

The Underlying Unity of Reference and Quantification

1. Background properties

Properties currently attributed to parametric variation:

- (1)
 - a. discreteness (i.e. the values of each parameter form no continuum and in the ideal case just amount to two)
 - b. finiteness (there is a finite number of parameters, hence of possible languages)
 - c. limitedness in number with respect to the differences appearing on the surface (i.e. several superficial differences turn out to cluster together under a single parameter at the appropriate level of analysis)
- (2) A fourth property: proteiformity (the same value of the same parameter may have distinct sets of manifestations in different languages)

2. A parametric generalization: Strong/Weak reference

Longobardi (1994, 2005): certain languages (henceforth 'strong reference' languages) overtly associate *both* object- and kind-referential nouns (proper names and referential generics) with D (either by movement (N-to-D chain), or by an arguably expletive article (N-to-D CHAIN)), other languages associate *neither* (henceforth 'weak reference' languages).

Italian:

- (3)
 - a. Lunedì scorso è stato un giorno difficile/Roma antica fu una grande potenza
Monday last was a hard day/Rome ancient was a great power
 - b.* Scorso lunedì.../ * Antica Roma...
Last Monday.../Ancient Rome...
 - c. Lo scorso lunedì.../L'antica Roma...
The last Monday.../The ancient Rome...
- (4) Madame Curie ha scoperto *(il) radio
Madame Curie discovered radium
- (5)
 - a. **Core Generalization** (Longobardi 2005): in Romance N-to-D chain/CHAIN iff reference (i.e. the two constant interpretations: proper names and kind names)
 - b. **Economy principle**: NOT \exists chain/CHAIN is more economical than \exists chain/CHAIN

English:

- (6)
 - a. Ancient Rome was a great power
 - b.* Rome ancient was a great power
- (7) Madame Curie discovered radium
- (8) **Parameter** (descriptive): Italian: +(5)a (strong reference)/English: -(5)a (weak reference)

3. Strong reference languages

Rumanian: like Italian + enclitic article

(9) Proper names untestable: require an article whenever modified by an adjective

(10) Madame Curie a descoperit radium-*(ul)
Madame Curie discovered radium-*the*

(11)

	Italian	Rumanian
<u>±</u> enclitic def	-	+

Greek: like Italian – N-raising

(12) a. η Ρώμη είναι η προτεύουσα της Ιταλίας
The Rome is the capital of the Italy

b.* Ρώμη είναι η προτεύουσα της Ιταλίας
Rome is the capital of the Italy

(13) Η Μαντάμ Κιουρί ανακάλυψε *(το) ράδιο
The Madam Curie discovered *the* radio

(14) a.* Οι/Πολλοί ελέφαντες άσπροι
The/Many elephants white

b. Οι/Πολλοί άσπροι ελέφαντες
The/Many white elephants

(15) If N cannot be extracted to a higher functional position (e.g. over adjectives, signaling partial N-raising), the only option to overtly relate N to D is an expletive article (CHAIN) for all proper names

(16)

	Italian	Rumanian	Greek
<u>±</u> enclitic def	-	+	-
<u>±</u> N extraction	+	+	-

Classical Greek: like Greek + null articles (bare singulars)

(17) a. ἐπὶ τῇ οἰκίᾳ τῇ Ἀγάθωνος (Symposium 174 d 7 – e 1) ∅ N
At the house of Agathon

b. φάναι τὸν Ἀγάθωνα Art N
...that *the* Agathon said

c. τὸν διπλοῦν Ἔρωτα (Symposium 186 b 4) Art A N
the double-faced Eros

d.* Ἔρωτα διπλοῦν *∅ N A

e.* διπλοῦν Ἔρωτα *∅ A N

(18) a. ἐπίσκειψαι ποῖ βλέπων ὁ νομοθέτης τὰ ὀνόματα τίθεται (Cratylus 389 a 5-6)
see now what the lawgiver has in view in giving *the* names *kind*

b. ὀνόματα ποιοῦντες (Cratylus 393 e 2)
making (some) names *indefinite*

- (19) a. εἰ ἐγὼ πάλαι ἐπεχείρησα πράττειν τὰ πολιτικὰ πράγματα (*Apology of Socrates* 31 d 7-8) Art A N
if I had long since begun to be involved in the political affairs
b.* ... πράττειν τὰ πράγματα πολιτικά *Art N A
- (20) ἔτυχον γὰρ προσελθὼν ἀνδρὶ ὃς ... (*Apology of Socrates* 20 a 4) ∅ N_{sg}
I happened to run into a man who...

Given (15), (17)a cannot be an instance of raising. Hence it may be connected to (20) (Guardiano 2004)

Crisma (1997, 1999):

- (21) a. Ds are checked, among other features, w.r.t. \pm count, \pm def, but only if the latter are grammaticalized in the language
b. \pm count is checked iff \pm def value is chosen
c. \pm count is universally strong, i.e. must be checked before SpellOut
d. The value +count can be successfully checked:
i) by an overt +count determiner (typically, an indefinite article)
ii) by local contextual identification: 1) plural morphology
2) inheritance of count: Crisma 1999
e. Otherwise: default –count (e.g. bare plural and mass nouns)
- (22) Parametric theorem: languages which do not grammaticalize the feature \pm count (or \pm def, given (21)b) license empty Ds freely selecting singular count nouns as arguments, like overt articles (null articles)
- (23) a. Guardiano (2004): null articles in this sense (i.e. *bare singulars*, e.g. as indefinites, cf. (20)) can also be identified by the referential content of the noun itself as *expletive articles*, though only with proper names (by (5)b above): cf. (18)b.
b. Adjectives intervening between D and N apparently block the identification of null expletive articles (i.e. local identification: head-to-head or Spec-head): cf. (17)e.

(24)

	Italian	Rumanian	Greek	Cl. Grk
\pm enclitic def	-	+	-	-
\pm N extraction	+	+	-	-
\pm gr. count	+	+	+	-

Bulgarian: like Classical Greek + enclitic article

- (25) a. Рим
Rome
b.* Рим dreven
Rome ancient
c.* Dreven Рим
Ancient Rome
d. Drevn-iyat Рим
Ancient-the Rome
- (26) Madam Curie otkri radij-*(a)
Madame Curie discovered *the* radium

- (27) a. Namerix kniga.
Found-1sg book (with null article)
'I found a book'
- b. Namerix cervena kniga
Found-1sg red book
'I found a red book'
- c. * Namerix kniga cervena
Found-1sg book red

(28)

	Italian	Rumanian	Greek	Cl. Grk	Bulg.
<u>±</u> enclitic def	-	+	-	-	+
<u>±</u> N extraction	+	+	-	-	-
<u>±</u> gr. count	+	+	+	-	-

Arabic: like Italian + null article (bare singulars) or Cl. Greek + N-raising

- (29) All nouns raise very high (past all modifiers) anyway, thus proper names provide no evidence. Kind names do (Fassi-Fehri 2004):

- (30) ktashaf-at s-sayyidat-u kuurii *(r-)radyuum-a
discovered-f. the lady-nom Curie *the*-radium-acc

(31)

	Italian	Rumanian	Greek	Cl. Grk	Bulg.	Arabic
<u>±</u> enclitic def	-	+	-	-	+	-
<u>±</u> N extraction	+	+	-	-	-	+
<u>±</u> gr. count	+	+	+	-	-	-

4. Weak reference languages

Norwegian: like English + enclitic article

- (32) a. Forrige mandag var en travel dag
Last Monday was a busy day
- b.* Mandag forrige var en travel dag
Monday last was a busy day

- (33) Madame Curie oppdaget radium
Madame Curie discovered radium

Icelandic: like Norwegian + null article (bare singulars)

- (34) a. Síðasti mánudagur var erfiður dagur
Last Monday was difficult day
- b.* Mánudagur síðasti var erfiður dagur
Monday last was difficult day

- (35) Marie Curie uppgötvaði radíum.
Marie Curie discovered radium

Welsh: like English + N-raising + null article (bare singulars)

(36) Proper names irrelevant: always require an article if modified by an adjective
(Rouveret 1994, Willis p.c.)

(37) Darganfu Marie Curie radiwm
Discovered Marie Curie radium

The other parameters crosscut, as expectable:

(38)

	English	Norwegian	Icelandic	Welsh
<u>+</u> enclitic def	-	+	+	-
<u>+</u> N extraction	-	-	-	+
<u>+</u> gr. count	+	+	-	-

(39) a. the car Eng
b. bil-en Nor
c. bíll-inn Ice
d. y car Wel
'the car'

(40) a. a German car Eng
b. en tyske bil Nor
c. þýskur bíll Ice
d. car Almaenig Wel
'a German car'

5. Definiteness

In some constructions of certain languages, but crucially not in the closely comparable constructions of others, a definite reading depends on the overt association of some morphosyntactic material with D (fronting to D° or SpecD):

I. Arabic (Semitic) Construct State (N-Gen-AP) vs. English (Germanic) Saxon Genitive (Gen-AP-N) (cf. Longobardi 1996):

(41) a. *daar-u* r-rajul-i l-waasica-t-u
house the man's the large
b. The man's large *house*

In other words: in Arabic the definite reading correlates with overt N-fronting (to D, presumably), in English it does not

II. Arabic (Semitic) Construct State (N-Gen-AP) vs. Welsh (Celtic) Construct State (AP-N-...Gen) (cf. Rouveret 1994):

(42) unig *blentyn* y brenin
only child the king

Welsh, *mutatis mutandis*, is like English rather than like Arabic. These facts already suggest a typological correlation between 'strength' of *reference* and 'strength' of *definiteness*.

III. Rumanian (N+def – AP / AP+def - N) vs. Scandinavian (...AP - N+def) enclitic definiteness suffixes:

- (43) a. Lup-ul
Wolf-the
b. Hus-et
House-the
c. Hús-ið
House-the

Despite appearances Rumanian and Scandinavian suffixes are positionally very different, as signaled by the insertion of an adjective:

Rumanian: the suffixed word **must** come first (be in D)

- (44) a. *Lup-ul* batrân
Wolf-the old
b.* Batrân *lup-ul*
Old wolf-the

Norwegian: both orders are ungrammatical

- (45) a.* *Hus-et* store
House-the large
b.* Store *hus-et*
Large house-the

Icelandic: the suffixed word **cannot** be in D

- (46) a.* *Hús-ið* stora
House-the large
b. Stora *hús-ið*
Large house-the

For adjectival modification Norwegian must resort to:

- (47) Det store *hus-et*
The large house-the

Rumanian may also suffix the definite marker to the AP and front the latter:

- (48) a. *Batrân-ul* lup
Old-the wolf
b.* Lup *batrân-ul*
Wolf old-the

In sum, in Rumanian the definite suffix must overtly be fronted to the D area, either on the noun or on the AP.

In Scandinavian nouns never raise over adjectives owing to the panGermanic (–)value at the N-extraction parameter. Predictably, even suffixed Ns stay lower than APs (cf. (46)b and (47)), hence are not in D. Accordingly, we must interpret (43)b and c too as non-fronted nouns. If there is a D, then it is empty and the definite morphology of the suffix must be able

to contextually (head-to-head) identify it as +def in (43), hence, according to Crisma (1997), neutralizing \pm count altogether (again cf. (21)b)¹. Therefore, we may tentatively conclude that D does not overtly attract the definite suffix in Scandinavian, potentially explaining the contrast of (44) vs. (45)-(46). QED.

Now, within Scandinavian, by (23)b, intervening APs in Norwegian (45) must block local (head-to-head) identification: the extra determiner in D is then predictably required for the identification of \pm count in Norwegian, but not in Icelandic, which has null articles (hence the contrast (45) is related to that in (40)).

But now why does Icelandic differ from Bulgarian (cf. below)?

IV. Bulgarian (AP+def - N) vs. Icelandic (AP - N+def) definiteness suffixes in the presence of APs:

- (49) a. Kniga-ta (Bulgarian)
Book-the
b.* Kniga-ta cervena
Book-the red
c.* Cervena kniga-ta
Red-the book
d. *Cervena-ta* kniga
Red-the book

- (50) Rauðu *bækurnar* (from Sigurdsson 2005)
Red books-the

Bulgarian, like Rumanian, may front a suffixed AP (cf. (49)d); however, the two languages are also different: in Bulgarian a noun must be expected to be trapped down as in Germanic or Greek (cf. (27)), thus suggesting that suffixed nouns ((49)a) are always as low as in Scandinavian (43)b and c, equally identifying an empty D, not literally moving into it like Rumanian (43)a (cf. (49)b). When local identification predictably fails, because of an intervening AP, Bulgarian should behave like Icelandic, owing to null articles. Instead, (49)c is ungrammatical. Why?

Our answer: if definiteness and reference are indeed parametrically syncretic, their values should correlate not only in Icelandic, where they have been shown to be both ‘weak’, but also in Bulgarian, where reference has been argued to be ‘strong’: then definiteness must be strong too, in Bulgarian, which would be exactly the minimal difference accounting for (49)c vs. (50), the other three parameters being equal:

(51)

	Bulgarian	Icelandic
\pm enclitic def	+	+
\pm N extraction	-	-
\pm gr. count	-	-
\pm strong ref	+	-

¹ Thus, def suffixes allow ‘null articles’ to be licensed even in languages with grammaticalized count, like Norwegian.

V. Adjectives can bear definite suffixes in the Balkan languages but not in Scandinavian

Identification of D features: only head-to-head or Spec-head

If definiteness is syncretic with reference, hence ‘weak’ in Scandinavia and ‘strong’ in the Balkans, then suffixed APs could be overtly attracted to an identification position (i.e. SpecD) only in Bulgarian-Rumanian. Therefore, only there could they serve any specific purpose (identification of D) by occurring on APs in addition to Ns. If distributional extension of suffixes from N to AP is functionally marked (a last resort), then Scandinavian will have no ground to license it. QED.

VI. Classical Greek genitive (Art-Gen-AP-N) vs. Germanic Saxon Genitive (cf. Guardiano 2003). Prenominal genitive does not involve definiteness inheritance, all other things being virtually equal in the DPs:

- (52) a. τὸ τῆς πόλεως κοινὸν ἀγαθόν (Laws 800 a 5)
the the city's common good
'the common good of the city'
b. τῆς πόλεως κοινὸν ἀγαθόν
the city's common good
'a common good of the city'

In Classical Greek an overt D-N CHAIN should be instantiated, which cannot be done simply by means of a null article in the case of a common noun (cf. (23)a): hence the presence of the article.

6. Definiteness and reference

Strong D languages, as defined above w.r.t. overt fronting of reference-bearing nouns, significantly coincide with those where definiteness-bearing nouns or adjectives are overtly fronted to the D area, while in supposedly weak D languages, *ceteris paribus*, no such process appears:

- (53) a. Strong reference: It, Rum, Blg, Grk, Arabic
b. Strong definiteness: Rum, Blg, Grk, Arabic
(54) a. Weak reference: Eng, Norw, Icel, Welsh
b. Weak definiteness: Eng, Norw, Icel, Welsh

I.e., the distribution of definiteness-triggered and reference-triggered chains tends to be typologically syncretic.

Generalization:

- (55) Definiteness is overtly associated with D iff reference is

Therefore, the syntax of reference and that of definiteness are crosslinguistically governed by a single, deep, parametrization.

Non-definite quantification
Crisma 1991:

- (56) a. I miei tre amici sono venuti a trovarmi
The my three friends visited me
b. Tre miei amici...
Three my friends...
c.* Miei tre amici...
My three friends

Numeral quantifiers (and perhaps *ogni*, given English ‘My every book’) are likely to move to D derivationally.

Conclusion:

- (57) The syntax of a wide variety of definite descriptions and other quantified expressions can be derived by virtually the same axioms (principles and parameters) relevant for referential nominal expressions.

Longobardi (2005):

- (58) *Denotation Hypothesis*: Individuals are denoted in D
(59) *Licensing condition*: Arguments denote individuals, as constants or variables
(60) *Parameter*: Strong/Weak D: in strong D languages (58) applies before SpellOut

Definitions:

- (61) a. Constants have a fixed referential value, thus denote one and only one entity (kind or object)
b. Variables are bound by (coindexed with) an operator and range over a set of values, thus denoting a set of entities (kinds -for taxonomic readings- or objects)

Theorems of (58)+(59)+(61):

- (62) a. an argument is a constant iff D contains α , α a lexically referential expression²:
b. an argument is a variable iff D contains α , α (the index of) an operator³

7. The definite article

Problem:

- (63) The non-enclitic definite article, such as English *the*, appears to escape such parameterization: its distribution seems very similar *mutatis mutandis* in e.g. Italian and English.

² An actual noun, pronoun or demonstrative (or equivalently an expletive article linked to the noun in a CHAIN in Chomsky's 1986 sense)).

³ In (62)a, the argument will denote whatever kind/object α refers to; for (62)b, binding may be *selective* (with an operator in D: definite/indefinite descriptions, quantified phrases...) or *unselective* (bare nouns, with empty D bound e.g. by Ex or Gen operators). The two subcases of (62)b may fall together under Dobrovie Sorin's (1994) DR, derivationally creating an empty category in D (Laca, Rothstein, Delfitto, Kamp p.c.).

- (64) a. L'antica città
 b. *Antica la città
 c. The ancient city
 d. *Ancient the city

- (65) a. Noi ricchi
 b. *Ricchi noi
 c. We rich
 d. *Rich we

Longobardi (2006): D is actually the Person head, i.e. the unique position for the interpretable exponence of Person features. Pronouns surface in D even in weak D languages because, unlike nouns, they morphologically manifest the feature Person.

Bernstein (2005): the so-called definite article is not primarily a lexical manifestation of the category Definiteness but rather of the category Person, like personal pronouns: “what (...) unifies 1st/2nd personal pronouns and *th*- forms is the display of person” (p. 11).

Proposal:

- (66) (Non-enclitic) definite articles (and some other lexical determiners) express the feature Person, hence are merged in D like pronouns

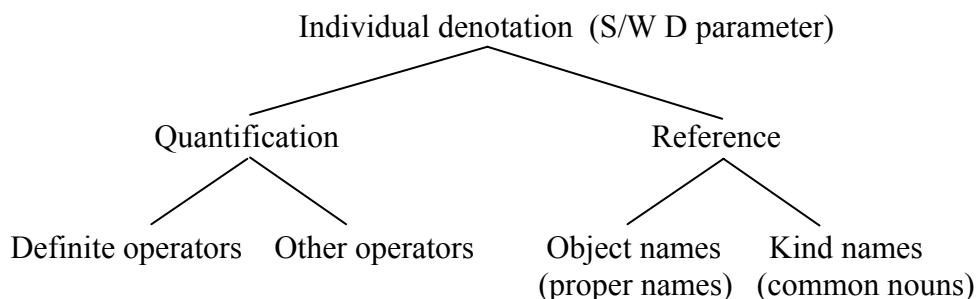
In most European languages, such a feature Person on determiners is set on the default (-Speaker, -Hearer) 3rd person value, but in others it is made visible by its variation in triggering agreement:

- (67) Las mujeres salimos con vosotros
 The women go (1st pl.) out with you

8. Toward the great unifications?

The parameterization of the interpretive properties of D first put forth in Longobardi (1994) (recast in different, but empirically near-equivalent, terms in Chierchia 1998) unifies crosslinguistically not only the semantic mapping of bare nouns and proper names (cf. Longobardi 2005), but also of many definite and, presumably, indefinite descriptions:

(68)



Conclusions:

- (69) a. A single, easily settable parameter unifies intricate differences in the behavior of proper names, kind names, definite and indefinite descriptions in a large number of languages:
- Syntax of proper names
 - Distribution of bare nouns (?, *modulo* Carlson 1977)
 - Semantics of bare nouns
 - Syntax of definiteness inheritance (construct state, Saxon genitive)
 - Syntax of definite enclitics
 - Genitive realization (Longobardi 1996)
 - Possessives with null nouns (Longobardi 1996)
- b. The same setting of a parameter may surface in different manifestations in different languages according to their morphology and the settings of other parameters. Trigger sets may be barely intersecting (cf. (2)).

Thus, macroparameters do indeed exist! Some macroparameters may have been erroneously dissolved into hosts of microparameters precisely as a misleading effect of (69)b.

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cguardiano@unimore.it

longbard@units.it