair being marked with the definite article¹¹:

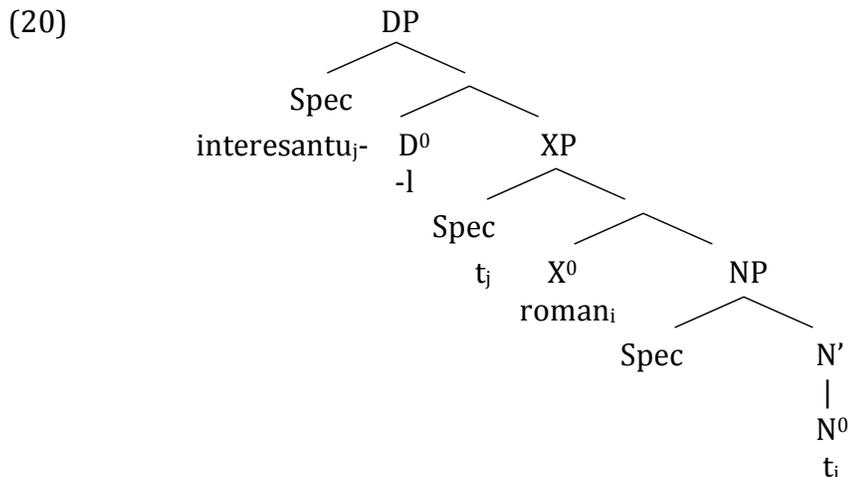
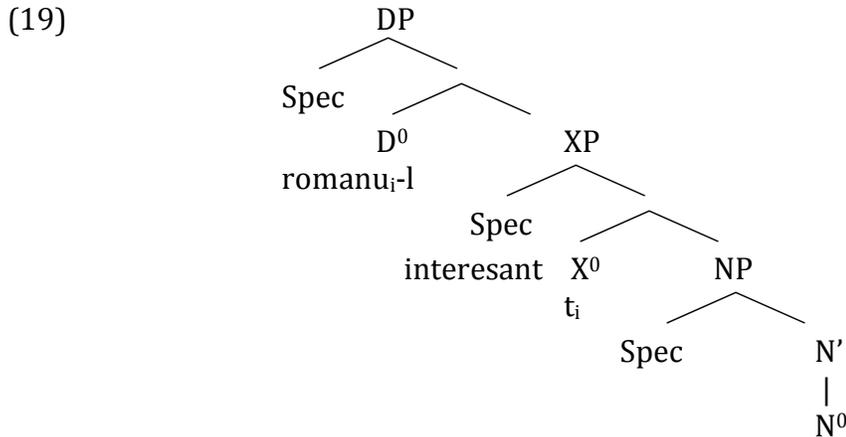
¹¹ More recently, Cornilescu and Nicolae (2011) point out to differences between Old Romanian and Modern Romanian with respect to the order of the definite determiner in the N-A/A-N pair, illustrated in (i-ii) below. Having argued for the standard derivation of the enclitic definite article from the post-nominal demonstrative *il* as a case of reanalysis from [Spec,DP] to D⁰, they assume that the resulting suffix changes its c-selection features to [+N], thus allowing either a combination with a N or an A, with differences between OR and MR given by the availability of Long Distance Agreement in OR. The authors assume this combination to be the result of a morphological rule, rather than the effect of syntactic movement, thus the suffix combines with N in the lexicon.

(i) *spre ticăloase cuvintele mele audzul îti pleacă...* (Cantemir) (OR)
 to vicious words.the my hearing your turn
 'Lend your ear to my vicious words.'

(ii) *spre ticăloasele cuvinte ale mele auzul îti pleacă...* (MR)
 to vicious.the words of my hearing your turn
 'Lend your ear to my vicious words.'

(Cornilescu and Nicolae 2011:193)

- (18) a. *roman-ul interesant*
 novel-the.Nom/Acc interesting
 'The interesting novel.'
 b. *interesant-ul roman*
 interesting-the.Nom/Acc novel
 'The interesting novel.'



However, the Romanian data under examination brings evidence for the existence of a split DP/KP projection in Romanian: A K(ase) Projection is proposed in Giusti (1993), Loebel (1994), Lyons (1999), as the highest functional head of the extended DP projection, where D incorporates into K in languages where the morphological case markings appear on the article. A split between a category that bears Case features and a category that hosts the determiner is justified, for instance, on the basis of the alternation between Case marking and zero realization of a Case feature in languages such as Turkish or Japanese. Crucially, K does not assign case, but realises case. Thus, an intuition also present in Giusti (1993), KP is the projection selected by a higher case assigning head. KP is licensed by the case features, while DP bears referentiality features¹².

We argue for a split DP/KP projection in Romanian, as in (21) below (limited, for the purposes of this paper, to the definite DP), where KP hosts Case features, DdefP hosts definiteness/ referentiality features and FP hosts phi-features and can be further expanded in NumberP and GenderP^{13,14}.

¹² This analysis would differ from Giusti (1993), where the definite article is a Case element and where the D⁰ is a Case position where the α -Case feature of the noun is assigned.

¹³ Alexiadou et al. (2007:245) mention that psycholinguistic evidence supports a split between the Number Phrase and the Gender Phrase, cf. De Vincenzi & Di Domenico (1999).

(21) KP>DdefP>FPagr>NP

A first piece of evidence supporting the split between KP and DP is the structure of the Romanian determiners. The internal structure of functional words (such as complementizers and wh-words) is a multi-layer shell-type structure in Di Sciullo (2003, 2005), where morphological objects represent structured sets of relations. The proposed configuration comprises two layers, namely, the operator/variable layer, (Op, x) and the Restrictor layer, (y (R z)). Moreover, this structure would be “independent of specific categorial features. In fact, it is a part of the morpho-conceptual feature structure of all functional categories” (Di Sciullo 2003: 15).

Romanian shows a uniformity of form in the expression of oblique case features across determiners (definites, indefinites, demonstratives), while the expression of definiteness/indefiniteness features varies. It is thus possible to conceive of a split structure of the Romanian determiner forms, see table 1.^{15,16}

		definite features	indefinite features	phi features	case features
singular	masc	l	un	∅	ui ¹⁷
	fem	∅	∅ / un	a / o	ei
plural	masc.	∅	un	i	lor
	fem.	l	un	e	lor

Table 1: Distribution of case, phi and definiteness features in the Romanian determiner forms

A second argument for the split DP/KP projection is the fact that the case marker may be different from the definiteness marker, namely when it is expressed by means of a preposition. By having the KP projection host case features only, distinct from the definiteness features, which are hosted by DdefP, the elements occupying the (head,KP) position can be any of the following: (*l*)*ui/la/de* (i.e. morphological or prepositional means of expressing oblique case). This is further evidenced by the fact that morphological marking cannot co-occur with the prepositional marking. In other words, there is a complementary distribution between morphological markers *lui/ei* and the prepositional markers *la/de*¹⁸:

- (22) a. *dau copilu-lui* (morphological Dative)
 give child-def.Dat.masc.sg.
 ‘I give to the child.’
 b. *dau la copil* (prepositional Dative)

¹⁴ Note that the proposed structure does not imply that the topmost projection of the extended Romanian DP is KP. While our discussion is limited to definite DP, the complete extended projection of the Romanian DP includes a determination area, an area of morpho-syntactic features projections and an agreement area. Our analysis is also compatible with assumptions where Case and Agreement are in the middle field of the DP, such as Ticio’s (2003) analysis of the Spanish DP, who follows Grohman’s (2000), among others, current assumption that DP parallels the CP structure and includes a thematic, an agreement and a discourse-related domain. The structure of the Spanish DP also includes an AgrP that regroups NumP, GenP, PossP, among other agreement related projections.

¹⁵ Note that the definite features are equally part of the form of demonstratives (i) and possessive particles (ii) :

i. <i>ce-l</i>	<i>ce-a</i>	<i>ce-i</i>	<i>ce-le</i>
this-masc.sg	this-fem.sg	this-masc.pl	this-fem.pl
ii. <i>a-l</i>	<i>a</i>	<i>a-i</i>	<i>a-le</i>
POSS-masc.sg	POSS-fem.sg.	POSS-masc.pl	POSS-fem.pl

¹⁶ Complex determiner forms are also found in the Scandinavian DP, see Rohers (2006).

¹⁷ In these forms *u* and *e* are linking vowels.

¹⁸ See Mardale (2008) for a discussion on the means of expressing case in idiomatic expressions such as (24).

- give to child
 'I give to the child.'
- (23) c. **dau la copilu-lui* (*both morphological and prepositional Dative)
 give to child-the.Dat.masc.sg
 I give to the child.
- a. *fiu-l rege-lui* (morphological Genitive)
 son-the.Nom/Acc king-the.Gen.masc.sg.
 'the son of the king'
- b. *fiu-l de rege* (prepositional Genitive)
 son-the.Nom/Acc of king
 'the son of the king'
- c. **fiul de rege-lui* (*both morphological and prepositional Genitive)
 son-the.Nom/Acc of king-the.Gen.masc.sg.
 'the son of the king'
- (24) a. *floare-a de colt*
 flower-the.Nom/Acc of corner
 'edelweiss'
- b. **floarea de coltu-lui*
 flower-the.Nom/Acc of corner-the.Gen
 'edelweiss'

Moreover, as noted in (16) and (17) above, agreement does not hold between the Case marker and the noun.

The DP/KP split allows a more detailed view of the patterns of fluctuating asymmetry observed in the evolution of the Romanian language: definite determiners, i.e., elements hosted by (head,DP), have stabilized as post-nominal in Modern Romanian, as illustrated in (14) above. On the other hand, oblique case markers, i.e. elements hosted by (head,KP), are in the fluctuating stage, with a strong predominance toward a prenominal position, as in (15).

While compatible with the extended DP projections of Cornilescu (1993), Giusti (1995), among others, a split DP/KP projection provides a cartographic approach to grammaticalization (Latin demonstratives > Romance definite articles/prepositions), and has the advantage of allowing a straightforward account of the category changing processes involved: the homonymy between the determiner and the prepositional case marker is explained, in our analysis, by the fact that the oblique case features are always expressed in the KP projection, irrespective of the category. (Head,KP) hosts any of the following: (*l*)*ui/la/de* (i.e. morphological or prepositional means of expressing oblique case), distinct from the definiteness/referentiality features hosted by DdefP. Thus, the phrasal Latin demonstrative is reanalysed as a head whose features are split between (Head,DP) and (Head,KP).¹⁹ The combination between the two heads can be the result of a morphological rule (as in Dobrovie-Sorin and Giurgea 2006, Cornilescu and Nicolae 2011), or of a syntactic rule (as in Dobrovie-Sorin 1987, Grosu 1988, Giusti, 1995, a.o.). In our view, while inherently case marked items are introduced fully valued from the numeration, syntactic movement is driven by feature checking / valuation requirements of both definiteness and case.

¹⁹ In Roehrs (2008) the Modern Scandinavian enclitic definite determiner also follows an evolution from phrasal elements (the Early North Germanic demonstratives) to a suffixed article in a head position. Subsequent suffixation to the head noun occurred by movement of the noun, later replaced by movement of AgrP to (Spec,DP). The determiner itself is split and part of it undergoes movement within the extended projection of the DP. The possibility of there being a mapping between the split in the Scandinavian determiner and the Romanian determiner in terms of Case and referentiality features is a matter of further research.

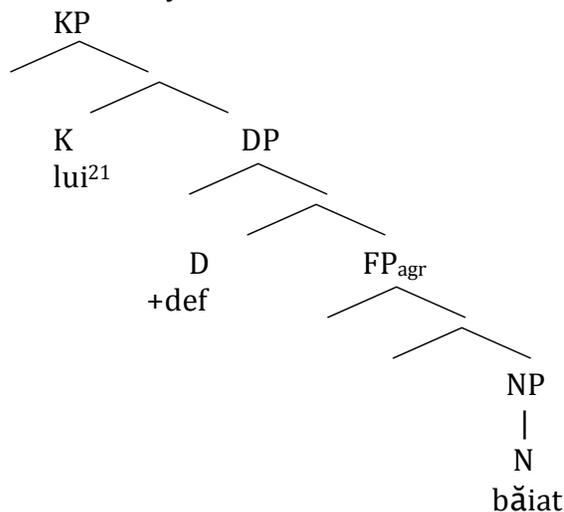
4.2. Features driving movement

As mentioned above, according to the Directional Asymmetry Principle (Di Sciullo 2011), the position of a syntactic constituent may go through a stage of fluctuating asymmetry, where it may precede or follow a functional head, to a stage of directional asymmetry, where only one position is possible. In the Romanian Dative constructions at hand, the pre- or post-nominal position of the determiner is the result of syntactic movement driven by feature checking / valuation.

In the Minimalist Program (Chomsky 1995), the drive for feature checking is uninterpretability, i.e. uninterpretable features need to be deleted by Spell-out, in order to comply with the Full Interpretation Principle (Chomsky 1995). More recently, the drive for feature checking has been argued to be also feature valuation, i.e. while some features are fully valued lexically, others need to be valued through the derivation (Chomsky 2000, 2001, Pesetsky and Torrego, 2007, among others). Pesetsky and Torrego (2006) thus distinguish four types of features, i.e. [Interpretable, uValued], [uInterpretable, uValued], [Interpretable, Valued], [uInterpretable, Valued], where Case features would be [uInterpretable]: once valued, they must delete. In their framework, nouns have phi-features lexically specified, while D is unvalued and gets valued through an agreement relation with the noun. The interpretable phi-features and case features associated with the noun have to be checked against a syntactic head with matching uninterpretable phi features: the features of the functional head trigger movement. Thus, phi-features have to be consistently checked in (head,FPagr). Definiteness is uninterpretable on the noun and interpretable but unvalued on D. On the other hand, nouns may be available at numeration fully valued with respect to the oblique case features²⁰ (in other words, they have inherent case), in which case they do not need to be valued through syntactic movement. When unvalued in the numeration, nouns will have to have the oblique case features valued in (head,KP).

In Cornilescu and Nicolae (2011), some nouns may be def valued from the lexicon: “in languages where nouns morphologically vary for definiteness, like Romanian, nominal morphology may supply the value of the definiteness feature in D” (2011:195). In our analysis, the oblique case may be valued in the lexicon, in which case no syntactic movement is necessary.

- (25) (*dau*) *băiatu-lui* (Modern Romanian)
 (give) boy-the,DAT,masc.sg.
 ‘I give to the boy.’

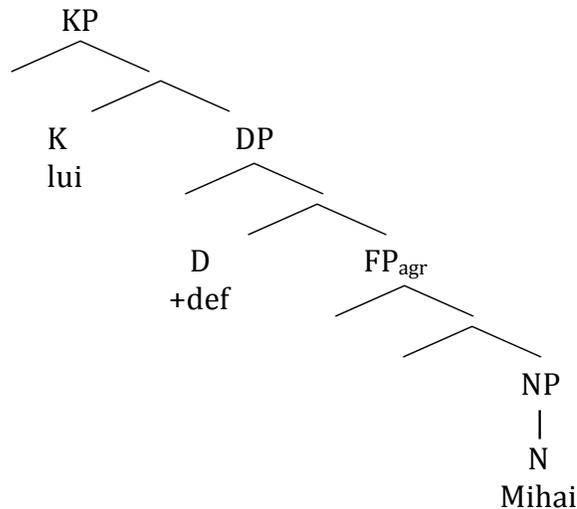


²⁰ In Pesetsky and Torrego (2001), structural Case is uninterpretable Tense on D.

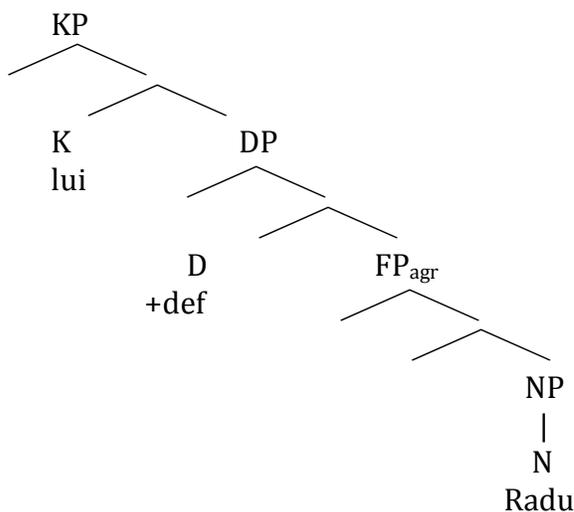
²¹ For ease of presentation, we'll illustrate the KP with its fully inflected Case marker.

In (25), the common noun checks the uninterpretable definiteness features on the noun through movement to (Head,DP). Furthermore, N is unvalued with respect to case features, hence it undergoes head-movement to (head,KP) for feature valuation. In (26), assuming that proper nouns are inherently definite, as in Longobardi (1994), the definiteness features are fully valued from the lexicon and then checked in (Head,DP). The oblique case features are also fully valued from the lexicon: no further movement is needed.

(26) *(dau) lui Mihai* (Modern Romanian)
 (give) the,DAT,masc.sg. Mihai
 'I give to Mihai.'



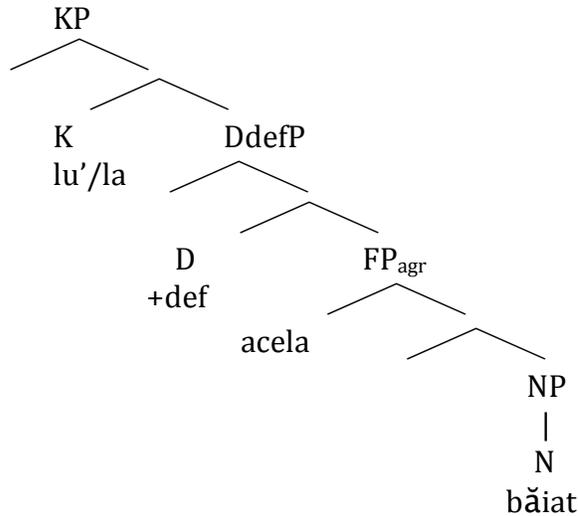
(27) *(dau) Radu-lui* (Old Romanian)
 (give) Radu-DAT,masc.sg.
 'I give to Radu.'



In (27), assuming proper nouns are inherently definite, as in Longobardi (1994), the definiteness features are fully valued from the lexicon and then checked in (Head,DP). But as opposed to the example in (26), in this case oblique Case features are not fully valued from the lexicon: this is accomplished through movement to (Head,KP). In (28) below, the modified noun has the oblique case features lexically valued from the numeration. The noun does have to move to (Head,DP) for checking the [def] features (uninterpretable on N), through (Head,FP_{agr}), for phi-feature checking. Through

Spec-head agreement, it is able to value the phi-features of the demonstrative in (Spec,FP)²². The oblique case features being valued from the lexicon, no further movement to (Head,KP) is needed.

- (28) *(dau) lu' băiat-ul acela* (Modern Romanian)
 (give) DAT,masc.sg. boy,def that,def
 'I give to that boy.'



Note that Giusti's (1995) proposal of conflating case and referentiality under the same functional head F relies on the assumption that articles tend to be in complementary distribution with case morphology. In (27) above we show that this is not the case in Romanian, lending support to our analysis of a KP/DP split in the Romanian DP structure. Moreover, this type of data also lends evidence to the assumption that KP is only projected in the oblique cases. The purely structural Nominative/Accusative cases are essentially definiteness expressions, with no (overt) inherent case features.

The fact that the oblique case features of N are lexically valued in (28) above is supported by constructions such as (29) below, where the oblique case is expressed prepositionally and the noun is fully valued for these features in the numeration: no movement of the noun to (head,KP) is needed for valuation.

- (29) a. *i - am trimis la mama o scrisoare*
 her.Dat have.1p. sent at mother a letter
 'I have sent mother a letter.'
 b. *le spun la copii*
 them.Dat tell to kids
 'I tell to the kids.'

Note that in (29b), the interpretation is definite, hence the noun needs to move to (Head,DP) for checking [def] features, in the same derivation as illustrated in (28).

In summary, we proposed that in the fluctuating asymmetry phase observed in Old Romanian, certain lexical elements are left unspecified with respect to the valued or the unvalued properties of their features. The choice between a valued or an unvalued feature for a given element gives rise to

²² Demonstrative adjectives are placed in a lower position in the extended DP, such as (Spec,FPagr)/or (Spec,NumP), Giusti (2002), Cornilescu (1993), Brugè (2000, 2002).

two numerations. In one numeration, the feature is valued, and in the other numeration, it is not. Only in the second case movement for feature-valuation takes place²³.

Romanian confirms the prediction that a directionality is observed in the evolution of the language from an older stage to a modern stage: while the fluctuating asymmetry is brought about by a choice in the valued or unvalued properties of case features in Old Romanian, the symmetry brought about by these choice points is gradually eliminated in the modern stage of the language, where eventually only one of the two options remains available.

5. Conclusions

Language diversity is the result of external factors to the language faculty. This comes as no surprise as language is an object of the natural world and thus is subject to natural laws pertaining to biological evolution and variation. Further work is necessary to understand the effects of symmetry breaking on the operations of the Language Faculty.

We argued that in the case of the evolution of the definite determiner from Case in Romanian, symmetry breaking reduces the choice between a valued and an unvalued variant of a functional feature, such as the Dative case. As predicted by the Directional Asymmetry Hypothesis, this choice, which was available in Old Romanian, is gradually reduced through the development of Modern Romanian. This evolution can be explained in terms of recent results in evolutionary developmental biology.

The biolinguistic approach to language evolution opens new domains of inquiry. One such domain of inquiry is the limits that the third factors impose on narrow syntax. It is generally assumed that locality conditions, such as Derivation by Phase and the Minimal Search Condition limit computational complexity (Chomsky 2011). We argued that derivational complexity can also be reduced by evolutionary developmental laws, such as Directional Asymmetry (DA). We proposed that the effect of DA on the Language Faculty is to limit the set of unspecified features for a given functional head *F*, and thus the number of possible derivations for expressions including *F*. The complexity measure in the first case is the number of operations that applied in a derivation, and in the second case is, it is the number of formal features available for *F* in the language under consideration. The two sorts of complexity, Internal and External complexity, are defined in Di Sciullo (2012), and argued for on independent grounds.

The idea that external factors have an effect on grammar (the narrow language faculty) may be thought of as being reminiscent of the competence/performance distinction of the earlier days of Generative Grammar. Our proposal recasts the knowledge/use (parsing and production) pair in an evolutionary developmental perspective. In this perspective there is a dynamic interaction between the language faculty and the biological systems. We argued that asymmetric relations are core relations at the interfaces between language and the external systems. They are generated by the operation of the language faculty and are recovered by the parser (Di Sciullo 1999, 2005). More recently, Kayne (2011) suggests that the Probe-goal search share the directionality of parsing and production. The Directional Asymmetry condition is, according to our view, a shared evolutionary property of the language faculty and the biological systems.

²³ In Cornilescu and Nicolae (2011), optionality in the numeration accounts for the analysis of the definiteness checking in OR and MR, which would be linked to the fact that adjectives “optionally entered the derivation with uninterpretable unvalued definite feature, valued by Agree with the noun” (p. 213).

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