Bare NPs and DP-internal number agreement(s)

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1 Introduction

The problem: In many European languages, bare nouns (BN) are impossible when the noun is singular and countable (i.e. *BSCN), but possible (at least in some positions) when it is plural (i.e. √ BPCN) or mass (√ BSMN).

(1) a. This is *(a) table / wine
b. Questo è *(un) tavolo / vino

(2) a. I saw *(a) table / plates / wine on the table.
b. Ho visto *(un) piatto / piatti / vino sul tavolo.

• Semantically, common nouns are properties just like adjectives. Why is a determiner necessary in (1)?
  Semantic reply: it isn’t! It’s all syntax (see e.g. Winter 2002)

• Syntactically, mass and count nouns share a common feature for morphological number, here -PLUR. Any syntactic difference between them must appeal to an ad hoc (and invisible) ‘mass suffix’ (see e.g. Delfitto and Schrotten 1992, Deprez 2002).

Pluralia tantum like Italian occhiali “spectacles/glasses” show that a purely syntactic mark of plurality is not sufficient to license a bare nominal: a real semantic plurality is needed.

(3) a. Ieri per mezz’ora ho riparato gli occhiali di Carlo, yesterday, for half an hour, L have fixed the glasses of Carlo
   preferred interpretation: “I fixed one pair of glasses”
b. Ieri per mezz’ora ho riparato occhiali di Carlo, yesterday, for half an hour, L have fixed glasses of Carlo
   only interpretation: “I fixed multiple pairs of glasses of Carlo’s”

(Note: The effect seems to be absent in e.g. “Gianni portava occhiali con la montatura gialla”, “John wore glasses with a yellow frame”. We suggest that here V+BP denote an activity (“glass-wearing”))

The idea in a nutshell:

• The problem of BN is the lack of a feature value on N. Specifically, we propose that a singular determiner is necessary to assign N a value for a semantic feature (LATT in the system of Heycock and Zamparelli 2003) which, combined with the syntactic plurality, determines whether a noun is used as mass or count in a particular context.

• Theoretical consequence: AGREE can transmit semantic information from one head to another.

• Corollary: not all features which start out unvalued are uninterpretable.

2 Factoring the Data

In what circumstances can BS nouns appear (in languages that have indefinite determiners)? Some cases:

(4) a. John arrived.
   Proper names / “unique” common nouns
   b. It’s [bedtime / Thursday / midnight / *hour / *year / *same time as yesterday]

(5) a. This is brown rice
   Mass and abstract nouns (En., Ger.)
   b. Water was gently flowing down the stream.
   c. It was love

(6) [Girl / Old friend / Guys], come here!

(7) Da/Come primo ministro, Silvio ha promosso solo leggi in suo favore.
   “As”-constructions (It.)
   b. The queen of the authors is Harriet Scrope, novelist, plot-stealer, and ferocious egotist, whose war against the world she inhabits extends to her best friend and her cat.

(8) a. Maurice Adams, formerly Deputy Director, is now General Manager of Acet.

Appositions

(reiprise-commentaire

b. The queen of the authors is Harriet Scrope, novelist, plot-stealer, and ferocious egotist, whose war against the world she inhabits extends to her best friend and her cat.

(9) a. [I dati macro rilasciati negli Usa avevano fatto propendere i più per un intervento di “soli” 25 punti base], [fatto (questo)], che aveva permesso al dollaro di recuperare prontamente ...
   Reprise-commentaire
   b. [La critica [...] non esalta particolarmente il “valore letterario” del Futurismo, [...] non mi trova d’accordo.]

(10) Carlo è [ insegnante / deputato / ministro / macellaio / dottore in legge / comandante di brigata / …]
    Profession pred.
    Carlo is [teacher / deputy / minister / butcher / doctor in law / commander of brigade / …]

Note:

• The prohibition against BSC is of a different nature than the Romance restrictions against bare plural/mass (no subject/object asymmetries, no heaviness effect).

• Adjectives do not help (*“Brown / Certain / Other / Best” dog is here”).

Can these cases be clustered? Two broad classes:

N-to-D movement ⇒ lack of article licensed by features of D

Proper names (Longobardi 1994): the necessity of an article may be obviated if N (a proper name) moves to D, overtly (Romance) or covertly (English), by substitution. The same would hold for pronouns of category N raised to D (Cardi-naletti 1993).

Bare vocatives might also be thought to involve N-to-D raising past possessives, yielding the normally impossible non contrastive [N POSS] order:

(11) a. Cane mio, vieni qui!
   Dog my, come here!
   b. Collega mio caro, vieni qui.
   Colleague my dear, come here
   normal order: “Il mio caro collega”
However, vocatives cannot be coordinated with names or pronouns used as vocatives (12), as expected from (13).

(12) a. [You / Girl / Bill], come here!
b. You and John, come here!
c. *[You and girl / John and girl], come here!

(13) *[John_1[D P] and [girl_1[D P] ...]

**Predication of a DP argument** ⇒ the lack of D is repaired by the DP the noun is a secondary predicate of.

In ad-constructions and appositions, the BS noun has an anaphoric link with a nominal element, either an overt DP (appositions) or perhaps a PRO (“As”-constructions).

(14) a. DaCome PRO_1 primo ministri_s, Silvio ha promosso solo leggi in suo favore. “As”-cases. = (7)
b. [Maurice Adams,] [formerly Deputy Director [...]], is now General Manager of Acet. appositions. = (8a)

Reprise-commentaire and vocatives could perhaps combine movement to a high Spec position and coindexing. In (15a), the BN precedes an optional demonstrative; in (15b), the BN might be a modifier adjoined or in Spec of an empty nominal head.

(15) a. [ La critica non esalta il “valore letterario” del Futurismo], [ opinione questa] che ... reprise-comm., (9b)
b. *[John and [girl_1[D P] ec_1 t]] [u come here]!

Case (12c) now follows from (15b) under the impossibility of empty categories conjoining with overt ones:

(16) *[[[John] and [girl_1[D P] ec_1 t]] [u come here]!

**Assumption so far:** “modification” entails feature sharing. The missing feature of N is provided by the modified element.

But, what is this feature? Second, can this approach extend to *primary predication – the profession predicates?

### 3 Masses and plurals

The problem is to find a plausible feature with which to account for singular mass and plural count nouns.

#### 3.1 Common semantic aspects for plurals and masses

**Cumulative reference** (Quine 1960) “X is horses and Y is horses” ⇒ “X+Y is horses”

cf. the singular: “X is a horse and Y is a horse” ≠ “X+Y is a horse”

**Divisible reference** (Cheng 1973) “X+Y is horses” ⇒ “X is horses and Y is horses” (modulo singular horses).

cf. the singular: “X+Y (together) is a horse” ≠ “X is a horse and Y is a horse” (X,Y are horse-parts)


The same properties hold for mass nouns: “half of this water is still water”, “water plus water is still water”.

⇒ fundamental similarity between the semantics of plurals and that of mass nouns (Link 1983, Lønning 1987, Pelletier and Schubert 1989, etc.).

**Widespread semantic solution:** plural/masses denote algebraic *semilattice* structures, (closed under the operations of *meet, join* and *complementation*, see e.g. Keenan and Faltz 1985,(Winter 1998)), which have the homogeneous reference property.

Singular count nouns do not denote lattices, but simply sets of singulars. In features: +LATT = denotes a lattice; -LATT = it doesn’t.

**Advantage:** Numerals as restrictive modifiers of pluralized nouns (they crucially intersect +LATT structures: “three horses” = “horses’”; “groups containing 3 atomic objects”).

#### 3.2 Evidence for an independent projection for lattice formation.

Does this semantic structure arise at the lexical level? ⇒ No.

**Italian:** (i) Cardinals can be adjectives (ii) adjective can appear after N (iii) Numerals can appear as predicates (17a) but (iv) Numerals cannot appear after N (not even within a relative) (16b,c).

Identical facts hold for masses, see “the water that is much”

(17) a. I problemi erano {quattro / molti / troppe}.

b. ??Devo risolvere problemi che siano {quattro / molti / troppe}.

c. *Ho comprato libri che hai letto (che erano) quattro. (I have bought books that you have read (that were) 4)

Schwarzschild (2002): evidence from *pseudopartitives vs. N-N-compounds*. Subparts of 2 pounds of oil must be less than 2 pounds, while subparts of oil whose temperature is 90 degrees may still be 90 degrees.

(18) a. *[2 pounds] of oil.

b. *[90 degree(s)] of oil.

(19) a. *[2 pound(s)] oil (poured through the hole)

b. *[90 degree] oil (poured through the hole)

⇒ only measure phrases which don’t track the part-whole relation (i.e. don’t apply to the lattice structure) are acceptable in N-N compounds. This is not due to a syntactic problem with measures in N-N compounds, see:

(20) [1 pound] rocks plurality scopes over the measure: no meaning “enough rocks to reach a total of 1 pound”

**Solution:** lattice denotations do not come from the lexicon. They are formed at a functional layer, called PlP, above NP. Pseudopartitives are above, N-N compounds below this layer.

(21) *[2 pounds] of ... *[PI PlP [*MP 2 pounds]] oil/stones]]

#### 3.3 Lattice-forming operators

The interaction between N and Pl must: (i) keep into account singular and plural morphology (ii) distinguish singular masses from singular count nouns, and explain the fact that masses don’t take numerals.

This can be achieved by distinguishing two native denotations for N: **entities** and **properties**

**Semantic proposal:**

- Canonical “count” nouns natively denote sets of entities (type <e,t>): e.g. “man” denotes the (extensional) set of all men. This denotation can function as a property (a restrictor).
- Canonical “mass” nouns denote entities (type <e>); e.g. “water” denotes the largest (contextually salient) amount of water. This denotation cannot directly function as a property (a restrictor).
- Nouns have a semantic bias toward entities or properties, but can be coerced (by *grinding, abstraction, kind-formation*) to the other:

(22) a. There wasn’t much man left in him. count→mass: “man” = “man’s (physical/moral) substance”
b. Cavist makes three best-selling wines mass→count: “wine” = “kind of wine”

Next, two abstract operators are needed at PIP, one for count (*<e,>*) and one for mass nouns (*<e,t>*)

They both apply to the NP denotation.
(23) $\bar{\text{P}}_c \subseteq \text{X}$ the smallest X such that $[\text{P}] \subseteq \text{X}$ and $\forall Y Z \ni X \cup \text{Y}_c \subseteq \text{X}_c$ the set of all the possible pluralities formed by grouping together the singularities in P.

(24) $\bar{\text{P}}_c \subseteq \text{X}$ the smallest X such that $\forall Y \ni [\text{P}] \land C(Y) \rightarrow \not\exists e \subseteq \text{X}$ namely, the set of all possible subparts of the entity denoted by P.

(U is the individual sum operator; $\leq$ the subpart relation between two individuals; C a (possibly vague) canonical property which holds of the mass and of every proper subpart).

(25) 3.4 The role of features

Feature inventory so far:

1. Feature $\pm \text{PLUR}$, on N: indicates whether the morphology is singular or plural;
2. Feature $\pm \text{LATT}$, on Pl: indicates whether a lattice is created or not;
3. Pl, when $\pm \text{LATT}$, can create the lattice either by ‘multiplying’ properties ($\ast$) or by ‘dividing’ ($\div$) entities.

This can be recast in a mechanism along the lines of (Chomsky 2001) (see also unification grammars, Sieber 1985), using the distinction between valued and unvalued features:

- N has an unvalued LATT feature and a valued PLUR feature: $\pm \text{LATT} = \text{create a lattice}; \pm \text{PLUR} = \text{do nothing}$ (the identity function).
- Pl has an unvalued PLUR feature and a valued LATT feature: $\pm \text{LATT} = \text{create a lattice}; \pm \text{PLUR} = \text{plural morphology}; \pm \text{PLUR} = \text{singular morphology}.$

(26) PL has an unvalued PLUR feature and a valued LATT feature: $\pm \text{LATT} = \text{create a lattice}; \pm \text{PLUR} = \text{do nothing}$ (the identity function).

$\bar{\text{N}}$ has an unvalued LATT feature and a valued PLUR feature: $\pm \text{PLUR} = \text{plural morphology}; \pm \text{PLUR} = \text{singular morphology}.$

(27) Assumption: Phonetically empty heads with no semantic content are not merged.

Corollary: Pl cannot provide a value for the unvalued N, unless it has some phonological content.

Consequence: an overt -LATT element must be inserted within N’s agreement domain, to provide this value. This is normally a determiner, but can also be a full DP (in appositions) or an empty category conjoined with a DP in “As”-constructions and perhaps vocatives.

How the system works: some examples

(28) a. [PlP $\bar{\text{P}}_c$ LATT] [un boy PLUR LATT $\not\in$]
   plural: LATT to N from Pl
   mass: LATT to N from Pl
   b. $\bar{\text{Pl}} \not\in$ PlP LATT
   c. $\bar{\text{Pl}} \LUR \not\in$ PlP LATT
   d. $\bar{\text{Pl}} \not\in$ PlP LATT
   e. $\bar{\text{Pl}} \LUR \not\in$ PlP LATT
   f. $\bar{\text{Pl}} \LUR \LUR \not\in$ PlP LATT

Overt singular determiners to the rescue (we assume “a” to head PLP in English, “the” outside, see Heycock and Zamparelli 2003)

(29) a. [PlP $\LUR$ LATT] [un boy PLUR LATT $\not\in$]
   sing-count: LATT to N from “a”
   sing-count: LATT to N from “the”

4 The “profession predicates”

Bare profession predicates should be cases of predication: LATT values should be provided by some feature of the subject DP (no analogous effect with there-sentences).

(30) C e’ *(un) [professore / insegnante / ministro]
    there is (a) [professor / teacher / minister]

However, there normally no syntactic gender/number feature sharing between subject and predicate nominal.

(31) a. Quelle donne sono un problema
    those women are a problem
    b. be [sc $\not\in$ those women][PredDP a problem]
    c. be [sc [of that thing]][PredDP problem]$L_\not\in$]

Questions: (i) How to characterize the class of nominal predicates which can be bare? (ii) What kind of licensing is involved?

Professions, but also other relations.

(32) a. Carlo è [cugino di Francesca / genero di Marco]
   Carlo is cousin of Francesca / brother-in-law of Marco
   b. Maria è vicina di casa di Carla.
   Maria is next-door neighbor of Carla

Failure of modification, in cases such as:

(33) Carlo è’ *(un) [medico italiano / anziano professore]
   Carlo is (a) [doctor italian / old professor]

Pollock (1983) ⇒ Profession nouns are adjectives
Kupferman (1991) ⇒ Syntactically, they do not behave as adjectives. E.g. no en cliticization with bare nouns.

(34) a. Paul est [satisfait / directeur] de ce college
   Paul is [satisfied / director] of this college
5 Conclusions

- The most plausible syntactic feature common to mass and plural is semantic plurality (+LATT).
- LATT is initially unspecified on N. LATT can be obtained from an overt D or by agreement/predication with a DP, LATT.
- The combination of the two features LATT/PLUR generates singular and plural count, mass nouns and pluralia tantum.
- LATT on N is a feature which starts out unvalued, and acquires a value via AGREE or feature unification. The result has semantic consequences -> (ii) not all unvalued feature are uninterpretable, or crash at PF.

Some open issues

- European vs. Brazilian Portuguese (argumental BSCN, *predicative ones (Munn and Schmitt 2002))
- article-free languages in general.
- Kind-denoting bare plural/mass nouns.
- Subkinds vs. object denotation of nouns.

References

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