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Two ways to agree in D[N1&N2] constructions – Romance left-conjunct agreement and Germanic morphologically resolved agreement

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Hitherto unnoticed, Romance and Germanic differ with respect to the observable agreement patterns in D[N1&N2] constructions (e.g., *this philosopher and linguist*): While Romance (Italian, French, Spanish and Portuguese) exhibits left conjunct agreement, Germanic (German, Dutch and English) exhibits (morphologically) resolved agreement. In this article, I present an analysis that will derive this difference from one parametrized property: Germanic Num° has both gender and number, while Romance Num° lacks gender. The analysis will be couched in a multiple agree framework, where triggering is reduced to interface conditions: The outcome of (multiple) agree must be semantically and phonologically interpretable.

1 The data: Agreement and Interpretation

In this section I introduce the two basic dimensions in which languages differ with respect to D[N1&N2] constructions. I start by laying out the core concern of this article, i.e., the two morpho-syntactic agreement patterns. Subsequently, I introduce Heycock and Zamparelli's notion of *joint-* and *split-readings*, showing that this concept and its parametrization account for the distribution of number mismatched cases. While the morpho-syntactic phenomenon is completely accounted for by the language family, the semantic parametrization is independent of it.

1.1 Agreement: Left conjunct agreement in Romance versus morphologically resolved agreement in Germanic

The existence of left-conjunct agreement between the determiner and a nominal coordinate complex has already been reported in the literature for French (An and Abeillé 2017), Spanish (Demonte, Fernandez-Alcalde and Pérez-Jiménez 2011; Demonte and Pérez-Jiménez 2012) and Portuguese (Villavicencio, Sadler and Arnold 2005):

Spanish (Demonte and Pérez-Jiménez 2012)

(1) *Dio **el teléfono y dirección** del procesado.*
[…] **the**$_{.M.SG}$ **telephone**$_{.M.SG}$ **and address**$_{.F.SG}$ […]
'He gave the defendant's telephone number and address.'

(2) […] ***una inoportuna llovizna y viento pertinaz*** […].
[…] **an**$_{.F.SG}$ **untimely**$_{.F.SG}$ **drizlle**$_{.F.SG}$ **and wind**$_{.M.SG}$ **persistent**$_{.SG}$ […]
'[…] an inopportune and persistent drizzle and wind […].'

Portuguese (Villavicencio, Sadler and Arnold 2005):

(3) ***As assustadoras colinas e morros de argila do.***
The$_{.F.PL}$ **frightening mounds**$_{.F.PL}$ **and hills**$_{.M.PL}$ **of clay** […]
'The frightening mounds and clay hills.'

(4) **[…] os corações e mentes basileiras.**
[…] the$_{.M.PL}$ **hearts**$_{.M.PL}$ **and minds**$_{.F.PL}$ **brazilian**$_{.F.PL}$
'[…] the Brazilian hearts and minds'

Lamoure (2020) verified by using the following corpus data informally judged by native speakers that this is also the case for French and Italian:[1]

[1] These data were extracted from Sketch Engine's (Kilgarriff et al. 2014) frTenTen17 (French Webcorpus) and itTenTen16 (Italian Webcorpus) (see http://www.sketchengine.eu).

Italian

(5) […] ***questo centro culturale e galleria*** *d'arte è stato per decenni la forza trainante dell'impegno artistico di Resistencia.*
[…] **this**$_{.M.SG}$ **center**$_{.M.SG}$ **cultrual and gallery of art**$_{.F.SG}$ […]
'this cultural center and art gallery has been the driving force behind Resistencia's artistic commitment for decades.'

(6) *E ancora sauna, bagno turco, doccia scozzese e vasca di reazione per completare il tuo programma benessere in* ***questa palestra e centro estetico di Torino****.*
[…] t**his**$_{.F.SG}$ **gym**$_{.F.SG}$ **and center**$_{.M.SG}$ **esthetic of Turin** […]
'And more sauna, Turkish bath, Scottish shower and reaction tub to complete your wellness program in this gym and beauty center in Turin.

French

(7) *Belkacem Kheder parle en connaissance de cause: il a inauguré* ***le restaurant et entreprise d' insertion*** *" Le Relais " * au début des années 90 .*
[…] **the**$_{.M.SG}$ **restaurant**$_{.M.SG}$ **and integration-enterprise**$_{.F.SG}$ […]
'Belkacem Kheder speaks from experience: he inaugurated the restaurant and integration enterprise "Le Relais" * in the early 90s.'

(8) ***Cette entreprise artistique et magasin d'idées*** *séduit aussi bien Danone que les Verts.*
This$_{.F.SG}$ **enterprise**$_{.F.SG}$ **artistic and shop**$_{.M.SG}$ **of ideas** […]
'this artistic enterprise and ideas shop seduces both Danone and the Greens.'

The data for Romance languages above show that the morphological form (gender inflection) changes according to the featural specification of the noun occupying the left conjunct. Spanish and Portuguese also show that this not only pertains to gender but to number as well.

Spanish

(9) ***Sus pómulos y nariz*** *aparecían afilados.*
[…] **his**$_{.PL}$ **cheeks**$_{.M.PL}$ **and nose**$_{.F.SG}$ […]
'His cheeks and nose looked sharp.'
(Demonte, Fernandez-Alcalde and Pérez-Jiménez 2011)

(10) *Analizo su rostro por primera vez y puedo reconocer unas diminutas pecas en la zona de* ***su nariz y pómulos.***
[…] your$_{.SG}$ nose$_{.F.SG}$ and cheekbones$_{.M.PL}$
'I analyze your face for the first time and can recognize tiny freckles in the area of your nose and cheekbones.'
(Lamoure 2020)

Portuguese[2]

(11) *Uma porção de sardas se agrupava em **suas bochechas e nariz**.*
[…] **his**$_{.PL}$ **cheeks**$_{.F.PL}$ **and nose**$_{.M.SG}$ […]
'A lot of freckles clustered on his cheeks and nose.'
(Brower 2017)

(12) A erupção é comum sobre **o nariz e bochechas**, […].[3]
[…] **the**$_{.M.SG}$ **nose**$_{.M.SG}$ **and cheeks**$_{.F.PL}$ […]
'The eruption is common on the nose and cheeks, […].'
(Fortinberry 2018)

However, left-conjunct agreement is not the only available option for languages to regulate agreement in D[N1&N] constructions. Germanic languages display another type of pattern, which I dub *morphologically resolved agreement*: A mismatch in phi features between the nouns in the coordinate complex is only tolerable if the determiner form is syncretic (Lamoure 2020):

(13) *Gleicher et al.(1995) found that 65% of 582 couples feared the problems of multiple pregnancies, and most were aware of the problems of even a twin pregnancy for **the children and mother**.*

(14) **Most couples are aware of the problems of even a twin pregnancy for **this\these children and mother***

The nouns in the D[N1&N2] construction in (13) and (14) differ in terms of their number feature specification, one being singular, the other one being plural. If a non-syncretic form such as *this* is chosen, the utterance becomes unacceptable. However, the insertion of a (number-) syncretic form such as *the* yields a well-formed string. Note that the order of the nouns can be reversed without affecting the respective resulting acceptability:

(15) *A colored man steps out, touches his hat to **the mother and children** and gives them the surprise of their lives.*

(16) **A colored man steps out, touches his hat to **this\these mother and children** and gives them the surprise of their lives.*

While this phenomenon surfaces in a very confined way in English, due to the non-existence of morphological gender marking within the nominal phrase, it can be observed in more detail in other Germanic languages such as German, with a richer morphological expression.

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[2] For ease of reference examples from Google Books were chosen. More can be found by querying Sketch Engine's Portuguese Web Corpus (ptTenTen11) with the following CQL code (Jakubíček et al. 2010): [tag = "D.*"] [tag = "NC.P.*"] "e" [tag = "NC.S.*"].

[3] Similar data could not be found for Italian and French. Constructed items were judged to be unacceptable by Lamoure (2020)'s French and Italian native speakers, which I will later argue is to be attributed to semantics, relating it to a well-known distinction between joint and split readings introduced by Heycock and Zamparelli (2000).

First, note that the Romance left conjunct agreement pattern is unavailable:

(17) German
Die/das Restaurant und Pizzeria* ***lädt sie auf eine kulinarische Entdeckungsreise ein.*
This$_{\text{.NOM.N/F.SG}}$ **restaurant**$_{\text{.N.SG}}$ **and pizerria**$_{\text{.F.SG}}$ […]
'This restaurant and pizzeria invites you to a culinary discovery-tour.'

However, gender mismatches are fine if a corresponding, syncretic form is inserted:

(18) German
Ein Gönner und Mitglied *des Kunstvereins ist Zimmerermeister Hans Greiner[…].*
A$_{\text{.NOM.M/N.SG}}$ **patron**$_{\text{.M.SG}}$ **and Member**$_{\text{.N.SG}}$ […]
'Hans Greiner is a patron and member of the arts club.'

(19) German
Ebenso will er seine Zusammenarbeit mit ***dem Orchester und Chor*** *MusicAeterna fortsetzen.*
[…] **the**$_{\text{.DAT.M/N.SG}}$ **orchestra**$_{\text{.N.SG}}$ **and choir**$_{\text{.M.SG}}$ […]
'Also he wants to continue his collaboration with the orchestra and choir Music Aeterna.'

As seen for English above, this is also true for the feature number:

(20) German
Kinder stecken sich gern kleine Frendkörper in ***die Ohren und Nase.***
[…] **the**$_{\text{.ACC.F/M/N.SG/.PL}}$ **ears**$_{\text{.N.PL}}$ **and nose**$_{\text{.F.SG}}$ […]
'Children like to stick small foreign bodies into their nose and ears \ ears and nose.'

With the help of corpus data judged by native speakers, Lamoure (2020) shows that this is indeed the case for all syncretic forms of the definite and indefinite article in German, which are displayed in the **Tables 1** and **2** below.[4]

	Nominative	**Accusative**	**Dative**	**Genitive**
Feminine	Die	Die	Der	Der
Masculine	Der	Den	Dem	Des
Neuter	Das	Das	Dem	Des
Plural	Die	Die	Den	Der

Table 1: *Definite Determiner Paradigm German* (cf. Durrell and Hammer 2021).

[4] Note that I have only highlighted syncretisms within one case, since in D[N1&N2] constructions, case never varies. Also note that German makes no distinction within genders in the plural and could be viewed as syncretic by themselves.

	Nominative	**Accusative**	**Dative**	**Genitive**
Feminine	Eine	Eine	Einer	Einer
Masculine	Ein	Einen	Einem	Eines
Neuter	Ein	Ein	Einem	Eines

Table 2: *Indefinite Determiner Paradigm German* (cf. Durrell and Hammer 2021).

This pattern of *morphologically resolved agreement* can also be found in Dutch (*pace* Le Bruyn and de Swart (2014)). Contemporary Dutch, which lacks morphological case on lexical DPs, has only one syncretic form (*de*) in the paradigm (cf. **Table 3** below) of the definite article, which signals either singular common gender or plural (no gender specification):

Common Gender Singular	**De**
Neuter Singular	Het
Plural	De

Table 3: *Definite Determiner Paradigm Dutch* (cf. Shetter and Ham 2007).

Thus, well-formed D[N1&N2] constructions exhibiting a phi-feature mismatch between the two nouns necessarily include a number mismatch (cf. Lamoure 2020):

(21) Dutch
Uit veiligheidsoverwegingen zijn grote schepen verplicht een zend-apparaat aan boord te hebben dat gegevens uitzendt m.b.t. ***de coördinaten en positie*** *van het desbetreffende schip.*
[…] **the**$_{.C.SG/PL}$ **coordinate**$_{.N.PL}$ **and position**$_{.C.SG}$ […]
'For safety reasons, large ships are required to have a transmitting device on board which transmits data regarding that ship's coordinates and position.'

(22) Dutch
Uit veiligheidsoverwegingen zijn grote schepen verplicht een zend-apparaat aan boord te hebben dat gegevens uitzendt m.b.t.* ***de coördinaten en gewicht* *van het desbetreffende schip.* […]
[…] **the**$_{.C.SG/PL}$ **coordinate**$_{.N.PL}$ **and weight**$_{.N.SG}$ […]
'For safety reasons, large ships are required to have a transmitting device on board which transmits data regarding that ship's coordinates and weight.'

The difference between Romance and Germanic languages lies within the agreement pattern – while Romance determiner agreement depends on the specification of the noun occupying the left conjunct, German determiner agreement is sensitive to **both nouns**. The well-formedness of a given combination depends on the availability of a ***syncretic form*** which can bridge the gap between the feature specifications of both nouns. Therefore, the well-formedness of the Germanic data does not depend on the positioning of the individual nouns. If nouns are switched

around, maintaining the same form of the determiner, the grammaticality of a given string will not be affected.

In the next section, I outline the basis of my analysis (Heycock and Zamparelli 2000; 2005) and enrich it with the components required to model this difference, most notably *multiple agree*.

1.2 Interpretation: Split- and Joint-readings

Heycock and Zamparelli's (2000; 2005) approach(es) constitutes the first generative treatment of D[N1&N2]constructions. Their approach is however completely unaware of the data presented up to here and primarily concerned with a contrast in terms of interpretation: While English $D_{SG}[N_{SG}\&N_{SG}]$ constructions allow for both a *joint interpretation* (reference to one individual (23) a)) and a *split-interpretation* (reference to more than one individual, depending on the number of conjuncts (23)b)), Italian only allows for a joint interpretation (24):

(23) English (Heycock and Zamparelli 2005):
  a) *My friend and colleague is writing a paper.*
  b) *This soldier and sailor are inseparable.*

(24) Italian (Heycock and Zamparelli 2000):
  a) *L' amico e collaboratore di Gianni è stato qui.*
  The friend and collaborator of Gianni is been here
  'Gianni's friend and Collaborator was here.'
  b) **Questo soldato e marinaio sono buoni amici.*
  This soldier and sailor are good friends
  'This soldier and sailor are good friends.'

In $D_{PL}[N_{PL}\&N_{PL}]$ constructions both languages allow for split readings:

(25) Italian
  Questi soldati e marinai sono buoni amici.
  These soldiers and sailors are good friends
  'These soldiers and sailors are good friends'

(26) *These soldiers and sailors are good friends.*

They account for this contrast in terms of a semantic parametrization (which will be discussed in more detail in section 3, page 12) into Italian-type languages and English-type languages.

Lamoure (2020) shows that the divide into Italian-type languages and English-type languages is indeed valid (*pace* An and Abeillé (2017)). According to the judgements of his speakers, English, Spanish, Portuguese, German and Dutch *are English-type languages*, while French and Italian are *Italian-type languages*.

However, as already pointed out by An and Abeillé (2017) for French, and Lamoure (2020) for Italian, exceptions do exist in Italian type languages. Yet, translating data from English-type languages into Italian-type languages reveals that split readings are systematically productive in English-type languages, which they are not in Italian-type languages (cf. Lamoure 2020; but cf. An and Abeillé (2017) for contradicting, experimental results pertaining to French).

Unnoticed by Heycock and Zamparelli (2000; 2005), the distinction into Italian- and English-type languages further allows one to predict the cross-linguistic distribution of number-mismatched D[N1&N2] constructions. Under the assumption that a mismatch in number implies a split reading, i.e., reference to a singular entity and a plural entity, one would expect Italian-type languages not to license number mismatches, while English-type languages should do that. This is borne out (cf. Lamoure 2020 for a fully-fledged comparison):

(27) German
*Kinder stecken sich gern kleine Fremdkörper in **die Nase und Ohren**.*
[…] **the**$_{\text{.ACC.F/M/N.SG/.PL}}$ **nose**$_{\text{.F.SG}}$ **and ears**$_{\text{.N.PL}}$ […]
'Children like to stick small foreign bodies into their nose and ears \ ears and nose.'

(28) Italian
**I bambini si infilano spesso piccoli oggetti estranei nel naso e orecchi*
[…] into.the$_{\text{.M.SG.}}$ Nose$_{\text{.M.SG}}$ and ears$_{\text{.M.PL}}$ […]
'Children like to stick small foreign bodies into their nose and ears \ ears and nose.'

This yields the following general picture: While agreement in D[N1&N2] constructions seems to be correlated with language family, interpretation is (at least in the Romance part of the sample) a language-individual choice.[5] **Table 4** below summarizes and concludes the data section:[6]

[5] The extent to which the semantic parametrization may vary seems to even reach to the level of the individual speaker: Katharina Hartmann (P.C.) reports that for her split readings in German are infelicitous, while Irene Caloi (P.C.) accepts split readings in Italian quite productively. The great majority of the speakers I consulted however behave as illustrated in Table 4 on page 9.

[6] Two anonymous reviewers point out that logically left conjunct agreement encompasses morphologically resolved agreement, i.e., in left conjunct agreement languages D[N1&N2] constructions should in principle be allowed to be headed by syncretic determiners as well (if those are available), which is correct:

i.) Les hommes et femmes
The$_{\text{.PL}}$ men$_{\text{.MASC.PL}}$ and women$_{\text{.FEM.PL}}$

The above table is not intended to make any statement with respect to the deeper workings of the phenomenon, but rather summarize the distribution of the relevant languages with respect to the patterns:

a.) Left conjunct agreement: The language requires the determiner to match in form with the left noun
b.) Morphologically resolved agreement: The language requires the determiner to match both nouns in form.

Whether or not left conjunct agreement languages can resort back to a morphologically resolved pattern in cases such as i.) is an interesting question, though in principle impossible to answer. However, looking at the data as a whole, it becomes clear that the *general* Romance Pattern does not belong to b.) but to a.) (cf. section 1.1). However, the analysis I am striving to develop here will in principle allow left conjunct agreement languages to generate sentences such as in i.) via the same means as morphologically resolved languages (namely via multiple agree).

		Split-Reading Singular	Number Mismatches	Left-Conjunct Agreement-Pattern	Morphologically Resolved Agreement-Pattern
Romance					
	Italian	No	No	Yes	No
	French	No	No	Yes	No
	Spanish	Yes	Yes	Yes	No
	Portuguese	Yes	Yes	Yes	No
Germanic					
	German	Yes	Yes	No	Yes
	Dutch	Yes	Yes	No	Yes
	English	Yes	Yes	No	Yes

Table 4: Semantic and morpho-syntactic properties sumamrized.[7]

2 The proposal in a nutshell

My proposal aims to derive both the two illustrated morpho-syntactic patterns as well as the reported differences in interpretation from one common, 'What you see is what you get' structure (Heycock and Zamparelli 2000; 2005) using only the featural specification of the functional head Num° (no gender in Romance, gender in Germanic, number ([Pl]) in both language groups) to model the cross-linguistic picture. The analysis will consist of the following "ingredients":

A. In order to model the three-part dependency between the determiner and the phi features of the noun in the morphologically resolving languages of the sample I adopt an unrestrained version of *multiple Agree* (Hiraiwa 2001) that is syntactically solely constrained in terms of *closeness* (agree is always with the closest goal Chomsky (2000)) and *relativized phi completeness* Danon (2011) (a probe can only agree with a goal that carries a subset of the features it needs). The actual "work" in this approach is done by the interplay of the interfaces.

   Multiple Agree is free to apply in any of the languages but requires a syncretic form for spell out and / or must be interpretable for the semantics.

[7] An anonymous reviewer reports that, as already published in Heycock and Zamparelli's works, in Italian split-readings are perfectly fine with quantifiers such as *every* or *whichever*. The approach in this paper has nothing to say about that. I would group this phenomenon together with instances of summative agreement (*les mère et père*) where a plural determiner heads a coordination of singular nouns. This parallel presents itself due to the inherent plurality of elements such as "every" and is actually in line with the main intuition behind Heycock and Zamparelli's work. In my view this should best be dealt with in a semantic agree framework such as Ackema and Neeleman (2018).

B. An independently needed modification of the semantic underpinnings of Heycock and Zamparelli (2000; 2005) in the spirit of Lamoure (2020) to derive readings of number-mismatched cases will yield a derivation in which Num° is required to join up with both nouns in a feature sharing dependency (Pesetsky and Torrego 2007; Brody 1998) for reasons of interpretability. This can only be achieved by the application of multiple Agree as one probe faces two goals. The revamping of Num° is the basis for deriving i.) the cross-linguistic distribution of number mismatched cases and ii.) the cross-linguistic distribution of the observed morpho-syntactic patterns:
   a. As pertains to the distribution of number-mismatched cases, the idea is the following: Languages that disallow number-mismatched cases will receive two contradictory filtering instructions for Num° ([Plur:–] from the singular noun and [Plur:+] from the plural one), which will yield a crash. Num° in languages which allow number mismatches will receive the same features but due to them allowing for split readings in singular D[N1&N2] constructions, the singular ("-") feature value does not trigger any filtering and will thus not yield a crash.
   b. Due to the assumed lack of gender on Num°, Romance D° will not probe Num° but either of the two nouns (or both cf. above). Germanic Num° which is specified for gender is however a suitable goal for D° and can't be ignored following closeness. Hence, Germanic Num° will inevitably receive multiple feature bundles from the nouns via Num°, while in the Romance languages left-conjunct agreement is always a second viable option.

C. Regarding spellout, I will follow Bjorkman (2016), adopting her Vocabulary Insertion rule. This rule predicts that in cases where a single head has multiple features of the same type, both need to be associated with the same form. Non-identity of the two outputs will yield a crash since it will require two lexical items to be realized in the same position of exponence. This will make sure that morphologically resolving languages will produce a crash if no suitable syncretic form is available.

In the next section (section 3), I will introduce Heycock and Zamparelli (2000; 2005) who provide the framework and semantic underpinning of this analysis, before I introduce necessary semantic and syntactic ramifications (in section 4)

3 The basis of the analysis: The structure of DPs Heycock and Zamparelli (2000; 2005)

In this section, I will outline the starting point, or rather the framework of the analysis to be developed here. I will modify the seminal work works by Heycock and Zamparelli (2000; 2005) in order to accommodate the data just presented.

Although coordination and the nominal domain in general are not exactly key concerns of Chomskyan generativism, D[N1&N2] constructions have been scrutinized by some authors. Since most of these approaches are tailor-made to derive left-conjunct agreement (Demonte, Fernandez-Alcalde and Pérez-Jiménez 2011; Demonte and Pérez-Jiménez 2012; Le Bruyn and de Swart 2014), they cannot handle the Germanic pattern.[8] Heycock and Zamparelli (2000; 2005) is attractive as its semantics is fruitful with respect to the data (cf. the discussion above) and at the same time offers enough 'syntactic wiggle room' to integrate the two agreement patterns and, simultaneously, allows one to develop a more complete image of the syntax-semantics interface.

As already mentioned above, Heycock and Zamparelli's (2000; 2005) approaches are primarily concerned with modelling the difference between Italian (-type languages) and English (-type languages).

While English $D_{SG}[N_{SG}\&N_{SG}]$ constructions allow for both a *joint interpretation* (reference to one individual (29)a)) and a *split-interpretation* (reference to more than one individual, depending on the number of conjuncts (29)b)), Italian only allows for a joint interpretation:

(29) English (Heycock and Zamparelli 2005):
  a) *My friend and colleague is writing a paper*
  b) *This soldier and sailor are inseparable*

(30) Italian (Heycock and Zamparelli 2000):
  a) *L'amico e collaboratore di Gianni è stato qui*
  The friend and collaborator of Gianni is been here
  'Gianni's friend and Collaborator was here'

  b) **Questo soldato e marinaio sono buoni amici*
  This soldier and sailor are good good friends
  'This soldier and sailor are good friends'

In $D_{PL}[N_{PL}\&N_{PL}]$ constructions both languages allow for split readings:

(31) Italian
  Questi soldati e marinai sono buoni amici
  These soldiers and sailors are good friends
  'These soldiers and sailors are good friends'

[8] There are some more complications pertaining to the aforementioned approaches, which I will not further discuss here. See Lamoure (2020) for detailed reviews of these approaches.

(32) English
These soldiers and sailors are good friends

Heycock and Zamparelli (2005) assume the structure in **Illustration 1**:

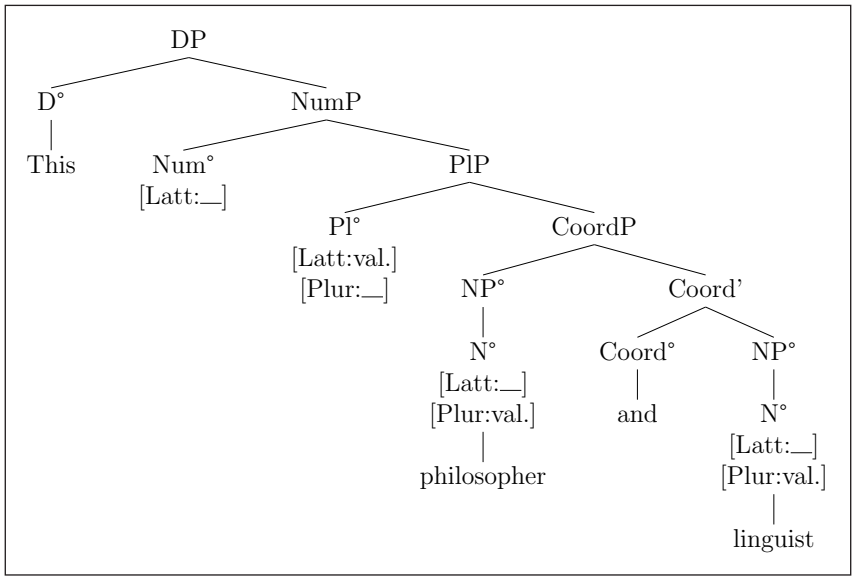

Illustration 1: Structure Heycock and Zamparelli.

The system works as follows: Merge begins by creating the coordinate complex consisting of the two nouns. For Heycock and Zamparelli count nouns enter the derivation, denoting sets of singletons. They bear a valued [Plur] feature, which corresponds to their morpho-syntactic number and an unvalued [Latt] feature, which reflects their semantic number feature. This system allows for a fine-grained distinction between the different types of nouns: regular plurals are [Plur:+] [Latt:+], while singular counts are [Plur:–] and [Latt:–] and mass nouns are [Plur:–] and [Latt:+].

Coordination is envisioned as an operation they dub *Set Product* (SP) basically an unordered variant of the Cartesian product, which unifies every element of the denotation of one noun with every element of the denotation of the other noun.

For example, in a world where two philosophers (C(homsky) and K(ant)) and two linguists (C(homsky), M(arcel Den Dikken)) exist, SP yields a set that contains couples as well as singletons (if there is an intersection between the denotation of the two nouns). This yields the basis for deriving the two readings – split readings will refer to the couples (triples in cases where there are three conjuncts, etc.) and joint readings to the singletons.

Linguist = {{C}, {M}} *Philosopher* = {{C}, {K}}
SP (*Linguist, Philosopher*) = {{C}, {C,K}, {C,M}, {K,M}}

Next, Pl° merges. Depending on whether Pl° carries [Latt:+] or [Latt:–], the following scenario unfolds: In case it is valued for [Latt:+] and [Plur:+] count noun-pluralization obtains. Heycock and Zamparelli (2000) implement pluralization via Link's *-operator, while Heycock and Zamparelli (2005) suggest that recursive application of SP is responsible for pluralization. The outcome is the same, however – pluralization and conservation of the input (input marked in **bold** below):

Linguist and Philosopher* = {{C**}, {**C,K**}, {**C,M**}, {**K,M**}, {C,K,M}}

In the case of $D_{SG}[N_{SG}\&N_{SG}]$ constructions, [Latt] and [Plur] on Pl° are, however, valued for '–', which will result in the application of the identity function (alternatively, Heycock and Zamparelli (2005) assume that Pl° is absent in these cases).

Finally, Num° – the core device of this proposal – is merged. It is implemented as a filter, regulating '[…] the cardinality of the PIP denotation, filtering from it all the elements with the wrong number of atoms' (Heycock and Zamparelli 2000: 347). If in Italian-type languages Num°'s [Latt] feature is valued for '–' (i.e., we are dealing with a $D_{SG}[N_{SG}\& N_{SG}]$ construction), filtering will apply, removing all non-singleton elements (i.e., couples in our case) from the denotation, which leads to the prediction that only joint readings are possible in these languages:[9]

Num (**Linguisti e filosofi*) = {{C}, ~~{C,K}~~, ~~{C,M}~~, ~~{K,M}~~}

If it is valued for '+' (i.e., we are dealing with a semantically plural D[N1&N2] construction), no filtering will apply.[10]

In English-type languages no filtering whatsoever applies. According to Heycock and Zamparelli (2005) this is so because English-type Num° never carries an unvalued [Latt] feature.

NumP-filtering applies in all languages if Num° is realized by an overt numeral cardinal, in which case filtering will apply according to the cardinality of the inserted element.

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[9] Note that for Heycock and Zamparelli (2000), [Plur] is the feature that triggers filtering on Num°. For Heycock and Zamparelli (2005) it is [Latt]. The results are largely the same, as singulars and plurals have the same value for both features.

[10] Whether for Heycock and Zamparelli (2000) Filtering still applies in plural cases remains a bit mysterious. When discussing pluralization they write (Heycock and Zamparelli 2000: 350): "In Italian, even an empty NumP is active: a -PLUR feature triggers the filtering away of all singletons in ||PlP||. But of course, here there are no such singletons, so the filtering operation applies vacuously. Thus, the NumP denotation passed up to DP will be exactly the same as in English, and the availability in both languages of the split reading in the plural is accounted for."

However, in these cases there is no [Plur:–] feature to begin with (the value for [Plur] originates on the nouns, which in these cases are plural).

Whether or not [Latt:–] triggers Num°-filtering in a given language is envisioned as a parametric choice. This system straightforwardly models the absence of split readings in Italian $D_{SG}[N_{SG}\&N_{SG}]$ constructions.

4 Modifying Heycock and Zamparelli

To model the present data, Heycock and Zamparelli's approach needs to be modified in four dimensions:

i.) Heycock and Zamparelli (2005), *pace* Heycock and Zamparelli (2000), hold that the feature [Latt] is triggering the filtering on Num° not [Plur]. However, the behavior of mass nouns in Italian-type languages casts doubt on this assumption.

ii.) Their system is not able to model a fine-grained semantic difference in the interpretation of *the linguists and philosophers* and *the men and women*.

iii.) Their approach makes no concrete predictions concerning the interpretation of number-mismatch cases; I claim that ii.) and iii.) are tightly related and can be fixed in one go.

iv.) Syntactically, their approach leaves the question open as to how exactly agree applies in D[N1&N2]constructions. Agreement dependencies that are set up with coordinate structures multiply either the amount of goals or the amount of probes. Given that according to the canonical implementations of agree, all unvalued and all uninterpretable features have to be eliminated upon transfer to the interfaces, it is not at all clear how this can be modelled with a binary operation.

Issues i.)–iii.) will be dealt with in 4.1 while issue iv.) will be solved in 4.2.

4.1 Semantic ramifications

4.1.1 Mass nouns in Italian Type languages

The speakers of Italian-type languages consulted in Lamoure (2020) report that split readings are impossible in conjunction with mass nouns:[11]

(33) Italian

*La	farina	e	bicarbonato di sodio	venivano	mescolati	in	una	ciotola	e	il
The	flour	and	baking soda	came	mixed	in	a	bowl	and	the
burro	veniva	lavorato	nella	farina;						
butter	came	worked	into	flour						

[11] An anonymous reviewer remarks that the generalization is viable with respect to mass nouns but that abstract nouns are significantly better in D[N1&N2] constructions under split readings. While my approach has currently not much to say about this contrast, I speculate that another feature might be at play here, which separates mass nouns from abstract nouns.

'The flour and baking soda were mixed in a bowl and butter was kneaded into the flour;'

(34) French

*La farine et levure ont été mélangés dans un bol et le beurre a été
The flower and yeast have been mixed in a bowl and the butter has been
incorporé à la farine ;
incorporated into the flower
'The flour and baking soda were mixed in a bowl and butter was kneaded into the flour; then sour milk was added.'

This is surprising, given that NumP filtering is supposed to be inactive if [Latt] on Num° is valued for '+'. As seen above, both mass and plural nouns are [Latt:+] according to Heycock and Zamparelli's theory. Thus, we would expect both to behave on par; they both should give rise to split readings in Italian-type languages. Given that this is not the case, I will henceforth adopt Heyock and Zamparelli's (2000) NumP filter trigger, which is based on [Plur]. The [Plur]-value is what sets apart mass nouns from plurals and will thus make the correct predictions. Thus, Num° will be equipped with an unvalued [Plur:__] feature, which triggers filtering accordingly.

4.1.2 Filtering plurals

Lamoure (2020) finds that Heycock and Zamaprelli's (2005) approach is unable to account for a contrast found in all the languages under scrutiny:

(35) The philosophers and linguists

(36) The men and women

While the string in (35) minimally denotes two individuals (e.g., {Chomsky, Frege) for whom it is necessarily true that each is a philosopher and a linguist at the same time, the string in (36) minimally denotes four. Heycock and Zamparelli (2005) predict that both (35) and (36) should minimally refer to two individuals.

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[12] A reviewer remarks that the generalization may be challenged on the grounds of arguing that (33) includes a gender mismatch, which may be the source of the degradation. S/he provides the following example and judgement supporting the generalization:

i.) ??*{La //della} plastica e carta vanno divise*
{the // some} plastic$_{FEM}$ and paper$_{FEM}$ are separated
'The/some plastic and paper are seperated'

Due to the absence of a gender mismatch (*plastica* and *carta* are both feminine) and the non-existing intersection between things that are plastic and things that are paper, the unacceptability of i.) can only be attributed to the unavailability of a split reading.

To solve this situation (and further issues pertaining to the interpretation of numerals), Lamoure (2020) shows that it is necessary to modify the semantics of both Pl° and Num°.

Abstracting away from the details irrelevant to the derivation of the two agreement patterns, the salient modification to Num° is that when it receives [Plur: +] it is *not* inactive (as would be the case for Heycock and Zamparelli (2005)) but performs filtering. Its role is to eliminate all the sets in the denotation (passed on to it from below the structure) that do not have at least two subsets.

In the case of nouns whose denotations have a non-empty intersection (e.g., (35)), the application of Set Product will output singletons, which will be retained after pluralization. For example, for a world with exactly three philosophers (C(homsky), F(rege) and (D)en Dikken)) and three philosophers (C(homsky), F(rege) and K(ant)):

Linguist = {{C}, {F}, {D}} *Philosopher* = {{C}, {F}, {K}}
SP (*Linguist, Philosopher*) = {{C}, {F}, {C,F},{C,K}, {F,K},{C,D}, {F,D}, {M,K}}
**Linguist and Philosopher* = {{},{C},{F},{C,F},{C,K},{F,K},{C,D},{F,D},{D,K}, {C,F,K},{C,F,D}, {C,K,D}, {F,K,D}, {C,F,D,K}}}
Sets that have two subsets in * = {{**C**,**F**},{C,F,K}, {C,F,D}, {C,K,D},{F,K,D},{C,F,D,K}}

A couple such as {C, F} will have two subsets in the denotation (i.e. {C} and {F}in **Linguist and Philosopher*) and therefore be predicted to be a possible meaning of (35). A couple such as {K, D} will not have two subsets and thus will be eliminated from the denotation of *these philosophers and linguists*.

In split reading cases such as (36), where the denotations of the two nouns yield an empty intersection, the output of SP will not contain any singletons. Thus, the elements of the smallest cardinality in the output of Pl° will be couples. Therefore, none of the couples will fulfill the constraint imposed by Num [Plur +] and thus will be eliminated, i.e., {Mary, Peter} is predicted to not be a possible meaning of (36):

Man = {{M1}, {M2}} *Woman* = {{W1}, {W2}}
SP (*Man, Woman*) = {{M1,W1}}, {{M1,W2}}, {{M2,W1}}, {{M2,W2}}}
**Linguist and Philosopher* = {{}, {M1,W1}, {M1,W2}, {M2,W1}, {M2,W2}, {M1,M2,W1,W2}}
Sets that have two subsets in * = {{M1,M2,W1,W2}}

4.1.3 The interpretation and crosslinguistic distribution of number mismatches

Number-mismatched cases (e.g., *my ears and nose*) minimally denote *three individuals* (two or more ears but only *one* nose). In Heycock and Zamparelli's system, this implies that Pl° is merged *inside* the conjuncts in these cases, i.e., that pluralization occurs *prior* to coordination. If the usual

structure (pluralization *after* coordination) would apply, we would expect readings in which more than one nose is referred to, such as $\{n_1,n_2,e_1 e_2\}$. This is because Pl° would pluralize the output of coordination, i.e., nose-ear couples.

However, modifying the order of operations still generates unattested readings, where a number mismatch would refer to less than two ears, i.e., $\{n_1,e_1\}$. This is because pluralization conserves the input; consequently, after pluralization, SP will unify a singleton ear and a singleton nose, yielding just a couple.

Coupling the structural assumption with the revised NumP filter from the previous section allows us to solve this problem and to simultaneously account for the cross-linguistic distribution of number mismatches.

Assume that in the derivation of a number mismatch case, Num° receives both values – '+' and '–' – for its unvalued Plur feature from the nouns in the conjuncts.

In English-type languages, Num° [Plur:+] triggers filtering, but [Plur:–] does not: In the case of Num [Plur:+], those elements of its input that cannot be associated to two subsets will be eliminated. Since in number-mismatched cases pluralization occurs prior to coordination, the elements of smallest cardinality will be couples (the singular noun only denotes singletons, the plural noun retains the singletons after pluralization). These do not have subsets and therefore will be eliminated. The prediction borne from this is that number-mismatched cases minimally refer to triplets in English-type languages, as attested (cf. (37) on page 19).[13]

The absence of number mismatch cases in Italian-type languages results from the activity of Num° [Plur:–]: With both filters applying simultaneously in these languages, the denotation will a priori be filtered out entirely. This is the case because in order to pass [Plur:+] filtering, a given element is required to have two subsets, which implies that it is of cardinality greater than one. This in turn makes it prey to [Plur:–] filtering, which filters out everything that is not of cardinality one.

(37) Sus pómulos y nariz
his cheeks (a) and nose (b)
a) $\text{Noun}_{\text{sing}} = \{\{a_1\}\{a_2\}\{a_3\}\}$

[13] An anonymous reviewer reports that in cases where there is a possible overlapping between both nouns, we would receive possible readings of cardinality two:

i.) CAPS = {A, E, B}, VOWELS = {A, E, i}
ii.) STAR(CAPS) = {A, E, B, AE, AB, EB, ABE}
iii.) SP(STAR(CAPS),VOWEL) = {A, E, AB, BE, Ai, Ei, Bi, AE, ABE, AEi, ABi, EBi, ABEi}

This is correct. However, at this present point I am unsure as to whether this is the desired outcome or not. Further experimental research is in preparation to shed light on these issues.

b) $Noun_{plur}$ = {{b_1} {b_2} {b_3}}
c) *$Noun_{plur}$ = {{b_1} {b_2} {b_3} {b_1,b_2} { b_2,b_3} {b_1,b_2,b_3}}
d) SP(NP_{sing}, NP_{plur})
   i) {a_1, b_1} {a_2, b_1} {a_3, b_1}
      {a_1, b_2} {a_2, b_2} {a_3, b_2}
      {a_1, b_3} {a_2, b_3} {a_3, b_3}
   ii) {a_1, b_1, b_2}, {a_2 b_1,b_2} {a_3, b_1, b_2}
      {a_1, b_2, b_3}, { a_2 b_2,b_3} {a_3, b_2, b_3}
      {a_1, b_1, b_2, b_3} {a_2, b_1, b_2, b_3}, { a_3,b_1, b_2,b_3}

The [Plur:+] setting on Num° will eliminate all the sets in i.) for a lack of having a subset within the denotation, while the [Plur:–] setting on Num° (which is only a trigger for filtering in Italian-type languages) will remove the elements in ii) as they are of cardinality greater one.

A final consequence borne by number mismatched cases pertains to the locus of [Latt:+/–]. My approach predicts that there *is* a Pl [LATT:–] variant and that D never carries [Latt:+/–] in the first place.

Heycock and Zamparelli (2005) assume that Pl [Latt:–] does not exist. Instead, they assume that the locus of valued [Latt:–] is singular D° (but still Pl° with [LATT:+]). This predicts that singular nouns, which require a '–' value for their [Latt:__] feature, will never surface without an overt D° (the only source of said feature value).

The distribution of number-mismatched cases shows that this is incorrect. As demonstrated, in left-conjunct agreement languages such as Spanish, number-mismatched cases are well-formed regardless of whether they include a singular determiner or not, i.e., whether the left-conjunct is occupied by the singular or by the plural noun. The occurrence of the singular determiner is solely determined by the number feature of the noun occupying the left-conjunct and has no impact on the well-formedness of the D[N1&N2] construction.

This line of reasoning may be opposed in the following way: By abandoning singular D° as the bearer of [Latt:–], the theory loses the ability to account for what Heycock and Zamparelli (2005) assume is a general unavailability of bare singular nouns. I claim that in this regard the theory overgenerates, anyway since there do exist cases of bare singular nouns in all languages under scrutiny. Moreover, the licensing conditions appear to be slightly different for every language. For relevant data, see Lamoure (2020).

4.2 Syntactic ramifications

Heycock and Zamparelli remain vague about exactly how the derivation converges with respect to agree(ment) in D[N1&N2] constructions. In this section, I will thus introduce general principles I need to adopt in order to account for agreement in the context of DPs and coordination, as well as specify the individual heads for features.

4.2.1 Agreement with coordinate structures: Multiple Agree

In its canonical definition, agree is conceptualized as a binary relation between one probe and one goal. Obviously when dealing with dependencies such as in Germanic D[N1&N2] constructions, such a conception is inherently unfit to handle not only the Germanic data but also to fire the semantic mechanism outlined above. I therefore suggest allowing agree relations to span over one probe and multiple goals (remember that coordination is recursive). This is akin to Hiraiwa (2001). However, the goal is to do without a dedicated trigger or parametrization across lexical elements or languages.

In essence, I allow multiple agree to be a viable option at any point the derivational system applies agree. In this sense, agree is merely *a special case* of multiple agree. I follow Chomsky in the definition of agree (Chomsky 2000: 122):

> The probe P agrees with the closest matching goal in D
>
> a) Matching is feature identity.
>
> b) D[omain](P) is the sister of P.
>
> c) Locality reduces to 'closest c-command'[14]

Since agree is with the closest goal, this implies for multiple agree (conceptualized as one simultaneous operation (cf. Hiraiwa 2001)), that in configuration (38), four options are available (P stands for Probe, G for goal and '…' for c-command).

(38) P… G1…G2…G3
- a) P agrees with G1
- b) P agrees with G1 & G2
- c) P agrees with G1 & G3
- d) P agrees with G1 & G2 & G3
- e) *P agrees with G2
- f) *P agrees with G2 & G3
- g) *P agrees with G3

All invalid combinations have in common that they do not include agree with the closest goal. One may wonder why (38)c) is allowed in this system, given that G2 is skipped over. Strictly speaking, there is no second agree operation, but only one. Combining this with Chomsky's

[14] Chomsky (2000. p. 122) defines *close* in the following way:" Thus, D(P) is the c-command domain of P, and a matching feature G is closest to P if there is no G' in D(P) matching P such that G is in D(G')".

canonical assumption about locality cited above, agree follows to be free to agree with any selection of goals in its c-command domain, so long as the closest goal is part of that selection.[15]

Whether or not a given combination will finally lead to a converging derivation further depends on the interface conditions, i.e., i.) is the result interpretable? ii.) can the outcome of multiple agree be spelt out?

Pertaining to ii.), I assume that multiple agree by an unvalued feature always yields multiple features:

(39) P [F:__] agrees with G1 [F:val1] & G2 [F:val2]
yields P [F: val1] [F: val2]

For spell-out relevant features this means that spellout via a syncretic form, (pending further explanations in section 8, page 37) will be necessary. Following Bjorkman (2016) I assume that PF will have to run Vocabulary Insertion once per feature bundle. Should the resulting forms differ, a crash will obtain, should they coincide (i.e., PF picks out the same form twice) the derivation morphologically converges.

For features relevant to the interpretation, this means that the triggered processes at LF may not exclude one another (e.g., removing all singletons and removing all pluralities) and that interpretability (see further below) is generally obeyed. Otherwise, a crash will result (cf. above).

Before moving on to a brief discussion of agreement in the context of the DP, I want to stress that multiple agree is needed in Heycock and Zamparelli's system, independently of the agreement patterns scrutinized in this paper. Apart from agreement patterns there are two points at which multiple agree is required:

1.) Under a canonical, 'monogamous' view of agree, it would be impossible for Pl° – the only source of valued [Latt] – to value both unvalued instances of unvalued [Latt] on N° (cf. **Illustration 1**). Since valuation of unvalued features is a well-formedness condition upon transfer, according to Heycock and Zamparelli (2005), such structures could never converge.[16]

[15] An anonymous reviewer wonders about the viability of c). My goal in this section is to introduce a version of multiple agree that requires as little as possible additional constraints as to not further bloat up the grammar. As pertains to this particular configuration, it will become clear that it is not needed for the derivation and will even produce a crash due to the inability of its result to meet the interface conditions (it would leave uninterpretable features unchecked). My claim here is that not everything that syntax can derive will lead to a converging derivation.

[16] An anonymous reviewer remarks that the type of multiple agree I will end up adopting allows for multiple goals to be probed by one probe, while the configuration brought forth here is the exact opposite, i.e., multiple probes one goal. However, since I assume that [Latt] agreement piggyback rides on [plur] agreement and the latter is indeed an instance of the 'multiple goals one probe' configuration, the point I am making here is not mute.

2.) In order to account for the cross-linguistic distribution of number mismatched cases, I suggest Num°'s [Plur] to be simultaneously valued for '+' and '–' thus triggering both filters and eliminating the entire denotation in Italian-type languages. Since under monogamous agree such a valuation is beyond the reach of the derivation of number mismatched cases, in Italian languages it becomes impossible: Configurations such as D[N_{plur}&N_{sing}] Num would agree with the closest goal that is found in Pl [Plur: +] in the left-conjunct. The resulting prediction would be that in Italian-type languages, number mismatched cases should be fine if the left-conjunct is occupied by a plural noun. This is of course counter to the fact.[17]

4.2.2 Agreement in the DP: Relativized phi-completeness

Agreement within the nominal domain (or concord) differs from sentential agreement phenomena in that there are no phi-complete goals. Most Chomskyan-generative work on the nominal domain agrees that individual phi-features may very well be hosted on individual heads. Therefore, I will abandon *phi-completeness* for the present purposes and replace it with Danon's (2011) relativized phi-completeness:

> **Relativized ϕ-completeness**: An Agree operation leads to feature sharing if the goal matches all the unvalued **ϕ**-features of the probe.

4.2.3 Agree applied to Heycock and Zamparelli (2005)

The feature specification in Heycock and Zamparelli (2005) differs substantially from the one assumed in the canonical minimalist architecture in that it makes no reference to *interpretability*, which is standardly viewed to be the motor of syntax. Therefore, an implementation in terms of agree requires some further ramifications, which will be elaborated in this section. More concretely, I adopt a refined version of Pesetsky and Torrego's feature sharing, which in turn has been strongly influenced by Michael Brody's (1998) Elegant Syntax.

Heycock and Zamparelli's system seems to break with the 'standard theory' in two respects:

1. At least in standard accounts, it is assumed that unvalued features are also always uninterpretable. For Heycock and Zamparelli this is not necessarily true. For example,

[17] An anonymous reviewer remarks that this is not a problem for Heycock and Zamparelli but only for the present paper. I disagree on this: Heycock and Zamparelli's accounts aim at deriving the different readings possible in D[N1&N2] constructions across (at least) English and Italian. Number mismatched cases, as shown, distribute across these languages exactly along the lines of split reading / no split reading they are investigating. Without a doubt they are unaware of the phenomenon, but this does not change the fact that their analysis is unable to account for those readings and is therefore incomplete.

[Plur] on N° is valued but uninterpretable, while [Plur] on Pl° and Num° is unvalued and interpretable. Outside of the canonical implementations, such conceptions are actually not unheard-of (cf. Pesetsky and Torrego 2007).

2. Usually it is assumed in the minimalist literature that for every feature there exist two subtypes, i.e., *uninterpretable* and *interpretable* features. For a derivation to converge, all uninterpretable instances must have been checked off by agreeing with an interpretable instance. Typically, uninterpretable and interpretable instances are distributed according to a one-to-one ratio. Some frameworks, e.g., Pesetsky and Torrego (but also Hornstein, Nunes and Grohmann 2006, c2005), embrace the possibility that there are multiple uninterpretable occurrences of one feature. However, in Heycock and Zamparelli (2005) there are multiple interpretable features, although the authors do not refer to them as such:[18] that is, different occurrences of the same features get interpreted in different ways in different locations (e.g., [Latt] on Num° (filtering the denotation) and Pl° (creating a plural or non-plural denotation)).[19] From a standard-theoretical view, the distribution of interpretable and uninterpretable features is indeed of utmost importance; the need to eliminate uninterpretable features from the structure to prevent a crash at LF is what supposedly powers the derivational motor. The occurrence of multiple interpretable occurrences of the same feature then begs the question as to how the requirements of interpretability are met in such a setup.

As for 1), the solution is quite simple: to give up on the implication between valuation and interpretability. As mentioned previously, exactly this has been suggested before by Pesetsky and Torrego (2007) and I will henceforth adopt this part of their theory. For clarity's sake, I will also adopt their claim that the trigger for probing is the unvalued feature on the probing head, although as will become evident in the next section, nothing hinges on it.

With regards to 2.), I will refer to Brody's (1998) claim that the system is more dynamic than the simple one-to-one correspondence of uninterpretable and interpretable features in standard minimalism would have you believe. More concretely, I modify Pesetsky and Torrego (2007) in the following way: While uninterpretable features can in principle be rendered invisible to LF by establishing a feature chain between the uninterpretable feature and an interpretable counterpart, this state of things is not set in stone. The occurrence of yet another interpretable feature that c-commands the aforementioned uninterpretable instance will render the latter visible LF again, i.e., uninterpretable relative to the 'new' interpretable feature (cf. **Illustration 2** below):

[18] In fact, the distinction is completely lacking from their system.

[19] In my terms this would of course be [Plur] on Num° and Pl°. The point itself remains unchanged.

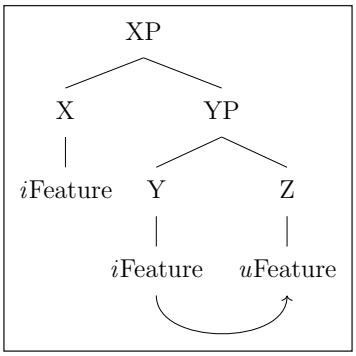

Illustration 2: Interpretability.

I claim that in such a configuration, the presence of a c-commanding, interpretable matching feature will render the uninterpretable feature visible to LF again, although it is already part of a feature chain with another interpretable instance. In order to remedy this situation, the feature chain must be extended to the c-commanding, interpretable feature on X.

The problem of multiple interpretable instances is akin to a problem Brody notes about Chomsky's analysis of *wh-questions* in English (Brody 1998: 162):

> A +wh feature will be checked only if it is "strong" and then overtly (some of the problems with the notion of strength used here were discussed in section 2 above). Thus in English the wh-feature on C is strong and hence it can be checked either by (T +)did as in (36) or by a wh-phrase as in (34). Since a strong feature can be satisfied by a single element, the analysis raises the question of why (38a) is unacceptable. Here the strong wh-feature of C is satisfied by the hosted verbal element."

(34) a. I wonder who +WH Bill saw (who)
b. Bill saw who

(36) Did +WH John see Mary

(38) a. did John give which book to Mary
b. +WH John gave which book to Mary

This leads Brody to propose to model the data via his *Bare Checking Theory*, which forces all *wh-features* to merge (Brody 1998: 162):[20]

[20] An anonymous reviewer notes that there would be an alternative solution to Brody's problem i.e., to assume that auxiliary inversion and wh-movement are not triggered by the same feature. I agree with this possibility of a counter proposal in terms of different features. However, my intention here is to establish a theory-driven link over the unusual constellation of having multiple interpretable features.

> which book in (38a) must form a chain linking it to the wh-feature of the auxiliary (and perhaps also of C). Further, the chain must be a full category copy chain, that is one that corresponds to overt movement of the minimalist framework, since English C is strong, i.e. it licenses a specifier in addition to an element in the word (Xo)-internal checking domain.

Wh-items are optional *but* if they are present, they need to be part of the agree-relations.[21] This is akin to the situation in D[N1&N2] constructions, where multiple interpretable occurrences of [Latt] (for Heycock and Zamparelli) or [Plur] (for our purposes) are present in the structure. However, out of the box, Brody's framework, in as far as its predictions are specific enough, is too strong.

Implemented as such, we would predict no difference between Romance and Germanic, as the number and gender bearing determiner would have to be connected to all other heads bearing gender and number, i.e., to both nouns of a given D[N1&N2] construction.

Applied to other syntactic configurations, such as Subject – Verb – Object structures, we would expect feature chains to minimally span across the verb (bearing uninterpretable phi-features), subject and object (both have interpretable phi features).[22] Admittedly the latter would not *necessarily* be problematic in a predictive sense but instead be unnecessary.[23]

The same reasoning obtains with respect to coordinated subjects and objects (both D°s have uninterpretable phi features, interpretable counterparts are to be found in both conjuncts) with the additional problematic that, depending on the locality constraints one assumes, chain formation might be altogether impossible yielding undergeneration. In the present framework this would be true, e.g., for any DP coordination, since neither D°

---

[21] The parallel naturally hinges on the assumption that movement in Wh-questions is driven by feature checking, which I take to be an instance of *agree*.

[22] This of course depends on the number of further null heads that interact with phi features one assumes. For the point I'm trying to make this is however irrelevant.

[23] For Brody features are privative, which would lead to different representations of the two equivalent structures, since in i.) the determiner of the subject does not match with the interpretable phi feature bearing heads of the object (the subject has feminine gender, but the object has masculine), but it does in ii.) (both, subject and object, have feminine gender):

French:

i.) *La* *fille* *embrasse* *son* *copain*
The$_{.F.SG}$ girl$_{.F.SG}$ hugs her$_{.M.SG}$ friend$_{.M.SG}$
'The girl hugs her (male) friend'

ii.) *La* *fille* *embrasse* *sa* *copine*
The$_{.F.SG}$ girl$_{.F.SG}$ hugs her$_{.F.SG}$ friend$_{.F.SG}$
The girl hugs her (female) friend'

c-commands the other, thus preventing Pl° in one conjunct to agree with the noun in the other.[24]

I will therefore assume a modified version of Brody's *radical interpretability* and thus that feature sharing à la Pesetsky and Torrego serves the purpose to make uninterpretable feature occurrences invisible to LF. In this sense, then it is a priori permissive to have multiple feature chains of a given feature in one derivation, so long as every chain is *at least comprised of one interpretable instance*. However, invisibility of a given feature is not a state achieved once and for all. Rather, membership in a given feature chain makes an uninterpretable instance of a given feature **only** invisible relative to the interpretable instances that are also members of the chain.

I will assume that an interpretable occurrence of a given feature [*i*F_1], which is not a member of a feature chain [*i*F_2]…[*u*F], makes the uninterpretable feature inside the feature chain visible to LF (relatively uninterpretable to that feature) and thus causes a crash *iff the former c-commands any member of the chain.*[25] This will force agreement in the relevant configurations, but crucially not require it in structures where it is impossible. This will also make sure that – as far as the specific semantics allow it – interpretable instances are optional in the sense discussed here. The intuition behind this mechanism is that the presence of a further interpretable occurrence of a given feature reveals uninterpretable occurrences of a given feature as uninterpretable *relative* to that one feature. Consider the following schema (… signals c-command):[26]

(40) $[iF_{chain:1}] \ldots [uF_{chain:1}]$

(41) *[iF] … $[iF_{chain:1}]$ … $[uF_{chain:1}]$

(42) $[iF_{chain:1}] \ldots [uF_{chain:1}] \ldots [iF]$

[24] One might suggest that in such cases T° has to agree with both DPs, creating one feature chain that spans across all the relevant heads What would speak against such a conception is that this would require multiple agree. However, i.) in none of the languages under scrutiny does Subject – Verb agreement yield morphologically resolved agreement on the verb. ii.) Verbal agreement in the Germanic part of the sample never displays gender agreement; In the Romance part of the sample this is only the case with past participles. Thus, Gender on T° would have to be stipulated in order for this approach to work for gender as well.

[25] It is highly likely that some supplemental assumption is required in order to obtain the right outcome. Consider for instance PPs such as 'the behavior of students is unbearable.' Here, Num° arguably c-commands both Pl° of *behavior* as well as Pl° of *students*. Agree between the two would be impossible, as it would yield conflicting values on Num°. For the time being I will assume that phasehood of the PP prevents a crash.

[26] An anonymous reviewer comments that maybe such a configuration hints at the necessity to split the relevant feature [Plur] into two features. This would be supported by the fact that the two occurrences serve different purposes (at filtering at Num° and derivation of the noun's denotation at Pl°). However, semantically this would create a huge problem: By introducing another feature we would give rise to additional combinations, e.g. a singular noun denotation coupled with a plural filtering. This would effectively remove the possibility to predict that Italian rejects split readings in singular D[N1&N2] constructions. Further, this would bar us from the possibility of deriving bare plurals as being PlPs: the uninterpretable counter part of this new feature would sit on Pl° or N° and once Num° bearing the interpretable occurrence would be missing we'd obtain a crash.

With these base assumptions laid out, I will proceed to the analysis of the two agreement patterns in Germanic and Romance. The difference between these two patterns will be derived from the assumption that Romance Num° lacks gender, which Germanic Num° however possesses. The latter will be tied to a morphological property, which allows to model plural as the fourth gender and thus to collapse number and gender in German and Dutch.

5 Deriving left conjunct agreement in Romance

Romance data derive straightforwardly. Let's start with the gender-mismatched cases in **Illustration 3**, below:

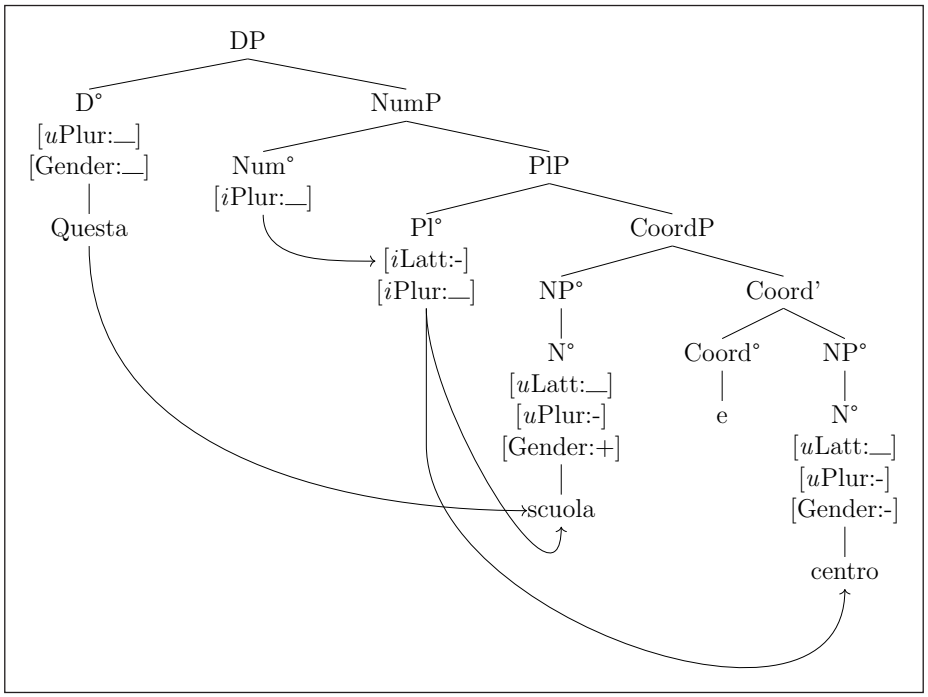

Illustration 3: Romance Gender Mismatch Derivation.

After CoordP has been derived, Pl° merges. Since Pl° matches with two goals – the two conjunct nouns *scuola* and *centro*– agree applies. At this juncture, the question is whether a converging derivation will include an instance of multiple agree or of monogamous agree. Since Pl° bears the only interpretable [Latt] feature, and the two Ns bear an uninterpretable [Latt] feature each, a monogamous agree derivation would leave the uninterpretable feature of the furthest noun (i.e., the noun in the right conjunct *centro*) outside of the feature chain and would thus lead to a crash upon transfer. Multiple agree will apply and form two feature chains spanning over [Latt] and [Plur] across Pl° and the two N°s.

Next, Num° merges and matches with three goals – Pl°, N° *scuola* and N° *centro*. Again, the question is whether a converging derivation will include multiple agree or monogamous agree. Since there is already a chain, connecting all instances of [Plur] c-commanded by Num°, the result of the two distinct variants of agree will be the same: The existing chain is extended to [Plur] on Num and thus the uninterpretable instances on N° remain invisible to LF.

Finally, D° merges bearing unvalued [Plur] and unvalued [Gender] and finds two matching goals, i.e., the two nouns. Again, the question arises regarding which variant of agree will lead to a converging derivation. Since the Italian lexicon does not possess syncretic forms of the demonstrative, and multiple agree requires spellout by a syncretic form, only monogamous agree will lead to a converging derivation. Since agree is always agree with the closest c-commanded goal, D° will agree with the noun in the left conjunct *scuola*. Since *scuola* is already part of a feature chain for [Plur], no issue pertaining to interpretability will arise.[27]

Next, we review the derivation of number mismatched cases, as shown in **Illustration 4** below. First bear in mind that number mismatched cases are instances of PlP coordination, an intuition derived from their semantics. How is the formation of NP coordination in these cases prevented? As argued above, in NP coordination Pl° is the only source of interpretable [Latt] and thus must multiply agree with all nouns. As a side effect of this process, also Pl°'s [Plur] feature is valued multiply, which would lead to conflicting instructions to LF and thus to a crash, e.g., deriving a mass and a plural count noun derivation at the same time.

---

[27] An anonymous reviewer remarks that formally there is no way of telling whether left conjunct agreeing languages do not allow for morphologically resolved agreement as well – as mentioned before, the left conjunct agreement pattern is in principle capable of generating D[N1&N2] constructions headed by syncretic forms:

i.) French
Les hommes et femmes
The$_{.PL}$ men$_{.M.PL}$ and women$_{.F.PL}$
'The men and women'

The epistemological blind spot is, of course, that it is impossible to know whether i.) is fine because the language does not care about the compatibility of the second noun with the form of D° or whether i.) is fine because morphologically resolved agreement is universally a viable strategy, or as the reviewer writes him or herself: "If this is the case, the analysis should not strive to exclude morphologically resolved cases in, say Spanish, but only to cover the fact that languages like German or Italian do not have first conjunct agreement."

While I do not see any way of answering the underlying question, I'd like to point out that the analysis presented here actually does allow for morphologically resolved agreement in left conjunct agreement languages – Nothing prevents the D° probe from multiply agreeing with both nouns simultaneously. Whether this will lead to a converging derivation solely depends on the availability of a syncretic form in the lexicon.

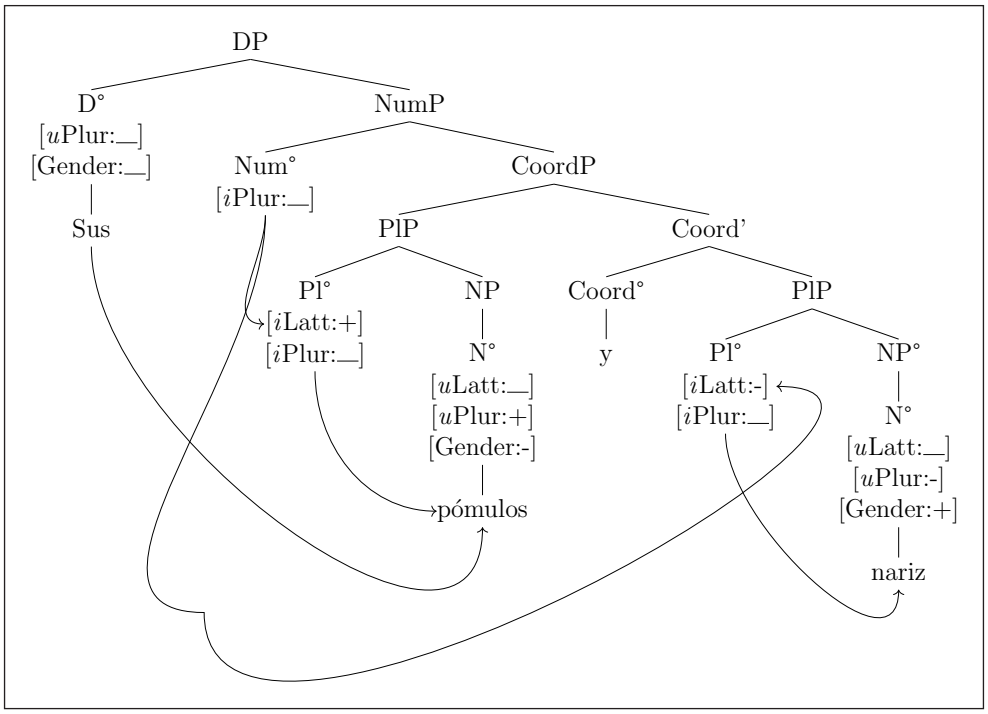

Illustration 4: Romance Number Mismatch Derivation.

Thus, a converging derivation will consist of PlP – conjuncts. After those have been derived, and each Pl° has agreed with its respective noun, forming two (independent) LF-invisible feature chains in terms of [Latt] and [Plur], Num° merges. Since Num° bears an interpretable occurrence of [Plur], it will render all c-commanded feature chains visible to LF. Those include uninterpretable instances on N° and thus must be agreed with by Num°. Hence, Num° multiply agrees with all c-commanded goals. This time [Plur:_] on Num° will receive two distinct values, which, as argued above, leads to a representation such as the following: Num° [Plur:–] [Plur:+]. As laid out, these instructions to LF are not problematic in English-type languages (since in English [Plur:–] on Num° does not trigger any filtering) but lead to a crash in Italian-type languages (because [Plur:–] and [Plur:+] filtering will result in an empty denotation), as desired.[28]

Finally, D° merges and matches with both nouns. As before, both multiple agree and monogamous agree are viable options. However, only monogamous agree will yield a converging derivation, since the result requires a number syncretic D-element, which is unavailable in Romance. Thus, monogamous agree applies, yielding left conjunct agreement.

[28] An anonymous reviewer asks why the derivation would continue, i.e., why D° would still merge, if the derivation will "already" crash already at Num°. I tacitly assume a modular architecture à la T-model or Y-model of grammar, where the semantic calculus follows the syntactic derivation. This allows for a relatively free syntax which can in principle build all kinds of structures, which however can still crash at the other two interfaces. Since the syntax does not interpret the structure from a semantic viewpoint, the derivation will move on although it is already doomed to fail.

6 Deriving morphologically resolved agreement in English

Although arguably the language with the least number of relevant cases pertaining to the phenomenon (due to the absence of overt gender marking in the DP), we will start with English, shown in **Illustration 5** below. Remember that English, due to the fact that it has no morphological reflex for gender within DP, only exhibits resolved morphological agreement with number mismatches, i.e., PlP coordination.

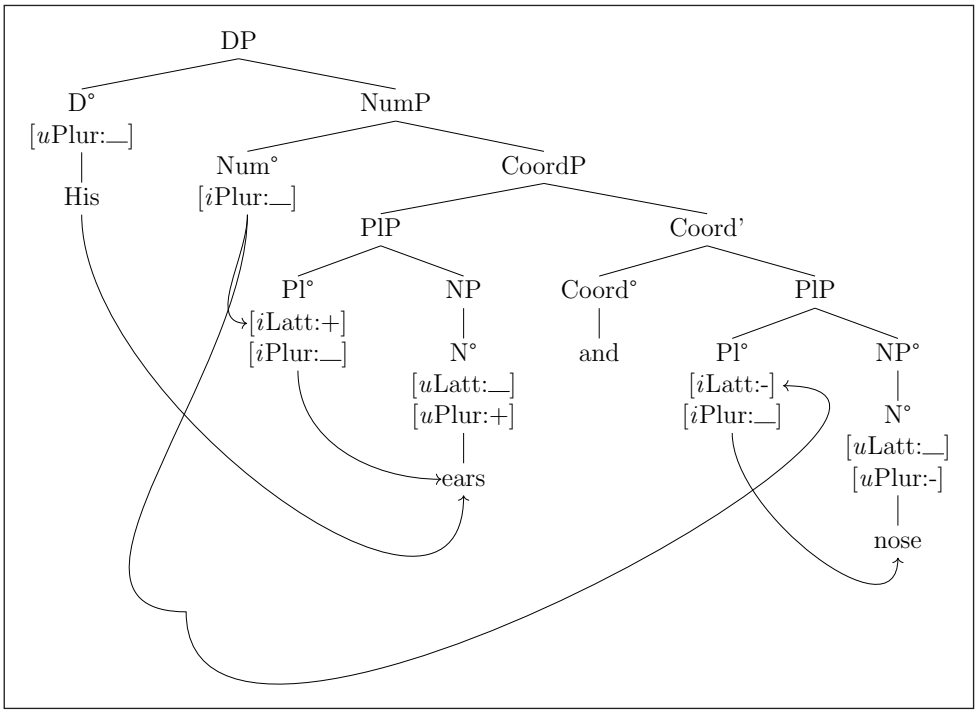

Illustration 5: English Number Mismatch Derivation.

Up to the formation of the CoordP, the derivation runs parallel to the one shown for the Romance languages: Each Pl° agrees with its respective noun. Next, Num° merges and minimally agrees multiply with both Pl°s, satisfying interpretability in terms of [Plur]. Since [Plur] on Num° is unvalued, it receives two values from both Pl°s.

When D° finally merges, its closest goal will be Num° (as opposed to the Romance case, where D° does not match with Num° due to the presence of gender on D°), and thus D° will receive multiple [Plur] features. The derivation will converge if a syncretic form can be found that will lexicalize D°.

7 Deriving morphologically resolved agreement in Dutch and German

Applying the system to the other two Germanic languages requires a further stipulation. If we apply the previous derivation to Dutch and German, inserting a gender feature – that English

lacks – left conjunct agreement would be predicted. The reason for this is that D°'s closest goal in Dutch and German would not be Num° (or Pl°); Num° isn't relatively phi-complete for Dutch and German D°, which are specified for Gender. The logic of the present approach suggests, then, two solutions: (i) Either D° possesses an interpretable or valued feature, whose counterpart is situated on N°, thus forcing multiple agree of D° with both N°s or (ii) Num° is a matching goal for D°, i.e., Num° has gender.

That Dutch and German Num° is specified for gender while Romance Num° is not is supported by the availability of strings of the form D > a\one > N (">" is indicating linear precedence), which are permitted in Dutch and German but not in Romance:

(43) German
Dieser eine Mann
This one man
'this one man'

(44) Dutch
Deze ene man
This one man
'this one man'

(45) This one man

(46) French
**Cet un homme*
This one man
'this one man'

(47) Italian
**Quest(o) un(o) uomo*
This one man
'this one man'

One may wonder whether gender is really the feature at stake here – after all even in German the paradigm is rather impoverished, exhibiting no differences between genders in nominative. However, the accusative paradigm clearly shows that we are in fact dealing with gender:[29]

(48) Diese eine Frau
This$_{.ACC.SG.F}$ one woman
'This one woman'

[29] Also note that, in previous stages of the language the paradigm was more developed (Sonderegger 2003: 297–99) (thanks to Helmut Weiß for providing literature).

(49) Diesen einen Mann
This$_{.ACC.SG.M}$ one man
'This one man'

(50) Dieses eine Kind
This$_{.ACC.SG.N}$ one child
'This one kid'

While any of the morphologically resolving languages here has no issue in producing such a string, the Romance varieties under scrutiny harshly reject it. Assuming that the overt D° forces the numeral to occupy Num°, *eine/eene* can lexicalize Num° if German and Dutch Num° are specified for gender. The Romance versions however cannot, because gender information is lacking in Num° but is necessary for spellout. Note that this construction becomes well-formed in Romance once a cardinal element different from *one* is chosen:

(51) French
Les deux / trois hommes
The two / three men
'The two / three men'

(52) Italian
I due / tre uomini
The two / three men
'The two / three men'

This makes sense, as *one* is the only cardinal element which morphologically marks – and therefore requires – gender.[30]

However, the question at this point is, why should this be so? Or rather how should the child acquire this? After all, constructions such as these are not exactly frequent in discourse, which is already implied by the fact that they are restricted to the numeral *one* (other cardinal numerals do not inflect for gender in the languages under scrutiny).

I want to suggest that the reason this is so, is related to a very special property of the German and Dutch D°-inventory: German and Dutch D-elements "lose" their gender in the plural, i.e., plural forms of D-elements exhibit a perfect syncretism in terms of gender. This long standing observation has led some authors (Krifka 2009; Sternefeld 2006) to argue that the German DP does not have a number feature to begin with, but that the plural is the 4th gender.[31] If this idea is

[30] An anonymous reviewer raises the issue of vague quantity denoting adjectives such as *molto*, which may be suitable candidates for being Num°s but do inflect for gender. According to my analysis these elements would have to be hosted in SpecNumP.

[31] In such a system the following would obtain: Singular Masculine [Fem:–] [Masc:+] , Singular Feminine [Fem:+Masc:–], Singular Neuter [Fem-] [Masc-] and Plural [Fem:+] [Masc:+].

on the right track, then Num° is relatively phi-complete for D° because both of them do not have a dedicated number feature ([Plur] in our terms) but only gender, which implies the information conveyed by number. This would also explain how children acquire the feature specification of a mostly null head and how grammatical judgements for D[N1&N2] constructions, although relatively rare, are typically expressed with much confidence.

At this juncture, it also becomes evident why English should pattern with Dutch and German and not with Italian and French. English, like Dutch and German, is featureally 'impoverished' in contrast to Romance languages. English lacks gender and Dutch and German lack number.[32] This total absence of gender is what prevents English D° from probing beyond the multiply agreeing Num°.

For the present purposes, I keep a separate number feature [Plur] in the tree in order to keep the structure clearer and simply add the feature [Gender:__] to Num°. With Num° bearing [Plur:__] and [Gender:__], morphologically resolved agreement follows in a straightforward fashion. I start with number-mismatched cases (cf. **Illustration 6** below):

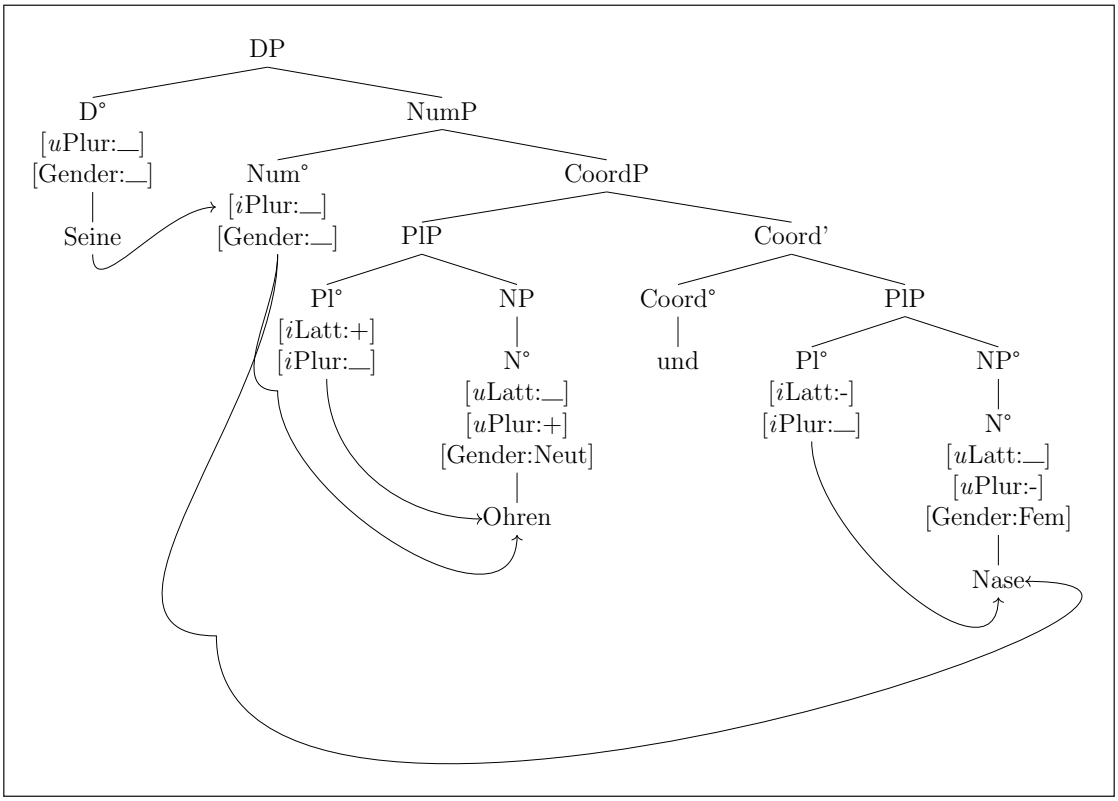

Illustration 6: German Number Mismatch Derivation.

[32] This might be indeed surprising given that English is quite a "Romance" Germanic language, which also surfaces in certain properties of the DP. For instance, English in contrast to German and Dutch and in accordance with all Romance languages allows for post-nominal adjectives (Cinque 2005).

After the conjunction of PlPs has been derived, the two Pl°s agree with their respective N°'s in terms of [Plur] and [Latt], establishing feature chains respectively. Next, Num° merges, bearing [Plur:__] and [Gender:__]. Since Num° bears an interpretable instance of [Plur] and c-commands both feature chains, it has the potential to render these chains visible at LF. Since Num°, by virtue of bearing [Gender], does not match with Pl° but with the individual nouns, it will have to probe every N° to maintain LF-invisibility, which will allow the derivation to converge.

Finally, D° merges, bearing both [Plur:__] and [Gender:__]. Thus, its closest matching goal will be Num°, which it will minimally have to agree with. Both multiple and monogamous agree will lead to a converging derivation. In any event, morphologically resolved agreement will obtain, because D° will receive multiple valued features from Num°, which will require spellout by a syncretic form.

Last, we take a look at what happens in Dutch and German gender-mismatched cases, as visualized in **Illustration 7** below.

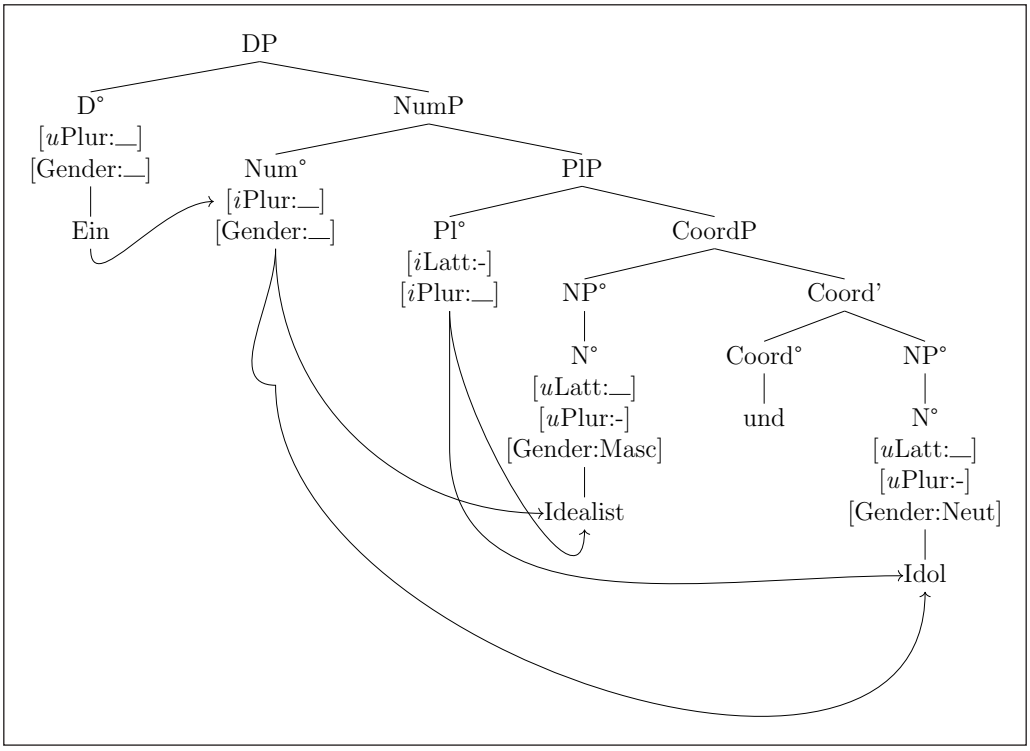

Illustration 7: German Gender Mismatch Derivation.

Remember that in these cases we are dealing with NP coordination.[33] After the NP conjunction has been derived, Pl° merges and, should the derivation converge, necessarily multiply agrees with

[33] As far as I can see, nothing prevents the formation of PlP coordination in these cases. Heycock and Zamaprelli (2005) make use of some economy principles that could be used to prevent the formation of PlP coordination in such cases. I will remain agnostic to this issue. However, according to the semantic computation adopted from Lamoure (2020), no semantic difference obtains between an NP coordination and a PlP coordination in these cases. Morpho-syntactically, the same results obtain as well.

all nouns, since Pl° is the sole locus of interpretable [Latt]. Also, since [Latt] on Pl is interpretable and uninterpretable on N, a feature chain needs to be established between both Ns and [Latt].[34] Next, Num° merges, bearing [Plur:__] and [Gender:__]. As before, Num° does not match with Pl° because Pl° is relatively phi incomplete to Num°. However, Num° matches with both N°s. Since [Plur] on Num is interpretable, a converging derivation will include multiple agree of Num° with all N°s, thus rendering the uninterpretable occurrences of [Plur] on N° invisible to LF.

Finally, D° merges. Irrespective of whether multiple or monogamous agree applies, D will receive multiple valued features, because its closest matching goal is Num°, which has just multiply agreed. The result is again spellout in a syncretic form. If such a form is unavailable, the derivation will crash.

8 Spell-out: Syncretic forms *cannot* be the product of intersection – Evidence from German

Up to this point, the answer to how multiple feature bundles lead to the spellout of syncretic forms has been rather vague. In this section, I argue that an approach in terms of intersection as proposed by Hein and Murphy (2019) is unsuitable for deriving the correct outcome due to the existence of a potential elsewhere case in the German article paradigm (*der*). I then suggest the implementation of the approach described in Bjorkman (2016)

One might ask why a multiply agreeing probe should even carry so much 'garbage.' In fact, Hein and Murphy (2019) have suggested handling cases such as these by intersecting feature bundles. Under the assumption that syncretic forms are underspecified, i.e., feature intersections of the fully specified contexts in which they can appear, and that spellout is governed by the subset principle, such an approach would lead to the correct outcome in the majority of the cases. However, German presents a problem to this approach in the form of the determiner form *der*. *Der* can surface in a variety of contexts, which do not reduce to natural classes:

(53) Nominative Singular Masculine: Der Mann

(54) Genitive Singular Feminine: Der Frau

(55) Genitive Plural: Der Männer / Frauen / Kinder

(56) Dative Singular Feminine: Der Frau

[34] [Plur] is also interpretable on Pl and uninterpretable on N°. However, in this case Num° could establish the feature chain, later, via multiple agree.

If *der* were to be analyzed as one form it would be *the radical elsewhere case*, void of any phi-featural content. For instance, according to the feature system in (Sternefeld 2006) we would get the following:

(57) Nominative, Masculine, Singular – [fem:–] [masc: +] [object:–] [oblique:–] :
Der Mann arbeitet
The man$_{\text{.NOM.SG.M}}$ works
'The man works'

(58) Genitive, Feminine, Singular – [Fem: +] [masc:–] [object:–] [oblique: +]
Er bedarf der Frau
He needs the woman$_{\text{.GEN.SG.F}}$
'He needs the woman'

(59) Genitive Plural all genders [Fem: +] [Masc: +] [object:–] [oblique: +]
Er bedarf der Frauen
He needs the women$_{\text{.GEN.PL.F}}$
'He needs the women'

(60) Dative, Masculine, Singular – [Fem: +] [Masc:–] [object: +] [oblique: +]
Er dankt der Frau

The intersection of all these features would yield the empty set. Such a conclusion would be undesirable, as it would lead to the prediction that there are no ungrammatical cases of D[N1&N2] constructions in German, given that *der* could always be inserted in the absence of a more specified competitor, counter to the fact:

(61) **Der Mann und Frau*
The Man$_{\text{.NOM.SG.M}}$ and woman$_{\text{.NOM.SG.F}}$
'The man and woman'

To prevent this, the most natural move would be to argue that *der* is at least *partially* an *accidental* syncretism and not a *systematic* one.

Albright and Fuß (2012) suggest that these two types of syncretisms can be teased apart by testing whether they license certain syntactic constructions: If so, we would be dealing with a systematic case, and if not the form is identical by accident. Lamoure (2020) shows that for *der*, neither of these two cases can be shown to be true, resulting in an epistemological draw.

I suggest circumventing the problem entirely and thereby reducing the number of assumptions necessary for syncretic spellout to work by adopting Bjorkman's(2016) approach to spellout.

Bjorkman (2016) faces a similar issue albeit in a different context. Her main focus lies on the English *go get* construction, which is only possible in environments calling for an uninflected

or bare verb (62) or for a form that is syncretic to the bare verb (63). Otherwise, the result is ungrammatical (64):

(62) Go get me a coffee

(63) Every morning I go buy a coffee

(64) *Every morning he goes buys a coffee

Bjorkman (2016) suggests that in go get constructions, the [INFL] feature of the two verbs is valued twice, once by [uINFL:DIR] on v° and once by e.g., [iINFL:*pres*] on T°. In order to account for the fact that the result is only well-formed if a bare form or a form syncretic with the bare form is inserted, the author makes use of multiple applications of vocabulary insertion (VI), which is triggered whenever a single head has multiple features of the same type.[35] In order to converge, multiple applications of VI must converge on the same result, as there is still only one (head-)position.[36]

How does this work in the present context? Consider the following syntactic output, which would correspond to the ungrammatical (61) (**Der Mann und Frau*):

D° {[Fem :–] [Masc : +] [object :–] [oblique :–]} {[Fem : +] [Masc :–] [object :–] [oblique :–]}

	d-{[Fem :–] [Masc : +] [object :–] [oblique :–]}	d-{[Fem : +] [Masc :–] [object :–] [oblique :–]}
-er	*der*	–
-ie	–	*die*

Just as in Bjorkman's case, the relevant heads (the article in this case) are associated with two different vocabulary items, which represents an '[…] impossible morphological representation, precisely because it associates two different vocabulary items with a single position of exponence' (Bjorkman 2016: 74).

In contexts where a syncretic form is available, the approach correctly predicts a converging VI:

(65) *Dem* *Orchester* *und* *Chor*
the$_{.DAT.M/N.SG}$ orchestra$_{.N.SG}$ and choir$_{.M.SG}$ […]
'The choir and orchestra'

[35] In the original paper, Bjorkman talks of two features. Since D[N1&N2] constructions are in principle unlimited in their number of conjuncts and hence in number of feature bundles on D°, I modified this to "multiple".

[36] I think this line of reasoning becomes more convincing if coupled with Kayne (1994): For Kayne hierarchical structure is transformed into linear precedence relations for the purpose of spell out. If one were to attempt to insert two lexical items into one head position, PF would crash, as it does not know which of these precedes the other. A simultaneous spell out of both lexical items is impossible due to the linear nature of PF.

(66) D° {[Fem :–] [Masc :–] [object : +] [oblique : +]} {[Fem :–] [Masc : +] [object : +] [oblique : +]}

	d-{[Fem :–] [Masc :–] [object : +] [oblique : +]}	d-{[Fem : +] [Masc : +] [object : +] [oblique : +]}
-em	*dem*	*dem*
-ie	–	–

In this case, the multiple application of VI will converge, as VI will insert only one form into the relevant position of exponence (D°).

This solution derives the correct outcome for *der*, since this spellout mechanism remains agnostic towards the true nature of the syncretism. At the same time, no features are lost during the derivation, thus satisfying inclusiveness, which may be at risk in Hein and Murphy's suggestion. Finally, this approach does not require a DM-Style subset-principle approach to syncretisms, but could in principle be modelled by any approach that predicts the correct distribution of syncretic forms in non- D[N1&N2] contexts.

9 Conclusion

In this paper I have shown that D[N1&N2] constructions exhibit different agreement patterns in Romance and Germanic languages. I have presented an analysis based upon a modified version of Heycock and Zamparelli's (2000; 2005) pioneering analysis that allows us to model both the observed morpho-syntactic and semantic properties of this construction. In terms of syntactic assumptions, this analysis requires multiple agree yet implements it in a way that is solely constrained by the interface conditions of the semantics and phonology – the output of the syntax and hence agree must be semantically and phonologically computable. The hypothesized locus of variation between Romance and Germanic was suggested to be the availability of strings of the form D > one > N, which turns out to be as cross-linguistically stable as the observed agreement pattern.

The system as it is set up right now predicts two types of languages with respect to morpho-syntactic patterns: left-conjunct agreement languages in which D > one > N strings are ungrammatical, and languages with morphologically resolved agreement in which D > one > N strings are well-formed. I speculate that the latter property derives from an impoverished feature inventory in these languages. Further data from other languages is required to further falsify this analysis – more specifically, it would be interesting to gather data from a different language family, such as Slavic, and investigate languages from the Germanic branch, whose feature systems do not lend themselves to an analysis parallel to the one in Dutch and German.[37]

[37] I want to note at this juncture that this is not what most generativists would understand as a parametrization / parameter. The entire system depends on the feature make-up within a given language's DP system

Abbreviations

SG = Singular

PL = Plural

F = Feminine

M = Masculine

N = Neuter

GEN = Genitive

DAT = Dative

ACC = Accusative

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Competing interests

The author has no competing interests to declare.

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