

# Coordinated Bare Definites

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Recent work on the syntax and semantics of functional projections within the noun phrase has had as one goal an explanation for the crosslinguistic distribution of “bare” (determinerless) noun phrases. This article provides an account for an apparent anomaly: the relatively free occurrence of bare noun phrases under coordination. We argue that this construction involves coordination of projections below the DP level, with the coordinated structure subsequently raising to [Spec,DP]. Our analysis accounts for the fact that these nominals are endowed with uniqueness conditions, but only in some cases, and for a number of other hitherto undocumented facts, including complex constraints on modification.

## 1 Introduction

In this article we investigate the intriguing construction found in English and a number of Romance and continental Germanic languages in which singular count nouns without any determiner (“bare singulars”) are coordinated.<sup>1</sup> Strikingly, such coordinations have a distribution quite different from uncoordinated bare singulars in the same languages (Delfitto and Schrotten 1992; Longobardi 1994; Chierchia 1998a). The basic pattern is illustrated in (1)–(2).

- (1) A black cat and a brown dog were fighting in the street.
  - a. [Cat and dog] were equally filthy.
  - b. \*Cat was filthy.
- (2) He gave me a key, a letter for the landlord, and some instructions.
  - a. I have to give [key and letter] to the tenant, and read the instructions myself.
  - b. \*I have to give key to the tenant, and keep the others myself.

The main question raised by this construction is why coordination should license bare singulars in languages which otherwise lack them entirely. As we shall see, the interpretation of these structures offers a clue to a precise answer: we will show that these coordinated bare nominals have a semantics close to that of definites, and propose that this follows from the movement of the conjoined nominals to the [Spec,DP] position, with D empty.<sup>2</sup>

This analysis of the bare noun coordination construction will in turn be used as a testbed for a more general proposal concerning the syntax/semantics interface of determiner phrases. The structure of the

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<sup>2</sup>The elements of these conjunctions are typically objects that naturally occur together. This does not mean, however, that the construction can be dismissed as “idiomatic,” i.e. as a set of pre-compiled lexical items with a categorial tag different from “common noun.” First, well-formed examples are easily constructed with a variety of different nouns, not only those that commonly appear together. Even with the latter, a unitary syntactic explanation would certainly be preferable to postulating a large number of idiomatic lexical entries, many with multiple orders (*fork, knife and spoon* but also *knife, fork and spoon* etc.). Second, the semantics of these conjunctions is perfectly compositional (unlike, say, *spic and span*, *by and large* and other genuine coordination idioms). Third, if these were pre-compiled lexical items, it is not clear what their global category could ever be: not proper names, for lack of the appropriate rigid designator meaning, not (as we shall argue in a moment) bare plurals, and not full-blown DPs (e.g. [D N&N] with only the N&N part “visible”), as this would entirely beg the question of why conjunction is after all necessary to form the idiom, i.e. why there is no idiomatic form “cat” meaning “the/a cat”. We conclude that the construction is productive. For some comments on a few special cases, see footnote 6.

paper is as follows. Section 2 will show that coordinated bare singulars and (optionally) bare plurals pattern with definites, but only in certain respects. Section 3 will discuss and reject a potential analysis based on N-to-D movement. Section 4 contains the core proposal on the syntax of bare nominals, and our analysis for the coordination facts. Section 5 discusses the pattern of modification and the relation to other cases of DP-internal coordination.

## 2 Definiteness

### 2.1 Coordinated bare singulars

The examples in (1) and (2) show that coordinated bare singular count nouns can occur in argument positions from which their non-coordinated counterparts are barred. Given that in English bare plural count nouns can appear in most argument positions, one avenue of explanation that suggests itself is that somehow the conjunctions in (1) and (2) have a wider distribution because they are semantically equivalent to a bare plural.

There are however numerous reasons to reject this possibility. First, coordinated bare singular count nouns occur also in Italian, as illustrated in (3), the Italian equivalent of (1):

- (3) Un gatto nero ed un cane scuro si azzuffavano per strada.  
 a cat black and a dog dark were fighting in street  
 a. Cane e gatto erano {ugualmente luridi / animali senza padrone}.  
 dog and cat were {equally filthy / animals without an owner}  
 b. \*Gatto era {lurido / un animale senza padrone}.  
 cat was {filthy / an animal without an owner}

As is well known, in this language the distribution of bare plurals is narrower than it is in English: simple determinerless nominals are only found in argumental positions selected by verbs or prepositions (cf. (Contreras 1986), Longobardi 1994). Thus, a bare plural in the same position as the coordinated bare singulars in (3) would be ungrammatical, whether with an existential or generic predicate:

- (4) \*Gatti erano luridi / sono animali.  
 cats were filthy / are animals

Even more strikingly perhaps, the construction also occurs in French, a language in which bare plurals are barred from argument position altogether (see Delfitto and Schroten 1992; Chierchia 1998a).

- (5) Un chien noir et un chat gras se battaient fougueusement dans notre jardin.  
 a dog black and a cat fat were fighting furiously in our garden  
 a. Chien et chat avaient tous les deux l'air très sale.  
 dog and cat had both the appearance very dirty  
 b. \*Chien avait l'air très sale.  
 dog had the appearance very dirty

Second, coordinated bare singulars and bare plurals exhibit a more subtle distinction. As illustrated in (6), coordinated bare singulars can be used anaphorically, but bare plurals cannot.

- (6) We had to set the table for the queen. We arranged one crystal goblet<sub>h</sub>, one silver spoon<sub>i</sub>, and two antique gold forks<sub>j</sub>.  
 a. [Goblet<sub>h</sub> and spoon<sub>i</sub>] were set on the right of the plate.  
 b. ?\*[Forks]<sub>j</sub> were dirty.

(6a) is perfectly acceptable with the anaphoric reference indicated; it is however impossible for the bare plural *forks* to refer back to *two antique gold forks*. Hence, to the extent that the generic and existential interpretations are also excluded for independent reasons, (6b) is highly marginal. This contrast is one facet of a broader generalization:

(7) **Coordinated bare singular noun phrases have a definite meaning.**

Thus (6a) is acceptable in just the same way that (8) is acceptable in the same context:

(8) The goblet<sub>h</sub> and (the) spoon<sub>i</sub> were set on the right of the plate.

As definites, bare singular coordinations require uniqueness. The contrast in (9) is due to the world knowledge that companies may have one president and one vice-president, but typically lots of employees and inspectors:

- (9) a. At the company meeting, president and vice-president gave an optimistic speech.  
b. ??At the company meeting, employee and inspector talked about their colleagues' motivation.

In a context in which it can be used anaphorically, the conjunction *employee and inspector* becomes fine:

- (10) Critical speeches were given by a senior employee and a young, dynamic inspector.  
Inspector and employee agreed that their colleagues' motivation was too low.

In other cases, the antecedents have not been explicitly mentioned, but they are introduced via bridging from elements in the immediate context, as in these examples from the British National Corpus:

- (11) a. The other major role of the sculptor is in the service of religion, where a high degree of interplay between *artist and patron* is not necessarily so important.  
b. The novel (or so I hope) signals a separation between *author and narrator* with its very first sentence.

Further, coordinated bare singulars cannot appear in existentials with *there*, in contrast to bare plurals, as illustrated in (12).

- (12) a. There were forks on the table.  
b. \*There were goblet and spoon on the table.

This again follows if coordinated bare singulars are definites.

Italian provides an additional piece of evidence that is unavailable in English. Abstract nouns which appear with no determiner in English require a definite determiner in Italian:

- (13) a. La storia è importante.  
the history is important  
b. \*Storia è importante.  
history is important

Even in Italian, however, conjunctions of such nouns may appear without a determiner:

- (14) a. La storia e la storiografia sono importanti.  
the history and the historiography are important  
b. Storia e storiografia sono importanti.  
history and historiography are important

Coordinated bare nouns may function as definites in three additional contexts: as predicate nominals, as bound elements, and as kind-denoting noun phrases. There are cases in English where even uncoordinated predicate nominals can occur without a determiner:

- (15) He was president/treasurer/king.

However, in contrast to a number of other Western European languages, such cases are very limited; in general a determiner must appear, as illustrated in (16).

- (16) He was \*(the) judge/winner/loser.

Such nominals are however possible in coordinations, where a definite would otherwise be expected:

- (17) a. He was judge, jury, and executioner.  
 b. He was the judge, the jury, and the executioner.
- (18) Which of the two won in that exchange?  
 Well, I think Matt was (both) winner and loser.

Next, bare noun coordinations can have bound uses in cases such as (19), again alternating with definite descriptions:

- (19) The marriage counselor didn't send any couple to the lawyer before warning (the) man and woman separately about the consequences of their action.

Finally, (20a) shows a case where a coordinated bare singular appears under *invent*, a verb which requires a kind-denoting object (Carlson 1977, p. 466).

- (20) a. Barnaby invented wheel and lever when his fellows were still puzzling over the notion of "cave".  
 b. Barnaby invented \*(the) wheel but failed to take out a patent.  
 c. ?\*Barnaby invented wheels.

Note that (20b) shows that an uncoordinated bare singular is of course ungrammatical, while a singular definite is perfect (again paralleling the coordinated bare singular). Further, the marginality of (20c) again shows a contrast between the coordinated bare singular and a bare plural.

## 2.2 Coordinated bare plurals

So far we have discussed only coordinated bare singular count nouns, to show that they appear to have the semantics of definites. Further examples show that the same phenomenon can be observed in the coordination of bare plural count nouns. This is obscured by the fact that, as illustrated in (21), coordinations of bare plurals can also have indefinite interpretations, just like uncoordinated bare plurals.

- (21) a. There were forks and knives on the table.  
 b. There were forks on the table.

While in English this is the expected result of the normal coordination of two bare plurals, it is interesting to note that coordination can also widen the distribution of existentially interpreted bare plurals in languages like Italian or Spanish, where unmodified bare plurals in subject position are ill-formed:<sup>3</sup>

- (22) a. Giornata di mercato in città. Clienti ??(e curiosi) gironzolavano per i banchi.  
 market day in town [customers (and onlookers)] walked about the stands  
 b. Ogni giorno in Afganistan muoiono di fame [uomini \*(, donne e bambini)].  
 every day in Afghanistan die of starvation [men (, women and children)]

A proper account of bare noun coordination must thus be able to account for this fact, as well as for the absence of the same effect in French:<sup>4</sup>

- (23) ??Jour de marché en ville; clients et curieux se promènent autour des étalages. = (22a)

In order to show *definiteness* in coordinated bare plurals, it is necessary to find a context in which only a definite would be acceptable: here we would expect to find a contrast between the (grammatical) coordinated bare plural and an (ungrammatical) non-coordinated bare plural. The kind of anaphoric context in

<sup>3</sup>We thank an anonymous LI referee for pointing out this fact.

<sup>4</sup>It should be noted that longer conjunctions ("lists") of bare nouns are better even in French:

- (i) Jour de marché en ville ; clients, curieux, touristes et mendiants, tous se promènent autour des étalages.  
 Market day in town ; clients, onlookers, tourists and beggars, all walk about the stands

As is well known, lists have unexpected effects also in other constructions (for instance, they allow definites in existential contexts, see Abbott 1992).

(6)–(10) is clearly one such case; in this context coordinated bare plurals are just as grammatical as their singular counterparts, as shown by the plural equivalent of (6):

- (24) We had to set the table for the queen. We arranged one crystal goblet<sub>n</sub>, one silver spoon<sub>i</sub>, two antique gold forks<sub>j</sub> and two platinum knives<sub>k</sub>.
- [Forks<sub>j</sub> and knives<sub>k</sub>] were equally dirty.
  - ?\*[Forks] were very dirty.

An additional context is the subject position of atemporal (Individual Level) predicates. As pointed out by Milsark (1974), nonspecific indefinites are awkward in this position. Contrast the simple, non-generic bare plurals in (25a) with the multiple coordination of bare plurals in (25b)

- (25) A refugees' ship just arrived in Puglia. ...
- ?\*{Sailors / Sailors in the ship} are Albanian; the captain is Italian.
  - Sailors and passengers are Albanian; the captain is Italian.

The same meaning is available in Italian:

- (26) Una nave di rifugiati è arrivata in Puglia. Marinai \*(e passeggeri) sono albanesi, il  
a ship of refugees has arrived in Puglia. Sailors (and passengers) are Albanian, the  
capitano è italiano.  
captain is Italian.

As expected, *marinai e passeggeri sono albanesi* in (26) is a reference to the total group of sailors plus passengers in the ship, and it cannot mean 'there are some Albanian sailors and passengers.'

Next, in Italian and other Romance languages unmodified bare plurals are never interpreted as kinds, regardless of position (Longobardi 1994, Zamparelli 2001; see Chierchia 1998a for a different view); the only way to obtain a kind meaning is via a definite determiner. Since coordinated bare plurals may be interpreted as definites, we expect a kind reading to be available in this case. The expectation is borne out:

- (27) a. Cani \*(e gatti) diventano più comuni come si passa dal Sud al Nord Italia.  
dogs (and cats) become more common as one moves from South to North Italy  
b. Tigri \*(e pantere) sono in pericolo di estinzione  
tigers (and panthers) are endangered

The same points can be made even more forcibly in French, where, as mentioned earlier, bare plurals are barred from argument position altogether. (28a) offers a coordination of bare plurals with definite meaning, (28b), one with kind meaning.

- (28) a. [Chiens \*(et chats)] avaient tous l'air très sale.  
[dogs (and cats)] had all the appearance very dirty  
b. Le chien, le chat, et le lapin sont parmi les animaux domestiques les plus  
The dog, the cat and the rabbit are among the animals domestic most  
répandus; en particulier, [chiens \*(et chats)] sont une/des espèce(s) qui s'adapte(nt)  
widespread; in particular, [dogs (and cats)] are a/sm species which adapt(s)  
facilement à la compagnie des êtres humains.  
easily to the company of human beings

Taken together, these facts show that the generalization in (7) can be stated more generally as (29).

- (29) a. **Coordinated bare singulars must have a definite meaning**  
b. **Coordinated bare plurals can have a definite meaning.**

This disjunctive formulation is clearly still far from an adequate explanatory account. The difference between singular and plural, for instance, remains mysterious. But there are more general issues. In languages like English or Italian definiteness is normally associated with an overt morpheme, the article or the demonstrative. It would seem natural to ask what the element that conveys "definiteness" is in bare

noun coordinations. Surely, it cannot be the logical operator *and* (none of theories on the semantics of conjunction makes it “definite” in any sense); and presumably, it cannot be the bare nouns either (if anything, outside of coordination bare nouns are associated with *indefiniteness*, cf. the last section).<sup>5</sup> Thus, the generalization in (29) leads to a compositionality puzzle: how do we get a definite meaning by combining ingredients which aren’t in any way definite? Moreover, why is this meaning optional, but only in the plural? Is it exactly identical to what we obtain with the use of *the*? We will start answering these questions beginning with the third one.

### 2.3 Modified definites

So far, we have seen coordinated bare nominals pattern as definites in anaphoric contexts, *there*-sentences, predicate nominals and other cases. The natural question, at this point, is whether these nominals are in fact fully interchangeable with the coordination of two regular DPs introduced by the definite article. The answer is negative: there are various cases where a definite is fine, but the corresponding “bare” case is not. Consider, first of all, examples in which the two conjuncts are modified together by a PP (30a), a relative with subject or object gap ((30b)–(30d)) or a reduced relative (30e).

- (30) a. \*I didn’t see much of the film: man and woman in front of me were very tall.  
 b. \*After taking my hand, the doctor examined nail and finger that had become infected.  
 c. ?\*Cat and dog that were fighting all the time had to be separated, the other animals stayed together.  
 d. ?\*Only boys and girls that you met yesterday know Italian.  
 e. ?\*There are four tables and a dozen chairs in stock; others can be ordered. Tables and chairs currently available are made of cherry.

As the reader can verify, adding *the* before the bare nouns fully restores grammaticality in each case. Non-restrictive modification, on the other hand, is fine:

- (31) Cat and dog, which were always fighting, were both black.

In this context it is also worth noting that a single adjective modifying both conjuncts also gives rise to unacceptability:

- (32) \*There were two men, a German and a Frenchman, and two women, also one German and one French: German man and woman were both dark-haired; French man and woman were much blonder.

Taken in isolation, the ungrammaticality of the example in (32) suggests a number of possible explanations. Given the examples in (30a)–(30e), however, it seems to fall under a general restriction, which we could capture by revising the generalization in (29) into something like (33):

- (33) **Bare noun coordinations (can) have the semantics of unmodified definites**

What are the possibilities of modification *within* each conjunct? It is not difficult to construct cases where distinct adjectives may accompany each noun:

- (34) We had to set the table for the queen. We arranged one crystal goblet<sub>i</sub> and a golden one in the center, a silver spoon<sub>j</sub> and a fine, antique golden spoon at her left side. . . .  
 a. [Crystal goblet and golden spoon] had to be expressly taken from the jewel room.  
 (35) There were two men, a German and a Frenchman, and two women, also one German and one French. . . .  
 a. [German man and French woman] got along pretty well; the others immediately hated each other.

<sup>5</sup>Interestingly, even in telegraphic English, where bare singulars are possible, we see them function as either definites or indefinites: “Dog bites man. Man bites back.”

In this case however the referents of the definite coordination have been explicitly introduced in the discourse. If we turn to cases where the unique antecedent of our coordinations can be identified only by means of an inference (e.g., in (36b) the fact that mercury is a metal), the possibility of using independent modifiers degrades:

- (36) a. The pet shop owner had a dog and a cat from every country in the world.  
 ??[Australian cat and New Zealand dog] were firm friends.  
 b. For their customer test, the management ordered the lab to prepare a sample piece of cutlery from every metal in their shop.  
 ??[Lead knife and mercury spoon] didn't score very well in the test.

Modification via a relative clause or a PP in each conjunct is even worse.

- (37) a. \*[Dog that I saw] and [cat that I heard] fight all the time.  
 b. ??[Knife with the golden blade] and [fork with the silver handle] go on the left.

Finally, in those cases where *the* combines with *only* or with a superlative, bare nominal coordination is unacceptable:

- (38) All the pet shop owner had in stock was 10 turtles, 1 dog, 2 snakes and 1 Siamese cat; he had just sold all the rest.  
 a. \*Only cat and only dog were both small, shaggy animals.  
 b. \*Biggest turtle and smaller snake cost the same.

Considering all these restrictions, we will henceforth refer to (singular) bare noun coordinations as “quasi-definites”—meaning with this that these forms carry a presupposition of uniqueness, but do not have the full range of uses of normal definites.<sup>6</sup> We will return to this meaning in Section 5.1. In the meantime, the

<sup>6</sup> There is another type of putative counterexamples to the original generalization. Examples include:

- (i) a. John and Mary are husband and wife. ≠ ?\*John and Mary are the husband and (the) wife.  
 b. For this you will need pen and paper. ≠ ?\*For this you will need the pen and (the) paper.

It is not clear however whether this is a unified class. Bare singular coordination of the type in (ia) (without an interpretation of definiteness) occurs with kin terms in general, but only in predicative position (*They are mother and daughter/brother and sister/father and son*). In argument position, an indefinite reading is typically ruled out:

- (ii) I went to a meeting where there were lots of families.  
 a. A husband and (a) wife came up to me.  
 b. \*Husband and wife came up to me.

When the sentence is generic, however, these kin-term coordinations are also possible:

- (iii) Husband and wife should always make decisions together.

The distribution of readings in this case appears to parallel exactly that of the bare plural of kin terms. That is, alongside (ia), (ii), (iii), we find examples like (iva–c):

- (iv) a. Mary and Susan are sisters.  
 b. I went to a meeting where there were lots of families. Sisters came up to me.  
*Not interpretable as “one group of mutually related sisters came up to me.”*  
 c. Sisters should always try to have separate bedrooms.

In this case, then, it does appear that these conjunctions behave like bare plurals in predicative and generic position. As for (ib), it is not even clear here whether we are in fact dealing with the same type of coordination, given that *paper* is a mass noun; this might simply be an idiomatic use of the bare singular *pen*, which does after all occur elsewhere with no coordination (*At this point I had to put pen to paper*.) The conjunction in (ib) as a whole is of course idiomatic; substitution of semantically related words of the same category does not preserve grammaticality (although *pencil* works like *pen*):

- (v) a. ?\*For this you will need pen and cardboard.  
 b. ?\*For this you will need biro and paper.

It is certainly striking that there seem to be a number of such idiomatic uses of bare singular coordinations, but the considerations just enumerated we believe justify setting these aside, rather than treating them as important counterexamples to the generalizations

data above suggest a new but no more enlightening condition, which could be formulated along the lines of (39):

- (39) **In bare noun coordinations, modified conjuncts may only refer to material which has been explicitly introduced in the discourse**

Where “explicitly” includes bridging cases such as (9) or (11) but not logical inferences like those in (36).

### 3 Definiteness from N-to-D raising?

Having established that bare singular coordination can have a quasi-definite interpretation, we must address the question of how this interpretation arises. Longobardi (1994) has proposed that a definite meaning can be triggered by N-to-D raising (as, for example, in the case of proper names). This suggests that bare singular coordination could involve the coordination of two DPs, in each of which N has raised to D.

- (40) [Coord [DP goblet<sub>i</sub> ... t<sub>i</sub>] and [DP spoon<sub>j</sub> ... t<sub>j</sub>]]

However, such an analysis leaves many serious problems unresolved. First, it predicts that the bare singular conjuncts should not allow modification. The grammaticality of examples such as (34) and (35), repeated below, appears to show straightforwardly that this is incorrect.

- (41) a. ... [Crystal goblet and golden spoon] had to be expressly taken from the jewel room.  
 b. ... [German man and French woman] got along pretty well; the others immediately hated each other.

A line of reply is that Longobardi’s N-to-D raising must occur at LF in English, in view of the adjective-name order in DPs such as *Little John*, *Ancient Rome* etc. (41) would thus reflect the pre-movement order. However, Longobardi shows that in (Central/Southern) Italian movement is overt: (42) and (43) show alternations where the N has moved to D over some adjectives, and (44b) a case where *casa* ‘home’ and *camera* ‘room’ have moved over the possessive adjective (examples adapted from Longobardi 1994). All of these cases are completely independent of coordination.

- (42) a. l’ antica Parigi  
 the ancient Paris  
 b. Parigi<sub>i</sub> antica t<sub>i</sub>  
 Paris ancient
- (43) a. lo scorso giovedì  
 the past Thursday  
 b. giovedì<sub>i</sub> scorso t<sub>i</sub>  
 Thursday past
- (44) a. la mia {casa / camera}  
 the my {home / room}  
 b. {casa / camera}<sub>i</sub> mia t<sub>i</sub>  
 {home / room} my

Crucially, however, not just any adjective can appear after a noun raised to D. In contrast to the grammaticality of the cases without N-to-D raising in (45), the cases in (46) are all ill-formed.

- (45) a. La Parigi texana è molto più piccola della Parigi francese.  
 the Paris Texan is a lot smaller than the Paris French  
 b. Il sabato ebraico non equivale alla domenica cristiana.  
 the Saturday Jewish isn’t equivalent to the Sunday Christian

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in (33)/(39).



- (46) a. ??Parigi texana è molto più piccola di Parigi francese.  
 Paris Texan is a lot smaller than Paris French  
 b. \*Sabato ebraico non equivale a domenica cristiana.  
 Saturday Jewish isn't equivalent to Sunday Christian

But it is possible to construct cases of coordination analogous to (41) in Italian, where N precedes the restrictive adjectives that gave rise to ungrammaticality in (46):

- (47) a. Il presidente, il senatore texano ed il consigliere ebraico discussero il piano di  
 the president the senator Texan and the adviser Jewish discussed the plan of  
 ritiro.  
 retreat  
 b. [Senatore texano] e [consigliere ebraico] erano entrambi scettici sui tempi.  
 senator Texan and adviser Jewish were both sceptical about the timetable

The possibility of N preceding the adjectives in (47b) but not the same adjectives in (46) would remain unaccounted for in an N-to-D approach to our problem.

A second problem for the N-to-D raising analysis is that the meaning of a bare singular coordination does not have the semantic rigidity (consistency of identity across possible worlds) which is for many authors the hallmark of proper names (*pace* Russell in his later work; see Kripke 1980 for discussion, and Ludlow and Neale 1991 for a different view). Longobardi's cases of N-to-D raising, on the other hand, do display rigidity of reference. Thus in (48a), where *camera* 'room' has moved over the possessive adjective, it is much harder than in (48b) to get the meaning that the speaker will switch to a different room.

- (48) a. Camera mia cambierà.  
 room my will change  
 b. La mia camera cambierà.  
 the my room will change

The strongly preferred interpretation for (48a) is that the room will change *aspect* (by being repainted, refurnished or the like). The coordination cases do not show the same pattern: if the president and the vice-president are currently Bill and Jack, (49a) means (49b), not (49c):

- (49) a. President and vice-president change every four years.  
 b. The president and the vice-president change every four years.  
 c. Bill and Jack change every four years.

Moreover, in Romance overt N-to-D raising is strictly restricted to *singular* nouns, while as we have seen coordinated bare definites can be plural.

Some of the previous points might perhaps be considered theory-internal, and potentially susceptible to some technical solution. There are however two related problems of a quite different order. First, an N-to-D analysis incorrectly predicts that coordination of a bare singular with a normal definite DP or a proper name should be possible, just like *John and his friend*; thus (50a) should be grammatical with the structure given in (50b):<sup>7</sup>

- (50) a. \*... fork and the spoon must be ...  
 b. ... [[DP fork] and [DP the spoon]] must be ...

The point can be strengthened by a reference to Italian, once again using the special nouns *casa* 'home' or *camera* 'room'. When raised to D, these nouns may be coordinated with a full DP (51a), but not with a

<sup>7</sup>Reversing the order of (50a) results in the grammatical string "the fork and spoon". However, the constituency in this case is as indicated in (ia); note that in English this construction is not limited to definites, as shown in (ib):

- (i) a. [the [fork and spoon]]  
 b. [one/a/no [fork and spoon]]

For discussion, see Heycock and Zamparelli 1999, 2000.

bare singular definite (51b).

- (51) a. [Casa mia]<sub>i</sub> e [la cattedrale di Santa Croce]<sub>j</sub> sono vicine.  
house my and the cathedral of Santa Croce are close by  
b. ??Tra [casa mia e cattedrale]<sub>i+j</sub> passa però l' autostrada.  
between [house mine and cathedral] runs however the highway

Similarly, a bare singular definite cannot be coordinated with a proper name:

- (52) Il gatto dei vicini ed il mio cane Fido sono nemici giurati. \* {Gatto e Fido / Fido  
the cat of the neighbours and my dog Fido are sworn enemies {Cat and Fido / Fido  
e gatto} non perdono nessuna occasione per battersi.  
and cat} don't lose any occasion to fight

The deepest and most general objection against a “DP&DP” analysis of these bare coordinations is related to this last point. Such an analysis does not suggest any reason why coordination should be a necessary condition for the occurrence of bare singulars; that is, it provides no insight into the ungrammaticality of an example like (53) (the equivalent of earlier examples such as (1b), (6b)):

- (53) \*... [DP fork] must be placed on the left.

After all, coordination has no special licensing effect on bare singulars when it applies at the sentential level:<sup>8</sup>

- (54) \*Fork is silver-plated and bowl is enameled.

We therefore do not pursue any further the “DP&DP” analysis.

## 4 Definiteness from movement to [Spec,DP]

Still retaining Longobardi's insight, we propose instead that bare noun coordination involves movement of a [<sub>COORD</sub> NP NP] structure to a single [Spec,DP], with D empty, as illustrated schematically in (55).

- (55) [<sub>DP</sub> [<sub>COORD</sub> [<sub>NP</sub> goblet] and [<sub>NP</sub> spoon]]<sub>i</sub> [<sub>D'</sub> D<sup>e</sup> ... t<sub>i</sub>]]

Our proposal is that this movement is a way to license the empty D<sup>e</sup> via spec-head agreement with a quantificational operator, the conjunction head *and*. To spell out this intuition, we need to lay out the semantic effects of movement to a Spec position within a more general analysis of the syntax/semantics interface of noun phrases: in order to explain why coordination can repair the ill-formedness of bare nominal arguments, it is necessary understand what goes wrong with non-coordinated bare nominals.

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<sup>8</sup>Bare singulars do appear in the non-coordinate constructions given in (i) (Nigel Fabb, personal communication):

- (i) A cat and a dog were fighting in the street.  
a. Cat was as filthy as dog.  
b. Cat was no filthier than dog.

The correct analysis of this type of bare singular is unclear to us. However, we do not believe that these comparative cases should be assimilated to the coordinated cases discussed in the body of this article, in particular because here the crosslinguistic distribution is quite different. Thus in Italian there is no grammatical equivalent of either (ia) or (ib):

- (ii) a. \*Gatto era tanto sporco quanto cane.  
cat was as much dirty as dog  
b. \*Gatto non era più sporco di cane  
dog not was more dirty than dog

## 4.1 The syntax-semantics mapping within the DP

In what follows, we will make use of the minimal DP structure shown in (56):<sup>9</sup>

- (56) a. [DP the [NumP three [NP gold forks]]]

where D functions as a variable or a constant, the referential element of the whole noun phrase, and NumP as its restrictor (see Higginbotham 1987, Stowell 1989, Longobardi 1994 and Zamparelli 1995 for this view). For reasons set out in Zamparelli 1995, we assume that cardinal numerals are always realized in the Num projection. In addition, we adopt the strict mapping between DP-internal syntactic projections and meanings proposed there: when the DP layer contains overt lexical material, uniqueness presuppositions for the whole noun phrase are triggered. This material is typically the lexical determiner itself (*the, this, both*, and so forth), but, crucially, it need not be: any constituent which ends up being interpreted at the DP layer is in fact sufficient to activate the D projection and trigger this meaning. But under the hypothesis that movement is governed by principles of economy, a constituent will be allowed to move to or merge in this layer (specifically, [Spec,DP]) only when this is the most economical way to guarantee the well-formedness of the whole DP.

In other terms, we hold that the syntactic layer encoding “definiteness” can be activated by lexical material which isn’t in any sense “definite,” but that this does *not* mean that any random constituent can be moved to [Spec,DP] just to trigger this meaning. This proposal can be stated as the principle in (57):

(57) **Activation Principle**

An empty functional projection can be licensed, and its semantic content activated, by the presence of appropriate material in its specifier.

The result is that we no longer need to ask the odd question of what is “definite” in the words *and, goblet* and *spoon*; instead we need to ask why placing [*goblet and spoon*] in [Spec,DP] is the most economical way to build a convergent structure. Uniqueness presuppositions—we propose—are a mere epiphenomenon of movement triggered by other factors, but these factors must be uncovered.

For illustration of how uniqueness should be associated with a position and not necessarily with overt lexical markers, consider a different domain, the behaviour of possessive DP such as *John’s books*. Possessives are usually considered to be definite, hence endowed with uniqueness conditions; however, in predicate nominal position they can take an indefinite reading akin to the meaning of *books of John’s* (see Mandelbaum 1994):

- (58) a. *Context*: There are various sets of 4 books lying around the room.  
b. Those<sub>*i*</sub> are John’s books, and those<sub>*j*</sub> are also John’s books.

If the definite meaning is taken to be primary, this shift could be approached by means of a semantic operator which optionally turns the definite into an indefinite in predicative contexts. However, an invisible operator analysis faces serious problems, since inserting a numeral after the possessor phrase blocks the indefinite meaning: in (59a), the possessive means (59b) (a canonical definite), and not (59c). The sentence is infelicitous because uniqueness presuppositions are violated.

- (59) a. ??Those<sub>*i*</sub> are John’s four books, and those<sub>*j*</sub> are also John’s four books.  
b. ??Those<sub>*i*</sub> are the four books that John has, and those<sub>*j*</sub> are also the four books that John has.  
c. Those<sub>*i*</sub> are four books of John’s, and those<sub>*j*</sub> are also four books of John’s.

If *John’s books* can be converted to an indefinite meaning, it’s hard to see why *John’s four books* couldn’t.

Suppose instead that the definite meaning is restricted to the DP layer, whereas NumPs always denote properties (<e,t>-type elements). Predicate nominals are quintessential properties and treating them as bare NumPs seems at least plausible:

- (60) They are [NumP two good friends]

<sup>9</sup>In the system of Zamparelli 1995, the projection we call DP here corresponds to SDP, NumP to PDP, and NP to KIP or NP.

Suppose, further, that the variable meaning of possessives depends on the fact that the possessor morpheme may be realized in D or in Num (or some head below Num—see Longobardi 1995 for an alternative possibility). Correspondingly, the possessor phrase may appear in [Spec,DP] or in [Spec,NumP]. But in the string *John's four books* the morpheme *-s* cannot be in Num (which is occupied by *four*), or lower; it must be realized in the higher position, the DP layer. As a result, the whole noun phrase takes the force of a full-fledged definite, and (59a) becomes an attempt to equate one object (a specific pile of books of John's) with two distinct ones (*Those<sub>i</sub>* and *Those<sub>j</sub>*).

- (61) a. Those are [<sub>NumP</sub> John's [<sub>NP</sub> books]] *indefinite*  
 b. Those are [<sub>DP</sub> John's [<sub>NumP</sub> four [<sub>NP</sub> books]]] *definite*

## 4.2 The licensing of D<sup>e</sup>.

In the cases we will be concerned with in the rest of this paper D is an empty category (D<sup>e</sup>). The main idea is that the presence of an element in [Spec,DP] is motivated by the necessity to license this category via feature checking.

When no lexical element, but only D<sup>e</sup>, is present in the DP layer, no reading of uniqueness arises, according to the principle stated in (57). We adopt the null assumption that D<sup>e</sup> denotes a variable; uncontroversially, variables need to be *restricted*, and to be *bound*. In this case the restriction is supplied by the noun and its modifiers, and the binding by adverbs of quantification (e.g. *always* in *ten kids are always hard to keep quiet*) or by some existential operator (Existential Closure or analogous devices). In the particular case of empty D<sup>e</sup>s, further licensing must be necessary, in order to explain the fact that in Italian bare arguments must be lexically selected ((63a) versus (63b)):

- (62) a. Ho visto (tre) cani.  
 (I) have seen (three) dogs  
 b. Ieri \*(tre) cani si sono azzuffati per strada.  
 yesterday (three) dogs fought in street

One way to express the necessary licensing condition is to require that D<sup>e</sup> requires *identification* (roughly in the sense of Rizzi 1986). In languages such as Italian and Spanish this may be provided externally, in the form of selection by a lexical head (hence the grammaticality of (62a) even without the overt numeral). In addition, we propose that D<sup>e</sup> may also be licensed internally, by attraction of a feature [+Qu] (for “quantificational”), which marks elements that participate in scope interactions. Lexical numerals such as *tre/three* (and with it *a, many, several, various*, etc.) possess this feature; therefore, if NumP contains one of these expressions, as in (63), the feature is attracted to D under the relation of predication which holds between NumP and D. In this case, D<sup>e</sup> is identified internally, by its predicate.

- (63) [<sub>DP</sub> D<sup>e</sup><sub>[+Qu]</sub> [<sub>NumP</sub> three<sub>[+Qu]</sub> [<sub>NP</sub> gold forks]]]

Consider, on the other hand, what happens when no numeral is available, and the noun is a singular count (a [-Plur] setting in the feature system of Heycock and Zamparelli 2000; plural count and singular mass nouns are [+Plur]):

- (64) \* [<sub>DP</sub> D<sup>e</sup> [<sub>NumP</sub> Num<sup>e</sup><sub>[-Plur]</sub> [<sub>NP</sub> gold fork]]]

In most languages which come equipped with an indefinite article, this case is severely ill-formed.<sup>10</sup> We propose that this is a result of the impossibility of bare singulars functioning as predicate nominals in these languages:<sup>11</sup>

- (65) \*This is table.

<sup>10</sup>One counterexample is Norwegian, which permits bare singular count noun in argumental position (Borthen 1999). Interestingly, Norwegian also allows singular count nouns to appear as determinerless predicate nominals, consistently with the existence of a link between the two facts. There are however additional factors to consider, which must be left for further work.

<sup>11</sup>One might object that according to this view profession nouns such as *insegnante* ‘teacher’, which in Italian and other languages can appear as bare singular predicate nominals should make better singular arguments than nouns like *tavolo* ‘table’—which is not the case:

If this idea is correct, the problem for (64) is not that  $D^e$  is not identified, or bound (it may be, in the appropriate contexts), but that  $D$  is not *restricted*: we have a variable but we do not know what sort of objects it ranges over.<sup>12</sup>

We propose, then, that the NumP layer plays a crucial role in turning a nominal into a predicate; just like the DP layer, this layer must be activated—either by some lexical material (an overt indefinite such as *some* or *a*, a numeral, or at least the marked Plur value, [+Plur]), or by selection from a lexical head (an overt determiner such as *the* or *that*). If none of these possibilities is realized, the structure might still be salvaged by interpreting  $N$  as a proper name and raising it to  $D$  (as in Longobardi 1994). In this case the noun is not used as restrictive material, and the  $D$  variable is replaced by a constant. When even this strategy is not available, the structure is ill-formed.

Finally, let us consider an intermediate possibility: no numeral in NumP but a plural/mass noun (i.e. a [+Plur] value).

(66) [DP  $D^e$  [NumP Num<sup>e</sup><sub>[+Plur]</sub> [NP gold forks]]]

In English this example contrasts with the singular in (64) because  $D^e$  is successfully restricted: a NumP with a [+Plur] feature is a fine predicate in this language. The same is true in Italian, where structures like (66) are also acceptable, as long as the independent requirement of identification is met (*cf.* (62)).<sup>13</sup> In French, on the other hand, bare plurals are generally unacceptable, even in complement position. This is because in this language bare plurals do not constitute legitimate predicates (contrasting with both Italian and English):

- (67) a. Sono scarpe piccole .  
           they are shoes small  
       b. Ce sont (\*de) petites chaussures.  
           Those are (some) small shoes

It is therefore predicted that they will not be able to restrict  $D^e$ , and structures parallel to (66) are (correctly) ruled out, regardless of the issue of identification.

### 4.3 The role of coordination

Our assumptions about the nature of what we tagged ‘CoordP’ in (55), repeated below, are quite minimal.

(55) [DP [Coord [NP goblet] and [NP spoon]]<sub>*i*</sub> [D' D<sup>0</sup> ... *t<sub>i</sub>*]]

- (i) a. Gianni è insegnante  
           Gianni is teacher  
       b. \*Insegnante è qui  
           teacher is here

But it is very dubious that profession nouns are truly nominal in nature when they appear without a determiner, since no adjective may modify them:

- (ii) Gianni è (\*bravo) insegnante (\*esperto)  
       Gianni is (good) insegnante (expert)

If we adopt the hypothesis that there is something adjectival about these nouns (or at least the bare singular use of these nouns), the absence of the structure [ $DP D^e$  [ $NP insegnante$ ]],  $NP$  a singular predicate, simply falls under the constraint which blocks adjectives from being the only restrictive part of a DP. Interestingly, bare singular profession nouns cannot restrict pronouns either: the Italian counterpart of “you<sub>sing</sub> teacher;” *tu insegnante*, is equally ill-formed.

<sup>12</sup>Treating  $D$  as an empty pronoun would of course solve this problem, but at the price of leaving the nominal material in the restrictor uninterpreted. In cases where overt pronouns are accompanied by a noun, as e.g. *we teachers*, the noun does play a role in restricting the range of what we mean by *we*. Note the impossibility of *\*I teacher*, *\*you teacher*, where again the bare singular count cannot function as a nominal predicate.

<sup>13</sup>Various analyses of the exact licensing conditions in English, French, Italian, can be found in the literature (in Chierchia 1998a, Dayal 2000, the lack of the whole DP layer; in Longobardi 1994, the raising of  $N$  or of its features to the empty  $D$  at LF, ecc.). The choice between these solutions rests on the formulation of a proper syntax-to-semantics parameter, and is largely orthogonal to the problem at issue here.

We assume that CoordP allows the transit of the categorial features of its conjuncts (in the trivial sense that a coordination of DPs behaves as a DP, of VPs, as a VP and so forth); that *and* is a head of CoordP and that it is endowed with a quantificational feature [+Qu] (since it participates in scope interactions, see e.g. Clark 1992). Given this set of assumptions, consider the conjunction of two singular NPs under an empty D<sup>e</sup> and Num.

(68) [DP D<sup>e</sup> [NumP Num<sup>e</sup> [CoordP [NP gold fork] and<sub>[+Qu]</sub> [NP silver spoon]]]]

The D<sup>e</sup> head is empty and in need of identification. This time, the only source for a [+Qu] feature is *and*, but this feature can be assigned to D<sup>e</sup> only under predication. However, the [-Plur] value on both conjuncts does not allow them to be predicates. Hence, any transmission of features is blocked. The only way for [+Qu] to be attracted to D is by pied-piping the whole CoordP to [Spec,DP] and creating a configuration of agreement that allows feature sharing between *and* and D<sup>e</sup>. But in this case we have a lexical phrase in the DP layer at the end of the process. As a result, a quasi-definite meaning for the whole noun phrase results, even if no *lexical* element is responsible for this meaning.

Consider now what happens when the coordination contains *plural* nouns.

(69) [DP D<sup>e</sup> [NumP Num<sup>e</sup><sub>[+Plur]</sub> [CoordP [NP gold forks] and<sub>[+Qu]</sub> [NP silver spoons]]]]

Again there is an empty D<sup>e</sup> head in need of identification. But here the [+Plur] feature activates the NumP layer, allowing it to function as a predicate. The [+Qu] feature may therefore be transmitted to Num and from here under predication to D<sup>e</sup>, thereby licensing it. No material is moved overtly to [Spec,DP], and the result is the indefinite plural reading, as in (70):

(70) I walked into the room and saw gold forks and silver spoons.

There is however another possibility, parallel to the singular case: the conjoined NP moves to [Spec,DP], as in (68). This second derivation gives rise to the definite reading found in examples like (71):

(71) On the table there was a lot of cutlery: gold forks<sub>i</sub>, platinum knives, and silver spoons<sub>j</sub>. Gold forks<sub>i</sub> and silver spoons<sub>j</sub> were equally filthy.

Since both derivations are available we assume that the two possibilities are equivalent for the purpose of economy conditions.<sup>14</sup>

Since in Italian [+Plur] nominals make good predicates, the two derivations and the corresponding meanings will also be available. In French, on the other hand, a NumP with [+Plur] as its sole content cannot be a predicate, witness (67b) above. The only option left in this language is to raise the coordination to [Spec,DP]. As a result, only the quasi-definite reading is available.

Consider now an alternative analysis, suggested to us by one reviewer. One might accept the idea that what licenses the determinerless DP in this construction and its quasi-definite meaning is the coordinating head, but assume—contrary to our proposal—that feature transmission to D<sup>e</sup> is not dependent on predication. As a result, the relevant features of *and* could always reach D<sup>e</sup> at LF and trigger the definite meaning. The question that arises with such an analysis is why this abstract movement should be blocked by the intervention of adjectives, which are either specifiers or adjuncts between D and N. Indeed, (72) is as good a bare plural with or without the adjective: in Longobardi's analysis this is because the relevant features of the noun *people* can reach D regardless of the presence of the adjective.<sup>15</sup>

<sup>14</sup>A potential alternative is of course to assume that the existential meaning is due to the coordination of two full DPs, each containing a bare plural with an empty D<sup>e</sup>:

(i) [Coord [DP D<sup>e</sup> gold forks] and [DP D<sup>e</sup> silver spoons]]

This structure however would not explain the improvement over uncoordinated bare plurals in Italian. Moreover, from the standpoint of economy it is at least plausible that the structure in (i) might compete, favorably, with (69), which has the same overt lexical content but less structure. For evidence that coordination might be realized as low as possible see Heycock and Zamparelli 2000. A separate issue is whether a DP-conjunction structure, with N-to-D movement in each conjunct, might be possible as an account for examples like (27); we leave this as an open question.

<sup>15</sup>Note that in this case a derivation via a kind meaning à-la (Chierchia 1998a) is not available: *people in front of me* cannot refer to a kind.

(72) [(Old) People in front of me] were running in panic.

But now consider the ungrammaticality of (32), repeated here:

(32) \*There were two men, a German and a Frenchman, and two women, also one German and one French:  
 German man and woman were both dark-haired; French man and woman were much blonder.

If the [+Qu] features of *and* could just be attracted to  $D^e$  at LF, it is a mystery why this couldn't happen across an adjective. The same point can be made with Italian. As we have seen, the adjective *scorso* 'last' allows overt movement of names-of-days to D (73a), and even (more marginally) of their conjunction (73b). But (73c), where the features of *e* 'and' should have moved at LF, is completely ungrammatical.

(73) a. Giovedì scorso *t*  
 Thursday last *t*  
 b. [Giovedì e venerdì] scorsi *t*  
 [Thursday and Friday] last *t*  
 c. \*Scorsi [giovedì e venerdì]  
 last [Thursday and Friday]

This paradigm thus confirms our proposal that in the singular the features of *and* capable of licensing the D head *cannot* move independently of the whole conjunction, whether at LF or before. In the plural, on the other hand, pre-nominal adjectives become possible in Italian and English, as predicted.

(74) Costose spille e collane luccicavano dalla vetrina.  
 expensive brooches and necklaces sparkled from the shop-window

## 5 Further consequences

### 5.1 On the possibility of modification

One immediate consequence of this analysis is that since the conjuncts are nominal projections smaller than the full DP, the failure of coordination with a full DP, as in (50a), follows from the general requirement that coordination is only possible between categories of the same type.

We proposed that the status of bare noun coordinations as quasi-definites follows from the activation of the DP projection by the presence of lexical material in the [Spec,DP] position. The way the raised material is interpreted, however, needs to be spelled out in more detail. First, we assume that the coordination is not reconstructed in its base position; this is in fact a necessity in some cases, since as we have seen bare singular NPs are not predicates and cannot function to restrict the value of the  $D^e$  variable. The ill-formedness of the construction with shared modifiers, illustrated above in (30a)–(32), follows immediately. The modifiers in question are generated as adjuncts to the coordination (or to some functional projection above it—the precise way in which the modifier is connected is irrelevant at this point):

(75) a. [<sub>DP</sub>  $D^0$  ... [<sub>CoordP</sub> [<sub>CoordP</sub> [<sub>NP</sub> man] and [<sub>NP</sub> woman]] [<sub>PP</sub> in front of me]]] *cf.* (30a)  
 b. [<sub>DP</sub> [<sub>CoordP</sub> [<sub>NP</sub> man] and [<sub>NP</sub> woman]]<sub>*i*</sub> [<sub>D'</sub>  $D^0$  ... [<sub>CoordP</sub> *t<sub>i</sub>* [<sub>PP</sub> in front of me]]]]

(75b) shows the situation after raising. The *minimal* structure sufficient to check the [+Qu] feature on D, namely, the lower CoordP, has moved to [Spec,DP]. But since this constituent is never reconstructed, its semantics cannot combine with the semantics of the modifier: the denotation of *man and woman* (a set of couples, in standard extensional semantics) is never intersected with the set *things in front of me*, leading to ill-formedness. This explanation extends to the impossibility of stranding numerals and adjectives:

(76) a. \*[Men and women] four *t*  
 b. \*[Forks and spoons] silver *t*

Again, at LF *four* and *silver* do not find the right type (if in fact *any* type) of semantic object to combine with.

The second question to address is: what does it mean for the nominal material to be interpreted in [Spec,DP]? As we have seen, these expressions do not have the rigidity of proper names (see (49)). Let us consider then the alternative possibility: that they are interpreted in a way similar to pronouns. Pronouns are clearly less able to distinguish between referents than definite descriptions, but they are capable of narrowing down their reference according at least to gender features:

(77) The couple came in. She was dark; he was blonde.

Bare definite coordinations may then be seen as pronominals built on the fly. Their richer lexical content can be used to restrict the range of possible discourse antecedents, but not to derive new ones via inference, in contrast to ordinary definite descriptions. The difference between pronouns and definite descriptions is clear from the contrast in (78) (based on famous examples from Partee):

(78) I dropped ten marbles and found only nine of them.  
The missing marble/\*It is probably under the sofa.

If we extend this type of example to include bare NP coordination, we find that these nominals pattern together with the pronoun, though their additional content makes the contrast less sharp:

(79) At the party there was one representative from each country in the Americas. When I arrived, many had left. But . . .  
a. \*they were still there drinking tequila. [With *they* = *those who hadn't left*]  
b. ?\*Canadian and American were still there drinking tequila.  
c. the Canadian and the American were still there drinking tequila.

The same point can be made by looking at the cases in Section 2.3 where conjunct-internal modification fails (see (36)); the bare coordination is essentially only well-formed when the referent of the noun-modifier group has been established in the previous discourse and no inference is necessary.<sup>16</sup> One extreme example of (logical) inference is the one required by superlatives (which require the application of an ordering function) and *only* (which requires comparison with a context set)—both leading to strong ill-formedness in our coordination cases (see (38)).

As shown in (37), bare nominal coordinations where each conjunct is modified with a restrictive relative clause or other postnominal modifier are unacceptable. At first glance this might seem to be on a par with the adjectival cases in (36). However, it seems that these examples are in addition ruled out by some constraint sensitive to *heaviness*, since even explicit previous mention of each discourse referent does not improve these cases:

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<sup>16</sup>It is interesting to compare this case with that of *epithets*, elements formally similar to definite descriptions but for which a pronominal interpretation has been proposed (Jackendoff 1972; Hornstein and Weinberg 1990; Dubinsky and Hamilton 1998). Epithets allow non-restrictive modification, unlike pronouns but like bare NP coordinations and other definites:

(i) Every Old Estonian's mother thinks that the arrogant bastard, who has probably never lifted a finger in his life, is a god.

Like both bare NP coordinations and pronouns, however, restrictive modification is impossible; at most the implied gender of the epithet can be used to pick out an antecedent, and only in contexts where an unstressed pronoun could do the same:

(ii) a. At the party there were people from all over the world.  
\*The French bastard insulted my partner.  
b. Joe<sub>i</sub> and Jessica walked into the bar.  
I think he<sub>i</sub>/HE<sub>i</sub>/the bastard<sub>i</sub> had been drinking.  
c. There was a couple I had known for years sitting in the bar.  
I think ??he/HE/??the bastard/?\*the BASTARD had been drinking.

Even when there is a discourse referent available, and the context makes clear what the anaphoric relation must be, the additional lexical content of an epithet does not make reference possible when an unstressed pronoun would fail. In this there is a contrast with bare NP coordination:

(iii) Of the two sisters, one<sub>i</sub> was very depressed and the other<sub>j</sub> was having a great time . . .  
a. I felt sorry for the poor thing<sub>\*i/#j</sub>.  
b. Depressive<sub>i</sub> and party-animal<sub>j</sub> were more similar under the skin than you would have thought.

The full pattern of contrasts deserves further study, but would take us too far from our main concern in this study.



- (80) In the room was a man wearing spectacles and a woman wearing way too many fancy clothes.  
 a. ?After a while, bespectacled man and overdressed woman started to talk to each other.  
 b. \*After a while, man with spectacles and woman with ridiculous clothes started to talk to each other.

That is, we take it that examples like (79a,b) and (80b) are parallel to overly heavy possessor phrases:

- (81) a. \*[The dog that I saw]'s collar  
 b. ??[The fork with the silver handle]'s tines.

To sum up, prenominal modification of each conjunct in a coordination that has raised to Spec[D,P] is possible but restricted, while postnominal modification is ruled out entirely. Further, conjuncts containing cardinals are also completely ungrammatical, as shown by (82a) interpreted just as (82b).

- (82) Standing around in the room were three boys, two girls, and an assortment of adults.  
 a. \*[<sub>DP</sub> [<sub>Coord</sub> [<sub>NumP</sub> three boys] and [<sub>NumP</sub> two girls]]]<sub>i</sub> [<sub>D'</sub> D<sup>0</sup> *t<sub>i</sub>*] ] ...  
 b. [<sub>DP</sub> [<sub>D'</sub> the [<sub>Coord</sub> [<sub>NumP</sub> three boys] and [<sub>NumP</sub> two girls]]]] ...

The sharp ungrammaticality of (82a) can be explained by considering the putative source:

- (83) [<sub>DP</sub> D<sup>0</sup> [<sub>Coord</sub> [<sub>NumP</sub> three boys] and [<sub>NumP</sub> two girls]]]

Here *and* is no longer the only source for the [+Qu] features: the numerals within each conjunct are [+Qu] as well, and they transmit this feature to their NumPs maximal projections. By hypothesis, a coordination inherits the categorial features of its conjuncts; therefore, CoordP ends up behaving like a NumP with [+Qu] features. Since NumP is a fine predicate [+Qu] can be assigned to D<sup>e</sup> under predication. The fact that this transmission is strictly local (*i.e.* no projection intervenes), means that this strategy is always preferred, hence the contrast with (69). Note that this result crucially depends on our assumption that definiteness is a side-effect, not a trigger for CoordP movement; if D<sup>e</sup> can be licensed in a more economical way, no movement occurs.

The raising-to-spec analysis of coordination can explain one last, unexpected difference between definites and our coordinated bare noun phrases—their failure under partitives. Consider:

- (84) We arranged one crystal goblet<sub>h</sub>, one silver spoon<sub>i</sub>, two antique gold forks<sub>j</sub> and two platinum knives<sub>k</sub>.  
 a. [Forks<sub>j</sub> and knives<sub>k</sub>] were equally dirty.  
 b. Many of [the forks and (the) knives]<sub>i+j</sub> were dirty.  
 c. \*Many of [forks and knives]<sub>i+j</sub> were dirty.

Building on Barker (1998), Zamparelli (1998) proposed an analysis of partitives in which an internal projection of the embedded definite DP is copied to a position adjacent to the external numeral, and erased at PF (cf. Kayne's (1994) analysis of postnominal possessives like *a friend of John's*).

- (85) [<sub>DP</sub> Many [ ~~forks~~ ]<sub>i</sub> of [<sub>DP</sub> the [ forks ]<sub>i</sub> ]]

In (84c), however, the internal projection to be copied has moved to [Spec,DP], and it is unavailable to further movement due to whatever blocks movement/copy out of a left branch in English (cf. \**Whose<sub>i</sub> did you see [ *t<sub>i</sub>* friend ]?*).

- (86) \*[<sub>DP</sub> Many [ ~~forks and spoons~~ ]<sub>i</sub> of [<sub>DP</sub> [ forks and spoons ]<sub>i</sub> [<sub>D'</sub> D<sup>0</sup> ... ]]]

## 5.2 Comparison with DP-internal coordination without movement

The proposal that bare noun coordination derives from a single DP-internal position requires that any difference in form and interpretation between DP-internal coordination cases and bare noun coordinations can be derived by the movement to [Spec,DP]. Consider some cases.

First, recall that we have linked [+Qu] with the possibility of participating in scope relations. This makes some predictions concerning the possible scope of *and*.

The possibility of wide scope for conjunction of full DPs, discussed in Clark 1992, is exemplified in (87):

- (87) Someone must have lived in this house AND that castle.  
*Not necessarily the same person*

As predicted, the same scope possibility is found in the case of bare singular coordination:

- (88) ... someone must have lived in house AND castle  
*Not necessarily the same person*

However, if D is filled by a determiner and the coordination does not raise to [Spec,DP], *and* cannot take wide scope over the indefinite. Thus (89) contrasts with both (87) and (88).

- (89) Someone must have lived in the house AND castle  
*Necessarily the same person*

Next, the data presented so far have concentrated on conjunction; plain disjunction seems less felicitous, for reasons that we do not as yet understand. There is however still a contrast between e.g. *\*Cat is dirty* and (90):

- (90) a. ?Cat or dog will have to be tied up.  
 b. Either cat or dog will have to be tied up.

On the other hand, *X but not Y* coordination is degraded:

- (91) There is a plate, a bowl, and a fork on the table.  
 a. The plate but not the bowl is made of sterling silver.  
 b. ?\*Plate but not bowl is/are made of sterling silver.

Interestingly, the same effect is also found in DP-internal coordination cases:

- (92) a. The plate and bowl are made of sterling silver.  
 b. ?\*The plate but not bowl is/are made of sterling silver.

where it can probably be derived from the impossibility of DP-internal *not* (cf. *\*the not dog*). This parallelism thus supports the raising-to-spec analysis.

The next aspect to address concerns reference. In English, DP-internal coordination can have a *split* reading, in which the DP refers to distinct multiple entities (93a), and a *joint* reading, where it refers to a single entity with multiple properties (93b).

- (93) a. The father and child are very similar. *Split: two people*  
 b. My friend and colleague is recovering. *Joint: one person with two properties*

On the other hand, the interpretation of bare noun coordinations in argument position is necessarily *split*: in (94a), a reading in which the two bare nouns refer to the same individual is impossible. But this is just the behaviour shown by full DPs in the same type of position, as shown in (94b).

- (94) a. \*Friend and colleague is recovering.  
 b. [My friend] and [my colleague] are/?\*is recovering.

Joint coordinations of pronouns (e.g. *you<sub>i</sub> and you<sub>i</sub>, I<sub>i</sub> and we<sub>j,i∈j</sub>*) are equally bad, though constructing a plausible context to test the origin of their illformedness proves impossible. Thus, to the extent it can be determined, bare noun coordinations do not pattern differently from pronouns.

Perhaps more surprising—in an analysis in which bare singular coordination is originally DP-internal—is the fact that bare singular coordination in argument position is also available in languages where a split interpretation of DP-internal coordinated singulars is completely impossible. Italian is one such language:

bare singular coordination is quite common, but the equivalent of (93a), a DP-internal coordination where the split interpretation is forced, is ill-formed:

- (95) \*Il padre e bambino sono simili.  
the father and child are similar

The cross-linguistic variation in the distribution of the split reading is addressed in Heycock and Zamparelli 1999, 2000. There, we propose that Italian generates both joint and split readings, just as English (split readings of  *plurals*  are in fact available in both languages). In Italian, however, the semantics of the NP is filtered at a functional head above NP, so that in the singular only the denotation corresponding to the joint reading reaches the D projection. But in the case of bare noun coordination, the denotation of the two NPs is never fed and never filtered: the NPs are directly interpreted in [Spec,DP], and do not reconstruct, see section 5.1. The existence of a split reading in Italian follows.

The same reasoning holds for another difference between bare singular coordination and DP-internal coordination: the former freely allows mixing of singular and plural, whereas in the latter these combinations are marginal or impossible. Contrast (96) and (97):

- (96) President and share-holders were playing in tune.  
(97) a. \*these [share-holders and president]. . .  
b. ??the [share-holders and president]. . .  
c. ??my [mother and aunts]. . .

We assume that number mismatches are checked at NumP, or at some projection between NumP and the coordination proper (PIP, in Heycock and Zamparelli 1999, 2000); inconsistent values for the nominal feature PLUR lead to inconsistent functions at the semantic level. But again, in our approach to bare singular coordination the coordinated NPs are raised to [Spec,DP] (where there is no issue of mismatched number, witness  *my mother and my aunts* ) and never reconstructed to their base position. The number problem is thus avoided.<sup>17</sup>

## 6 Conclusion

In the last decade much progress has been made toward establishing not only the syntax of the functional projections within the nominal system, but also a principled mapping between this structure and its semantics (see for example Longobardi 1994; Chierchia 1998a, 1998b). The existence of bare singular coordination of the kind examined in this article has always been somewhat of an embarrassment for this enterprise. The analysis presented in this paper on the basis of a more comprehensive set of data offers not only a principled account of bare nominal coordination but also a theory of the pattern of well-formedness of non-coordinated bare nominals. In doing so it sheds some light, we believe, on the syntax of definiteness and the semantics of DP-internal raising.

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<sup>17</sup>One reviewer points out that (97) could be due to a syntactic conflict between plural and singular forms of  *my*  and  *the* , even though the two forms are homophonous. This is less likely, considering the contrast between (ia) and (ib):

- (i) a. You or the boys are going to have to do it.  
b. {??I or you / \*you or I} are going to have to do it.

In (ib), the two pronouns require different forms of  *be* , and the sentence crashes. In (ia), however, the second singular and third person plural forms of  *be*  are homophonous, and there appears to be no effect of conflict.

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