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Constraining Inherent Inflection: Number and Nominal Aspect

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Abstract*

Since Booij (1994, 1996) it has become increasingly clear that inflectional morphology can take part in lexeme formation and compounding. Booij (1994) recognized the need for substantive constraints on the ways inflection can feed derivation, and restricted its derivational use to deictic categories, including Number. Pursuing this search for constraints, I propose that Number is a single morphological category covering two abstract functions (cf. Beard 1995), and that it can be inherent only when it expresses the more “lexical” of those functions, and thus means more than the grammatical feature would.

This “lexical” Number expresses properties of the lexeme but stands halfway between the lexical core and the properly inflectional categories. It encodes mereological (part-whole) properties of the noun’s interpretation, thus paralleling the role of Aspect in the verbal domain, and like Aspect it can be integrated to different degrees in the grammatical system of a language. In some languages, this type of information has a specific morphological expression (so-called collective affixes). In others, it appears only as non-canonical semantics (and sometimes form) for Number inflection. Inherent Number, both as a component of lexeme-formation and as fixed Number value on certain nouns, consists in the expression of Nominal Aspect through the morphology of Number. Morphology is not “split”, but its uses are. Inherent inflection, specifically Number, arises in certain languages as a by-product of the separation of (morphological) form and meaning.

The article develops these views by presenting first a relatively detailed exemplification from several sources (section 1), followed by some critical reflections on the peculiarities of these constructions, to the effect that inherent Number must be qualitatively different from inflectional Number (section 2). Section 3 sets out in detail the hypothesis that inherent Number is the inflectional expression of Nominal Aspect, and section 4 concludes the argument by hypothesizing that Number not only can, but must have a distinct interpretation as a lexicalized property than as a regular inflectional one.

1 What is “inherent” Number?

The concept of inherent Number has an intuitive basis: given that Number is a morphosyntactic category defining a range of mutually exclusive values (typically singular and plural, but also dual, trial, possibly quadral and paucal: cf. Corbett 2000), a stem specified for Number can normally occur in any one of these values, subject to various conditions (at least syntactic and semantic). If a stem is specified for Number but can only ever be marked for one of these values, the choice defined by Number is fixed, and we can view this Number value as inherent to the stem. As is often the case, such an intuitive formulation conceals some open questions. I have referred to a stem being specified for Number, but a more theory-neutral formulation would be “anything which is specified by the category [Number]”. The question as to the nature of what Number attaches to has some importance, because one cannot speak of inherent Number at all without having an idea of what it is inherent to; but it raises foundational issues as to the nature of lexical entries in morphology and syntax, which would quickly lead away from Number. Still, even without getting into such a far-reaching discussion, these preliminary remarks suffice to show that the concept of inherent Number presupposes a notion of lexical base. This is apparent in the

informal definition proposed by Anderson (1992: 133), for whom a lexical item has a set of stems specified for certain grammatical contexts; the possibility of lexically inherent grammatical features arises when this set is a singleton, : “On the other hand, the only stem in a given set [of lexical stems] may still bear some features, in which case that lexical item simply cannot be used to interpret positions incompatible with those features. This is the case for certain sorts of defective paradigms, such as English *pluralia tantum* Nouns (e.g. *trousers*) which are not usable in the singular.” Strictly speaking, this approach entails that the singular form *trouser* in *trouser leg* is a different noun, or is not a noun at all. Corbett (2000: 171-176) skirts these theoretical problems by simply attributing inherent Number to “nouns”. His approach emphasizes the defective nature of inherent Number: in his formulation, some nouns do not have the full range of number values made available by the language, either for intrinsic semantic reasons (e.g. *friendliness*) or because they are formally defective and do not combine with certain features (e.g. *scissors*) or with some exponents (e.g. *sheep*). For Beard (1995: 159-163), on the other hand, a choice of Number value is *always* lexically determined on nouns, but a L(exical)-Derivation rule applies to most cases (that is, except for mass nouns, *singularia tantum* and *pluralia tantum*) freely switching the values of [± SG, ± PL]. This is really a restatement, that does not explain why the putative value-switching rule is blocked precisely in those cases; but it has the merit of highlighting that, at least in languages like English, nouns are always specified for one or another Number value, and therefore inherent Number can be seen as the fixed retention of an intrinsic characterization of nouns, which may be plausibly anchored in their meaning.

Common to all these formulations is a view of inherent Number as a fixed choice of Number value on a lexical base. Integrating the ideas of defectiveness and intrinsic specification, we can say that a Number value is inherent on a *lexeme* L iff a fixed choice for a Number value is a necessary component of L (rather than being one of several guises in which L can appear, depending on the morphosyntactic context). This basic definition captures what are traditionally called *pluralia tantum* and *singularia tantum* (like, respectively, *scissors* or *fun* in English). In some cases, nouns with inherent Number cluster together forming lexically suppletive pairs, in which two lexical bases form an opposition that the language normally expresses by alternative values on the same lexeme:

(1) Lexical suppletion

- | | | |
|---|---|--|
| a | celovek ‘person.SG’ – ljudi ‘people.PL’ | Russian |
| b | ògwú ‘person.SG’ – èbí ‘people.PL’ | Obolo (Niger-Congo; Corbett 2000: 155) |

However, Number can also be inherent in a different sense. As is especially clear since Booij (1994, 1996), nouns that do not have a fixed Number value can be marked for Number in a way that sharply differs from that of regular inflectional marking. One such case occurs when a Number affix is linearly closer to the stem than a derivational affix, like the word-formation affixes in (2a) or the diminutives in (2b-c) (although diminutives are the least representative of derivational affixes: Scalise 1984: 131-133, Anderson 1992: 80-82):

(2) Number inside derivational affixes:

a N.PL.AFFIX

[held-en]-dom ‘heroism’ (Dutch; Booij 1996: 6)

[boek-en]-achtig ‘like books’

[bad-aou]iñ ‘to daze’ (bad ‘dizziness’) (Breton: Stump 1990: 107-108)

[skeudenn-aou]iñ ‘to illustrate’ (skeudenn ‘picture’)

[evn-et]a ‘to hunt for birds’ (evn ‘bird’)

[merc’het]a ‘to chase girls’ (merc’h ‘girl’)

[deli-aou]ek ‘leafy’ (delienn ‘leaf’)

[mein]ek ‘rocky’ (maen ‘rock’; umlaut plural)

b N.PL.DIMIN.PL

(Portuguese; Rainer 1996: 88)

cão ‘dog’ – cãozinho ‘dog.DIMIN.’ – cães ‘dog.PL’ – cãesinhos ‘dog’.PL.DIM.PL’

c N.PL.DIMIN.

(East German dialects; Chapman 1996: 177)

Stil-er-chen ‘chair.PL.DIMIN’ ‘small chairs’

A variation on this theme is provided by nouns inflected for Number inside compounds:

(3) Number inside compounds:

a [dak-en]zee ‘sea of roofs’ (Dutch; Booij 1996: 6)

[docent-en]kamer ‘teachers’ room’

b iskolá-ba-jár-ás ‘school attendance’ (Hungarian; Booij 1996: 10)

Not all these examples are equally uncontroversial; the plural affix in Germanic compounds, in particular, may be seen as a linking element (van Marle 1996), even though Booij (1996) provides strong arguments that it is indeed plural in Dutch. Finally, and least controversially, Number forms part of the base to which inflection attaches when it is itself followed by a more external Number exponent (both examples from Corbett 2000: 36-37):

(4) Number inside Number:

a	bugel	bugal-e	bugal-e-où	(Breton)
	child.SG	child.PL	child.PL.PL	
	‘child’	‘children’	‘groups of children’	
b	lála	lal	lálale	(Khamtanga, Cushitic)
	bee.SG	bee.PL	bee.PL.PL	
	‘bee’	‘bees’	‘swarms of bees’	

Both as a fixed choice on a noun and as part of the base modified by inflection, inherent Number would appear to be essentially a misplaced grammatical formative. I will now review some considerations suggesting that this is an oversimplification.

2 Rethinking inherent Number

2.1 Constraining inherent Number

According to the Split Morphology hypothesis advanced by Anderson (1982, 1992) and Perlmutter (1988), only “irregular”, lexically conditioned inflection can be inside derivation. Inherent Number therefore must have different morphological properties from the regular, productive Number marking in any given language. This view was forcefully criticized by Stump (1989, 1990), Booij (1994, 1996), Chapman (1996), van Marle (1996), Rainer (1996) who showed that inherent inflection (specifically nominal number) can be regular. Even apart from the evidence they adduced, we can note here that considering lexeme-forming inflection as morphologically different from regular inflection is at odds with *singularia* and *pluralia tantum*, which mostly feature the same exponents as regular nouns. Since plural morphology is the same on *books* and *scissors*, the fact that plural is inherent on the latter would then have

to be due to a fortuitous defectiveness (cf. Anderson's (1992) remarks quoted above), a rather unsatisfactory way to express a lexical property.

Approaches that recognize the possibility of regular morphology entering into lexeme formation are better suited to the task of providing a principled explanation for the connection between *singularia / pluralia tantum* and Number internal to inflection. This, however, requires a theory of the conditions under which an inflectional category can be inherent. Dressler (1989) proposed a distinction between prototypical and non-prototypical inflectional categories, with Number falling among the non-prototypical ones and therefore liable to occurring in non-inflectional capacity. Booij (1994, 1996) developed and refined this insight, proposing a semantic basis for the bipartition: for him, the categories that can enter inherent inflection are not so much "less inflectional", as it were, as semantically grounded outside morphology. This means that, unlike contextual inflection, inherent inflection is not dictated by syntax (although it may be syntactically relevant). Number, in particular, can be inherent because it is a "referential / deictic" category with a direct semantic import. But it is contextual, as opposed to inherent, where it appears by syntactic agreement alone, as on verbs and adjectives. Making this intuition precise, however, brings up unexpected difficulties.

2.2 *Why only nouns?*

If inherent Number was simply defined as a fixed Number value for a lexeme, there would be no reason why this should not happen on all categories marked for Number; yet adjectives and verbs seemingly cannot have a fixed Number value (cf. also Baker 2003: 106-109), even though Number may well have deictic properties there too (consider a plural verbal form in a null subject language like Italian: *corrono* 'they run'). In fact, the statement that only nouns may have inherent Number requires some qualification. Rainer (1996) mentions plurals-inside-(and outside-) diminutives on Portuguese nouns *and adjectives*:

- (5) a uns exercícios fáceizinhos / fáceizitos (Portuguese; Rainer 1996)
 some exercises easy.PL.DIM.PL
 b uns exercícios *fácilzinhos / *fácilzitos
 some exercises easy.SG.DIM.PL

However, the adjective here obligatorily agrees with the noun, so plural is not inherent to the adjective except in the sense that it appears (also, not only) inside an evaluative affix.

Stem allomorphy on verbs calls for another qualification. If a verbal stem only appears with certain inflectional features (for instance, German *wusch-* with all and only the preterite

forms of *waschen* ‘to wash’), then those features are in some sense intrinsically related to that stem; but stem allomorphy in the context of certain inflectional values is very different from nominal inherent Number, which is a lexical property not determined by the inflectional context. However, the two concepts can become very close in one case. This is when a verb’s paradigm is defective, in such a way that the available and the unavailable forms correlate precisely with available and unavailable stems. Morin (1987: 33-35) analyzes in these terms the French defective verbs *clore* ‘to close’ and *braire* ‘to bray’, which lack the 1st and 2nd person plural forms of the present indicative, and *frire* ‘to fry’, which lacks the plural altogether. Noticing that certain stem forms are systematically derived from others by asymmetric implications, he proposed that the morphological representation of these verbs lack the stems from which the missing persons are derived; in particular, the forms available to speakers are the 3rd singular of *frire*, the 3rd plural of *braire* and the 3rd singular and plural for *clore*. This input is not sufficient, Morin argues, to derive all the persons of the paradigm: “Les règles d’implication permettent de construire les radicaux des 1sg et 2sg à partir de ces indications, mais non ceux des 1pl et 2pl.” In this analysis, as in any approach based on an implicational hierarchy of stems (cf. especially Boye 2000), verbs with such systematic gaps in their paradigm are defective because they lack some key element in the array of forms normally available to verbs. This seems to come very close to a characterization of nouns with inherent Number in terms of defectiveness. Yet, the similarity is superficial. Speakers know exactly what the singular of *trousers* or *oats* should look like, if it existed — so much so that *trouser* and *oat* are used in compounds. Gaps in verbal paradigms, on the other hand, arise when speakers do not have the morphological resources necessary to deduce certain forms, and therefore cannot construct them. Besides, even analyzing the inherent plural on *oats* as an instance of purely formal defectiveness (lack of the singular slot in the paradigm, as opposed to the word-form), the status of inflectional information on such a *plurale tantum* is very different from what it is on a defective verb. Because *oats* is the only form of the noun, plurality is an intrinsic property of the lexical entry as a whole, in so far as it affects *all* word-forms (which happen to be one); being intrinsic adds certain semantic properties to plurality, as we will see later on (*three grains*, but **three oats*). Nothing of the sort applies to a verb which lacks the first two persons of the plural: inflection in the available persons is no different from what it is in regular verbs. When one also considers that having a defective paradigm does not seem to have any consequence on the behaviour of a verbal base in compounding, the conclusion imposes itself that defective verbs are not really a verbal counterpart to nouns with inherent Number.

Another possible source of Number value inherent to a non-nominal stem is provided by truly verbal Number, the phenomenon in which verbs are formally differentiated according to the singularity/plurality/duality of one argument or of the event itself (cf. Corbett 2000: 243-264 and Anderson 1992: 127-128). However, Corbett's (2000) detailed review highlights the important differences between nominal and verbal Number; the main conclusion for our present purposes is that the oppositions created by verbal Number are never structured in inflectional paradigms like in nominal Number. Inherently "plural" or "singular" verbs do not seem to replicate on verbs the Number category of nouns (which underlies agreement, when this is present), but constitute more or less productive *derivational* patterns (Corbett 2000: 259 proposes *kill* ~ *massacre* as an English illustration of the semantic opposition). Without delving further into the matter, I will assume that cases of categories other than nouns with inherent Number (as a morphosyntactic category) are the exception rather than the rule, and that some of them, like the Portuguese one, are more apparent than real. In any case, this total or quasi-total restriction to nouns demands an explanation. That Number only has a syntactic import on verbs and adjectives, as Booij (1994 1996) has it, is not strictly true when one considers verbal Number.

Baker (2003: 106-109) refines this contention: for him, the crucial distinction between nouns and other categories is that only nouns provide a criterion for identity, that is, a determination of what counts as a unit distinct from other units. It is this interpretive property, Baker argues, that allows the use of nouns, not adjectives or verbs, for counting: "An essential precondition for counting a group of things is the ability to distinguish which of those things are the same. In order to count a group of dogs, I must not count the same dog twice. Therefore, I must know if X (the one I am focusing on now) is the same dog as Y (the one I just counted). In other words, I must use *dog*'s criterion of identity" (Baker 2003: 106). But mass nouns like *water* or the plural *clothes* are also nouns (in the case of *clothes*, morphologically identified as such by the plural *-s*), yet they cannot be counted. Moreover, countable nouns like *thing* give no information as to the nature of their referent, apart from its being countable (and singular, in this case), a fact which makes it impossible to answer the question "how many things are in this room?" (see Chierchia 1998a: 71). The source of these problems is that Baker lumps together *identity* and *unity* (see Griffin 1977). The property Baker attributes to nouns generally is in fact restricted to those count nouns which also encapsulate (unlike *thing*) a clear criterion for deciding whether an entity falls under the predicate or not. In the philosophical literature, count nouns are called *sortals*, and nouns like *thing* are *dummy sortals* (Griffin 1977). The existence of regular nominal Number on mass

nouns and on dummy sortals, which provide no criterion of identity, proves that Number cannot be semantically anchored to the criteria for identity and counting.

Yet, the idea that Number has in nouns a semantic basis that it lacks in other categories has an intuitive plausibility. One might express this, while avoiding the problems just discussed, by limiting the discussion to inherent Number values: whatever the precise reason why Number only appears as an agreeing category on adjectives and verbs, the property interpretation typical of these two categories seems to be incompatible with a *fixed* choice of Number. But even this is not really correct. Certain adjectives may be viewed as intrinsically plural, referring to properties that only arise when more than one entity is considered: examples are *different*, *mutual*, *opposed*, *reciprocal*. Yet none of them has fixed plural morphological Number. Of course, all of these properties can also be predicated of a single individual (as a member of a relation); the point is that plural-only adjectives appear to be systematically non-existent, even among concepts which might possibly provide a suitable semantic input. Verbs such as ‘to meet’ or ‘to agree’ make the same point. The German *beide* ‘both’ (which inflects for Number, unlike its English cognate) looks like a better candidate for a fixed plural, but it too also occurs in the singular as *Beides* ‘both things’ (even assuming it to be an adjective rather than a determiner).¹ Irish, in which prepositions inflect, has an instructive example featuring the preposition *idir* ‘between, among’. This would definitely seem to require a plural complement, and therefore to be a *plurale tantum* when inflected. That is indeed the case for modern Irish. The same word, however, had the full paradigm in Old Irish, complete with singular endings (for contexts like ‘between me and you’) (Thurneysen 1946: 510). So, even this intrinsically relational preposition cannot truly be said to have a semantically-determined fixed choice of Number. Even in this weaker version, therefore, the idea that Number is only semantically relevant for nouns is ill-suited to explain why only nouns can have a fixed Number value.

2.3 *Why should a fixed grammatical value affect the form?*

Viewing inherent Number just as defectiveness, or as the inclusion of a grammatical feature in a noun’s stem, is an approach that has nothing to say on the formal exponence of Number. Yet inherent Number seems to have something of a privileged relationship with irregular exponence. As Pinker (1999: 179-187) has shown, speakers allow an irregular plural like *mice* to enter nominal composition much more readily than the regular quasi-synonym *rats*:

(6) mice-catcher vs. *rats-catcher

(Pinker 1999)

Both *mice* and *rats* have a singular, so neither is inherently plural in the sense that their lexical entry is defective or has a fixed Number choice; therefore, they should be equally good or bad candidates for insertion in compounds, where the plural is inherent inflection. Some other factor obviously contributes to inherent inflection in this case, which has to do with exponence alone. It seems highly plausible that, as Pinker argues, the irregular *mice* must be stored as a whole separate entry (“lexical” or otherwise) which can then be inserted into a compound, unlike the transparently affixed *rats*. If this informal account is on the right track, *mice* is inherently plural as a form, not as a lexeme (or “base”), in a way that is sharply distinct from the notion of inherent Number as lexeme-specific lack of choice among the possible Number values.

Indeed, it is not just that exponence can allow inherent inflection for nouns on which Number is not inherent, like *mice*; even the opposite holds, namely, *pluralia tantum* may or may not enter nominal composition as plurals depending on formal factors. The nouns for ‘trousers’ are *pluralia tantum* in English (European and American), Italian, Swedish and Russian; but in nominal composition the English, Italian and Swedish versions must be singular, the Russian one plural:²

- | | | | |
|-----|---|---|---------------------------------|
| (7) | a | trouser-leg (American: pant-leg) | (English; trousers, pants) |
| | b | gonna-pantalone ‘culottes’
skirt.SG-trouser.SG | (Italian; pantaloni ‘trousers’) |
| | c | byx-kjol ‘culottes’
trouser.SG-skirt.SG | (Swedish; byxor ‘trousers’) |
| | d | jubka-brjuki ‘culottes’
skirt.SG-trouser.PL | (Russian; brjuki ‘trousers’) |

The role of exponence in inherent inflection has been recognized before; my point is that the concept of inherent Number should make it expected, and it does not if inherent Number is seen just as a fixed choice of grammatical value. Constraints have indeed been proposed for plurals that feed word-formation processes like compounding, but without a connection with the notion of inherent Number as in *pluralia tantum*. In his discussion of Dutch, van Marle (1996: 76-78) proposed that only one of two plural suffixes appears inside compounds, because only that affix can be reinterpreted as a (bleached) linking element. In a crosslinguistic perspective, Chapman (1996: 175) hypothesized that plural is less likely to appear in word formation the more regular its exponence is: “while most nouns plural forms may potentially feed some word formation processes, only certain languages allow this with

any regularity, namely those with noun plurals that are not ‘perceptually salient’ ” (where ‘perceptually salient’ is defined as semantically transparent and with a paradigmatically constant form). In my view, constraints of this kind should follow from, or at least should have some kind of connection with, the notion of Number as an inherent, non-contextually determined property of a lexical base. Booij (1996) explicitly links Number used for word formation with the inherent Number of *pluralia / singularia tantum*, and I think he is correct in seeing both as instances of inherent inflection; for this very reason, the concept of inherent Number inflection should shed light on the role of plural exponence in both. Viewed as a fixed choice of a grammatical feature, it does not.

2.4 Why should a fixed grammatical value affect the meaning?

A similar argument can be made concerning the interpretation of inherent Number. Schematically, it runs as follows: if the phenomena we reviewed in section 1 all go back to some lexical bases having a fixed choice for the value of a grammatical feature, the meaning of this feature should not be different across fixed-choice or non-fixed choice bases. But it is different; plural has not quite the same meaning when it is regular and when it is inherent.

The generic (or rather kind-) interpretation of plurals inside compounds is familiar enough (cf. again Booij 1994, 1996 for an overview). The noun in exocentric V-N compounds may be singular, as in Italian *battitappeto* ‘carpet-sweeper’, lit. ‘sweep-carpet’ or *poggiatesta* ‘headrest’, lit. ‘rest-head’; or it may be plural, as in *portacandele* ‘candle-stick’, lit. ‘hold-candles’ or *calzascarpe* ‘shoehorn’, lit. ‘fit-shoes’. However, this grammatical difference has no semantic correlate: in all cases, the implement referred to by the compound applies to one object at a time (a *portacandele* may, but does not have to, support several candles at a time), and to potentially several objects in sequence. What determines number in such cases is much more likely to be perceptual salience rather than number of referents: shoes and candles are conceptualized as having low individuality, unlike heads or carpets.³ Usage may even vary between singular and a plural within a compound; such is the case with the Italian *asciugamano* ‘towel’, lit. ‘dry-hand’, which alternates with *asciugamani* ‘towel’, lit. ‘dry-hands’. In such cases, the form that incorporates a plural may be favoured when the whole compound is pluralized (presumably because plurality is formally expressed somewhere), but this clearly does not mean that a towel dries one hand and several towels dry several hands.⁴ Whether or not the morphology of a language allows plural nouns to be part of compounds, such plurals do not allow a distributive interpretation over the members of their domain (cf. *a collector of stamps, each from a different country* vs. **a stamp-collector*,

each from a different country; this is the content of the Anaphoric Island constraint, as a reviewer points out).

Where the semantics of inherent plurals deserves a special mention is with *pluralia tantum*. Just to stay with English, inherently plural nouns display a range of interpretations that go well beyond the one-many contrast:

(8) *Semantic range of plurality in pluralia tantum (English only):*

- a grammatically and semantically [+count] aggregates: *people*
- b semantically discrete, grammatically [–count] aggregates: *clothes, outskirts*
- c bounded concepts articulated into non-individual parts: *scissors, bellows; nuptials*
- d mass / substances with uniform units: *oats, grapes*
- e mass / substances without uniform units: *embers, ashes, dregs*
- f salient properties of complex events (names for event-types):
measles, shingles, blues, fisticuffs (idioms like *give the creeps*)
- g complex abstract concepts: *means, odds*

This list, from a single language not particularly notable for its wealth of inherent plurals, should suffice to dispel the impression that *pluralia tantum* are semantically just plurals, maybe without a very clear articulation into individuals for cases like *scissors*. Extending the field of observation further enriches the picture, of course; staying within the same family, the discussion of *pluralia tantum* in old Indo-European languages in Wackernagel (1926: 86-88) reveals the following semantic categories: functional aggregates of humans or deities; clustered celestial bodies; paired body parts; complex (but single) structures or body parts; reified event properties like Latin *tenebrae* and Sanscrit *támishrah*, both ‘darkness.PL’. In these languages, the productive plural that regularly alternates with the singular simply does not mean all these things. Why? If all there is to inherent plurals is that they are inherent, there can be no explanation.

2.5 “Non-canonical” interpretation for Number oppositions

The point of the last section was that when Number is inherent on a noun, it often (perhaps always) has an interpretation distinct from that of the regular inflectional Number. There is more: Number can have an irregular interpretation even on nouns where it is not invariable. A small sample from English illustrates in what sense the regular morphological opposition of singular and plural can fail to match a corresponding semantic opposition:

(9) crop – crops, folk – folks, foundation – foundations, fund – funds, holiday – holidays

Crops is the plural of *crop* as ‘variety of cultivated plants’ or ‘seasonal yield’, but it is also a plural mass noun meaning ‘cultivated cereals’. Whatever the precise meaning of *holidays*, it is not just ‘more than one holiday’, but also ‘period of holiday’, ‘festive time’. A fund is a sum of money, but *funds* may mean either a plurality of funds or an amount of money — i.e. a fund. In English, the common denominator of these examples of semantically irregular plural has to do with the count-mass contrast (a notoriously blurred opposition in the English lexicon); the plural can pluralize a count singular, or it can express a mass reading. This is not the only way the Number opposition may be semantically irregular, though. Several different types of non-canonical interpretation for the contrast have been documented in the old Indo-European languages: the following examples are taken from Delbrück (1893: 147-172), Wackernagel (1926: 88-96), Löfstedt (1928: 11-68); cf. also Meisterfeld (1998: 102-127):

- (10) a Latin: frumentum ‘wheat as commodity’, frumenta ‘wheat as crops’
caro (SG) ‘meat, flesh’ – carnes ‘meat pieces’
aqua (SG) ‘water’ – aquae (PL) ‘springwater, water in multiple places’
arena (SG) ‘sand’ – arenae (PL) ‘sandy surfaces’
sol (SG) ‘sun’ – soles (PL) ‘sunshine’
- b Gothic: boka (SG) ‘letter of the alphabet’ – bokos (PL) ‘book’
- c Cl. Greek: teukhos (SG) ‘vessel’ – teukha (PL) ‘defence arms, suit of armour’
ámpelos (SG) ‘vine’ – ámpeloi (PL) ‘plants of vine’
hals (SG) ‘grain of salt, sea water’ – hales ‘salt’
kréas (SG) ‘piece of meat’ – kréa (PL) ‘meat’
háрма (SG) ‘chariot’ – háрmata (PL) ‘chariot / chariots’
- d Lithuanian: táukas (SG) ‘lump of fat’ – taukaĩ (PL) ‘fat’

More examples emerge as soon as one extends the research outside Indo-European. I only quote one example from the rich documentation presented by Biermann (1982):

- (11) su aqar ‘water flows’ – su-lar aqar ‘water.PL flows (in several places)’
(Turkish; Biermann 1982: 237)

It must be clear that these interpretations are not freely available to the nouns marked for Number in these languages. Morphosyntactic Number, specifically plural, is normally

associated with a clear semantic correlate, namely the familiar one-many opposition (in fact slightly more articulated than that) that also underlies the pronominal system and syntactic agreement in the respective languages.⁵ Whatever the correct analysis for the meaning of these nouns, it does not extend to the system of pronouns, nor do agreeing categories inflect for features like ‘mass’ or ‘cohesion’. Therefore, one cannot just say that the semantic range of Number extends further than the singular-plural opposition, and that the semantic variety of *pluralia tantum* simply reflects this. In all languages so far considered (unlike many others), Number has a regular semantic interpretation in terms of one-many; only nouns can have a different interpretation, and most typically, but not exclusively, nouns with fixed Number.

Suppose that Number is “lexical” on the nouns illustrated in this section; this would explain the categorial and lexical restriction on such interpretations. But the nouns here considered are not *pluralia* or *singularia tantum*; how can the Number value that has such an idiosyncratic interpretation not be part of the lexeme, but allow a choice in value? Just what can this choice involve, if the “meaning” of singular and plural is not the same here as elsewhere in the language (specifically on 3rd person pronouns)? Conversely, suppose Number is not “lexical” here. Why do these unusual semantic interpretations arise at all? And why on these lexemes and not others, if the meaning of Number is not part of the meaning of the stem?

3 Inherent Number is Nominal Aspect

3.1 A different kind of Number

The questions raised in the preceding section point to the empirical inadequacy of a literal interpretation of inherent Number as a fixed choice for a grammatical value. What our critical reflections have shown is that the phenomena grouped under the label of inherent Number display properties that do not follow from the fact of being inherent to a stem (or a lexeme, or a base): a categorial restriction to nouns (2.2.), at least as a strong tendency if not as an exceptionless rule; a connection with exponence, to the effect that an idiosyncratic, stem-specific *form* may license inherent inflection regardless of whether a lexeme has a fixed Number choice (2.3); a wider semantic range than the regularly inflectional Number (2.4); a connection with semantics, to the effect that an idiosyncratic, stem-specific *meaning* can be associated with an inflected noun regardless of whether a lexeme has a fixed Number choice (2.5). These facts suggest that what we call inherent Number is in fact a different kind of Number. To see the difference in the clearest terms, let us first consider the properties of Number when it is *not* inherent, lexically conditioned or in any way “special”:

(12) *Number-as-a-grammatical-property*:

- a is a morphosyntactic feature (hence can agree)
- b is a morphological category
- c expresses language-dependent semantic oppositions
- d can be absent in some languages
- e can be absent in syntactically defined contexts
- f is syntactically encoded by a head [Number]

Property (12a) is self-explanatory; (12b) specifically states that the category is not reducible to a syntactic or a semantic opposition, but determines a system of form-meaning mappings. The feature [human], for instance, has semantic and probably syntactic relevance in English (compare *the police are investigating* in European English, but not **the herd are roaming freely*), but is not a morphological category. (12c) clarifies that the semantic interpretation associated with Number oppositions can vary crosslinguistically; in fact Number may be altogether absent as an inflectional category in certain languages, as stated in (12d). As a grammatical category, Number is in principle subject to all sorts of grammatical constraints, including language- and construction-specific ones that block its appearance in certain contexts. For example, plural is a morphological category of noun morphology in English and Hungarian, and its expression is not optional; however, the expression of plural Number is suspended on numerically quantified nouns (in English, only when they are pre-nominal or pre-adjectival modifiers, or with some measure terms like *three quid* or *three fathom*):

- (13) a öt hajó ‘five ship.sg’ – szép hajó-k ‘beautiful ship.pl’ (Hungarian)
b three foot long, a three-day break

The syntactic statement in (7f) does not purport to be a conclusion that follows from any arguments given here; it is just a way that I find convenient and clear to view the typical traits of Number-as-a-grammatical-property as deriving from a specific syntactic analysis. Locating a noun’s Number features on a separate head, to which the head N must move for morphosyntactic well-formedness, permits to see them as part of the syntactic environment and as part of the noun at the same time. It also represents a specific hypothesis on the relation between abstract syntactic features and morphological exponents (ultimately based on Beard 1995): features are concatenated with each other, and exponents spell them out in ways that can alter even radically the abstract input.

Viewed against this characterization of “regular” Number, what we have been calling inherent Number stands out a little more clearly as a (partly) different phenomenon.

(14) *Number-NOT-as-a-grammatical-property*:

- a is a property of lexemes (hence cannot agree)
- b contributes to the mass-count characterization
- c is NOT a non-detachable part of the “core” meaning (hence *holiday – holidays*)
- d may express plurality in the absence of inflectional [Number]
- e may require idiosyncratic sound-meaning mappings: *a shambles, a scales; oxen*
- f may lead to double [Number]

Booij’s insight of inherent Number as a substantive, not contextual, property finds a natural expression in the characterization of inherent Number as a lexematic property in (14a), a component of a lexeme’s identity that is distinct on principled grounds from a syntactic feature.⁶ As we have seen in 2.2, the anchoring of inherent Number in the semantic properties of nouns only partially succeeds in explaining its absence (total or near-total) on adjectives and verbs. But the restriction to nouns becomes much more understandable once we remind ourselves that inherent Number often encodes information not along the one-many dimension, but along the mass-count dimension (14b). Regular plurals like *coats* are countable, *Pluralia tantum* like *clothes* are not; the grammatical difference between *holidays* as regular plural of *holiday* and *holidays* as ‘festive period’ is that the latter is non-count; and a plural form inside derivation, like the Breton [*evn-et*]a ‘to hunt for birds’ in (2a), refers to birds as a kind, not as a denumerable collection of actual individuals. Reference to the mass-count dimension obviously presupposes lexemes interpretable as entities, hence nouns rather than verbs. In fact, mass and count can be seen as the nominal version of what on verbs is aspect or rather Aktionsart (see Jackendoff 1991 and the literature cited there; cf. also Dressler 1968 for an earlier approach). Importantly, being mass or count is often not an intrinsic, immutable property of a lexical entry, but can depend on the grammatical or semantic context (cf. the familiar *there was dog all over the road*). Correspondingly, the information associated with inherent Number is not always an integral part of a lexeme, as (14c) clarifies. This means that Number does not only emerge as a lexematic property on *pluralia* and *singularia tantum*, but also on lexical bases that are compatible with either Number value: this encompasses plurals in composition and cases like *holidays*, which have the semantics of a *plurale tantum* but happen to have a singular.

Zuni and Breton both express sequentially a lexematic and an inflectional plural, with the difference that only Zuni has a distinct morphological category for the former. In languages without such a morphological distinction, the properties in (14) identify a type of plural that can be spelled out by the same morphology as inflectional plural. Having reached this crucial distinction between morphological form and function, we can now characterize this second notion of plural in positive terms.

3.2 *Nominal Aspect*

Work in typology has brought to the fore the crosslinguistic variability in the types of interpretations available to nouns. To capture these distinctions in a systematic and enlightening fashion, Rijkhoff (1991) proposed the concept of Nominal Aspect as a nominal counterpart of the way verbal aspect encapsulates the way actions/events are conceptualized. He individuated two dimensions of variation, namely divisibility in space and boundedness; encoded by the binary features [\pm STRUCTURE] and [\pm SHAPE], these define the following four categories, where “concept nouns” are those that (typically in classifier languages) refer to a kind but not to individuals, thus expressing all concepts as syntactically mass:

(17)	+STRUCTURE, +SHAPE	collective nouns	
	+STRUCTURE, –SHAPE	mass nouns	
	–STRUCTURE, +SHAPE	individual nouns	
	–STRUCTURE, –SHAPE	concept nouns	(Rijkhoff 1991)

This categorisation, as well as other work in comparative semantics (cf. Chierchia 1998b), highlights the typological relevance of the way nouns encode information about the part-whole structure of their referents, a component of semantic interpretation that has been carefully studied by Moltmann (1997). This information about the *mereological* structure of a nominal referent falls exactly in the grey area between the “core” lexical meaning and the meaning of inflectional Number: for instance, *scissors* and its German translation *Schere* (sg.) do not differ in grammatical Number alone; plural on *scissors* is inherent, qualifying this noun as a non-count plural (**three scissors*) conceptualized as a complex aggregate of parts. This type of semantic variation across languages makes use of the inflectional category of Number to encode mereological information. This was clear in the insightful overview of Biermann (1982), who showed that languages often use the canonical singular-plural opposition to express information about the part-whole structure of a noun’s interpretation which can involve the categories of transnumeral and non-discrete plural (cf. also Meisterfeld

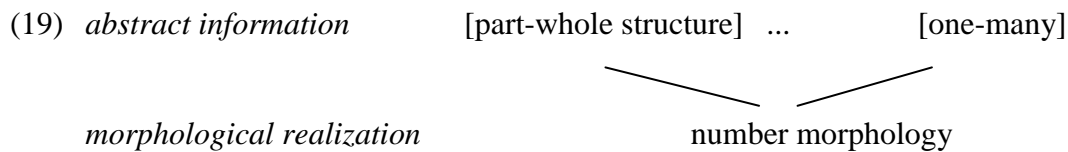
1998). Crucially, this kind of mereological information concerns nouns, and in fact only certain nouns; in this sense, it is “lexical”, because it is not freely and automatically available to every stem that combines with Number (*works* can mean ‘factory’, *jobs* cannot). It is also “lexical” in the sense that the interpretive contribution that transcends the simple singular-plural opposition is somehow fused with the meaning of the stem (when *works* means ‘factory’, this shifts the interpretation of the whole lexeme). It may also be lexeme-specific in a stronger sense, in the case of *singularia* and *pluralia tantum*. I propose this mereological information is what inherent Number amounts to:

(18) Inherent Number Inflection = Nominal Aspect when it is expressed through Number

What I refer to as “Nominal Aspect” is information distinct both from the one-many opposition (or one-many-two), *and* from the core lexical meaning, which distinguishes one lexeme from another. Languages vary in the degree to which this type of information is integrated in the grammatical system. Some just have no inflectional Number, and all they have is Nominal Aspect (which often encodes plurality indirectly, through collectiveness or cohesion); others distinguish mereological information from semantic Number by the use of distinct affixes (cf. Zuni in (16) above). But other languages, especially common in the Indo-European family, appear to have only inflectional Number, semantically and morphologically; my claim is that Nominal Aspect is a semantic category in them too, although it is only ever expressed indirectly, through inflectional Number morphology.

The content of this category goes beyond what makes a noun count or mass. The mereological structure of a referent can also be specified in terms of cohesion among its parts: for example, it is well known (see the references cited above) that concepts that tend to occur in aggregates of functionally related elements often have irregular Number morphology. Following a scale of increasing cohesion, we expect plural notions like ‘cars’ to be typologically less frequently idiosyncratic than ‘wheels’, for instance, and this in turn to be less idiosyncratic than natural plurals like ‘eyes’. Cohesion plays a semantic role because the parts that make up a functional or natural unit are likely to be perceived as parts of a whole rather than individuals. For the same reason, entities with low individual salience are likely to be conceptualized as parts even if they do not make up a larger complex: this includes entities too small to display individual distinctions (cf. idioms like *alike as two peas*, Italian *uguali come due gocce d’acqua* ‘alike as two water drops’), but also units of measurement, which cannot logically have distinctive individual properties.

The formulation in (18) hinges on a separationist view of morphology as spell-out of abstract information (cf. Beard 1995, and all approaches that follow him in this respect), a view that must be made explicit in order to avoid potential misunderstandings. Information about the mereological structure can be encoded on a noun’s stem as part of its semantic interpretation, distinct from the information as to whether the reference domain is a set ranging over individual entities (singular) or over non-singleton sets (plural). When the morphological expression of the latter kind of information also spells out the former, we speak of inherent Number:



Inherent Number is not a different type of morphology, nor a different type of inflection. This is what crucially distinguishes my proposal from an approach in terms of Split Morphology. The “split” concerns not the morphological realization but the categories that it spells out. This approach derives the intermediate status of inherent Number from the mismatch of non-inflectional semantics and inflectional morphology, effectively proposing an answer to the deep question as to why inherent inflection should exist at all.

4 Conclusion

The semantic distinction between inflectional and inherent Number might appear too rigid; after all, singularity and discrete plurality concern too the mereological structure of a referent. The answer to this objection is that what counts as non-inflectional in a language depends on what is inflectional. In so far as the Number values of a language oppose singular and non-singular, not just on nouns but on pronouns, information of a different kind on nouns will have to be considered “lexical”, whether or not it is realized as regular Number inflection. We can certainly expect nouns with irregular Number morphology to carry nominal aspectual information, but there is no reason why inherent Number should necessarily have irregular exponence — a correct result. Another correct result is that Number as Nominal Aspect is not restricted to fixed-value nouns (cf. the examples in section 2.5 above), even though we can again expect *pluralia* and *singularia tantum* to carry nominal aspectual information.

This last observation can be sharpened into an empirical hypothesis. As we have seen, Nominal Aspect can be expressed just by inflectional Number alone. Can Number be also the only *content* of Nominal Aspect? In other words, given that the one-many opposition encoded

in regular inflectional Number can become lexicalized, can it ever be the *only* information that is lexicalized? What we are asking is whether lexicalization of the inflectional category Number necessarily entails a shift in meaning.

Consider *pluralia tantum*. If some invariable plural in no way differs semantically from a regular inflectional plural like *books*, then we will know that inherent plural can be semantically identical to the inflectional one. Now, it seems to me that semantically regular *pluralia tantum* are exceedingly few, if they exist at all. Scanning the English list in (8), the only candidates might come from categories (a) and (b) — aggregates of individual parts. However, the nouns in (8b) refer to aggregates of elements different from one another, whose shared property is that they collectively make up an organic aggregate. By contrast, the regular plural interpretation that we see in *book – books* is ‘more than one x’, where x is the singular. *People* does seem to mean just ‘more than one x’, where x is a person; but even this is not without problems. *People* is not morphologically plural (not even irregularly, as are *children* or *pence*); it can in fact feed regular pluralization (*peoples*). As a plural, *people* stands beside the regular opposition *one people – two peoples*; it represents the transnumeral extension of a collective singular noun, following a peculiarly English pattern that can be observed in *twenty faculty* or *fifty staff*. These collective nouns are regularly integrated in the Number opposition, but their bare stem, beside the usual function as a morphosyntactic singular (*one people, one faculty*), can be embedded in a syntactically plural structure. In any event, *people* is certainly quite different from morphologically plural-only nouns. Few other *pluralia tantum* are likelier candidates for semantic regularity. *Cattle*, for instance, seems to mean just ‘items of livestock’. This notion is semantically count, but the syntax of *cattle* is normally that of a plural mass noun, which requires a classifier in order to be numerically quantified (*three head of cattle*). Even allowing its occasional use as a count noun, the fact remains that *cattle* is primarily a mass noun with no plural exponent — a major difference with respect to a plural like *cows*.

Another example of a *plurale tantum* that appears to be semantically regular is the German *Leute* ‘people’, which unlike *people* is morphologically a regular plural. While certainly not a collective in the strict sense (it is a count noun), *Leute* is much less natural than a regular noun like *Menschen* when the context excludes a collective interpretation:

- (20) der Student der vor 30 Jahren gegen den Kapitalismus protestiert hat und der Professor den wir heute vor uns sehen sind zwei verschiedene Menschen / ??Leute
‘The student who 30 years ago protested against capitalism and the professor we see in front of us today are two different human persons / beings / people.’

The plural here explicitly refers to a difference between identities of a single individual, not to a pair of individuals. Once unity and identity are thus split apart, the use of *Leute* becomes odd. I attribute this to the fact that *Leute* is not the plural form of an individual-referring noun; therefore, its use is odd when no more than one individual is referred to.

One more example will suffice to show that the interpretation of *pluralia tantum* can differ from that of simple plurals in subtle ways. The Latin *liberi* is supposed to mean ‘sons’, and is ever only plural. In fact, Wackernagel (1926: 95) showed that it meant more accurately ‘offspring’, with an abstract interpretation that can be teased apart from the literal plural ‘sons’ in a case like the following, where the reference (as Wackernagel shows) is to *one* son:

- (21) orare coepit, ut se defenderent liberosque suos (Latin; Wackernagel 1926: 95)
‘he began to ask for himself and his children to be defended’

Inherent inflection inside derivation provides another illustration, independent of *pluralia tantum*, of the way the interpretation of inherent plural can be only apparently regular. Van Marle (1996: 77) contrasts the following two Dutch nouns involving the abstract suffix *-dom*:

- (22) priester-dom lek-en-dom (Dutch; van Marle 1996: 77)
priest.SG.ABSTR lay.PL.ABSTR

Although both nouns refer to the totality of, respectively, priests and laymen, only the base *lek-* ‘lay’ features a plural affix. The explanation for this asymmetry must allow for a singular form like *priester* to stand for a plurality; van Marle proposes, quite aptly, that the semantic value of the base is collective rather than plural. Whatever the difference amounts to (and it seems to involve reference to kinds; cf. Chierchia 1998b), inherent and regular Number appear here too as semantically distinct.

If these observations can be substantiated, Nominal Aspect is never semantically just Number; once lexicalized, Number must mean something else, or something extra. This reinforces the previous conclusion: what we call inherent Number is what happens when a component of a lexeme’s meaning, relating to the part-whole properties of its reference domain (hence restricted to nouns), is expressed not directly by a corresponding affix, but indirectly through inflectional morphology, characterized by non-canonical interpretation and possibly form. As a component of inherent inflection, inherent Number is ultimately a by-product of the mismatch between semantic content and morphological realization.

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Notes

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¹ The significance of such examples depends on one's views about the relation between syntax and morphology. *Beide* has the nominal morphology of nouns and adjectives, and it is certainly not a noun; however, its distribution and meaning qualify it as a determiner (along with articles) rather than an adjective proper. If one chooses to view *beide* as a functional word categorially distinct from adjectives, then its number value is irrelevant for the generalization that adjectives are never *pluralia tantum*. If one instead views it as an adjective by virtue of its morphology, then the presence of a singular *Beides* shows that even in this case plural is not the only possible value. But then, as a reviewer notices, there exist other adjectival determiners that lack the singular: cf. Latin *ambo* 'both' (a petrified dual) or the synchronically plural Italian *entrambi* 'both'. For this reason, I tend to favour the former interpretation and view these as determiners, not adjectives.

² I am not saying that these compounds all have the same structure, which they do not; the point is that a *plurale tantum* may or may not keep the plural in composition.

³ A remarkable example of the relative irrelevance of noun number in compounds is provided by the Italian word *infradito*, lit. 'between-toe', used to refer to those light sandals with no upper, with a strap that overarches the front part of the foot and joins the sole by a thin peg held between the big toe and the second toe. The singular *dito* 'toe' is obviously incompatible with the meaning of *infra-* 'between'; it must be viewed as morphologically, but not semantically, singular.

⁴ I think this is what is going on with the opposition *porta-uovo* 'egg cup', lit. 'hold-egg' – *porta-uova* 'egg cups', lit. 'hold-eggs' (noticed by Davide Ricca, whom I thank), which for many speakers replaces the invariable *porta-uovo* 'egg cup' – 'egg cups'. The fact that *porta-uova*, with the plural *uova*, is also a singular noun meaning 'egg basket' (i.e. a container for several eggs), shows that the plural of the whole compound 'egg cups' cannot be triggered by *uova* alone, because this is compatible with a singular as well as with a plural compound. Instead of assuming a totally exceptional percolation of the noun's number up to the whole compound, I think it more likely that the form with *uova* is favoured for the plural because that allows plurality to find a morphological expression.

⁵ I must immediately add that the interpretation of Number on pronouns is not reducible to the one-many opposition, as is well known since Benveniste 1946. What I mean is that even pronominal features like [± participant] must interact with a notion of Number as one-many opposition (encoded by the feature [± group] in Harley and Ritter 2002); this does not include concepts like functional unity, individual salience or cohesion.

⁶ Lexical plurals like *people* or German *Leute* 'people' obviously trigger plural agreement, but this is only because they are inflectionally plural. What agrees is the inflectional feature, not what sets *people* apart from *persons*.