

To appear in *Recherches linguistiques de Vincennes (RLV)*, Paris.

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VERBAL AND NOMINAL CLASSES IN ARABIC AND CHINESE*

ABSTRACT

The paper presents a system of verbal and nominal classification based on atomic features which qualify wholes and parts of event and object denotations. It provides a parallel mereological treatment of these classes in Arabic and Chinese. Classes are marked by Classifiers, which interact with Number and Aspect, and they serve as grammatical devices for building individuals out of kinds, or counting event times or event units.

KEYWORDS

Verbal classification, nominal classes, atomicity, singulativity, event kind, event unit, Arabic, Chinese, Aspect, Number.

* This research was supported in part by grant # 410-2006-0540 from the Social Sciences and Humanities Research Council of Canada. We would like to thank the RLV reviewers for helpful remarks and suggestions. For helping with the Chinese data, special thanks are due to Xiaoyan Liu and Huijun Zhou. Errors are ours.

In this paper, we present a system of verbal and nominal classification based on atomic features which qualify wholes and parts of event and object denotations. The system proves to be motivated on both conceptual and empirical grounds. Conceptually, it provides a uniform and integrated system for categorizing event and nominal entities, in line with seminal work by Bach (1981, 1986), and Krifka (1995), among others (see also Borer 2005). One conceptual advantage of the system is that its essential feature blocks are instrumental in capturing both nominal and event properties, and establishing significant parallels between entities and eventualities. Empirically, it typically describes two typologically distant languages, Arabic and Chinese, and derives unexpected regularities in the two languages.

Nominal denotation has been organized into four classes in previous work by Fassi Fehri (2004), and Fassi Fehri & Vinet (2004): individual objects, kinds, masses, and groups. These classes cross-classify through two attribute-value feature pairs: [\pm atomic] and [\pm singulative]. The two mereological features, which qualify the wholes and the parts, respectively, have been argued to extend adequately to the four Vendlerian event classes (see Fassi Fehri 2005). There, achievements are equated with individuals, accomplishments with groups, activities with kinds, and states with masses. Parallel count properties, among others, are naturally derived. It is our purpose here to build on the results of these findings, to provide a novel and motivated treatment of Aktionsart classes in Chinese. The nature of grammatical devices used to distinguish classes, typically verbal classifiers and aspect markers, confirms established parallels with regard to counting and non-counting domains.

One consequence of the system proposed is that verbal classes, though constructional, are not necessarily compositional. Unlike Dowty's (1991) or Higginbotham's (2000a & b) treatments in which accomplishments and achievements are derived, and only activities and states are basic, our treatment does not rely on any characteristic compositionality of the former two classes. For example, we show how telic senses are not necessarily compositional in Chinese, and how accomplishments and achievements can be formed non-compositionally, in line with Soh and Gao (2006), and contra Lin (2004) ; see also Huang (2004, 2006) for similar issues and proposals.

Since the nominal classification has been the subject of a number of published contributions by the two authors, the article will not recapitulate all the results reached in previous work, in terms of motivation and description. We rather focus on the implementation of previous ideas and mechanisms for verbal classification. In section 1, we restate some essentials of the quadripartite nominal classification. In section 2, we present motivation for extending such a system to the verbal domain. In section 3, we establish

Chinese verb classes along similar lines. Section 4 is devoted to the analysis of counting events via verbal classifiers.

1. The nominal domain

1.1. A quadripartite system

In Fassi Fehri (2004), nominal expressions are classified into four distinct classes of objects: kinds (K), individual objects (I), groups (G), and masses (M). The four instances are exemplified in Arabic (1a-d), and English (2) : ¹

- | | |
|--|---|
| (1)a. 'akal-tu tamr-a-n
ate-I date-acc-n
I ate dates (literally 'date'). | b. 'akal-tu tamr-at-a-n
ate-I date-unit-acc-n
I ate a date. |
| c. laqii-tu fariiq-a-n
met-I team-acc-n
I met a team. | d. štaray-tu zayt-a-n
bought-I oil-acc-n
I bought oil. |
-
- | | |
|-----------------------|------------------|
| (2) a. I like dates. | b. I ate a date. |
| c. I met a committee. | d. I bought oil. |

This quadripartite system is built on two features, designated as *atomic* and *singulative*. The first feature characterizes the integrity of the whole, and the second the integrity of the parts. The four nominal classes cross-classify as follows ([-] is the negative or unspecified value) :

- | | |
|----------------------------|-----------------------|
| (3) a. K: [- atom, + sing] | (tamr-an 'dates') |
| b. I: [+ atom, + sing] | (tamr-at-an 'a date') |
| c. G: [+ atom, - sing] | (fariiq-a-n 'a team') |
| d. M: [- atom, - sing] | (zayt-a-n 'oil') |

This system differs significantly from a widely spread binary system found in the literature, which is based on a single valued [± count] feature. Enough criticism of the latter has been put forth in Fassi Fehri (2004), as well as Fassi Fehri & Vinet (2004). A binary system is insufficient and inadequate to account for the various properties and distributions of nominal classes. For example, the kind 'date' in (1a) behaves as singular, although its English counterpart in (2a) is plural. It refers to an unspecified number of dates, which can be one, two, or more. But 'date' in (1b), which is derived from the kind form in (1a) via a suffix classifier *-at*, can only refer to a date-unit (which happens to be unique in this construction). In other words, the np in (1b) is atomic (and associated with cardinality 1), contrary to that in (1a). However, the interpretation in both cases requires that the objects referred to

have integrity, or be non-divisive. The atomic/cardinality property makes (1b) countable (or 'numerable'), but (1a) is not so. Hence the following individual/kind contrast with respect to numeral distribution :

- (4) 'akal-tu talaat-a tamar-aat-in b. *'akal-tu talaat-a tamr-in
ate-I three-acc date-unit.pl-gen ate-I three-acc date-gen
I ate three (individual) dates. I ate three dates (literally 'date').

As for Mass in (1d), its parts are not integral, and they can always be potentially divided. Thus every part of 'oil' is 'oil'. Likewise, the cumulation of the parts of Mass does not lead to the formation of an integral whole. Consequently, Mass is neither atomic nor singulative, and it has no cardinality associated with it, nor any integral parts. Finally, Group in (1c) has a cardinality 1 associated with it, and hence can be counted, as well as pluralized. Its internal semantics implies that it has parts, but these are not N-parts, in the sense of Fassi Fehri (2004), or Nicolas (2001) ; cf. *infra*.

With Mass, two properties are often associated. Distributivity is a property of Mass so that 'any part of a mass object which is W is itself W' (cf. Cheng 1973). An amendment of this definition, based on Nicolas (2001), has been proposed in Fassi Fehri (2004):

(5) Distributivity

N refers distributively if it applies to any N-part of what it applies to.

Quine (1960) proposed that mass nouns like ‘water’ or ‘furniture’ have the characteristic semantic property to refer cumulatively, so that every sum of the parts which are named ‘water’ is itself ‘water’. Cumulativity can be defined as follows (after Fassi Fehri 2004, Nicolas 2001) :

(6) Cumulativity

N refers cumulatively if, whenever it applies separately to each of two N-parts, it also applies to the two N-parts considered together.

Unit nouns can be pluralized, as in (7a), and so are kind nouns, as in (7b). But the interpretation of each plural is different : ²

- (7) a. *'akal-tu tamar-aat-in*
ate-I date-unit.pl-acc
I ate (many) dates.
- b. *'akal-tu tumuur-an*
ate-I date.pl-acc
I ate: (a) (many) kinds of dates;
(b) a lot of (units of) dates.

In the case of (7a), the plural is a set of atoms, or a multiplier of individual objects. That is, the minimal atoms of the plural set are individuals (which have no parts, or are integral wholes). But in the case of (7b), it is only a plural of sorts or (sub) species in the (a) reading, or (b) an amount plural (traditionally called an ‘abundance plural’ ; cf. Fassi Fehri (2004). Thus although kinds here are counted, and they are not incompatible with numerals, what is counted are only ‘sorts’ (of objects or kinds), rather than the objects themselves (compare with the interpretation of (4b)) :

- (8) *'akal-tu talaat-at-a tumuur-in*
 ate-I three-acc date-pl-gen
 I ate three sorts of dates (* three dates).

These distinctions provide bases for separating atomicity from singulativity. The first notion describes the integrity of the whole, the second the integrity of the part, and we assume that the two notions are instrumental in accounting for the relevant distributional contrasts illustrated above.

The distinction between kind and unit of kind (or individual) is also found in Chinese, a general classifier language. Kind nouns imply singulativity, which have only integral entities in their extension, but kinds are unspecified for atomicity (as wholes), and as such can apply to singular or plural objects :

- (9) *wǒ kànjiàn gǒu le*
 1s see dog LE
 I saw (a/the) dog/s.

When referring specifically to an individual object, a classifier is necessarily attached to the nominal phrase, to force atomicity and cardinality. This is what *yī* does in the following example : *wǒ kànjiàn yī zhī gǒu* “I saw a dog”.

Likewise, a classifier is necessarily introduced with a numeral, as in (10a), to form a unit of the kind. By contrast, a numeral cannot be constructed directly with a kind form, hence the ungrammatical (10b) : ³

- (10) a. *wǒ kànjiàn sān zhī gǒu* b. * *wǒ kànjiàn sān gǒu*
 1s see three Cl dog 1s see three dog
 I saw three dogs.

Similar behavior is observed with quantifiers requiring individuals. The latter impose the appearance of classifiers, which cannot be omitted in this context :

- (11) a. *jǝ gè pǝngguǝ*
few CI apples
few apples
b. *mǝi gè rén*
every CI man
every man

In Colloquial Moroccan Arabic, classifiers are also used to form unit nouns from kinds (12a). But massifiers are also found, which derive Mass from Kind (12b) :

- (12) a. *teffaah* apples → *teffaah-at* apple-unit; an apple
b. *bger* cattle, cows → *begr-i* cow-M ; beef meat

1.2. Group

The atomicity of Group can be tested via its cardinality, and its ability to pluralize as a set of groups, not sorts :

- (13) a. *laqii-tu talaat-at-a furuq-in*
met-I three-acc team.pl-acc
I met three teams.
b. *laqii-tu furuq-an*
met-I team.pl-acc
I met (some, many) teams.

But groups differ from individuals in that they manifest ‘plural’ behavior, unlike the latter. For example, they are compatible with reciprocal anaphora in (14a). They can be used with plural concord (cf. 14b-c). They support plural predication (cf. English examples in (14d-e)) :

- (14) a. *l-farii-q-u (*r-rajul-u) ntaqada baʿd-u-hu baʿd-an*
the-team-nom (*the man) criticized each-him each
The team criticized each other.
b. *n-naas-u y-aquul-uu-na haaɖaa*
the-people 3-say-pl-ind this
People say this.
c. *l-farii-q-u jtamaʿ-a; tumma qarrar-uu haaɖaa*
the-team-nom met-3s. then decided-pl this
The team met; they then decided this.
d. The committee (* the man) is John and Fred
e. The committee gathered here.

Their plural interpretation can take various other forms :

- (15) *l-farii-q-u y-ataʿallaf-u min ʿaʿdaaʿ-in*
the-team-nom 3-compose-ind of members-gen
The team is composed of members.

Their compatibility with the quantifier of (plural) individuals *bidʿ* "some, few" indicates that their individual parts might be named, although not with the same noun (cf. (16a)). ⁴ Note, in comparison, that Kind, although not atomic and disallowing cardinals and plural, can occur with *bidʿ*, which then makes explicit its (potentially) atomic parts, or more precisely its singulativity, as in (16b) :

- (16) a. *l-fariiḡ-u jṭamaʿa bidʿat-u ʿaḍḍaaʿ-in min-hu*
the-team-nom met few-nom members-gen of-it
The team met with a few members.
b. *t-tamr-u ʿakal-tu min-hu bidʿ-a tamaraat-in*
the-date ate-I of-it few-acc dates-gen
The dates, I ate few (units) of them.

This contrasts significantly with the behavior of Mass, which when used with *bidʿ*, can only be interpreted as quantifying over sorts, not over units :

- (17) *z-zayt-u bidʿat-u zuyūṭ-in min-hu faasidat-un*
the-oil-nom few-nom oils-gen of-it bad-nom
The oil, few oils of it are bad.

1.3. Plural and Classifier

Since Greenberg (1972), many studies have explicitly associated the existence of numeral classifiers with the absence of obligatory nominal plural marking. Indeed, Borer (2005), for instance, adopts the view that plural marking is a classifier. Fassi Fehri & Vinet (2004) offer a much finer description of the situation in the grammars of Arabic and Chinese through the quadripartite classificatory system described above. Furthermore, Classifier (Cl) and Number (Nb) are both projected hierarchically, with the Numeral (Num) higher than Nb, in conformity with the hierarchy in (18) : ⁵

- (18) [QP[DP[NumP[NbP[CIP[np]]]]]]

In line with our analysis, Kratzer (2005) also adopts the position that Classifier and Plural features are both present in languages. Inspired by Krifka (1995), she proposes that English has non-overt classifiers, and that a root of a count noun such as *zebra* is ambiguous. It denotes an individual in *The zebra has not been fed*, or a set of (subspecies of the) species (a K in our terms) in *The zebra is almost extinct*. In the first case, there is a non-overt individual classifier, and in the second case a non-overt kind classifier (a type of zebra). She further notes that the plural noun is ambiguous in the same way that the singular is, hence *Those two zebras have not been fed* has an

individual object reading, and *Those two zebras are almost extinct* has a species reading. Kratzer then conjectures that a Plural feature cannot be responsible for both individuation and pluralization. She also claims that all languages have (overt or non-overt) classifiers, not only so-called classifier languages like Chinese.⁶

2. The verbal domain

In the event/verbal domain, Vendler's (1967) four-way classification in terms of achievements, accomplishments, activities, and states, has gained wide success.⁷ Many recent studies have explored this system, seeking to examine and determine adequate tests for identifying one class or the other. This system is illustrated by Arabic constructions (19a-d), or their English translation counterparts :

- (19) a. *jaraa l-walad-u*
 ran the-child-nom
 The child ran.
 b. *wajada r-rajul-u l-hall-a*
 found the-man-nom the-solution-acc
 The man found the solution.
 c. *'akala r-rajul-u tuffaah-at-an*
 ate the-man-nom apple-unit-acc
 The man ate an apple.
 d. *'arafa r-rajul-u l-jawaab-a*
 knew the-man-nom the-answer-acc
 The man knew the answer.

These four classes can be made strictly parallel (and equivalent) to the four nominal classes mentioned above. The same two features used above can be used here to cross-classify: atomicity describes integrity of predicates as wholes, and singulativity integrity of their parts. The featured cross-classification and the correspondences come out as follows :

- (20) a. Activity (= K): [- atom, + sing]
 b. Achievement (= I): [+ atom, + sing]
 c. Accomplishment (= G): [+ atom, - sing]
 d. State (= M): [- atom, - sing]

Achievement has a single discrete event (which is a point, not an interval). Accomplishment has many events grouped into a single one. To 'eat an apple' has to be 'grouped' from 'eating pieces of an apple'. We assume that Accomplishment is atomic, but non-singulative. Activity has discernible subevents, but of unspecified quantity. States are (homogeneous)

eventualities that are neither atoms nor of a specified quantity. Essential properties of VPs are then taken into account. Discrete events are singulative, and bounded events are atomic. Punctuality of achievements and durativity of accomplishments are derived through interaction of singulativity and atomicity in the first case, and absence of singulativity in the second case. Durativity is taken to be the unmarked case. Punctuality may be a property of only 'pure' achievements, if achievements can be duratively extended (see e.g. Caudal 1999, Rothstein 2004).

This four-way classification competes with a binary classification, which is rather widespread in the literature, and which uses a [\pm telic] feature. Bach (1981, 1986), among others, has equated the latter with the [\pm count] feature, so that the latter would apply to the event domain as well as the nominal domain. Telicity establishes two classes : ⁸

- (21) a. [+ telic]: achievements, accomplishments
b. [- telic]: activities, states.

The popular test for telicity is the adverbial *in-X* :

- (22) a. *'akala samakat-an fi i saa'at-in* b.**'akala samak-an fii saa'at-in*
ate fish-I-acc in hour-gen ate fish-acc in hour-gen
He ate a fish in an hour. He ate fish in an hour.

Obviously, the two members of the telic class do not exhibit similar behavior in various contexts, and they do not have the same internal structure. But achievements and accomplishments can be unified through the atomic value. The latter can be manifested through counting the bounded event in the following two constructions :

- (23) a. *qara'a r-rajul-u kitaab-an marrat-ayni*
read the-man-nom book-acc time-dual.acc
The man read a book two times.
b. *wajada r-rajul-u dirham-an marrat-ayni*
found the-man-nom dirham-acc time-dual.acc
The man found a dirham (a piece of money) two times.

The count reading indicates that the event can be counted as a unit. In fact, (23a) and (23b) are potentially ambiguous. They can *count the number of eventualities* (accomplishments or achievements) which have occurred twice. Under the count reading of eventualities, the man reads a book each time, which means that he has read two books. In (23b), he could have found two dirhams (cumulatively). In the second reading, which is only *counting times*,

the man reads only one book (the same book), but twice, or he found only one dirham (but twice). This situation contrasts with that of activities and states, which are only compatible with the time reading, that is, the counting appears to be limited to the number of times that the event occurred :

- (24) a. *raqasa marrat-ayni* b. *'ahabba marrat-ayni*
 danced time-dual.acc loved time-dual.acc
 He danced two times. He loved two times.

Here the interpretation is limited to counting times. Based on these facts, one can establish equivalence between telic, count, and atomic as follows :

[± telic] = [± count] = [± atom].

In the positive case, one counts the eventuality, in the negative case only its time. Telic means that the event is countable, not its time (which is irrelevant for the classification here).⁹

If telicity is atomicity, then we expect to find in the domain of events what we find in the domain of nominals, namely that the distinction between the two members of the class is necessary. When atomic, an event can be either [+ sing], and hence an individual I, or [- sing], and hence a group G. Clearly, there are distinctions between achievements and accomplishments, even though both are atomic. These distinctions amount to those between I and G. The same reasoning applies to the [- telic]/[- atom] value. Distinctions between activities and states would presumably be accounted for appropriately if they are made parallel to kinds K and masses M.

The system hopefully allows further predictions and applications. Some of them are amply discussed in Fassi Fehri (2005). We limit ourselves here to recall two cases: (a) the derivation and interpretation of kind event nominals (named *masdars* by the Arabic tradition), and (b) the formation of nominals naming units of events (named *ism marrah* in the Arabic tradition).

2.1. Masdars as event kind nouns

A *masdar* form names an event. Masdar forms are not derivable for any aspectual class of verbs, as we will show, contrary to the confusion found in the literature (see Wright 1898 for descriptive details). Moreover, regular and canonical forms found are exactly what our system of description predicts. In general, masdar formation from quadriliteral consonantal roots (or more) is quasi-canonical and regular, and has raised no significant problems in the literature. But canonical forms from triliteral roots are a matter of confusion. Many forms are mistakenly taken as canonical, depending on the vocalic pattern of the verb essentially. We believe, however, that event noun formation from trilaterals is morphologically regular, although it depends on

the verbal class. The unmarked canonical form comes as CaCC basically. Other forms are more marked, complex, or irregular. It is significant that the canonical form CaCC designates kind events, as in the following examples :

- (25) a. *jaraa jary-an*
 ran run-acc
 He ran a running.
 b. *raqasa raqs-an*
 danced dance-acc
 He danced a dancing.

Thus the canonical masdar form CaCC denotes a kind event noun. The kind event noun form contrasts with another canonical form, derived from it, which designates an event 'unit', or a unit of a kind, i.e. an individual object. The noun unit form is morphologically marked by the same suffix that occurs on normal kind nouns, namely *-at*. The derived form expressing the event unit is then CaCC-*at*, as in the following examples :

- (26) a. *jaraa jary-at-an*
 ran run-unit-acc
 He ran a run.
 b. *raqasa raqs-at-an*
 danced dance-unit-acc
 He danced a dance.
 c. *'akala 'akl-at-an*
 ate eat-unit-acc
 He ate an eat.

With these forms, it is possible to count event units and interpret them accordingly, as illustrated in (27a). This situation contrasts with that of kind event nouns, which do not allow a bounded/countable interpretation, hence the ungrammatical (27b) :

- (27) a. *raqasa raqs-at-ayni*
 danced dance-unit-dual
 He danced two dances.
 b. * *raqasa raqs-ayni*
 danced dance -dual
 He danced two dancings.

The behavior of kind event nouns with respect to Number recalls that of kind nouns like *tamr* and individual nouns like *tamr-at* in the nominal domain, as described above (see e.g. the contrast between (4a) and (4b)).

Telicity can be used as a test for establishing a parallelism between the event unit nominal and the direct object :

- (28) a. *'akala 'akl-at-an fii saa'at-in*
 ate eat-unit-acc in hour-gen
 He ate an eat in an hour.
 b. *'akala tamr-at-an fii saa'at-in*
 ate date-unit-acc in hour-gen
 He ate a date in an hour.

In both cases, the nominal phrase functions as the ‘incremental theme’, which ‘converts’ an activity to an accomplishment, a behaviour which has led some authors to postulate close derivational as well as semantic relationships between these two predicate classes (cf. e.g. Higginbotham 2000a & b, Rothstein 2004).

Canonical masdars can be shown to be felicitous when they are formed from activities and accomplishments, but not from achievements or states, as illustrated by the following distributions :

- (29) a. *wajad-a* “find” → * *wajd-an* “a finding”
 b. *balagha* “reach” → * *balgh-an* “a reaching” (but non-canonical *buluugh-an* “reaching” is OK; cf. infra)
 c. *wasala* “arrive” → * *wasl-an* “an arriving” (but non-canonical *wusuul-an* “arriving” is OK ; cf. infra)
- (30) a. *qabuha* “become ugly” → * *qabh-an* * “an uglying” (non-masdar *qubh-an* “ugliness” only)
 b. *‘alima* “know” → * *‘alm-an* * “a knowing” (non-masdar *‘ilm-an* “knowledge” only)
 c. *‘arafa* “know” → * *‘arf-an* “a knowing” (non-masdar *ma‘rif-at* “knowledge” only)

We can see here that there are no canonical masdar CaCC forms available for achievements in (29), or states in (30). The forms given in parentheses are used as eventuality nouns, which substitute for (unavailable) canonical forms.

This simple picture of kind event (or masdar) formation and its meaning fits naturally in the system adopted. Given that masdars are formed only for kind events (activities), or group events eventually (accomplishments), they should be either non-atomic and singulative, or atomic and non-singulative, respectively. In other words, masdars should exhibit integrity, regarding either their parts (K), or their whole (G), but not both. Their denotation must involve a form of inherent plurality, so to speak. This is not the case for achievements (I), which are fully integral, both as wholes and as parts, nor of states (M), which have no integrity at all.

The picture can be refined. Some achievements are not associated with masdars that are of the canonical form CaCC mentioned, but rather with an ‘internal plural’ form of it, CuCuuC, such as *buluugh* “reaching” and *wusuul* “arriving”, in (29b) and (29c). It is reasonable to think of these forms as morphologically (broken) plural (via lengthening of the internal vowel -uu), which are formed to express extension, progression, and continuousness. It has been pointed out in the literature, after all, that distinctions have to be

made between various achievements, some extended, and others not. Extended achievements are obtained via coercion (see e.g. Caudal 1999, Rothstein 2004).

Positional verbs also refine the picture. These verbs have no canonical masdar CaCC, but rather ‘derived’ masdars, the CuCuuC plural form, like that mentioned for extended achievements :

- (31) a. *jalasa* *juluus-an* (**jals-an* CaCC)
 sat sitting
 He sat a sitting.
 b. *waqafa* *wuquuf-an* (**waqf-an* CaCC)
 stand up standing up
 He stood up a standing up.

Doublets of masdars, including a canonical and a plural form are found. Motion verbs, a subclass of activities, like *xaraja* “go out” and *daxala* “enter”, are expected to have canonically formed event nouns, *xarj* and *daxl*. But these masdars are affected to a specific meaning of these roots, basically ‘outcome’ and ‘income’ meanings, as in (32) :

- (32) a. *daxala* *l-maal-u* *daxl-an*
 entered the-money entering-acc
 The money came in.
 b. *xaraja* *l-maal-u* *xarj-an*
 went.out the-money going.out-acc
 The money went out.

Consequently, motion verbs take a kind event noun only in the internal plural form :

- (33) a. *xaraja* *xuruuj-an* (**xarj-an*)
 went.out going.out-acc
 He went out a going out.
 b. *daxala* *duxuul-an* (**daxl-an*)
 entered entering-acc
 He entered an entering.

Apparent masdars of the canonical form come from stative verbs like *fahima* *fahm-an* “to understand an understanding”. But one might wonder whether the latter forms are real masdars. Evidence against their masdar nature comes from the fact that they form no event unit noun, hence behaving like other stative verbs (cf. 34b) :

- (34) a. *fahima fahm-an (*fahm-at-an)*
understood understanding-acc understanding-unit-acc
He understood an understanding.
b. *kariha *karh-an (*karh-at-an ; only non-masdar kurh-an “hatred”)*
hated hating-acc hating-unit-acc
He hated (* a hating).

In fact, the existence vs. absence of event unit nouns provides indirect evidence that verbs have potential canonical masdars (or they do not), as we will see. For example, positional and motional verbs discussed above all have event unit nouns, which normally derive from the event kind noun. This indicates that the masdar is somehow only ‘accidentally’ missing :

- (35) a. *jalasa jals-at-an* b. *daxala daxl-at-an*
sat sitting-unit-acc entered enter-unit-acc
He sat a sitting. He entered an entering.

We see then that modulo lexical/grammatical dissimilarities, forms of masdars and their meanings come as expected, and surprisingly regular, contrary to what the traditional literature claimed. Our system predicts the properties of the computational core, besides coercive interpretation and lexical constraints.

2.2. Event unit nouns

Event unit nouns, or individual events, like their masdar base, come productively from activities. Here are some examples :

- (36) a. *'akala 'akl-at-an* b. *raqasa raqs-at-an*
ate eat-unit-acc danced dance-unit-acc
He has eaten an eat. He danced a dance.

This is a strong prediction made by our system. Observe again that the individual event nominal stands as the incremental theme which leads to telicity. As mentioned earlier, this nominal phrase is not compatible with a direct object. In the relevant interpretation, both constituents fulfil the same role, hence their incompatibility, as shown by the ill-formed (37a) :

- (37) a. *? *'akala t-tuffaah-at-a 'akl-at-an*
ate the-apple-unit-acc eat-unit-acc
He ate an apple an eat.
b. *'akala t-tuffaah-at-a 'akl-an*
ate the-apple-unit-acc eating-acc
He ate an apple totally.

In (37b), the cognate object is in the kind form, and it is used adverbially, an interpretation which does not obtain with the individual form in (37a), confined to the sole position of a direct object.

Note that the individual event noun cannot be formed from achievements or states. This absence correlates with the fact that the event kind noun cannot be formed from these verbs either (recall (29) and (30) above) :

- (38) a. *wajada l-hall-a* (**wajd-at-an*)
 found the- solution-acc finding-unit-acc
 He found the solution (* a finding).
 b. *balagha l-qimmat-a* (**balgh-at-an*)
 reached the-summit-acc reach-unit-acc
 He reached the summit (* a reaching).

- (39) a. *kariha* (**karh-at-an*)
 hated hating-unit-acc
 He hated (* a hating).
 b. *qabuha* (**qabh-at-an*)
 uglified uglying-unit-acc
 He became ugly (* an uglying).

The non-availability of the kind noun points to the absence of the source of derivation for the individual noun.

The existence of event individual nouns of some verbs without the existence of canonical kind nouns may appear at first sight problematic. There is, however, a distinct behaviour of two classes of verbs, depending on their semantics. The class in (40), which includes positional and motion verbs, forms event unit nouns, but that of achievements verbs in (41) does not:

- (40) a. *jalasa* → *juluus-an* → *jals-at-an* “sit, sitting, a sitting”
 b. *waqafa* → *wuquuf-an* → *waqf-at-an*
 “stand up, standing up, a standing up”
 c. *xaraja* → *xuruuj-an* → *xarj-at-an* “go out, going out, a going out”
 (41) a. *balagha* → *buluugh-an* (**balgh-an*) → **balgh-at-an*
 “reach, reaching, a reaching”
 b. *wasala* → *wusuul-an* (**wasl-an*) → **wasl-at-an*
 “arrive, arriving, an arriving”

This suggests that the verbs in (40) do in fact have a potential canonical event kind noun, from which the event unit noun is derived, but verbs in (41) do

not have such an event kind noun, and hence the event unit noun cannot be so derived. The impossibility of deriving the event unit noun for achievements is then predicted, and the internal plurality of the event kind noun of these verbs must be different from that found in (40). It correlates with the extension meaning due to coercion. The interpretation of (40), however, does not involve coercion, neither extension. We can think of the latter masdars as alternating forms of canonical forms, due to lexical dissimilarity. Both forms imply potential plurality, from which the canonical event unit is derived.

Note that unit nouns can be pluralized, as in (4a) above, repeated here as (42a) for convenience, and so can kind nouns, as in (4b) above, repeated as (42b). But the interpretation of each plural is different (see Kratzer's 2005 discussion of similar facts in English) :

- (42) a. *'akal-tu tamar-aat-in*
ate-I date-unit.pl-acc
I ate many dates
- b. *'akal-tu tumuur-an*
ate-I date.pl-acc
I ate : (a) many kinds of dates;
(b) a lot of (units of) dates.

In the first case, the plural forms a set of atoms, but in the second case it is a plural of sorts, or an amount plural. It is also the case that kinds can be counted, and they are not incompatible with numerals. However, what are counted are 'sorts of objects', rather than the objects themselves :

- (43) 'akal-tu talaat-at-a tumuur-in
ate-I three-acc date.pl-gen
I ate three sorts of dates.

Of course, all these various interpretations of plural forms do not necessarily exist in all languages. But these distinctions strongly call for distinguishing atomicity from singulativity.

Summarizing, the formation of masdars or pseudo-masdars, on the one hand, and that of event unit nouns, on the other hand, supports our new classification of verbal phrases, which differs substantially from the most spread one in the literature, i.e. that based on a generalized binary [\pm count] distinction.

3. Chinese verb classes

Event structure partition in Mandarin Chinese appears at first sight to be different from English or Arabic (cf. among others, Li & Thompson 1981, Tai 1984, Sybesma 1999, Lin 2004, Huang 2004, 2006, Soh & Gao 2006). For example, Lin (2004), among others, proposes that in Mandarin Chinese activities and states are primitives, whereas achievements and

accomplishments are compositionally derived. But such a systematically compositional view is hardly tenable, as we will see.¹⁰

3.1. How compositional are achievements and accomplishments?

It is often claimed in the literature that in languages like Chinese, Japanese, Hindi, Salish, etc. accomplishments and achievements are derived, rather than basic. For example, Lin (2004), following the lead of Tai (1984), makes the following claims :

- (44) a. Activities and states are the only two primitive verbal types;
accomplishments and achievements are compositionally derived ;
b. No monomorphemic verbs in Mandarin are telic (i.e. necessarily encoding a result, an end state or an attainment of goal; with few exceptions) ;
c. the particle *-le* signals inchoativity (among other uses).

The motivation behind such claims is as follows. There are lexical activity/achievement pairs in English, as illustrated with the following pairs : look/see, listen/hear, study/learn, look for/find.

But this is not so in Mandarin, where resultative verb compounding is used to encode an end of state, as illustrated in (45) :

- | | |
|-----------------------------|----------------------------------|
| (45) a. <i>kàn/kàn jiàn</i> | b. <i>tīng/tīng jiàn</i> |
| look/look-perceive (see) | listen/listen-perceive (hear) |
| c. <i>xué/xué-huì</i> | d. <i>zhǎo/zhǎo-dào</i> |
| study/study-able (learn) | look for/ look for-arrive (find) |

Consequently, sentences that deny explicitly the attainment of the goal are possible (example adapted from Lin 2004). But (46b) is a contradiction :

- (46) a. *tā kàn le bàn tiān kěshì méi kàn jiàn.*
3s see LE half day but not-have see perceive
I looked for a long time but couldn't see it.
b.* *tā kàn jiàn le bàn tiān kěshì méi kàn jiàn.*
3s see perceive LE half day but not-have see perceive

In English, the past tense form makes the telic interpretation of an accomplishment salient, and the following sequence becomes an unacceptable contradiction : **John wrote a letter yesterday, but he did not finish it.* But in Chinese, completion is not necessarily implied, unless a resultative verb compound is used, as in e.g. *shā-sì* “kill-die” or *xiě wàn* “write-finish”. The endpoint can then be voided in Chinese. For example, the

verb *shā-le* “kill-ed” must be interpreted as “massacred” in (47a) in order to get the right interpretation in English. The completion of the final endpoint is formed with a resultative verbal compound *shā-sì* in (47b). The sentence is then not felicitous, since it leads to a contradiction (examples adapted from Tai 1984):

- (47) a. *Zhāngsān shā-le Lisi liǎngcì, Lisi dōu méi sì.*
 Zhangsan kill Asp lisi twice Lisi every not-have die
 Zhangsan brutally massacred Lisi but Lisi didn’t die.
 b. **Zhāngsān shā-sì-le Lisi liǎngcì, Lisi dōu méi sì.*
 Zhangsan kill-die-Asp Lisi twice Lisi every not-have die
 Zhangsan killed Lisi but Lisi didn’t die.

3.2. Verbal *-le* and its interpretation effects

Soh & Gao (2006) propose that verbal *-le* has distinct interpretation effects, depending on the aspectual class of verbs. For instance, verbal *-le* in (48b) indicates that the inherent endpoint of the achievement event is reached, i.e. the event is completed, but the completive reading does not necessarily obtain in (48a) :

- (48) a. *tāmen gānggang dàodá shāndǐng.*
 3p just reach mountain-top
 They just reached the top of the mountain
 (OR: They are just about to reach the top of the mountain).
 b. *tāmen gānggang dàodá le shāndǐng.*
 3p just reach LE mountain-top
 They just reached the top of the mountain.

If these authors are right, the two sentences do not really have identical interpretation, and completion is only a possible reading in (48a), although it is the only reading in (48b). Moreover, a terminative reading is not necessary with activities without verbal *-le*, but it is forced with *-le* :

- (49) a. *tā yóu yǒng. Wǒ pǎo bù.* b. *tā yóu le yǒng. Wǒ pǎo le bù.*
 3s swim swim 1s run step 3s swim LE swim 1s run LE step
 He swims. I run. He swam. I ran.

This difference in reading can be brought out with a progressive marker *zài* and a habitual adverb such as *měi-tiān* “every day”. Sentences without verbal *-le* may appear with *zài* and *měitiān*, while those without may not :

- (50) a. *tā měitiān yóu yǒng.* b.* *tā měitiān yóu le yǒng.*
 3s everyday swim swim 3s everyday swim LE swim

- He swims everyday.
 c. *tā zài yóu yǒng.* d. **tā zài yóu le yǒng.*
 3s Prog swim swim 3s Prog swim LE swim
 He is swimming.

In (50b), the habitual reading provided by the adverb *měitiān* “everyday” is incompatible with a terminative reading, forced by the presence of *-le*. Likewise in (50d), the progressive reading with the marker of imperfectivity *zài* is incompatible with *-le*.

With accomplishments, however, the situation is more complex. If *-le* is present, termination is forced. But completion is not so. The event can be terminated without having reached its inherent endpoint. However, when a completive such as *wán* “finish” is present, *-le* must indicate completion. More precisely, verbal *-le* induces termination with atelic situations, and completion (in addition to termination) with telic ones. The construction (51) shows that in contrast to the event described by the sentence with verbal *-le*, the event described by the sentence without verbal *-le* does not need to be completed (see Soh & Gao 2006) :

- (51) a. *tā xiě yī-fēng xìn.* *wǒ xiě liǎng-fēng xìn.*
 3s write one-CI letter I write two-CI letter
 He writes a letter. I write two letters.’
 b. *tā xiě le yī-fēng xìn.* *wǒ xiě le liǎng-fēng xìn.*
 3s write LE one-CI letter I write LE two-CI letter
 He wrote a letter. I wrote two letters.’

Recall that the presence of verbal *-le* in an accomplishment sentence in Mandarin does not necessarily indicate completion. The event can be terminated without having reached the inherent endpoint. It is then not contradictory to conjoin the first sentence in (52) with an assertion that the event is not complete (see Soh & Gao 2006, Tai 1984):

- (52) *wǒ zuótiān xiě le yī-fēng xìn, kěshì méi xiě-wán.*
 Is yesterday write LE one-CI letter but not write-finish
 I started writing a letter yesterday, but I didn’t finish writing it.

However, when a completive marker such as *wán* “finish” follows the verb, verbal *-le* must indicate that the event is completed, and not merely terminated (Tai 1984, Smith 1991). As a consequence, an accomplishment sentence with a completive marker and verbal *-le* cannot be followed by an assertion that the event is incomplete (Soh & Gao 2006) :

- (53) * *wǒ zuótiān xiě-wán le yī-fēng xìn, kěshì méi xiě-wán.*
 1s yesterday write-finish LE one-CL letter but not write-finish
 I wrote a letter yesterday, but I didn't finish writing it.

3.3. Achievements and accomplishments can be basic

If telicity/completion is induced on some achievements in the presence of *-le* (as proposed by Lin 2004), but not with accomplishments (unless a resultative marker forces the completion reading), then the view that achievements are ONLY compositional vanishes. Recall that in Lin's view, it is *-le* which makes an achievement out of a state, or rather creates a result of an event.¹¹ But if Lin were right in claiming that *-le* is compositional in achievements, one hardly sees why such a composition does not operate with accomplishments, to force completion. It is presumably the case then that it is the 'root' of achievements that contributes completion with termination, assuming that *-le* is uniformly a terminator (or a perfectivizer). Such a completion is not forced with accomplishments, in the presence of *-le*, as far as we can tell, from Soh and Gao's and Huang's descriptions. Since there is no coercive effect with accomplishments, it must be the case that the latter contributes a 'group' property through its verbal base. Consequently, accomplishment and achievement senses (as construed here) are basic, which means that they are potentially 'telic' or completive, although the upper aspect may or may not contribute the appropriate matching for the *aktionsart* to become completive, and/or terminative, etc. If so, accomplishments are groups (G), and achievements are individuals (I), as proposed above, even in Chinese. The four Chinese verb classes are exemplified in (54) :

- (54) a. *Tā yóuyǒng* (K)
 3s swim-swim
 He swims.
 b. *tā dào dá le shān dǐng* (I)
 3s arrive-reach Asp mountain top
 He reached the top of the mountain.
 c. *Zhāngsān kǎn dǎo le shù* (G)
 Zhangsan chop fall Asp tree
 Zhangsan chopped the tree down.
 d. *shù gāo shí gōngfēn* (M)
 Tree tall ten centimeters
 The tree is ten centimeters tall.

The features assigned to each verb class in Chinese converge with the ones proposed in Fassi Fehri (2005) for equivalent Arabic and English vps. Achievement has a single discernible event, which is punctual. This

punctuality is expressed through verbal compounding *arrive-reach* in (54b). Accomplishment has many events grouped into a single one. “Chopping a tree” groups several actions of chopping activity in order to finally make the tree fall down (cf. the form *kǎn-dǎo* “chop-fall”).¹² The features of singulativity are unspecified. Activity (*swim*) has discrete events, but of unspecified quantity. States (*be tall*) are (homogeneous) eventualities that are neither atomic nor of a specified quantity. Discrete events are singulative and bounded events are atomic.

4. Counting events via verbal classifiers

Achievements and accomplishments can be unified through the atomic value, which is manifested through counting the bounded event with a verbal classifier (Cl_v) :

- (55) a. *tā dàodá guò shāndǐng liǎng cì.*
 3s arrive-reach Asp mountain top two Cl_v (time)
 He reached the top of the mountain twice.
 b. *Zhāngsān kǎn dǎo le shù liǎng cì.*
 Zhāngsān chop fall Asp tree two Cl_v time
 Zhangsan chopped the tree twice.

In (55a), the counting reading of the event can be manifest if there are two distinct events that occur, and two distinct tops of mountains are (cumulatively) reached. Alternatively, the reading can be repetitive, in which case the same mountain top will be reached two times (hence the time reading). Likewise, there is an ambiguity in (55b), since it is possible to count either (cumulatively) the number of eventualities, or (repetitively) the number of times.

Achievements and accomplishments contrast significantly with activities and states which are limited to counting the number of times :

- (56) a. *tā tiàowǔ le liǎng cì.*
 3s dance Asp two Cl_v (time) (He danced twice.)
 b. *tā qùnián bìng le liǎng cì.*
 3s last year sick Asp two Cl_v (time) (He was sick twice last year.)

Note that these meanings in (55) and (56) are carried through verbal classifiers. Research on nominal classifiers is an extended studied topic in Chinese linguistics, but research on verbal classifiers in general has been scarce (cf. Xiao and McEnery 2004, Yang 2001, Lam & Vinet 2005, Paris 1981). Verbal classifiers (*dong-liàngcí*) are superficially similar to nominal classifiers (*míng-liàngcí*) in the sense that they both need to occur preceded

by a cardinal number but only nominal classifiers form a DP constituent. Verbal classifiers also classify the semantic situation related to verbs just like nominal classifiers semantically classify nouns. For instance, if the verbal classifier *cì* simply indicates the number of times of an event, other classifiers are more restricted in their use and may only imply an action performed ‘from beginning to end’ (*biàn*), ‘back and forth from a place’ (*tàng*), etc.

More importantly, verbal classifiers are argued to quantify over the event, or to serve as the delimiter of the event. Yang (2001) has demonstrated that Chinese verbal classifiers cannot occur with an activity or an accomplishment verb if the latter has a progressive aspect, hence the ungrammaticality of the following sequences :

- (57) a. **Yuehan zài huà sān cì huà.*
 John Asp paint three Cl_v picture
 Lit.: John is painting pictures three times.
 b. **Yuehan zài huà sān cì nèi zhāng huà.*
 John Asp paint three Cl_v that Cl_n picture
 Lit. : John is painting that picture three times.

The occurrence of verbal classifiers can be held responsible for the change in grammaticality since the sentences without the Cl_v are perfectly grammatical:

- (58) a. *tā zài huà huà.* b. *tā zài huà nèi zhāng huà.*
 3s Asp paint picture 3s Asp paint that Cl_n picture
 He is painting pictures. He is painting that picture.

This indicates that no verbal predicate in a progressive aspect can co-occur with a verbal classifier since such a predicate is a stative predicate and verbal classifiers are ruled out with non eventive predicates. Verbal classifiers therefore have an effect on the telicity or boundedness of the sentence, in parallel to durative adverbials specifying time frames (*for*-PPs, *from...to*; examples adapted from Xiao and McEnery 2004 : 111) :

- (59) a. *xíngsǔn yánxù-le sān gè xiǎoshí.*
 torture-inquisition continue-Asp three Cl hour
 The inquisition by torture lasted as long as three hours.
 b. *nà hànzi zuǒyòu xúnshì-le yī fān, dīshēng dào ...*
 that child left-right look-around Asp one Cl_v, low-voice say ...
 The child cast his eyes around, and said in a low voice ...

When a temporal boundary is attached to an unbounded activity like *to look around* in (59b), the activity becomes temporally bounded. As mentioned by Xiao and McEnery (2004), the effect of verbal classifiers is more obvious in

Chinese because the aspect marker *-le* is sensitive to a final endpoint. In (59b), the verbal classifier transforms an unbounded activity into an accomplishment. The classifier always carries a meaning of ‘intensity’ in the sense that there is a repetition of the action, as observed in (59b). More precisely, the meaning of the sentence reads as follows : the child cast his eyes around *back and forth* (for a certain period of time). The ungrammaticality of (60) can then be explained by an absence of completion linked to the removal of the verbal classifier *yī fan*, interpreted here as a delimiting mechanism : ¹³

- (60) * *nà hànzi zuǒyòu xúnshì-le, dīshēng dào ...*
that child left-right look-around Asp, low-voice say...

Verbal classifiers contribute to differentiating the four Vendlerian classes. As shown in (55)-(56), verbal classifiers appear with achievements and accomplishments, as well as activities and states, as long as the latter involve changes of states. When a stative verb does not manifest a change of state, the sentence is ruled out with a verbal CI, as illustrated in (61a) below (example from Soh & Gao 2006 : 110), and in (61b) with a specific reading of the object picture (example adapted from Yang 2001 : 164) : ¹⁴

- (61) a. * *wǒ dānxīn le nǐ.* b. * *Yuehan xǐhuan-le sān cì nèi zhāng huà.*
1s worry LE you John like Asp three CI, Dem CI picture
I worry about you. Lit : * John liked that picture three times.

All eventualities, including states, can take *-le* as long as they can be interpreted as temporally bounded, and they make use of delimiting mechanisms, as in (62b) :

- (62) a. *Hongjiu ài Mali.* b. *Hongjiu ài-le Mali sān nián.*
Hongjiu love Mary Hongjiu love Asp Mary three years
Hongjiu loved Mary. Hongjiu loved Mary for three years.

Verbal classifiers cannot appear with mass predicates (cf. (61a)), just like nominal classifiers are ruled out with mass nouns : * *yī gè shuǐ* (*a water).

Furthermore, a single event of swimming can be expressed through the use of the event classifier *gè*,¹⁵ as in (63a), whereas an unbounded action of swimming (which is a kind in our framework) occurs without the single event marker *gè* (example adapted from Wu 2002 : 165) :

- (63) a. *yóu (yī) gè yǒng*
Swim one CI swim

- Do a (single event of) swimming
b. *yóu yǒng*
swim swim (unbounded action of swimming)
swim

The event classifier *gè* can be characterized simply as a perfective aspect marker which appears to force completion, since it is incompatible with markers of imperfectivity such as *zài* and *zhe*.

Indeed, Paris (1981 : 105-111) presents a number of tests to distinguish the distribution of both types of classifiers. She notes, for instance, that verbal classifiers cannot be preceded by demonstratives, they also cannot be preceded by measure adjectives like *dà* (big) or *xiǎo* (small). Furthermore, she signals that nominal classifiers, which are DP constituents, can appear in pseudo-cleft sentences but not verbal classifiers. All these tests clearly serve to indicate that the sequence [*yī* Cl_v N] does not form a single constituent, contrary to the sequence _{DP}[*yī* Cl_n N]. Verbal classifiers are rather closely connected to the verb in the sentence and its aspectual properties.

5. Conclusion

In this article, we provided a quadripartite parallel treatment of verbal and nominal classes in Arabic and Chinese, based on their mereological properties. These classes interact significantly with Number and Aspect, and they are marked by Classifier forms. Classifiers are shown to be grammatical devices for building individuals out of kinds, or counting event times or event units. Future research is needed to compare the kind of approach proposed with that typically advocated by thematic or causal approaches such as Dowty's (1991), Higginbotham's (2000b), or Ramchand's (2003), though from different angles. As observed by Fassi Fehri (2007), in a causal architecture built on an Initiator-Process-Result model, Classifier marking and delimiting mechanisms of telic senses come as a surprise. Likewise, the fact that activities exhibit a sub-interval property, and accomplishments an anti-sub-interval property is naturally driven from the mereology adopted, but finds no natural treatment if the system is ternarily causal or topological, as some of the known literature on the subject has it.

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RÉSUMÉ

Cet article propose un système de classification verbale et nominale basé sur des traits atomiques identifiant le tout et les parties des dénotations d'événements et d'objets. Nous y présentons un traitement méréologique parallèle des classes verbales et nominales en arabe et en chinois. Ces classes sont marquées par des classifieurs, interagissant avec le Nombre et l'Aspect et servant à former des individus à partir d'espèces, ou à compter des unités ou des temps d'événements.

MOTS-CLÉS

Classification verbale, classes nominales, atomicité, singulativité, espèce d'événement, unité d'événement, arabe, chinois, aspect, nombre.

FOOTNOTES

¹ The content of this section draws heavily from Fassi Fehri (2004 & 2005).

² Observe that *-i* is glossed as genitive in (4a) and accusative in (7a). In fact, this double behavior is akin to the binary ‘diptot’ system of case endings found with sound plural feminine nouns, among other forms. The ‘triptot’ (and more regular) system manifests the three case endings, where genitive is *-i*, accusative *-a*, and nominative *-u*. In diptosis, a syncretism fuses genitive and accusative in *-i*, while nominative is persistently *-u*. See Wright (1898).

³ Note, incidentally that the cardinal number *yī* (one) can be omitted in spoken Chinese, but not other cardinals. See Fassi Fehri & Vinet (2004).

⁴ A RLV reviewer pointed out that French *équipe* exhibits properties that may set it apart from its Arabic and English counterparts. Thus although you can say ‘l’équipe s’est réunie’, and ‘l’équipe est composée de treize membres’, you cannot say ‘*l’équipe s’est critiquée les uns les autres/l’un l’autre/mutuellement’, and surely not ‘*l’équipe ont décidé de ne pas jouer’. Is *équipe* marked differently from its English equivalent *team*?

We observe that the mass of facts is quite mild. Furthermore, some French speakers accept the plural interpretation of *équipe* in an embedded sentence like the following : *L’équipe a pris la décision de ne pas se critiquer les uns les autres en public*. The rather idiosyncratic behaviour of groups or collectives is widely reported in the literature, and we see no justification in making such a fuzzy behaviour parametric. Further research is obviously needed to refine the picture.

⁵ A RLV reviewer wonders whether the proposed system makes any space for no Number specification at all within a noun phrase. Can the absence of plural marking be thought of as always spelling out the negative value of some (Number) feature? Does any noun phrase contain a Number projection (whatever the lexical content of N)? The article does not typically address these specific questions about Number. Such questions are similar to questions raised about the projection of D in every nominal phrase (as in e.g. Longobardi’s 2001 work). Our position is that we do not exclude the possibility of no Number specification, just as we do not exclude the contrary. One choice or the other should be dictated by empirical evidence. For example, Dayal (2004) proposes systematic differences between non-Number languages (e.g. Chinese), Number languages (e.g. Hindi), and D-languages (e.g. Romance). Non-specification is governed by (empirically motivated) default interpretation. But such issues led us too far afield.

⁶ A RLV reviewer notes that in a classifier language like Korean ‘zebra’ is similarly ambiguous, and it combines with a classifier neither in ‘zebra needs to be fed’ (individual reading) nor in ‘zebra is almost extinct’ (kind reading). There is just one ‘zebra’ noun. On the other hand, if you want to say ‘I eat

zebra for breakfast' you need to insert 'meat' (a mass classifier), something like: 'I eat zebra *(meat) for breakfast'. These contrasts found even in a (generalized) classifier language like Korean supports the view that even in such languages classifiers can be covert. A massifier is indeed unexpected if we adopt Chiercha's (1998) view that masses come out as unmarked (see also Borer 2005). But massifiers do exist, contra this view (see (12b) above). In e.g. Moroccan, *bger* 'cow-kind' denotes a kind, *begr-at* 'cow-unit' is the countable unit 'a cow', and *begr-i* 'cow-mass' has a mass classifier to get the reading 'beef-meat'. But *hut* 'fish' has only one form, which is non-distinctively a kind and/or a mass form, more like what happens in Korean, although Moroccan has a classified individual fish, *hut-at*, where the suffix is added to create a unit from a kind.

⁷ The content of this section draws heavily from Fassi Fehri (2005).

⁸ In fact, the systems proposed in the literature vary from two to five (or even more) classes. Bach (1981) and Krifka (1989, 1995) are concerned by the parallel question with nominals in dealing with telicity/countability, kinds/events, and homomorphisms (see also Borer 2005). Other systems are less parallel. For example, they propose a ternary classification of eventualities as in e.g. Mourelatos (1981), Verkuyl (1993), in terms of processes, states, and events, without identifying nominal counterparts. Likewise, Rothstein (2004) propose a quadripartite classification of events, based on two features [\pm atom] and [\pm stage], and Smith (1991) points to the existence of a fifth class she names 'semelfactives', a kind of atelic achievements (or atelic punctual). Jackendoff's (1991) quadripartite classification of nominals in terms of [\pm bound] and [\pm internal structure] is similar to ours in spirit (although see Fassi Fehri 2005 for differences), but the parallel does not go through for verbs or events. Ramchand's (2003) granular decomposition of events has also no parallel in the nominal domain.

⁹ In the case of activities (and even states), the counting of eventualities and that of times are hardly discernible, unlike what happens with accomplishments and achievements. The variation in the identity of participants (or roles) makes the event 'cumulative' and 'repetitive', as pointed out (partly) by a reviewer, but the distinction is less transparent in our system. A RLV reviewer observes that (s)he gets a reading of (24a) as an 'accomplishment' (meaning 'he did the expected dancing twice'), and wonders whether such an ambiguity is not available in Arabic or Chinese. As far as we can tell, neither language has a cumulative (cognate) reading in this case. As for the repetitive, it is obviously possible.

¹⁰ Likewise, Huang (2004, 2006) observes subtle differences between Chinese and English verb classes in terms of composition, typically accomplishments. Since the work is still in progress, however, we are unable

to tell precisely whether Huang views accomplishments and achievements as compositional, in our sense, although it appears to be so.

¹¹ Lin bases his analysis on the following contrast (*gaō/gāo le* “is tall/grew”):

- | | | | |
|-----|---|------|---|
| (i) | <i>shù gāo shí gōngfēn.</i>
tree tall ten centimetres
The tree is ten centimeters tall. | (ii) | <i>shù gāo le shí gōngfēn.</i>
tree tall Asp ten centimeters
The tree grew ten centimeters. |
|-----|---|------|---|

In (i), *gāo* (be tall) is a state, but in (ii) it is inchoative. A RLV reviewer points out that (s)he rejects example in (i) as ungrammatical and rather accepts the form *shù shí gōngfēn gāo* where the quantity phrase *shí gōngfēn* has to precede the verb *gāo* (to be tall). Our informants rather accept both forms as grammatical.

¹² We leave aside here the exact contribution of the resultative part in forming the accomplishment meaning out of the meaning of the base. Although the analysis might be intricate, we feel confident to maintain our group analysis.

¹³ Thanks to Xiaoyan Liu and Huijun Zhou for acceptability judgements.

¹⁴ A RLV reviewer correctly pointed out that (61b) is ruled out not so much because of the presence of the frequency adverb *sān cì* (three times), but because *xǐhuan* (like) does not allow the suffix *-le*.

¹⁵ There are two types of elements pronounced as *gè* in Mandarin Chinese. One is the general classifier used to individuate a count noun, the other is the event classifier. The two *gè*'s are written with the same Chinese character in modern Mandarin Chinese (cf. Wu 2002).