

On Nominal Number and Partial Agreement

Languages that exhibit subject-verb agreement asymmetries (Afroasiatic, Celtic) also share complex processes of plural formation.

*Building on earlier work (Lecarme 2002), I argue that partial agreement derives from a morphosyntactic property of nominal [number]. I propose that Afroasiatic/Celtic plurals involve a ‘lower’ source of plurality, namely *n, independently motivated for the interpretation of group nouns and collectives. Evidence for the existence of a *n projection is provided by morphosyntactic parallels in the verbal domain (intensives, repetitives, pluractionals). Unlike Num-plurals, *n-plurals are invisible to the core syntactic computation (φ -features agreement). On this view, partial agreement may involve a genuine subject-verb agreement relation (local configuration).*

1 Introduction

(A proper subset of) Afroasiatic languages (e.g. Standard Arabic, Egyptian, Somali) and Celtic languages (e.g. Welsh, Irish, Breton) exhibit partial agreement (gender and person only) with non-pronominal subjects¹.

- (1) Standard Arabic (Aoun, Benmamoun & Sportiche 1994)

- a. **Naama** l-[?]awlaad-u
slept.3ms the-children-nom
‘The children slept’
b. [?]al-[?]awlaad-u **naamuu**
the-children slept.3mp
‘The children slept’

- (2) Welsh (Hendrick 1988, Rouveret 1991)

¹(Afroasiatic languages:) Aoun, Benmamoun & Sportiche 1994, Benmamoun 2000, Fassi Fehri 1993, Lecarme 1995, Mohammad 1990, Reintges 2005... (Celtic languages:) Anderson 1982, Joutiteau & Rezac 2006, McCloskey & Halle 1984, Rouveret 1991, Schafer 1995, Stump 1884... (among many others).

- a. **Darllen-odd** y plant y llifr (analytic form)
read.Past.3S det child.3PL det book
‘The children read the book’ (sg. plentyn ‘child’)
b. **Darllenasant** y llyfr (synthetic form)
read.Past-3PL the book
‘They read the book’

Partial agreement is not limited to VS configurations (Breton, Somali), nor to VS(O) languages. Cushitic languages (e.g. Somali) are (basically) OV languages.

- (3) Breton (Anderson 2005, 174)
- a. Ar wazed a **lenn** al levr
the men PRT read.3s the book
‘The men read the book’
b. Al levr a **lenn** ar wazed
the book read.3s the men
‘The men read the book’
c. Al levr a **lennont**
the book PRT 3pl.read
‘They read the book’
- (4) Somali (Lecarme 1991, 1995)²
- a. Ardaydii baa **akhriday** búug-gan
students-defF[acc] C read.fs book-defM.dem
‘The students read this book’
b. Ardaydii wáy **akhriyéén** búug-gan
students-defF[nom] C.3P read.3p book-defM.dem
‘The students read this book’

Near consensus on full agreement:

Full agreement involves a pronominal (either overt or null).

Main views on partial agreement:

1. Partial agreement is ‘default’ agreement, or involves a null expletive element (e.g. Mohammad 1990).

²Key to Somali gloss: C/F complementizer/‘focus marker’ (declarative root complementizer). DefF/M = definite feminine/masculine article, dem = demonstrative, expl. = expletive. Pronominal clitics are identified by their person, gender, and number features (capital letters). Referential third object pronouns are \emptyset in Somali. Verbal agreement features are in lower cases.

2. *Traditional view*: postverbal subjects in VS(O) sentences agree *partially* with the Verb ([gender/person], but not [number]) (Wright 1933, Fassi Fehri 1988).

More recent accounts: agreement is dependent on a Spec-head relationship. VS order: V raises higher than T (C/F).

→ supposing that the φ -set of the subject DP both deletes and values the φ -features of T, it is not clear what prevents finite T in Arabic from valuing rich agreement features with the subject before the verb moves in C (Aoun, Benmamoun & Sportiche 1994, Benmamoun 2000).

Explanation: must be general, taking into account the grammatical properties shared by Afroasiatic/Celtic languages:

- the V2 character (root complementizers, preverbal particles, V movement from T to C)
- highly irregular processes of plural formation, most of which seem more derivational than inflectional.

→ What exactly is the relation between nominal [plural] and verbal agreement?

2 Partial agreement (somali)

Somali is a ‘pronominal argument’ language’. Subject clitics appear on phonological words that are independent from the inflected verb.

Verbal inflection in Cushitic, as well as Semitic, includes [gender] as a feature of subject-verb agreement.

Partial agreement is [gender/person] agreement only: 1st person plural agreement (*joog-n-a*) reflects the [group] feature of inclusive / exclusive ‘we’ (*aannu* = {[group], [1st], [2nd]}, *aynu* = {[group], [1st]}). Associative / group features do not reflect syntactic agreement.

(5) Full agreement (perfective)

	subject pronoun	Present	Past
1	<i>aan...</i>	<i>joog-∅-aa</i>	<i>joog-∅-ay</i>
2	<i>aad...</i>	<i>joog-t-a</i>	<i>joog-∅-ay</i>
3m	<i>uu...</i>	<i>joog-∅-aa</i>	<i>joog-∅-ay</i>
3f	<i>ay...</i>	<i>joog-t-a</i>	<i>joog-t-ay</i>
1P	<i>aannu (excl.)...</i> <i>aynu (incl.)..</i>	<i>joog-n-aa</i>	<i>joog-n-á-y</i>
2P	<i>aydin...</i>	<i>joog-t-aa-n</i>	<i>joog-t-ée-n</i>
3P	<i>ay...</i>	<i>joog-∅-aa-n</i>	<i>joog-∅-ée-n</i>

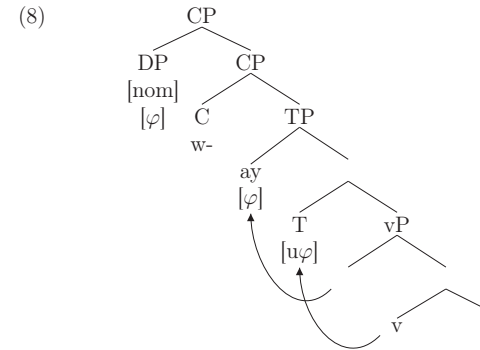
(6) Partial agreement (perfective)

	∅	Present	Past
3f		<i>joog-t-á</i>	<i>joog-t-áy</i>
1P		<i>joog-n-á</i>	<i>joog-n-áy</i>
elsewhere		<i>joog-∅-a</i>	<i>joog-∅-ay</i>

Different types of specialized Cs (*waa* vs. *baa*) in main declarative clauses determine two layers in the left periphery, and two basic agreement configurations.

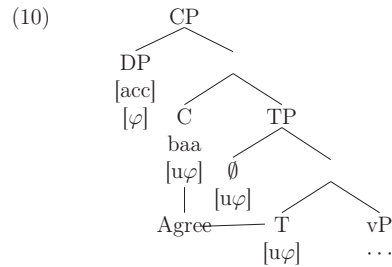
Rich agreement (person, gender, number) involves a nominative pronominal clitic or its null counterpart (*pro*, a referential pronoun) in Spec,TP (φ -agreement) + optional adjunction of a (inherently) case-marked nominative subject DP.

- (7) a. (Ardáy-du) wáy joogaan
students-defF[nom] C/F.3P are.waiting.3p
‘The students are waiting / they are waiting’



Partial agreement (person and gender only) involves a subject DP in the (default) [accusative] case in Spec, CP, a locally bound pronoun (\emptyset) in Spec,TP, and an Agree relation (feature transmission) between C and T (EPP feature, see Lecarme 1991, 1994, 1999).

- (9) a. Ardáy-da baa joogtá
students-defF[acc] C/F. \emptyset is.waiting.fs
'The students are waiting'



Merger of expletive element *wax* 'thing' in C yields the 'postverbal focus' construction. (subject position in VOS/OVS order may involve a right-hand specifier, or a stranded left-hand specifier, see Lecarme 1999, 2002).

- (11) a. Wáx-aa joogá ardáy-da
expl.C \emptyset is.waiting.fs students-defF[acc]
'The students are waiting'
b. Wáx-aa akhriyay búug-gan arday-dii
expl.C \emptyset read.3s book-defM.dem students-defF[acc]
'The students read this book'

Subject relative clauses (phonetically null C) also exhibit partial agreement:

- (12) a. ardáy-da joogtá...
students-defF[acc] C. \emptyset is.waiting.fs
'the students who are waiting...'
b. arday-dii akhriyay búug-gan / búug-gan akhriyay,
students-defF[acc] \emptyset read.3s book-defM.dem / book-defM.dem read.3s
'the students who read this book'...

Core problem:

In Minimalist terms, T is not defective, but φ -complete (contains gender/person) \rightarrow the φ -set of DP both deletes and values the φ -features of T-C (alternatively, insertion of the AgrS node in the morphophonology (Marantz 2001) copies the φ -set of DP as a bundle).

\rightarrow [plural] nominal features are not accessible / visible to the computational process of verbal agreement (φ -features).

Proposed explanation (Lecarme 2002):

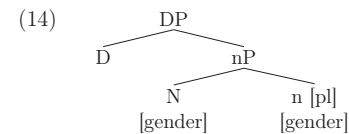
Number features are always introduced in the syntax. '3rd person' pronouns are NumPs above DP (Rouveret 1991, Kratzer to appear). Nouns acquire the special meaning of plural in the context of a [number] functional node (Ritter 1991).

English or French: Number inflection is affixed on a stem as a result of Head movement or syntactic merger (Lowering).

- (13) [DP [Num [N...]] Syntactic structure
[DP [N+Num [...]] Head movement
[DP [[N+Num...]] Lowering (syntactic merger)

Given the absence of syntactic joining of N and Num, the number node in certain languages remains dissociated from N.

Somali: The plurality of a noun is implemented configurationally as a structure [_n n [N N]] (N = categorially neutral ROOT+n, after Marantz 2001):



\rightarrow Somali: [plural] is spelled out on auxiliary morphological nodes (or dissociated nodes, in the sense of Embick 1988). Like syntactic light v's *do*, *have*, *be*, light n's plural suffixes are functional items and contain no roots. As n categories, they can bear inherent [gender] specifications.

\rightarrow Semitic sound plurals: unification of the gender values of N and n.

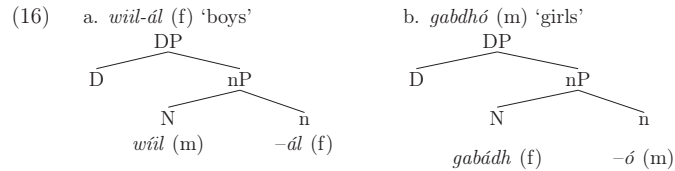
\rightarrow Semitic broken plurals: N (= Root+n) and n are merged (Morphological Merger) before Vocabulary Insertion.

3 ‘Derivational’ properties of Afroasiatic/Celtic plurals

3.1 Polarity effects

The two parts of the derived word may be differently specified for gender values → the gender of the plural noun is the gender of the plural suffix.

- (15) Somali
- a. wíil-ka iyo gabádh-du
boy-defM and girl-defF[nom]
‘the boy and the girl’
- b. wiilaá-sha iyo gabdhu-hu
boys-defF and girls-defM
‘the boys and the girls’



Remnants of a ‘polaric’ gender system:

Modern Hebrew: *naash-im* (m) ‘women’, *aab-ot* (f) ‘fathers’, etc. (see Meir 2006)

Arabic (and Hebrew): cardinal numbers from 3 to 10 seem to agree in ‘polaric’ gender opposition with the underlying singular form (*talaat-at-u* (f) ?*awlad-u* (pl.m) ‘three boys’, *talaat-u* (m) *banaat-u* (f) ‘three girls’, see Hetzron 1967).

Breton: inverse masculine / feminine patterns of consonant mutation in the plural (Hendrick 1995).

3.2 More than one plural form

- (17) Somali *túug* (-ga) (m) ‘thief’ *tuúg* (-ta) (f) ‘thieves’
tuug-á-g (-ga) (m) ‘thieves’
tuug-ó (-á-da) (f) ‘thieves’
- (18) Arabic *ṭaalib* ‘student’ *ṭullaab* ‘students’
ṭalab-at ‘students’

3.3 Derivational processes applying to plural nouns

- (19) Somali verbal derivatives (Lecarme 2002)
xagál ‘angle’ *xagl-o* ‘angles’ *xagl-o-gooy-é* (m) ‘diagonal’
xubín ‘limb’ *xubn-o* ‘limbs’ *xubn-o-aqóon* (f) ‘anatomy’
- (20) Breton verbal derivatives (Stump 1990)
darn ‘part’ *darn-où* ‘parts’ *darnaouin* ‘to distribute’
skeudenn ‘picture’ *skeudennoù* ‘pictures’ *skeudennaouin* ‘to illustrate’
- (21) Yiddish plural diminutives (Bochner 1984, Lowenstamm 2007)
xosn ‘bridegroom’ *xosndl* ‘little bridegroom’
xasan-im ‘bridegrooms’ *xasan-im-l-ex* ‘little bridegrooms’
- (22) Breton plural diminutives (Stump 1990)
bag ‘boat’ *bag-ig* ‘little boat’
bag-où ‘boats’ *bagoù-ig-où* ‘little boats’

3.4 Plural of a plural

- (23) Breton (Stump 1990)
- | | | |
|----------------------|------------------------|---------------------------|
| <i>Singular</i> | <i>Simple plural</i> | <i>‘Plural of plural’</i> |
| <i>ronse</i> ‘horse’ | <i>ronsed</i> ‘horses’ | <i>ronsed-où</i> ‘horses’ |
| <i>troad</i> ‘foot’ | <i>treid</i> | <i>treidoù</i> |
- (24) Welsh (Thorne 1993)
- | | | |
|----------------------|----------------------|---------------------------|
| <i>Singular</i> | <i>Simple plural</i> | <i>‘Plural of plural’</i> |
| <i>mach</i> ‘surety’ | <i>meichiau</i> | <i>meichiafon</i> |
- (25) Somali (Lecarme 2002)
- | | | |
|------------------------------|----------------------------------|---|
| <i>Singular</i> | <i>Simple plural</i> | <i>‘Plural of plural’</i> |
| <i>qaxóoti</i> (m) ‘refugee’ | <i>qaxootf</i> (f) ‘refugees’ | <i>qaxootiyó</i> (f) ‘(groups of) refugees’ |
| <i>róob</i> (-ka) (m) ‘rain’ | <i>roob-áb</i> (-ka) (m) ‘rains’ | <i>roobab-yów</i> (-ga) (m) ‘(heavy) rains’ |
- (26) Arabic (Ojeda 1992)
- | | | |
|-----------------------------|-----------------------------|---------------------------------|
| <i>Singular</i> | <i>Simple plural</i> | <i>‘Plural of plural’</i> |
| <i>balad-un</i> ‘a village’ | <i>bilaad-un</i> ‘villages’ | <i>buldaan-un</i> ‘lands’ |
| <i>bayt-un</i> ‘a house’ | <i>buyuut-un</i> ‘houses’ | <i>buyuut-aat-un</i> ‘families’ |

To summarize,

'Derivational' properties of plural suffixes:

- come with categorial and subcategorial information,
- have inherent gender specifications,
- can appear inside composition / derivation.

Inflectional properties:

- not category-changing morphologies,
- a set of forms in a paradigm (vowel *a*). Somali plural affixes are all functional morphemes in that they are completely determined by the grammar of the speaker. All satisfy the conditions of insertion of at a [plural] functional node
- have plural semantics (i.e. refer to more than one individual), no special 'collective' meaning (referring to a group of entities as a unit).

→ Somali plurals are not learned in a 'lexicon' (and are not a 'third gender' either). Learners analyze the new form they encounter into stem + plural suffix.

4 Evidence for a 'lower' plural inflection

4.1 Number/gender asymmetries

There is a universal basic asymmetry between [number] and [gender] features.

[Plural] 'operates' on predicates (Link's 1983 *-operator).

[gender] is a lexical (intrinsic) property of Nouns, whereas [number] is an optional property, common to both Nouns and other substantial categories (Chomsky 1975, 1995).

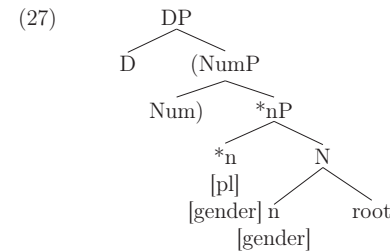
→ Earlier generative works: the feature composition of Nouns is determined by different parts of the grammar. [Gender] figures in the complex symbol of lexical entries for Nouns. [Number] is introduced by a contextual rule of the base, as a feature of the syntactic tree rather than a feature of the Noun itself.

→ Number is a functional projecting category (Ritter 1991).

Potential problem:

A functional category may not combine with [gender], a 'descriptive' feature. Viewing insertion at a functional node as competition of underspecified morphemes into fully specified nodes (Distributed Morphology), gender-bearing plural morphology is ruled out in principle, as the Vocabulary item contains features not present in the morpheme (Halle's 1997 Subset Principle).

→ There are 2 syntactic sources of pluralization: NumP and *nP (independently motivated for the interpretation of collectives and group nouns). *n-plurals are [interpretable], but do not enter into checking relations (φ -features agreement).



4.2 Determiners

Afroasiatic and Celtic languages all share poorly inflected determiners (Standard Arabic: invariable definite *l-* and indefinite *-n* article; Hebrew: *ha-*, Welsh *y...*).

Afroasiatic languages have N-to-D movement (Ritter 1988, Fassi Fehri 1993 a.o), but their determiners lack [plural] agreement.

Somali marks no [number] distinction in its determiners, which only reflect the [gender] of the (either singular or plural) noun stem.

4.3 Numerals and other quantifiers

Inflectional languages: in an expression like *three boys*, *three* is in the Specifier of NumP, while the plural morpheme is its head (Ritter 1991). Semantically, the plural operator (in Num) mediates the relationship between the numeral (in Spec,NumP), and the noun phrase NP. Syntactically, the numeral stands in a Spec-head relationship with Num.

Most Afroasiatic languages: numerals and quantifiers are nominal heads and pattern like nouns or adjectives in the syntax (i.e. seem to enter in construct with adjacent nouns).

- (28) a. *Arabic*
 ʔalaat-at-u rijaal-in
 three-fem-nom men-gen
 ‘three men’
 b. *Hebrew*
 kol ha-yeladim
 all the-boys
 ‘all the boys’

Somali: There is number marking on nouns, but crucially not in the context of numerals.

- (29) a. *Somali*
 sáddex qof(-ood)
 three(f) person.gen
 ‘three persons’
 b. sáddex-dii nin / arday
 three-defF man / student
 ‘three men / students’

Quantifiers like *kúlli* (m) ‘all’ *dhammáan* (f) ‘all’ are categorially nouns and function syntactically as DPs, allowing both a ‘construct state’ and a prenominal genitive construction.

- (30) a. *Somali* (Lecarme 1996)
 kúlli arday-dii
 all (m) students-defF
 ‘all the students’
 b. arday-dii kúlli-g-ood
 students-defF all-defM.3MP
 ‘all the students’

→ there is no clear evidence that numeral and quantifier nouns occupy a NumP projection.

4.4 Numeral classifiers

Presence of singulative affixes (Arabic, Breton), or other overt expressions that allow to count individuals by units, for nouns whose individuals cannot be counted directly (‘transnumeral’ nouns), or nouns that are treated as collective masses (cf. *furniture*)

- (31) a. óday rág-ga ká míd ah
 old.man(m) manship-defM from one be
 ‘an old man’
 b. rúux hawéen áh
 person(m) womankind(m) be
 ‘a woman’
 c. xabbád sigáar ah / ukún ah / líin ah / barfís ah...
 piece(f) cigarette(m) be / egg(f) be / orange(f) be / rice(m) be
 one cigarette, one egg, one orange, one grain of rice...

Typologically, this property implies the lack of compulsory number marking on the noun (Greenberg, 1972), i.e., the absence of a NumP projection.

4.5 Adjectives

Plural agreement on adjectives involves reduplication of the adjectival root (CV, CVV, CVVC), clearly a non-inflectional process (also, adjectives in Arabic can have broken plural forms).

- (32) a. sháqal dheer
 vowel long
 ‘(a) long vowel’
 b. shaqallá-da **dheer**-dheer
 vowels-defF long-long
 the long vowels’

- (33) a. dúgsi-ga sare
 school-defM high
 ‘high school’
 b. dugsiyá-da **sar**-sare
 school-defM high
 ‘high schools’

- (34) a. Waa wíil dheer oo qurxóon
 C boy big beautiful
 ‘He is a big beautiful boy’
 b. Waa wiilál **dhaa**-dheer óo **qur**-qurxoon
 C boys(f) big-big and beau-beautiful
 ‘They are big beautiful boys’

Is what we have here ‘concord’ between two [interpretable] plurals?

Plural adjectives in Somali (like in English or French) have both distributive and group interpretations (*big beautiful boys*: each boy is big and beautiful, or the boys are collectively so).

→ Plural marking on adjectives is ‘agreement’ (obligatory occurrence of a morphological feature in the domain of a controller, a nominal expression), but (crucially) not φ -features agreement.

5 Verbal plurality : little *v

In most Afroasiatic languages, plurality is realized in the verbal domain by morphological processes similar to those found in nominals, e.g. reduplication (Newman 1990, Fassi Fehri 2003).

Proposal: the locus of verbal plurality is *v, *n’s counterpart.

5.1 Plural verbal stems (reduplication CVC, CVVC)

No singular available, cf. *pluralia tantum*: *deg-deg* ‘to hurry’, *bad-baadi* ‘to look after’, *guur-guur* ‘to crawl’, *gil-gil* ‘to shake’, etc.

Shift of meaning between singular and plural: *dóon* ‘to want’, *doon-dóon* ‘to search (for)’; *már* ‘to pass’, *mar-már* ‘to travel (about)’.

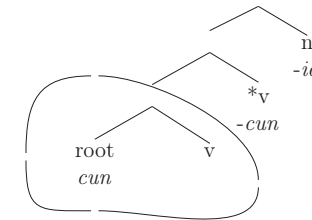
→ ‘lexical’ pluralization? *Some* plural semantics is induced by reduplication (cf. the plural of *scissors*).

5.2 Event nouns

Event nouns (suffixed *-id* (f), *-in-*, *-is*, *-sho*) do not pluralize like other nouns, but exhibit ‘verbal pluralization’:

- (35) a. qor-íd (f) ‘witing’ → **qor**-qor-íd (f) ‘writings’
 b. dil-íd (f) ‘killing’ → **dil**-dil-íd (f) ‘killings’
 c. cel-ín (f) ‘repetition’ → **cel**-cel-ín (f) ‘repetitions’
 d. qaba-shó (f) ‘arrest’ → **qab**-qabasho (f) ‘arrests’

(36) *cun-cun-id* ‘eatings’



Marantz (2001, to appear): Each category-determining head that combines with a root (e.g. n, v, a) defines a *phase*, a locality domain for semantic and phonological processes.

v heads introduce events or eventualities semantically, and are not by themselves carriers of anything like argument structures.

→ verbal pluralization is syntactic: morphology attached to *v is ‘outer morphology’, i.e. functional head that combines with structures already headed by a node determining a lexical category. All ‘category changing’ derivational morphology (e.g. *-id*) is syntactic.

5.3 ‘Pluractionality’

Reduplication of the verbal root introduces the ‘more than one’ event interpretation.

- (37) a. márkii la **seex**-seexdáy,
 when.defM one sleep-sleep.past.3s
 ‘when (all) the people went to sleep’ (successively),
 b. Gacán-taydu way i **cun**-cúnaysaa
 hand-defF.poss1S[nom] C.3FS 1S eat-eat.imperf.pres.3s
 ‘My hand is itching’ (lit. ‘is eating me’)(repeated phases of small eatings, cf. French *dé-manger*)
 c. Wiilá-sha iyo gabdhú-hu way is **qab**-qabsánayaan
 boys-defF and girls-defM[nom] C.3P refl. hold-hold.imperf.pres.3p
 ‘The boys and the girls are holding each other’
 d. Wáxaan arkay iyá-ga oo dhagxán **tuur**-túuraya
 expl.C.1S saw them-defM and rocks throw-throw.imperf.pres.3s
 ‘I saw them throw rocks repeatedly’
 e. Maalín-tii labaad ayaa booliis-ku sóo **qab**-qabtáy líx iyo
 day-defF second C/F police-defM[nom] dir. catch-catch.past.3s six and
 labatáan ká míd ah burcád-dii
 twenty from one be gang-defF
 On the second day, the police caught 26 gangsters’ (lit. members of the gang)

In (37e), reduplication of the verbal root forces a distributive interpretation (not a one-time catching of the 26 gangsters by the police, but more than one catching event).

Bianchi 2006: a functional P1 head selects vP, and attracts a [plural] DP argument in its Spec in order to check/value its own [plural] feature.

Kratzer (2007): DPs' inflectional [plural] features create the availability of distributive / cumulative interpretations. For distributive interpretations, the nominal number feature [plural] is not interpreted on the DP that hosts it, but functions as an operator that pluralizes the DP's sister constituent.

→ In languages where DPs do not have plural inflection (absence of NumP), VPs *have to* be pluralized in order to receive distributive interpretation (e.g. Chinese *dou*).

→ In *n-plurals languages, overt verbal plurality is needed to create the availability of distributive/cumulative interpretations.

6 Conclusions

- *n-plural inflection is [interpretable], but invisible to the narrow-syntactic computation (φ -features agreement) → partial agreement in Afroasiatic or Celtic may reflect a genuine subject-verb agreement relation.
- Syntactic change from *n to Num in Modern Semitic languages (Meir 2006) may cause variation in [number] agreement across languages, or varieties of the same language (e.g. Standard Arabic vs. Moroccan and Lebanese Arabic, see Aoun, Benmamoun & Sportiche, Ouhalla 2005).

7 References

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