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Generic Sentences and Types of Judgments

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Abstract

In this paper, we propose an analysis of the French plural indefinite/definite (*des/les*) distinction in generic sentences. We argue that in existential *and* generic readings, (i) *des* is attached to a Maximality and a Novelty constraint, whereas (ii) *les* is attached to a Maximality and a Familiarity constraint. This allows us to capture the rule of use of *des* vs. *un*, but also to explain why the indefinite express analytic judgements, whereas the definite can express both analytic and synthetic judgements. Finally, we also account for their different tolerance to exceptions on a semantic basis.

Key-words: indefinite, definite, maximality, novelty, analyticity.

1. Introduction¹

It is a well-known fact that the plural indefinite *des* has very restricted conditions of use in generic readings (Corblin, 1987; Dobrovie-Sorin and Laca, 1998; Dobrovie-Sorin and Mari, 2007a,b; Farkas and de Swart, 2007). The aim of this paper is to propose a new explanation of the difference between (i) (1a) and (1b) on one hand, and (ii) (1b) and (1c) on the other.

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- (1) a. *Un carré a quatre côtés.*
 A square has four sides. (generic singular indefinite)
 b. **Des carrés ont quatre côtés.*
 'Des' squares have four sides. (generic plural indefinite)
 c. *Les carrés ont quatre côtés.*
 'Les' squares have four sides. (generic plural definite)

Three foundational questions for the theory of genericity are addressed in relation with the indefinite *vs.* definite distinction in generic sentences. Firstly, under the assumption that indefinites provide a variable to be bounded by the generic operator GEN in generic sentences (see Krifka *et al.*, 1995), what kind of variables (if any) do *plural* indefinites provide? Secondly, can we explain why indefinite generic statements are analytic or definitional, as it is generally assumed? (cf. *e.g.* Burton-Roberts, 1977; Dahl, 1975; de Swart, 1996; Cohen, 2001). Thirdly, how can we explain that *des* and *les* sentences have a different tolerance to exceptions?

The claim of this paper is threefold. Firstly, we argue that in their existential and generic readings, *des* and *les* both describe what we call "maximal sums". On the one hand, *des* NPs provide a variable for maximal sums. We identify a "**Maximality Constraint**", which, we argue, is attached to the generic *des* and is the translation in the generic domain of the "Non-Partitivity Constraint" (Martin, 2008) attached to the existential *des*. This claim about the generic *des* goes against the hypothesis of Kleiber, 2001 and Heyd, 2006 who argue that *des* implies a "partitive genericity". On the other hand, *les* NPs directly denote maximal sums (de Swart and Farkas, 2007; see also Chierchia, 1998 and Dayal, 2004 who argue that definite plurals denote (intensional) plural kinds).

Secondly, under their generic, *les* and *des* differ at the informational level as under their existential reading. After Heim, 1982, we assume two layers of Familiarity/Novelty: the referent *and* the description given by the NP can be either newly introduced in the discourse or already known at that point. We differentiate thus three different cases: (i) the referent is newly introduced by the NP and the description (property) that it provides is new too (the by default case with indefinites); (ii) the referent is familiar at the point of the assertion, but the description (or "guise") given by the NP is newly attributed to this (already familiar) referent (another possible case for indefinites); and (iii) the referent *and* the description provided by the NP are already familiar at the time of the assertion (which is the case characterizing the definite). However, we extend this analysis of Heim both to the non-generic *and* generic readings of (in)definites, which allows us to have a more uniform account of these determiners. Assuming a simple structure Det NP VP such that *P* and *Q* are respectively the properties denoted by the NP and the VP, we thus argue that on its generic *and* non-generic readings, *les* NP presupposes (i.) the existence of the referents and (ii) the guise *P* under which they are denoted (cf. Corblin, 1987 about the non-generic *les*). On the other hand, the existential *and* generic

des NP asserts or presupposes the existence of the entities, but invariably present the guise *P* as new (“**Novelty Condition on the guise**”).

The third claim derives from the previous others. *Les* sentences simply give some properties *P* and *Q* that their referents satisfy. *Des* sentences provide the conditions for attributing the property *P*, namely, that of satisfying the property *Q* as well. Maximality is needed, since all elements of the class *P* without exception are concerned by the definition. The main result of the paper consists of providing a semantic account of the analytic (*des*) vs. descriptive (*les*) distinction, in a uniform account of existential and generic interpretation of *des* and *les*.

The paper is structured as follows. Section 2 introduces previous accounts of *des* indefinite generic; old and new data are discussed in Section 3. Section 4 provides the new analysis and we conclude in Section 5.

2. Previous accounts

After all works considered below, we assume in line with much research on semantics of plurals going back to Link, 1983 that individuals form an atomic join semi-lattice, with a sum operation, a part relation and a set of atoms. Interpretations, although not explicitly stated in all of these works, are established with respect to possible worlds.

2.1 Corblin, 1987

Corblin’s main point is that, whereas the singular indefinite *un* denotes in the set of atoms, *des* denotes both in the set of atoms and sums and is unspecified for number. A consequence of this view is that, whenever a *des* NP is in combination with a distributive predicate and should denote singularities, it is in concurrence with the singular indefinite. In this (default) case, the singular form is preferred. This suffices to explain why (1b) is ruled out and why, *ceteris paribus*, (2) is fine (one bus does not suffice to relieve the traffic). More generally, when an element of the context forces the generic *des* to denote sums (and not singularities), it acquires a legitimacy of use, since it is no longer in concurrence with the singular.

- (2) *Dans les villes, des bus soulagent le trafic.*
In towns, ‘des’ buses relieve the traffic.

The main problem of this account is that there exist many cases in which *des* can be used and which do not satisfy this requirement (cf. *infra*).

- (3) a. *Des hommes forts peuvent déplacer un piano.*
‘Des’ strong men can move a piano.
b. *Des enfants mal élevés sont difficiles à tenir en place.*

- 'Des' bad-mannered children are difficult to control.
 c. *Des lions ont une crinière.*
 'Des' lions have a mane.

2.2 Dobrovie-Sorin and Mari, 2007

Dobrovie-Sorin and Mari (2007a, 2007b) push forward Corblin's view that more than a singularity is needed to use *des* and consider the semantics of collectivity. Crucially, the authors subscribe to the difference between sums and groups (à la Link, 1984 and Landman, 2000). From an ontological point of view, they argue that, on the one hand, sums are not objects and are related by a part-of relation, while on the other hand, groups are objects obtained by shifting a plurality into a plural atomic individual. Moreover, groups are atomic plural objects.

On their view, generic *des* can be used when the NP denotes a group and not a sum (*contra eg.* Corblin, 1987), because sums cannot be bound by GEN, since sums are not objects and quantifiers can only bind objects. Groups are objects and can therefore be bound by GEN. Consequently, in this case, GEN counts group-individuals. Sortal pluralized nouns (e.g. *babies*) denote sums whereas relational reciprocal nouns (e.g. *brothers*) denote groups. The following contrast is thus explained: since only groups can be bound by GEN, the quantificational statement cannot go through in (4c).

- (4) a. *Des jumeaux se ressemblent complètement.*
 'Des' twins look totally alike.
 b. GEN X (X is a group of twins) [X look totally alike]
 c. ??*Des bébés se ressemblent complètement.*
 'Des' babies totally look alike.
 d. # GEN X (X is a sum of babies) [X look totally alike]

This first set of assumptions raises two problems. First, (2) is wrongly predicted to be unacceptable since *buses* denotes a sum. Second, (5) is wrongly predicted to be acceptable since *brothers* denotes a group.

- (5) a. ??*Des frères se ressemblent complètement.*
 'Des' brothers completely look alike.
 b. GEN X (X is group of brothers) [X look totally alike]

Secondly, the authors argue that *des* can be used in the presence of an *NP* modifier introducing an event variable (like *malade (sick)* in (6a)). In this case, individuals are indirectly bounded to events via a Skolem function.

- (6) a. *Des enfants malades sont difficiles à gérer.*
 'Des' sick children are difficult to deal with.
 b. \exists GEN e [sick(e) & sick(f(e))] [difficult to deal with (f(e))]

The major problem with this view is that non eventive *NP* modifiers like in (7) also meliorate the acceptability of *des*.

- (7) *Des hommes forts gèrent facilement la fatigue.*
'Des' strong men easily deal with tiredness.

Finally, there subsists a general shortcoming for Dobrovie-Sorin and Mari's account, namely that they need to pose two different analysis for the generic and the existential reading (*des* in (8) cannot introduce a group since the predicate is distributive²).

- (8) *Durant l'excursion, des enfants étaient fatigués.*
During the trip, 'des' children were tired.

To conclude, the major problems with Dobrovie-Sorin and Mari's view are that (i.) the generic *des* does not in fact provide a group variable and (ii) modification improves the acceptabilities for reasons other than introducing an event argument.

2.3 Farkas and de Swart, 2007

Farkas and de Swart (2007) argue that in Romance languages, definite and indefinite plurals are both able to express 'Maximality'. Maximality can be obtained with (i) reference to kinds and (ii) generic generalizations (see Krifka *et al.* 1995) by two different means: by *summation* (for plural kind reference (i)) or *generic* (i.e. *universal*) *quantification over individual-sized situations* (for generic generalizations (ii)).

As far as *generic generalizations* are concerned, Maximality is obtained by construction. GEN is a universal quantifier over situations, hence, in (9), all (possible) dogs are concerned by the generalization. In English, bare plurals are considered to be able to have a kind reading and to support generic generalizations. In French, both the plural indefinite and definite can be used in generic generalizations. Note that in (9b), the situation variable is introduced by the stage level predicate *hungry*.

- (9) a. *Hungry dogs are dangerous.*
b. *Des/Les chiens affamés sont dangereux.*
c. GEN s((\exists xDog(x, s) \wedge Plural(x) \wedge Hungry(x, s)), Dangerous(x, s))

²From a semantic point of view, they consider much in the line of the literature that sums are in the denotation of distributive predicates (*The boys wear green socks*), whereas groups are in the denotation of collective predicates (*The boys gather at 6pm*).

Under the *kind reading*, Maximality can be obtained in virtue of the meaning of the definite which is associated with the maximal sum of an intensional lattice. In French, the plural definite must be used, the indefinite being out.

- (10) a. *Dinosaurs are rare.*
 b. *Les/*Des dinosaures sont rares.*
 'Les' dinosaurs are rare.
 c. $\exists!KK = \Sigma_{x,w}(\text{Dinosaur}(x,w) \wedge \text{Plural}(K) \wedge \text{rare}(K))$

As said above, the plural indefinite in French has been described as having a very restricted use, namely the one illustrated in (9). The authors explain this preference for the definite plural by the fact that the languages at hand (*eg* French) satisfy a 'High Maximality' and hence prefer the definite, differently from languages like English which satisfy 'High Familiarity' and prefer existential genericity.

- (11) a. **The/Dinosaurs are extinct.*
 b. *Les/*Des dinosaures sont en voie d'extinction.*

However, Farkas and de Swart's account cannot cover all data, since, as already noticed above, non-eventive modifiers can also be used in *des* sentences (7) (the presence of the situation variable is then unjustified). Moreover, *des* is even possible without NP modifiers. And crucially, *des* sentences have a different interpretation of *les* sentences with which they are not in concurrence (see next section), which is not captured by this account. However, we will adopt their claim that the generic *des* is associated with Maximality. But we argue that this property is encoded in the meaning of the determiner both in its existential and generic readings.

3 New (and old) data: discussion

3.1 Old data and recent accounts

It has been repeatedly noted that indefinite generics express definitional statements or analytic truths (see *eg* Burton-Roberts, 1977; Dahl, 1975; de Swart, 1996; Greenberg, 2001), differently from bare plurals and plural definites in French, which are considered to express accidental or descriptive generalizations. In (12), since 'popular' is not a 'definitory' property of madrigals, it is only compatible with bare plurals (plural definites in French).

- (12) a. *A dog has four legs. / Un chien a quatre pattes.*
 b. *#A madrigal is popular. / *Un madrigal est populaire.*
 c. *Madrigals are popular. / Les madrigaux sont populaires.*

What has not been observed for French though is that differently from *les*, *des* cannot be used when a causal relation between *P* and *Q* lacks.

- (13) a. *Les enfants de cette classe/ de cet âge sont bruyants.*
 'Les' children of this class/of this age are noisy.
 b. *Des enfants #de cette classe/ OK de cet âge sont bruyants.*
 'Des' children of this class/ of this age are noisy.

Different accounts have been proposed to capture the precise causal relation that indefinite generic sentences express. Greenberg, 2002 argues that both indefinite and definite generic sentences express causal relations between the property *P* and *Q*, but that the ones conveyed by indefinite generic sentences express are 'tighter' than in definite generic sentences (considered to express accidental generalizations³). She argues that these sentences differ by the types of accessibility relations among worlds (Kratzer, 1991): in indefinite generic sentences (IS sentences), an 'in virtue of' property (S) is accommodated between property *P* and *Q*, causally related to *P*. In definite generic sentences (BE sentences), the accessibility relation amounts to maximal similarity⁴.

- (14) *A boy (P) does not cry (Q)*, interpreted as: In every possible world, if an individual is a boy, then it is tough (S), then he does not cry.
 (15) *Madrigals are popular*, interpreted as: In all worlds maximally similar to ours, if something is a madrigal, it is popular.

Greenberg recognizes that IS and BE sentences are sensitive to different kinds of exceptional individuals; in particular, she shows that IS sentences are less flexible for what counts as an exceptional individual (see Greenberg, 2007 for details) and explains this difference via the two different causal relations involved in the interpretations⁵.

It seems to us that the author does not explain *why* indefinite generics express causal relation that more intrinsically relates property *P* to property *Q*, while definite generics are preferred for expressing an accidental causal relation. Moreover, the unified causal analysis proposed flats out the peculiarities of the bare plural/indefinite distinction.

We claim instead that the *lexical meanings* of the indefinite and the definite crucially matter in the interpretation of generic sentences. More precisely, we are going to argue in the following sections that the correlation between the kind of determiner chosen and the type of relation expressed is due to the

³It has to be noted that Greenberg provides a causal account even for the notion of accidentality.

⁴This view has been challenged by Mari (2008a, 2008b) who argues that, for indefinite generics, the modality is essentially epistemic.

⁵As we state in note 5, *des* plural generic indefinite does not support exceptional individuals, while the singular indefinite generic sometimes does. It is part of the endeavor of this paper to explain why *des* does not tolerate exceptions.

meanings that the determiners have in both their existential and generic interpretations. Before developing this idea, we present and discuss additional data.

3.2 More data on causality

3.2.1 Modification, focus and question-answer pairs

Heyd, 2006 claims that aside from eventive modifiers, non-relational adjectives can rescue the acceptability of *des*. For instance, relational adjectives like *d’Afrique* (from Africa) are supposed not to be able to perform the job of *malade* or *fort* in (6) and (7). The acceptability is from Heyd (*ibid.*):

- (16) **Des éléphants d’Afrique sont lents.*
 ’Des’ African elephants move slowly.

We do not agree with this empirical generalization: it seems to us that any adjective, including relational ones, makes the generic statement acceptable as far as the sentence has a specific prosodic structure, illustrated below (the vowel of the syllables bearing raising accent is written in bold), and that a certain causal relation (defined further Section 4.1.2) can take place between the nominal and verbal predications.

- (17) *Des éléphants d’Afr**í**que sont l**é**nts*
 ’Des’ African elephants are slow.

Importantly here, the first topic is not contrastive. For instance, the example above is unacceptable in the following discourse.

- (18) A. *Quels éléphants sont lents?*
 B. **Des éléphants d’ Afr**í**que sont l**é**nts.*
 A. Which elephants move slowly?
 B. ’Des’ African elephants move slowly.

According to our hypothesis, it is precisely the double raising accent we have in (17) which introduces the causal relation needed to render the example acceptable. This also holds in absence of any adjective, for instance in the square example:

- (19) *Des carr**é**s ont quatre c**ô**tés.*
 ’Des’ squares have four sides.

Sometimes, the causal relation is so obviously interpreted between the two predicates that the double-accent is not needed to trigger it. For instance, in (6a) repeated below as (20), a causal relation between being sick and being difficult

to deal with is automatically interpreted, without the help of the prosodic structure in the examples above.

- (20) a. *Des enfants malades sont difficiles à gérer.*
 'Des' sick children are difficult to deal with.

The double-accent is also optional in question-answer contexts that trigger by themselves the needed causal relation between the definitory properties *P* and *Q*.

- (21) A: *Comment c'est un éléphant d'Afrique?*
 How is it an African elephant?
 B: *Des éléphants d'Afrique sont lents.*
 'Des' African elephants move slowly.

3.2.2 A related issue: prescriptive statements

Des sentences have been described as having a prescriptive use (eg. Dahl, 1975, Carlier, 1989). For instance, according to us, (22) is typically uttered in front of plants that are not being treated as such by a speaker who wants her hearer to water them.

- (22) *Des plantes ont besoin d'eau pour vivre!* (Corblin, 1987)
 'Des' plants need water to live !

3.3 Sensitivity to exceptions

Besides intensional differences, *des* and *les* statements also differ in their sensitivity to exceptions⁶.

3.3.1 *Sauf* (all but)

Contrary to *des* statements, *les* ones can be followed by *sauf* (all but ...), while *des* statements cannot.

- (24) a. *Les professeurs dans cette université portent une cravate sauf Jean.*
 'Les' professors in this university wear a tie, except John.
 b. *Dans cette université, des professeurs portent une cravate, #sauf Jean.*
 'Des' professors in this university wear a tie, except John.

⁶ Note that for French, the situation is a bit more complex than in English. While as we will see, the generic *des* is systematically intolerant to exceptions, its singular counterpart *un* is *sometimes* acceptable with exceptions, like the English *a* (see for English Greenberg, 2007). For instance, *Dans cette bibliothèque, un livre peut s'emprunter pour 5 jours, sauf ceux-ci* 'In this library, a book can be borrowed for 5 days, except these ones' is fine, while ??*Une jeune fille bien élevée parle français, sauf Marie* 'A well behaved young lady speaks French, except Marie' is odd.

In a similar vein, B's reply has a different effect in (25) and (26). After a *les* statement, it signals that there are some exceptions (the statement of A is only corrected). After a *des* statement, it invalidates the rule as a whole (the statement of A is rejected).

- (25) A. *Les professeurs dans cette université portent une cravate.*
 'Les' professors in this university wear a tie.
 B. *Mais non, regarde Pierre, il ne la porte pas.*
 No, look at Pierre, he does not wear one !
- (26) A. *Dans cette université, des professeurs portent une cravate.*
 'Des' professors in this university wear a tie.
 B. *Mais non, regarde Pierre, il ne la porte pas.*
 No, look at Pierre, he does not wear one !

3.3.2 *En général* (in general)

The adverb *en général* has two different interpretations in *des* and *les* statements.⁷

- (26) a. *Qui sait faire une règle de trois?*
 Who is able to make a rule of three?
 b. *Des/Les mathématiciens (en général).*
 'Des'/'Les' mathematicians (in general).

The *les* sentence means that the majority of mathematicians is able to solve a rule of three. The *des* sentence means that the majority of people able to make a rule of three are mathematician (Note that it again shows that *des* N forbids to take a sample of N out of the set of N). *En général* triggers a 'in majority' reading with *les*, but has an intensional interpretation with *des*.⁸

4. Ingredients of 'des'

In this section, we present our own analysis, discussing two features of *des*: *Maximality* and *Novelty*. We contrast these two ingredients of *des* with *les*, which is also associated with *Maximality* (cf. de Swart and Farkas, 2007), but presents a *Familiarity* feature, exactly as under its non-generic reading. We

⁷ Note that the generic *des* is unacceptable with *en majorité* (**Des enfants de cet âge sont en majorité bruyants*, 'des children of this age are in majority noisy'), but this is not due to the intolerance of *des* to exceptions, but rather to the fact that *des* is incompatible with any floating quantifier, including *tous* (**Des enfants de cet âge sont tous bruyants*, 'des children of this age are all noisy'). Thanks to Gerhard Schaden and Francis Corblin for this point.

⁸For a related discussion in the 'intensional' and 'extensional' uses of frequency adverbs, see Mari (2008a, 2008b).

show how these two combinations lead to the intended interpretation, derive the analytical vs. synthetic distinction and explain the data presented.

4.1 *The Non-Partitivity Constraint attached to 'des'*

4.1.1 *The Non-Partitivity Constraint in existential sentences*

Contra a general view according to which *des* signals partitivity (see *eg* Kleiber, 2001), and following an intuition of Attal, 1976, Martin, 2008 argues that *des*, on its existential reading, is specified for Non-Partitivity. Accordingly, we assume that *des* is the plural of *un* and not of the partitive *du*⁹. More precisely, she argues that contrary to *eg quelques*, the existential *des* is unacceptable when the context forces to contrast the set *X* it refers to with a non-empty complement set *X'* in a contextual superset *EA* (*A* being the set denoted by the noun). Her empirical arguments are among others the following. Firstly, as observed by Attal, a discourse like (27a) is unacceptable with *des*. Secondly, (27b) may be continued with a sentence beginning with *les autres* ('the others'), while this would not be felicitous in (27c).

(27) a. *J'ai cueilli quelques/*des fleurs, mais pas toutes.*

I picked 'des' flowers, but not all.

b. *Quelques enfants jouent dans la rue.*

'Quelques' children are playing in the street. (OK in a context where members of *X* are contrasted with the other children in the context)

c. *Des enfants jouent dans la rue.*

'Des' children ... (# in the same context)

4.1.2 *The Non-Partitivity Constraint in generic sentences*

We claim that the Non-Partitivity Constraint also holds for the generic reading of *des*, in the sense that *des* generic sentences are acceptable only when they express properties that hold for all members of the class *without exception*, and not only parts of them. To describe this fact, we propose that *des* expresses Maximality in generic statements. In other words, under both existential/generic readings, *des* forbids to refer to a sample of *A* in a superset of *A*.

How this property relates to the data above? With regard to causality, Maximality is needed for the causal relation at hand between *P* and *Q*. Indeed, this causal relation relates a *definitory property* of the *P*'s elements, in the sense

⁹The debate about the semantics of *des* is very old in the grammatical tradition of French and Port Royal grammarians were already divided on this issue. One of the major arguments in favour of the view that *des* is the plural of *du* is essentially morphological. French admits NPs as *de nombreux amis* ('de' numerous friends), which favours the decomposition of *des* in *de+les*. However, it has been recently shown for Northern Italian dialects that the equivalent Italian of 'des', ie *dei* (*de + i*) is not allowed to lose the 'i' in contexts where it is undoubtedly a preposition. It is allowed though in contexts in which it is used as a determiner (Anna Cardinaletti, 2008). For further semantic arguments in the recent debate see also Le Bruyn, 2007 for a position similar to ours according to which *des* is the plural of *un*.

that an entity should necessarily satisfy Q to be included in the set P . Thus, all P elements are concerned. (Note that we have not explained yet where causality comes from, but only that it relates to a specific feature of the indefinite *des*, that is to say, Maximality is need for the causal relation at hand).

It is crucial to note that *des* generic statements are not compatible with discourses and expressions that involve the existence of exceptions, precisely because the causal relation at hand does not tolerate it. As it does not tolerate exceptions contrary to the generic *les*, the generic *des* is unacceptable with adverbials like *en majorité* (*in majority*).

(28) # *Des* (OK *les*) *enfants malades sont en majorité difficiles à gérer.*
'Des'(OK the) sick children are in majority difficult to deal with.

However, more needs to be said to capture the difference between *des* and *les*, since the generic *les* is also associated with Maximality (Farkas and de Swart, 2007). Why *les* is not associated with the same causal relation?

4.2 Differences between the generic 'des' and 'les': the Familiarity condition

Under its non generic reading, *les* requires (i) presupposition of existence of the entities it denotes (in a certain world), and (ii) that the property P provided by N is already known at the time of assertion t_0 (point (ii) differentiates *les* from the demonstrative *ces*, cf. Corblin, 1987), while Q is new at that time.

(29) a. *Jean ne voulait pas se coucher sur le sol. *Le/OK Ce lit était trop dur.* (Corblin, 1987)
John didn't want to lie on the floor. The/this bed was too hard.

Des behaves differently. It is indifferent to the first requirement (the existence of the entities can be presupposed or not). However, the property P is invariably presented as new at the time of assertion t_0 , the referent being already introduced or not in t_0 . This is obvious under the existential reading, because as the referent is newly introduced in t_0 , the property attributed to this referent must be new in t_0 too:

(30) *Des lapins couraient dans le jardin.*
'Des' rabbits were running in the garden.

However, the Novelty Condition also holds on the property in the generic sentences, although here, it is possible that the existence of the denoted entity is in a way presupposed in the discourse in t_0 . See again the mathematician example (31).

(31) A. *Qui sait faire une règle de trois?*
B. *Les/des mathématiciens.*

- A. Who can make a rule of three?
 B. 'Les'/'Des' mathematicians.

In the *les* sentence, the speaker speaks of people of which it is already assumed at t_0 that they are mathematicians. On the contrary, in the *des* sentence, the speaker does as if it 'baptized' every entity which is able to make a rule of three with the property of being a mathematician (The property of being a mathematician is newly attributed to the entities in t_0).

In a similar vein, consider the examples in (32)-(33). The oddity of *les* in (32b) and (33b) is due to the fact that *les* should refer to entities whose existence is presupposed, and of which it is taken for granted in t_0 that they are talking dogs. On the other hand, (33a) is perfect because it does not presuppose the existence of talking dogs. Similarly, (32a) can be uttered in front of some elements whose existence is presupposed in the discourse. However, the status of being 'dogs who talk' is part of the assertion, and thus easier to present as challengeable. In other words, although the existence of some entities can be presupposed in t_0 , their introduction in the discourse under the guise *P* is however invariably new.¹⁰

- (32) a. Des chiens qui parlent se remarquent très vite.
 'Des' dogs who talk would be very quickly noticed.
 b. #Les chiens qui parlent se remarquent très vite.
 The dogs who talk would be very quickly noticed.
 (33) a. Imaginons des chiens qui parlent.¹¹
 Let us imagine 'des' dogs who talk.
 b. #Imaginons les chiens qui parlent.
 Let us imagine 'les' dogs who talk.

4.3 Towards a new analysis

We conclude from the discussion above that, *des* and *les* have three distinctive features.

- 1.** (i) Under its generic and non generic reading, *les* NP presupposes in t_0 (a) the existence of *P* elements (b) the guise *P* under which these elements are described. (ii) Under its both readings, *des* NP (a) presuppose or asserts the existence of *xs* in t_0 but (b) automatically presents the guise *P* as newly attributed to *xs* in t_0 . **2.** (i) In *les* generic statements, the (familiar) property *P* is

¹⁰ The contrast between *Jean fume des cigares* 'Jean smokes *des* cigars' and #*Jean fume les cigares* 'Jean smokes *les* cigars' is of the same nature (thanks again to F. Corblin for these examples), where *les* designates cigars. It has to be noted, however, that *des* has a restricted use in object position, in generic sentences. **Jean nourrit des chiens* (existential only) 'Jean feeds dogs' vs. *Jean élève des chiens* (generic interpretation) 'John raises dogs'. Specifically, it seems that the generic interpretation can be obtained only in cases of incorporation (as the corresponding Italian bare plural in object position).

¹¹ Thanks to Francis Corblin for this example.

attributed independently of the (new) property Q . (ii) In *des* generic statements, property P is attributed iff property Q is attributed as well. **3.** (i) *Les* sentences describe a generalization, namely that the x s that belong to P also (in majority) belong to Q ('bottom up generalization'). (ii) *Des* sentences prescribe a generalization, namely that if x belongs to P , then it also belongs to Q ('top down generalization'). To further illustrate the proposal, let us come back to the mathematicians example:

- (34) a. *Qui sait faire une règle de trois ?*
 Who is able to make a rule of three?
 b. *Des/Les mathématiciens* ('Des'/'Les' mathematicians.)

In the *les* answer, one presupposes that individuals who are mathematicians exist and keep track of the fact that they are able to make a rule of three. With the *des* answer, one asserts that, if individuals are to be described as mathematicians, they must be able to make a rule of three.

4.4 Explaining the facts

4.4.1 Analyticity, causality and informational structure

Analyticity typically does not require the actual existence of members of the class. *Des* sentences provide a 'rule' (see also Cohen, 2001; Greenberg, 2002; Mari, 2008b for recent accounts). Why? Our answer is that this is due to the different informational structure attached to the definite vs. the indefinite. The definite sentences *presuppose* the attribution of the property P and *newly introduce* the property Q . Precisely because of this difference in the givenness of the attribution of P and Q , the attribution of Q cannot depend on the one of P . Thus, the causal relation characterizing *des* sentences is not verified by *les* ones, although both *des* and *les* are associated with Maximality. On the other hand, the indefinite sentences do not presuppose the attribution of the property P : properties P and Q are both asserted. Thus, satisfying Q can be the criterion for attributing P .

The indefinite sentence thus provides a criterion for attributing the property P , namely satisfying the property Q . *Les* sentences take for granted the existence of their referents and of their nominal guise. Hence they are suitable in descriptions of fragments of reality and express descriptive generalizations. On the contrary, *des* sentences are about the conditions for attributing the nominal property P . They provide a law which rules the membership to the set of P (namely, in order to be a P , one has to be a Q) and they are also acceptable in a context where the set of P is empty. In other words, indefinite statements turn out to be about the conditions for attributing property P . Consequently, in generic statements that hold independently of particular circumstances, they can only express definitions or causal relations which hold in all possible worlds.

4.4.2 Tolerance to exceptions

The explanation as for why *les* is more tolerant to exceptions than *des* also derives from the informational properties of *des-les*, which turn out to express two different kinds of Maximality. *Des* NP does not presuppose that the *xs* in the discourse are *P*-elements. However, if they are, they must be in *Q* as well. Since *les* NP presupposes the existence of *P*-elements without them being *Q* elements, it tolerates that there might well be *P* elements which are not *Q* elements.

4.4.3 Incompatibility with kind referring VPs

If plural indefinites refer to maximal sums (like definites), why cannot they be combined with kind denoting predicates? Our answer is that these predicates are not able to provide a criterion to classify elements as *P* (they are 'intrinsically descriptive' predicates). For instance, *être en voie d'extinction* ('become extinct') does not provide a property that a dog must have in order to be categorized as a dog. As the definite version does not present the property *Q* as a condition to be classified among the set *P*, the problem does not arise. Similarly, *ne pas exister* (not to exist) is incompatible with *des* because it cannot provide a law ruling the membership to the set of unicorns, cf. (36).

(35) **Des chiens sont en voie d'extinction.*

'Des' dogs are extinct.

(36) **Des/OK les licornes n'existent pas.*

'Des' unicorns do not exist.

4.4.4 Prescriptive use

The prescriptive use often attributed to *des* sentences can also be easily explained:

(37) *Des plantes ont besoin d'eau pour vivre!* (Corblin, 1987)

'Des' plants need water to live !

The fact that *des* sentences provide a rule commanding the membership to the set of *P* is at the root of their performative uses. They can function as threats: "if you don't water these things, don't pretend anymore that they qualify as plants!"; blessings: "if you can do a rule of three, I call you a mathematician!"; commands: "if you want to be a true Bruxellois, learn Flemish!" and so on. Moreover, the fact that *des* sentences must function as rules of this type explain why adverbs like *par définition* (by definition) or *dignes de ce nom* (worth of this name) always meliorate their acceptability (also Mari, 2008b): **Des petits chats miaulent* ('Des' little cats meow) vs. *Des petits chats dignes de ce nom miaulent* ('Des' little cats worthy of this name meow).

5 Conclusion

In this paper, we have proposed an analysis for the generic reading on indefinite plural sentences in contrast with the singular indefinite and the plural definite. We have argued that *des* has two features in both its existential and generic reading: (i) Non Partitivity constraint or Maximality – we have argued that *des* denotes maximal contextual sums – ; (ii) Novelty condition – we have argued that differently from definites, indefinites require that the guise of their referents must be presented as new. This hypothesis allowed us to explain why indefinites are preferred for expressing analytical statements, are more intolerant to exceptions, as well as a series of previously unexplained data. One important result of this account is that we are not obliged anymore to postulate the existence of *two* different *les* or *des* (generic and non-generic). For the definite, one argument in favor of this view is that its distribution is clearly different from the generic *le*, because the former always presuppose the existence of the instantiations of the kind, while the latter not. For instance, while (38a) does not raise any pragmatic problem, nobody would assume (38b), cf. Corblin, 1987.

- (38) a. *Au Moyen-Age, l'enfant n'existe pas.* (Corblin, 1987)
 In the Middle-Age, 'le' child does not exist.
 b. #*Au Moyen-Age, les enfants n'existent pas.* (*id.*)
 In the Middle-Age, 'les' children do not exist.

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