

Classifiers and the mass-count distinction in Uzbek

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Abstract The paper argues for the existence of the (NP-level) mass-count distinction in Tashkent Uzbek, an obligatory classifier dialect. Evidence is provided based on the distribution and interpretation of modifiers, classifiers, and quantificational suffixes of different types, as well as properties of flexible and object mass nouns. A formal analysis is further provided that treats classifiers as sensitive to the mass-count distinction but not uniformly serving as “individuator” of otherwise mass nouns. Sortal classifiers are argued to differ from mensural ones in that only the latter contribute a measure function.

Keywords: mass-count distinction, classifiers, measure function, Uzbek

1. Introduction

Among theories of mass-count distinction, there is an ongoing debate as to whether this distinction exists at the lexico-semantic level (e.g. Link 1983; Krifka 1989) or is rather mediated through a syntactic structure (e.g. Sharvy 1978; Borer 2005; Acquaviva 2019). The proponents of the latter view maintain that cross-linguistically, a count interpretation is derived only at the structural level. Without a designated dividing structure, nouns universally default to a mass interpretation. Arguably, this is most evident in the so-called ‘obligatory classifier languages’, in which all nouns exhibit mass-like behavior as they cannot combine with a numeral unless divided by a classifier. It has been argued (e.g. Ritchie 1971; Lucy 1992) that in such languages, the basic meaning of all nouns is mass; in this respect, there is no difference between a noun meaning ‘snow’ and one meaning ‘book’. Syntactic approaches along the line of Borer (2005) propose that languages like English are, in a certain sense, quite similar to obligatory classifier languages. All nouns are essentially mass, and the count meaning may only arise in the syntax once the NP combines with a classifier-like operator. This could be a classifier, a singulative suffix, the plural marker, etc.

In the present paper, we argue against this approach, based on novel data from Tashkent Uzbek, an obligatory classifier dialect of Uzbek (Southeastern Turkic) (Beckwith 1998, 2007). In this dialect, numerals cannot directly modify either

nouns like *kitob* ‘book’ in (1a), or nouns like *qor* ‘snow’ in (1b), and a mediator between a numeral and a noun is always required.¹

- (1) a. (Man) ikki*(-ta) kitob o-vom-man.
 I two-CL_{GEN} book get-PROG-PRS.1SG
 ‘I am getting two books.’
- b. (Man) ikki *(hovuch) qor o-vom-man.
 I two CL_{HANDFUL} snow get-PROG-PRS.1SG
 ‘I am getting two handfuls of snow.’

While a vast body of research addresses classifier systems in a range of world languages, including Chinese (Mandarin, Wenzhou, Wu, Southern-Min, Cantonese varieties), Japanese, Korean, Vietnamese, Thai, and many other East and Southeast Asian languages, Uzbek has not yet received much attention. To the best of our knowledge, Beckwith (1998, 2007) presents the only formal discussion of numeral classifiers in Uzbek. Several other studies review classifier expressions descriptively (e.g. Kononov 1960; Greenberg 1972; Aikhenvald 2000, 2006) or address them indirectly in the context of other linguistic phenomena (e.g. von Heusinger & Kornfilt 2017; Türker 2019).

Yet, in our view, Uzbek may provide valuable insight into the link between classifier systems and the issue of mass-count distinction. We argue that nouns in Tashkent Uzbek exhibit the mass-count distinction even in the absence of classifiers or, if they are present, in lower positions, before the classifiers are merged (at the NP/nP level). This suggests that the mass-count distinction cannot be only a matter of a Classifier/ Divider Phrase or other related projections in the syntax. We show that nouns in Tashkent Uzbek are neither uniformly mass, i.e. denoting “stuff”, as predicted by Borer (2005), nor uniformly flexible as predicted by Pelletier (2012). Thus, we provide evidence that the mass-count distinction is lexically encoded in nouns even in classifier languages (e.g. Cheng & Sybesma 1998; Doetjes 1997; Sudo 2015, 2016), or at least is established very low in the structure, by the time the NP/nP is formed. We further propose a formal analysis of a range of Uzbek classifiers, showing that they are **sensitive** to the denotational

¹ The literature contains both examples of classifier obligatoriness (e.g. Beckwith 1998; Aikhenvald 2000; Niyazmetova 2009; von Heusinger & Klein 2013) and optionality (e.g. Boeschoten 1998; Bodrogligeti 2002; von Heusinger & Kornfilt 2017; Türker 2019) in Uzbek. These examples require two caveats. First, in most instances, the discussion of classifiers appears only tangentially as they are not the main focus of the research. Second, for the most part, these studies do not specify which of Uzbek's various dialects they are investigating. Thus, the former group which includes Beckwith (1998) and references thereof relates to the Tashkent Uzbek. The latter group, presumably, reports on Standard Uzbek, which allows optionality as the prescriptive norm. The issue of dialectal variation requires investigation beyond the scope of our paper.

properties of nouns, rather than constituting the **source** of the mass-count distinction.

The paper is organized as follows. In Section 2, we review the ways in which the obligatory nature of classifiers in various languages has been treated in the literature. Section 3 provides abundant evidence in favor of the mass-count distinction in Tashkent Uzbek. In Section 4, we formulate an analysis of the syntax and semantics of Tashkent Uzbek classifiers. Section 5 concludes the discussion.

2. Theoretical Background

Two opposing views exist in the literature on the mass-count distinction in obligatory classifier languages.

The first view suggests that this distinction is made in syntax: the count interpretation of nouns is only licensed in a particular structural configuration. Many proponents of this view assume a cross-linguistically universal denotation of nouns as ‘undifferentiated stuff’ (Sharvy 1978; Allan 1977; Hundius & Kölver 1983; Ware 1995; Borer 2005; Bale & Barner 2009; Borer & Ouwayda 2010; de Belder 2011; Dékány 2011; Mathieu 2012; Acquaviva 2019).² Thus, according to a seminal work by Borer (2005), a dedicated functional category, i.e. DIVIDER, serves to portion out ‘stuff’. In Mandarin Chinese, this division is facilitated by classifiers. In English, the same is done by the plural inflection, the indefinite article, or a quantifier like *every*.

Pelletier (2012) develops a similar analysis whereby the mass-count distinction arises only at the syntactic level. For Pelletier, however, the lexical semantic value of nouns includes both its +MASS and +COUNT uses, making nouns essentially flexible. This view relates to the cross-linguistic observation that nouns tend to have a dual life, being compatible with both mass and count interpretation.

The second view claims that even classifier languages encode the mass-count distinction at the lexico-semantic level, at least to some degree. For instance, Cheng & Sybesma (1998), (1999), (2005) claim that Chinese, same as English, has both count nouns, i.e. those semantically partitioned into discrete units, and mass nouns, i.e. those that lack a built-in semantic partitioning. They claim that the existence of such a distinction is reflected, among other places, in the classifier system itself. While count nouns require *count-* or *individual classifiers*, i.e. those that name the unit of natural occurrence, mass nouns require *mass-* or *non-individual classifiers*, i.e. those that create a measure unit. Doetjes (1996),

² The view that nouns in obligatory classifier languages are mass in the classical sense, i.e. they denote stuff/substance, has a long tradition going back to many typological studies (e.g. Ritchie 1971; Allan 1980; Denny 1986; Lucy 1992).

(1997), (2012) presents additional evidence in favor of lexically encoded mass-count distinction: a) derivational suffixes *-zhi* and *-tou* that appear exclusively on count noun stems; b) the existence of the general classifier *ge* which although semantically bleached (i.e. uninformative as to how to partition) is only compatible with count nouns; and c) the availability of a mass-selecting quantifier *yī diǎnr* ('bit'). Therefore, the authors propose that instead of individuating, classifiers simply enable syntactic visibility of the denotational properties already encoded in the lexical semantics of the noun.

Similarly, Sudo (2015), (2016) argues that Japanese has nouns with countable denotations. Sudo (2016) further proposes that the obligatoriness of classifiers is due to the semantics of numerals, not nouns (see also Krifka 1995; Bale & Coon 2014; Bale, Coon & Arcos 2019, Little, Moroney & Royer forthcoming). Finally, an approach to Uzbek as a classifier language with a lexical mass-count distinction is pursued by Beckwith (1998), (2007). In this respect, we build on Beckwith's work.

3. Evidence for the Mass-Count Distinction in Uzbek

In this section, we present evidence suggesting that Tashkent Uzbek makes a lexico-semantic distinction between count and mass nouns. The evidence is primarily based on the sensitivity to the mass-count distinction that is exhibited by a range of modifiers, as well as by different types of classifiers.

3.1 Compatibility with different types of modifiers

i) Quantifiers

First, there exist quantifiers which are compatible only with notionally count nouns like *book*, as illustrated in (2a). These quantifiers also require the presence of the plural morpheme *-lar* on the count noun.³ Such quantifiers are ungrammatical with notionally mass nouns like *snow*, as indicated by (2b).

- (2) a. **hamma/ barcha/ talaygina/ ko'plab/ ayrim/ ba'zi** kitob-*(lar)
 all all many numerous some some book-PL
 'all/ many/ numerous/ some books'
- b. ***hamma/ barcha/ talaygina/ ko'plab/ ayrim/ ba'zi** qor(-lar)
 all all many numerous some some snow-PL
 Int.: 'all/ every/ numerous/ some snows'

³ The discussion in this subsection concerns only the regular or additive plurality, i.e. denoting pluralities of individual entities. Grammaticality of mass nouns with the non-additive uses of the plural morpheme (e.g. plurality of subkinds/ abundance) is discussed in the next subsection.

Similarly, the distributive universal quantifier *har* ‘each/ every’ is compatible with count nouns exclusively, cf. (3). This quantifier, however, requires the count noun in its singular form.

- (3) **har** kitob(*-lar) / ***har** qor(-lar)
 every book-PL every snow-PL
 ‘every book / every snow’

Conversely, there exist quantifiers which select for only mass nouns, as shown in (4a). With count nouns, these quantifiers are ungrammatical, as in (4b).

- (4) a. **bir oz/ ozgina/ jindak/ qittak** qor(*-lar)
 a little a little a small amount a small amount snow
 ‘a small amount of snow’
 b. ***bir oz/ *ozgina/ *jindak/ *qittak** kitob(-lar)
 a little a little a small amount a small amount book
 Int.: ‘a small amount of books’

The quantity question word *qancha* ‘how much’ also selects for mass nouns only:

- (5) **qancha** qor / *kitob?
 how.much snow book
 ‘How much snow / books?’

Finally, some sensitivity to the mass-count distinction is present even among quantifiers that are compatible with both count and mass nouns, e.g. *ko‘p* ‘many/much’. Here, the plural morpheme may optionally occur only on count nouns, as in (6a) but is ungrammatical with mass nouns, as in (6b).

- (6) a. **ko‘p** kitob(-lar)
 many/much book-PL
 ‘many books’
 b. **ko‘p** qor(*-lar)
 many/much snow-PL
 ‘much snow’

An additional contrast arises in genitive partitive constructions, as noted by Görgülü (2012) for Turkish. In partitives containing count nouns, as shown in (7a), the quantifier *ko‘p* is grammatical, and the plural marker becomes

obligatory. In partitives with mass nouns, as indicated in (7b), the quantifier is ungrammatical, regardless of the presence of the plural marker.

- (7) a. **kitob-*(lar)-ning ko‘p-i-si**
 book-PL-GEN most-POSS
 ‘most of the books’
- b. ***qor-(lar-)ning ko‘p-i-si**
 snow-GEN most-POSS
 Int.: ‘most of the snow(s)’

ii) Numerals

As pointed out above, direct co-occurrence of cardinals with notionally count and mass nouns is generally ungrammatical in Tashkent Uzbek. An exception is formed by approximative and collective numerals, which do not combine with classifiers. Crucially, such numerals are sensitive to the mass count distinction.

Uzbek collective numerals may be analyzed as complex numerical expressions which contain a cardinal numeral and a bound morpheme (e.g. *-ala*, *-ov*, *-ovlon*,) indicating an exhaustivity and a cohesiveness of a group (Sapayev 2009; Kim 2009). As shown in (8), the collective numeral carrying the suffix *-ala* may combine with count nouns but not with mass nouns.

- (8) a. **uch-ala** kitob
 three-COLL book
 ‘All three books’
- b. ***uch-ala** qor
 three-COLL snow
 Int.: ‘All three snow’

The same contrast arises in modification by approximative numerals, i.e. those formed via a combination of a higher cardinal numeral and an approximative suffix, either collective (*-larcha*) or distributive (*-lab*). Both types of approximative are grammatical with count nouns but not with mass nouns:

- (9) a. **ming-lar-cha/** **ming-lab** kitob-(lar)
 thousand.PL.APPROX.COLL thousand-APPROX.DIS book-PL
 ‘thousands of books’ (= ‘many books’)
- b. ***ming-lar-cha/** **ming-lab** qor-(lar)
 thousand.PL.APPROX.COLL thousand-APPROX.DIS snow-PL
 Int.: ‘thousands of waters’ (= ‘much water’)

iii) Distributive Adjectives

Yet another grammatical environment where the mass-count contrast arises is created by non-counting modifiers such as distributive adjectives (Quine 1960; Bunt 1980, 1985; Schwarzschild 2011). The following example shows ‘stubbornly distributive’ adjectives of size and shape (term due to Schwarzschild 2011) that can modify count nouns (10a), but not mass nouns (10b).

- (10) a. **katta/kichkina** kitob/ kursi/ bola/ daraxt/ uy
 big/ small book/ chair/child/tree/ house
 ‘a big/ small book/ chair/ child/ tree/ house’
 b. ***katta/kichkina** suv/ qor/ ter/ un/ moy/ loy
 big/ small water/snow/sweat/flour/oil/ dirt
 Int.: ‘a big/ small water/ snow/ sweat/ flour/ oil/ dirt’

A similar effect is observed with the diminutive suffix *-cha*, which attaches to count nouns, but does not appear on mass nouns:

- (11) a. kitob-/ kursi-/ bola-/ daraxt-/ uy-**cha**
 book-/chair-/child-/tree-/ house-DIM
 ‘a small book/ chair/ child/ tree/ house’
 b. *suv-/ qor-/ ter-/ un-/ moy-/ loy-**cha**
 water-/snow-/sweat-/flour-/oil-/ dirt-DIM
 Int.: ‘a small water/ snow/ sweat/ flour/ oil/ dirt’

The position of distributive adjectives provides even further evidence that individuation is semantically present in the NP, before a classifier is attached. When distributive adjectives occur in numeral constructions with notionally count nouns, they obligatorily precede the noun but follow sortal classifiers like *dona* ‘item’. This is illustrated in (12). Under the assumption that sortal classifiers serve as individuators of mass nouns, we would expect that such adjectives would appear above classifiers, i.e. after the division has taken place. We see, however, that the distributive adjective combines with the noun before the classifier is merged, which suggests that already at this point the noun is individuated. Dékány & Csirmaz (2010), Dékány (2011) show the opposite to be the case in Hungarian: distributive adjectives must precede sortal classifiers and cannot directly modify notionally count nouns. They take it as evidence suggesting that mass-count distinction does not exist in Hungarian.

- (12) uch (*katta) dona **katta** kitob
 three big CL_{ITEM} big book
 ‘three big books’

The situation with notionally mass nouns is reversed. Distributive adjectives cannot directly precede notionally mass nouns like *qor* ‘snow’, and, as expected, may appear only above the classifiers that co-occur with mass nouns, like *hovuch* ‘handful’ in (13). Thus, with substance mass nouns like *qor*, individuation has to be introduced by an overt classifier, and only then can a distributive adjective be attached.

- (13) uch **katta** hovuch (*katta) qor
 three big CL_{HANDFUL} big snow
 ‘three big handfuls of snow’ (not ‘three handfuls of big snow’)

In other words, the contrast between (12) and (13) points to a linguistically real difference between *book-* and *snow-*type nouns.

Also, bare count nouns (with a plural marker) are allowed with reciprocal predicates, unlike bare mass nouns (cf. 14a versus 14b.) This is probably related to the fact that the denotation of the former but not of the latter is divided into atoms.

- (14) a. **bir-biriga** o‘xsha-sh kitob-*(lar)
 one another.DAT look.alike-PTCP book-PL
 ‘books that look alike’
 b. ***bir-biriga** o‘xsha-sh qor(-lar)
 one another.DAT look.alike-PTCP snow-PL
 Int.: ‘snow(s) that looks alike’

Finally, adjectives like *countless* also show sensitivity to the mass-count distinction. They can modify count nouns, but not mass ones:

- (15) a. **son-sanoqsiz/** **hisobsiz/ behisob** kitob-*(lar)
 countless countless countless book-PL
 ‘countless books’
 b. ***son-sanoqsiz/** ***hisobsiz/ *behisob** qor(-lar)
 countless countless countless snow-PL
 Int.: ‘countless snow(s)’

3.2 Compatibility with different classifier types

Further, the numeral classifier system itself is suggestive of the existence of the mass-count distinction in Uzbek. We will first discuss three classifiers types which select for count nouns, namely *sortal*, *group* and *pair* classifiers. Then we turn to those classifiers that are compatible exclusively with mass nouns

(specifically, the set thereof that denote aggregates). Finally, we will examine *mensural* classifiers which are required with mass nouns and can co-occur with count nouns as well.

i) Sortal Classifiers

In numeral constructions with count nouns, Tashkent Uzbek makes obligatory use of *sortal classifiers*, sometimes defined as classifiers that facilitate counting by naming the unit of natural occurrence of the noun's denotatum (Lyons 1977; Cheng & Sybesma 1999; Aikhenvald 2000). These include the general classifier *-ta*⁴ in (16a), and specific classifiers whose choice depends on inherent semantic properties of the nouns (e.g. animacy, shape, size, etc.) in (16b-e). For example, the choice between the commonly used *dona* 'item' in (16b) and *nafar* 'person' in (16c) depends on the animacy of the noun: the former appears with inanimate and the latter with human nouns. Below, we focus on the distribution of the general CL, which has fewer selectional restrictions.

- (16) a. ikki*(-**ta**) kitob/ bola
 two-CL_{GEN} book kid
 'two books/ kids'
- b. ikki ***(dona)** kitob [-animate]
 two CL_{ITEM} book
 'two books'
- c. ikki ***(nafar)** bola [+human]
 two CL_{PERSON} kid
 'two kids'

This brings us to the mass-count contrasts observed when nouns interact with numerals. As already mentioned, direct co-occurrence of cardinals with notionally count and mass nouns is ungrammatical in Tashkent Uzbek. Crucially, however, even when the cardinal numeral is followed by the general classifier *-ta* (or another sortal), such constructions are typically ungrammatical if they contain a mass noun, as illustrated in (17a). Note that the occurrence of *-ta* does not realize individuation of water, e.g. into drops. The necessity of the general classifier with count nouns is shown in (17b).^{5,6}

⁴ The general classifier *-ta* is used in a number of Iranian languages, including Persian, Tajik, Mazanderani, Gilaki and Muslim Caucasian Tat (Mahootian 1997; Gebhardt 2009; Windfuhr & Perry 2009; Mache 2012; Stilo 2018; Cathcart et al. 2020).

⁵ This is very similar to what is reported by Sağ-Parvardeh (2019) for Turkish, a related optional classifier language, in which the general classifier *tane* is compatible with count nouns only.

⁶ The co-occurrence of the general classifier with some mass nouns can be marginally acceptable under the standard container reading, e.g. 'two bottles of water (i). Such co-occurrences are highly

- (17) a. *Ship-dan uch(-ta) suv tom-vot-ti
 Ceiling.ABL three-CL_{GEN} water drip-PROG-3.PRS
 Int.: ‘Three waters are dripping from the ceiling’
- b. Do‘kon-dan uch*(-ta) kitob ke-vot-ti
 Shop-ABL three-CL_{GEN} book come-PROG-3.PRS
 ‘Three books are coming from the store.’

Next, Tashkent Uzbek has a small set of quantifiers compatible with numeral classifiers: the quantity question word *nechta* ‘how many’, and quantifiers that contain the cardinal *bir* ‘one’ (e.g. *bir nechta* ‘several’, *har bitta* ‘each’, *qaybitta* ‘whichever’). These can only co-occur with count nouns, cf. (18a) and (18b).

- (18) a. **nech-ta /** **biror-ta** kitob
 how many-CL some- CL book
 ‘how many books/ some book’
- b. ***nech-ta/** ***biror-ta** suv
 how many-CL some- CL water
 Int.: ‘how many water(s)/ some water’

That the general classifier does not provide individuation of otherwise mass nouns is also suggested by its distribution with object mass⁷ nouns. For instance, note the problematic distribution of the general classifier with nouns like *mebel* ‘furniture’, *pochta* ‘mail’, *zeb-ziynat* ‘jewelry’ (i.e. “functional aggregates”, Grimm 2012) and ‘*guruch*’ rice, *bug‘doy* ‘wheat’, *tuz* ‘salt’, *shakar* ‘sugar’ (i.e. “granular aggregates”, Grimm 2012), as shown in (19a). A more natural way for

restricted: they are possible with a highly limited number of mass nouns and can only result in standard container meanings, not other kinds of division, e.g. into drops or grains (17a).

We believe that in examples like (i), the noun undergoes a mass-to-count shift via an independent mechanism (e.g. the application of a partition operator along the line of Chierchia 2010), after which the application of *-ta* is possible. In the absence of the shifted container reading, as in (17a), *-ta* is inapplicable.

- (i) Do‘kon-dan ikki-ta suv ol-uv-dim.
 shop-ABL two-CLGEN water get-PTCP-PST.1SG
 ‘I got two (standard units of) water from the shop.’

⁷ Based on our preliminary findings, Tashkent Uzbek speakers distinguish between *count*, *substance mass*, *object mass* and *flexible* nouns (Barner & Snedeker 2005; Inagaki & Barner 2009). Due to space limitations, we do not illustrate morpho-syntactic properties of the latter two in detail here. Note, however, that flexible nouns (e.g. *tosh* ‘stone’, *qog‘oz* ‘paper’, *shokolad* ‘chocolate’) pattern with typical count nouns like *kitob* ‘book’ on their count sense and with substance mass nouns like *suv* ‘water’ on their mass sense. In turn, object mass nouns (e.g. *mebel* ‘furniture’, *pochta* ‘mail’, *zeb-ziynat* ‘jewelry’) generally pattern with typical substance mass nouns, but like count nouns they support distributive reading in certain environments.

such nouns to occur in numeral constructions with *-ta* is after being lexically individuated by a relational noun, as shown in (19b).

- (19) a. ^{??/*}**ikki-ta** mebel/ pochta/ guruch
 two-CL_{GEN} furniture/ mail/ rice
 Int.: ‘two (items of) furniture/ mail/ rice’
- b. **ikki-ta** mebel jihoz-i/ pochta jo‘natma-si/ guruch don-i
 two-CL_{GEN} furniture equipment-POSS/mail shipment-POSS/rice grain-POSS
 ‘two furniture items / mail shipments/ rice grains/ wheat grains’

ii) Group and Pair Classifiers

Classifiers that occur with lexically individuated nouns also include those that name external units of entities denoted by nouns. For instance, *group* classifiers, i.e. classifiers referring to a collection of individuals (e.g. *guruh* ‘group’, *gala* ‘flock, pack’, *poda* ‘herd’, *to‘da* ‘swarm’, *dasta* ‘bunch’, *to‘plam* ‘collection’, *komplekt* ‘set’, etc.) in (20a) (see also Beckwith 1998), and *pair* classifiers, i.e. those referring to paired individuals (e.g. *juft* ‘twain’, *par(a)* ‘pair’) in (20b).

- (20) a. **ikki guruh** bola/ *olomon/ *omma
 two CL_{GROUP} child mob mass
 ‘two groups of children/ *mobs/ *masses’
- b. **ikki juft** etik / oyoq kiyim/ *guruch/ *tuz
 two CL_{PAIR} boot footwear rice salt
 ‘two pairs of boots/ footwear/ *rice/ *salt’

iii) Mensural Classifiers

In contrast, numeral constructions containing mass nouns (21), require *mensural classifiers*, i.e. classifiers that facilitate counting by creating an external measure unit for the noun’s denotatum (Lyons 1977; Cheng & Sybesma 1999; Aikhenvald 2000). These include, for instance, container measures (e.g. *qop* ‘sack’, *kosa* ‘bowl’, *arava* ‘cart’) in (21a), and standard measures in (21b) (e.g. *kilo* ‘kilo’, *metr* ‘meter’, *litr* ‘liter’). As shown in (21a), while mensural classifiers are strongly associated with mass nouns, some of them are compatible with count nouns as well. We will address this issue in Section 4.

Although mensural classifiers are generally compatible with both count and mass nouns of different kinds, as in (21a), some impose lexical restrictions, for instance, requiring the noun to denote liquid substance, as in (21b).

- (21) a. **ikki** (**arava**) qor/ kitob
 two CL_{CART} snow book
 ‘two carts of snow/ books’

- b. ikki **(litr)** / **(tomchi)** suv
 two CL_{LITER} CL_{DROP} water
 ‘two liters/ drops of water’

iv) Aggregate Classifiers

While mensural classifiers as a group do not require a mass noun, this restriction is indeed imposed by classifiers like *zarracha* ‘particle’, *kristal* ‘krystal’ or *don* ‘grain’, which we can refer to as **aggregate classifiers**. As suggested by this term, they are only compatible with (granular) aggregate mass predicates.

- (22) uch **zarracha** tuz/ qum/ guruch
 three CL_{PARTICLE} salt/ sand/ rice
 ‘three particles of salt/ sand/ rice’

We thus observe that different classifiers impose different requirements on the nominal argument.

3.3 Available Meanings

Uzbek nouns in their bare form, i.e. without determiners, numerals, classifiers, case- and plural-marking, do not have uniform denotations. Specifically, in the absence of a syntactic dividing structure, nouns neither invariably default to a mass reading (Sharvy 1978; Borer 2005), nor do they exhibit uniform flexibility, having both a mass and a count reading (Pelletier 2012).

Consider example (23) adapted from Cheng, Doetjes & Sybesma (2008), who show that Mandarin, an arguably mass-only language, does not easily allow all nouns to be interpreted as mass. Same as in Mandarin, (23a) in Uzbek, can only be felicitous if the bare nouns *it* ‘dog’ and *kitob* ‘book’ are interpreted as count. For instance, in what Cheng et al. 2008 call a “wall-paper reading”, i.e. if many little dogs/books are depicted on the wall-paper, or if there are many dogs/books, e.g. in cages/on shelves, all over the wall. Crucially, none of the bare nouns in (23a) have a mass reading that refers to the stuff of which individuals are made. This contrasts with the example in (23b) containing notionally mass nouns like *snow* and *water*. With such nouns the individuated reading is unavailable. Finally, we see that both readings are possible with nouns like *tosh* ‘stone’ and *qog‘oz* ‘paper’ which constitute a smaller class of truly flexible nouns.

- (23) (adapted from Cheng et al. 2008: 50):
- a. Devorning hamma yog‘i it/ kitob.
 Wall.GEN everywhere.3SG.POSS dog book
 ‘There are dogs/ books all over the wall.’

- #‘There is dog/ book all over the wall.’
- b. Devorning hamma yog‘i qor/ suv.
 Wall.GEN everywhere.3SG.POSS snow water
 ‘There is snow/ water all over the wall.’
- #‘There are snows/ waters all over the wall.’
- c. Devorning hamma yog‘i tosh/ qog‘oz.
 Wall.GEN everywhere.3SG.POSS stone paper
 ‘There is stone/ paper all over the wall.’
 ‘There are stones/ papers all over the wall.’

Both the apparent contrast between nouns in (23a) and (23b), and the existence of flexible nouns (23c) is problematic for accounts that assume (substance-)mass denotations for all nouns in classifier in the languages (Ritchie 1971; Lucy 1992), as well as for those that predict a default mass reading if a syntactic dividing structure is absent (Sharvy 1978; Borer 2005). This is because the count reading of the noun should become available only after a classifier/ plural morphology provides the partitioning. This, however, is not the case. That not all nouns allow flexible reading, in turn, is problematic for Pelletier (2012).

As argued by Cheng et al. (2008), example (23) also illustrates that the *Universal Grinder* does not have a universal application. Restrictions on grinding may be found even with bare nouns that seem particularly compatible with mass (“substance/ stuff”) reading such as those referring to captive-bred meat animals listed in (24). As shown in the example, however, to induce mass reading, the word *go‘sh* ‘meat’ needs to be added to these nouns. Otherwise, the nouns are interpreted as count. Cheng et al. (2008: 57) observe a similar effect in Mandarin Chinese, English, and Dutch, and suggest that grinding is lexically blocked by the existence of a parallel form with ‘meat’.

- (24) Ular qo‘y/ cho‘chqa/ echki #(go‘sh-t-i) yey-ish-di.
 They sheep pig goat meat-3POSS eat-3PL-PST.3PL
 ‘They ate mutton/ beef/ pork/ goat meat.’

Incomplete nominal flexibility and non-universality of the *Universal Grinder* have been shown for many languages, including English, Dutch, Icelandic, German, Yudja, Dagaare, Modern Hebrew, Chinese varieties, and Japanese (see Grimm 2012; Doetjes 1996, 1997; Cheng et al. 2008; Sudo 2016; Rothstein 2017 and references therein). Cross-linguistically attested restrictions in mass-count shifts, especially in classifier languages, strongly suggest that nouns with count and mass denotations are differentiated at the lexical/ lexico-semantic level.

We first showed that count-mass distinctions between nouns are visible in the absence of classifiers, indicating that the latter do not uniformly serve as

individuator. Next we showed that classifiers themselves exhibit sensitivity to the type of nominal they combine with. The observed distinction between classifier expressions is left unexplained if we assume that all nouns (and NPs) are mass before a classifier is attached. In contrast, the facts are accounted for straightforwardly if we assume that some nouns in Uzbek denote sets of individuated entities, while others do not, denoting instead non-disjoint entities. That is, the distributional properties suggest that the corresponding distinctions exist low in the structure, before the classifiers have a chance to apply. Further, we argued that Uzbek exhibits a difference between mass, count and flexible nouns in terms of the range of available interpretations, and between count and object mass nouns, of which only the former are compatible with the classifier *-ta*. These contrasts that are not predicted under approaches that treat all nouns as mass by default or unfirmly flexible. We conclude that although Uzbek makes a productive use of classifiers, the language still makes a grammatical distinction between count and mass nouns.

4. Syntax & Semantics of Classifiers

4.1 Theoretical Assumptions

We will assume that both mass and count nouns denote properties and are of the type $\langle e, t \rangle$; in other words, they do not differ in terms of their semantic type. In this respect we follow Chierchia (2010). The motivation behind introducing no type distinction has to do with the fact that mass and count nominals often occupy the same position in the syntax and successfully combine with the same elements. Crucially, this happens even with bare NPs, which do not contain the NumP and DP projections, suggesting that such bare NPs are of the same type. For instance, both mass and count NPs can combine with certain mensural classifiers, such as *stakan* ‘glass’.

However, based on the discussion in Section 3, we conclude that the nature of mass and count properties is not the same. Specifically, we will follow the classical Link (1983) - Krifka (1989) approach, according to which count predicates are atomic and mass predicates are not. In other words, the denotation of count predicates consists of atoms and their sums, whereas the denotation of mass predicates is not divided into atoms. At the same time, we would like to point out that it is possible to rephrase our account within a different framework, e.g. one that analyzes both mass and count nouns as having atomic denotation, with the difference between the two kinds stemming from whether the atoms are stable (count) or unstable (mass), along the line of Chierchia (2010). Yet another alternative, argued for by Landman (2020), is to exclude atoms from the distinction in question altogether, rooting it instead in the difference between

disjoint and non-disjoint bases. As far as we can tell, the analysis of Uzbek classifiers presented in this paper is equally compatible with any of these approaches.

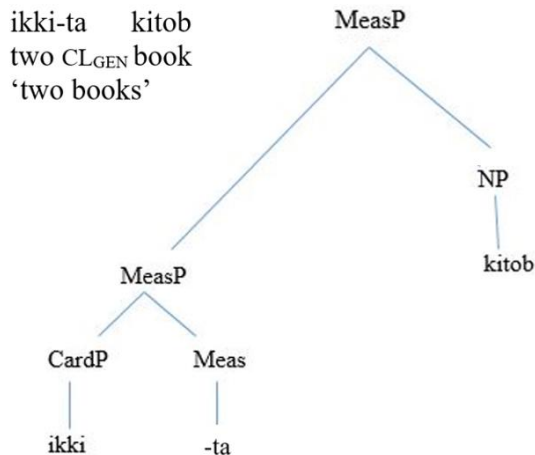
Finally, we take Uzbek numerals to be of type $\langle n \rangle$ (cf. e.g. Krifka 1989, 1995). While Krifka argues that in English, the semantics of numerals includes a built-in classifier, we believe that this does not hold for Uzbek, which is a classifier language. Thus, a numeral cannot combine with a property-denoting NP directly: a type mismatch results. A classifier is precisely in order to avoid such mismatch. This line of analysis has been proposed, for different languages, by Krifka (1995), Bale & Coon (2014), Sudo (2016), Little & Winarto (2019), Sağ-Parvardeh (2019).

4.2 Syntactic and Semantic Analysis

We propose that Uzbek classifiers function as mediators between numerals (type $\langle n \rangle$) and property-denoting NPs (type $\langle e, t \rangle$). As such, they are functions of type $\langle n, \langle \langle e, t \rangle, \langle e, t \rangle \rangle$: they look for a numeral and a property, and render a new property as an output. For example, a classifier *CL* may combine with a numeral *five*, then the expression *five CL* may combine with the property *boy*, and we get a new property *five boys*.

Syntactically, we take the classifier to combine first with the numeral, forming a Measure Phrase. Then this expression combines with the NP. The structure is presented in (25). Our motivation for this claim is both theoretical and empirical. Theoretically, robust evidence in favor of the mass-count distinction in Uzbek suggests that classifiers are not needed in order to “turn the nouns into count”. Therefore, we follow the alternative approach according to which classifiers are needed for numerals, turning them into functions that can combine with an NP.

(25)



This approach is further supported by empirical evidence. First, the particularly widespread and underspecified classifier *-ta* is a suffix which, crucially, attaches to the numeral, rather than the noun (*ikki-ta kitob* ‘two-CL books’, not **ikki kitob-ta*). This suggests that the classifier and the numeral form a constituent to the exclusion of the NP. Second, classifiers (whether suffixes or free morphemes) are incompatible with other counting-related units which get suffixed to the numeral, such as the approximative and the collective suffixes in (26a). A co-occurrence of such a suffix with a classifier leads to ungrammaticality shown in (26b). For reasons of space, we do not discuss these suffixes in detail, but we would like to note that the incompatibility illustrated in (26b) suggests that classifiers, approximatives and collectives compete for the same syntactic position and/or are semantically incompatible since both require a numeral (type <n>) as an argument. Such incompatibility would be unlikely if the classifiers first combined with the NP and their function was to make the NP countable.

- (26) a. ming-lab / uch-ala kitob
 thousand-APPROX three-COLL book
 ‘thousands of / all three books’
- b. *ming-lab / uch-ala dona kitob
 thousand-APPROX three-COLL CL_{ITEM} book
 ‘thousands of / all three books’

Semantically, both sortal and mensural classifiers contribute the following meaning component:

$$(27) \lambda n \lambda P \lambda x. P(x) \ \& \ F(x) = n$$

The difference has to do with (a) whether a given classifier contributes a presupposition regarding the properties of *P* (e.g. that *P*-objects are [+human]) and (b) the nature of the function *F*.⁸ In the latter respect, sortal and mensural classifiers differ in an important way. Recall that sortal classifiers (e.g. *-ta* (underspecified) and *dona* ‘item’) combine with count NPs, while mensural ones (e.g. *litr* ‘liter’, *qop* ‘sack’) typically merge with mass ones, although some of them are compatible with count nominal, too. We propose that both types of classifiers specify that the number of *P*-units equals *n*. The crucial difference (in the spirit of Cheng and Sybesma 1998) has to do with how the division into *P*-units is introduced. Intuitively speaking, sortal classifiers “work” with the division into atoms that is independently available given the semantics of the NP. More formally, they contribute the cardinality function. If the NP is count, it denotes an

⁸ Group classifiers are more complex since they contribute an additional operator. We do not provide the semantics of group and aggregate classifiers for reasons of space.

atomic property and thus provides a basis for counting. Such an NP is compatible with a Measure Phrase containing a sortal classifier. In contrast, mass NPs are not atomic and do not supply a division into disjoint units that is needed for counting. Since the classifier does not provide such a division either, such combinations are unacceptable (some exceptions include mass nouns that undergo a mass-to-count shift for independent reasons, with strong contextual support).

In contrast, mensural classifiers impose their own division into units; as such, they are compatible with mass properties. These classifiers introduce a measure function whose specific nature varies from classifier to classifier. Combining with a mass noun is no longer a problem, since now it is the classifier that specifies what is treated as a unit for the purposes of counting (a liter, a kilo, a sack, etc.) However, a count noun is also possible (as long as it meets additional, presupposition-based requirements of the classifier). But, even with a count noun, what will be counted are not *P*-atoms but rather the units specified by the classifier, e.g. sacks. Below, we illustrate the semantics of several classifiers, sortal and mensural.

- (28) a. $[[\text{-ta}]] = \lambda n \lambda P \lambda x. P(x) \ \& \ |x| = n$ sortal
 undefined if *P* is not atomic
- b. $[[\text{dona}]] = \lambda n \lambda P \lambda x: P \subseteq \text{INANIMATE}. P(x) \ \& \ |x| = n$ sortal
 undefined if *P* is not atomic
- c. $[[\text{litr}]] = \lambda n \lambda P \lambda x: P \subseteq \text{LIQUID}. P(x) \ \& \ \text{LITER}(x) = n$ mensural
- d. $[[\text{qop}]] = \lambda n \lambda P \lambda x. P(x) \ \& \ \text{SACK}(x) = n$ mensural

-ta is the most neutral classifier in the sense that it does not impose any requirements on the lexical meaning of the nominal. For instance, the set of objects denoted by the NP may be human, non-human but animate, as well as inanimate. Still, this suffix is typically incompatible with mass nouns. This results from the fact that it does not introduce a measure function. Thus, it does not affect the countability of the nominal. The Measure Phrase specifies what the number of *P*-units is, but it does not contribute any information regarding the nature of these units. Therefore, it will be applicable if such units are defined in the semantics of the NP (the count case) but not if the NP is not atomic (mass). *Dona* is the same with the exception that it further presupposes that the NP is inanimate.

In turn, *litr* does contribute the measure function LITER. It applies to a set of *P*-individuals and renders the number of liters in this set. Since it specifies the nature of counted units, it is compatible with mass nouns. Note that the semantics of the classifier does not, strictly speaking, exclude count properties as a possible argument. However, the classifier imposes the requirement that the NP must denote a liquid, and liquid-denoting nouns are prototypically mass. In other words, a count noun like *kitob* ‘book’ is incompatible with *litr* for the same reason

as the mass noun *guruch* ‘rice’. The fact that mensural classifiers are in principle compatible with count nouns is shown by our next example.

Qop ‘sack’ is a mensural classifier which, similarly to *litr*, contributes a measure function, in this case, SACK. Thus, it, too, imposes division into units and specifies that the number of such units is identical to the number denoted by the numeral. This makes *qop* compatible with mass nouns. But, since it does not impose the liquidity requirement, it is also compatible with count nouns, e.g. *ikki qop kitob* ‘two sacks of books’. Crucially, here, the numeral is understood to specify the number of P-sacks and not P-atoms, e.g. the number of sacks of books, rather than individual books. The division imposed by the measure function gets priority, and it is less important whether the original property supplied such a division or not. At the same time, it is worth noting that the count nature of *kitob* does not get annulled in such expressions: the phrase is still interpreted as a set of sacks containing (multiple) individual books, not as book-matter. What gets counted are sacks, but it depends on the semantics of the NP whether the contents of the sacks are further divided into atoms.

5. Conclusion

In this paper, we have argued that in Tashkent Uzbek, an obligatory classifier dialect of Uzbek, nominal phrases exhibit the mass-count distinction. Crucially, this distinction is observed even in the absence of classifiers or below the projection in which classifiers are merged. Classifiers are sensitive to the mass-count distinction but do not uniformly serve as “individuator” of otherwise mass nouns. Instead, classifiers function as mediators between a numeral and a property-denoting NP. Syntactically, they first combine with a numeral, forming a Measure Phrase, which, in turn, is merged with the NP. Semantically, classifiers denote functions of type $\langle n, \langle \langle e, t \rangle, \langle e, t \rangle \rangle$. Sortal and mensural classifiers differ in that only the latter provide a measure function. Sortal classifiers specify that the cardinality of a P-set equals the number denoted by the numeral. However, in order for the cardinality of the set to be defined, P has to be atomic and thus count. In contrast, mensural classifiers divide the NP denotation into units by contributing a measure function. This makes them compatible with mass nouns as well as with count ones. Further restrictions imposed by individual classifiers on the nature of *P* (e.g. animacy, liquidity, etc.) are analyzed as presuppositions. Thus, the paper provides an analysis of classifiers in an underinvestigated language. Further, it uses evidence from this language to support the broader, cross-linguistic view of the mass-count distinction according to which it lexically characterizes nouns even in obligatory classifier languages / dialects.

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