Bare Nouns and the Hungarian Mass/Count Distinction

Kurt Erbach(✉), Peter R. Sutton, and Hana Filip

Heinrich Heine Universität, Düsseldorf, Germany
erbach@uni-duesseldorf.de, peter.r.sutton@icloud.com, hana.filip@gmail.com

Abstract. We argue that in Hungarian notionally count, singular nouns like *könyv* ('book'), *toll* ('pen'), and *ház* ('house') are semantically number-neutral (see also Farkas and de Swart (2010)). This departs from the view that such nouns are dual-life with respect to being count or mass, such as *brick* or *stone* in English, as recently argued by Rothstein (2017) and Schvarcz and Rothstein (2017), who rely on two assumptions: that pseudo-partitive (measure) NPs require mass predicates denoting measured entities (Rothstein 2011); and that classifiers modify mass nouns (Chierchia 1998, 2010). We provide evidence against these two assumptions and argue that, together with (i) the commonly accepted analysis of measure DPs on which they require *cumulative* predicates to denote what is measured (i.a, Krifka 1989; Filip 1992, 2005; Nakanishi 2003; Schwarzschild 2006; and (ii) for an analysis of classifiers (Krifka 1995; Sudo 2017) in which they combine with numerical expressions rather than nouns, a number neutral analysis of Hungarian notionally count, singular nouns covers a wider range of data than a dual-life analysis does. We build on the use of context to specify what counts as one (Landman 2011; Rothstein 2010; Sutton and Filip 2016) and the analyses of counting and measuring in Filip and Sutton (2017) yielding a novel analysis in which Hungarian has many count nouns and many mass nouns, rather than many dual-life and mass nouns, but few count nouns.

Keywords: Count/mass · Number-neutral · Classifiers · Context-sensitivity

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1 Introduction

This paper offers a new perspective on semantics of counting and measuring in Hungarian. We argue that Hungarian notionally count, singular nouns like *könyv* ('book') are semantically number-neutral, denoting countable individuals and sums thereof (see also Farkas and de Swart 2010).[1] This analysis better captures the available interpretations of such nouns, namely that they can refer to one or more individuals in certain contexts. Our analysis also better reflects the empirical facts of Hungarian than the recent analyses by Rothstein (2017) and Schvarcz and Rothstein (2017) in which such nouns are claimed to be dual-life—i.e. can occur straightforwardly felicitously in count and mass syntax—similar to *brick* or *stone* in English.[2] In particular, we account for the fact that most Hungarian notionally count, singular nouns occur bare with quantifiers and in counting constructions, and lack a mass reading in argument position.

Rothstein's (2017) and Schvarcz and Rothstein's (2017) dual-life analysis of Hungarian notionally count, singular nouns rests on the claim that these nouns have a count denotation, because they are directly countable, i.e., they freely occur in counting constructions with count cardinal quantifiers, and they also have a mass denotation because they occur in two environments which Rothstein (2017) and Schvarcz and Rothstein (2017) claim to be mass syntax: pseudo-partitive (measure) DPs and classifier constructions. The latter claim presupposes two (not uncontroversial) assumptions: (i) pseudo-partitive (measure) DPs require their constituting nominal predicates (which denote what is measured) to have a mass interpretation (Rothstein 2011, 2017), and (ii) nouns in bona fide classifier constructions are mass (Chierchia 1998, 2010; Rothstein 2017).

We argue that if Hungarian count nouns are semantically number-neutral, we can cover more data than a dual-life based analysis. It not only explains why such nouns are predicted to be felicitous in measure DPs (under a widespread analysis of measure DPs), but can also explain why they can occur bare with

[1] A note on terminology. We use *count*, *mass* and sometimes *grammatically count/mass* as grammatical categories. For example, the English noun *chair* is count, since it is straightforwardly felicitous in syntatctic environments diagnostic of count nouns (such as direct numerical modification). The English nouns *mud* and *furniture* are mass, since they are straightforwardly felicitous in syntatctic environments diagnostic of mass nouns (such as occurring as bare singulars in the argument position). We use the terms *count denotation* and *mass denotation* in a theory dependent way. Most semantic analyses of the count/mass distinction differentiate count nouns from mass nouns in terms of some property of their denotation, be it *semantic atomicity* (Rothstein 2010) or *disjoint counting base set* (Landman 2016). The distinction between a *count denotation* and a *mass denotation* is just whatever the relevant semantic distinction is in the theory in question.

[2] Typically, when the syntactic environment is ambiguous, dual life nouns can have both a count reading and a mass reading. For example, *Alex's stone is in the yard* is ambiguous between the count reading in which one single stone is referred to, and a mass reading in which some portion of stone-stuff is referred to.

quantifiers and in counting constructions, and why they have no mass reading in argument position. We reject the claim that nouns in bona fide classifier constructions must be mass, because cross-linguistic evidence shows that there are classifier languages that have a grammaticized lexical mass/count distinction, and in which classifiers modify numerical expressions rather than modifying mass nouns. With these counter-arguments and novel data, we conclude that Hungarian singular count nouns are best interpreted as number-neutral predicates, as was done on independent grounds by Farkas and de Swart (2010).

The outline of the paper is as follows. First, we summarize the relevant details of the Hungarian mass/count distinction. Section 3 summarizes the main arguments Rothstein (2017) and Schvarcz and Rothstein (2017) give for their claim, one based on measure (pseudo-partitive) DPs, the other on classifiers. Section 4, provides reasons to doubt some of Rothstein's (2017) and Schvarcz and Rothstein's (2017) assumptions. We argue that a number-neutral analysis of notionally count, singular nouns in Hungarian covers a wider range of data in Sect. 6, and we give a formal account of these data based on the context sensitive analysis of counting and measuring in Filip and Sutton (2017).

2 The Hungarian Mass/Count Distinction

2.1 Morphosyntactic Tests for the Hungarian Mass/Count Distinction

Rothstein (2017) and Schvarcz and Rothstein (2017) argue that Hungarian has a grammaticized lexical mass/count distinction, which is evident in three morphosyntactic tests: (i) number marking, (ii) counting constructions, and (iii) WH-quantification.

Using plural morphology as a litmus test for the mass/count distinction in Hungarian, Rothstein (2017) and Schvarcz and Rothstein (2017) distinguish nouns that occur in plural as count, and nouns that do not as mass:

(1) rózsa / rózsá-k
rose / rose-PL
'rose/roses' (Schvarcz and Rothstein 2017, p. 185)

(2) *kosz-ok
dirt-PL
'dirts' (Schvarcz and Rothstein 2017, p. 193)

Second, Hungarian nouns which are straightforwardly compatible with numerical expressions are count, while incompatible nouns are mass. Note that plural morphology is never used on nouns in Hungarian counting constructions.

(3) három könyv(*-ek)
three book(*-PL)
'three books' (Schvarcz and Rothstein 2017, p. 185)

(4) *három kosz
three dirt
'three dirts' (Schvarcz and Rothstein 2017, p. 193)

Third, nouns that can straightforwardly occur with *hány* ('how many') are count, and nouns that cannot are mass. As in counting constructions, nouns do not take plural morphology when composed with WH-quantifiers:

(5) hány könyv(*-ek)?
how.many book(*-PL)
'How many books?'

(6) *hány szemét/ sár/ kosz?
how.many trash mud dirt
'How many trash/mud/dirt?' (Schvarcz and Rothstein 2017, p. 195)

Schvarcz and Rothstein (2017) use these data and more to argue that Hungarian has a true mass/count distinction and that it is not a genuine classifier language, contrary to the claim made in Csirmaz and Dékány (2014). Count nouns are nouns that occur with plural morphology, are directly compatible with numerical expressions—i.e. can be counted—and are compatible with the WH-quantifier *hány* ('how many'). Mass nouns are nouns that do not occur with plural morphology, and are not directly compatible with numerical expressions or *hány* ('how many'). While Hungarian does in fact use classifiers in counting constructions (see below), they are not mandatory, unlike in true classifier languages, such as Mandarin and Japanese. These characteristics make Hungarian a sort of 'mixed' language with respect to counting given it has a straightforward mass/count distinction and optional classifiers.

2.2 Hungarian Measure DPs, and Classifiers

In addition to claiming that Hungarian has a mass/count distinction, Rothstein (2017) and Schvarcz and Rothstein (2017) point out three syntactic environments in which Hungarian differs from other number marking languages with a mass/count distinction. First, measure DPs in Hungarian are only felicitous with bare singular (count or mass) nouns e.g. (7).

(7) Ki cipelte fel a harminc kg könyvet?
who hauled up the thirty kg book.SG.ACC
'Who hauled the thirty kilos of books upstairs? (Elicited data)[3]

The Hungarian WH-quantifier *mennyi* ('what quantity of') is likewise only felicitous with bare singular nouns be they count or mass. Generally, when mass nouns occur with the WH-quantifier *mennyi* ('what quantity of'), the question

[3] The novel Hungarian data and readings thereof were elicited in correspondence with native speakers including Zsofia Gyarmathy and Károly Varasdi.

can only be felicitously answered with measure of weight, but not cardinality. Hence *három kiló-t* ('three kilos') is a felicitous answer to (8), but *hármat* ('three') is not.

(8) mennyi szemét/ sár/ kosz?
what.quantity.of trash mud dirt
'What quantity of trash/mud/dirt?' (Schvarcz and Rothstein 2017, p. 195)

Nouns like *könyv* ('book'), which are felicitous in count syntax, also occur with *mennyi* ('what quantity of'). However, the relevant questions with *mennyi* ('what quantity of') can be felicitously answered in terms of weight or cardinality. Both *három kiló-t* ('three kilos') and *hármat* ('three') are felicitous answers to (9) (Schvarcz and Rothstein 2017, p. 200, example (42)):

(9) Mennyi könyvet tudsz cipelni?
what.quantity.of book.SG.ACC able.you to.carry
'What quantity of books can you carry?'

Lastly, as Dékány (2011) and Csirmaz and Dékány (2014) have shown, most notionally count, singular nouns in Hungarian can occur with optional classifiers:

(10) a. három *(darab) sár
three $\text{CL}_{general}$ mud
'three pieces of mud' (Schvarcz and Rothstein 2017, p. 194, ex. 27a)
b. három (szál) rózsa
three CL_{thread} rose.SG
'three roses' (Schvarcz and Rothstein 2017, p. 185, ex. 3a)
c. három (darab) könyv
three $\text{CL}_{general}$ book.SG
'three books' (Schvarcz and Rothstein 2017, p. 185, ex. 3b)

Analyses of number-marking languages like English cannot straightforwardly be applied to Hungarian, because data like (7)–(10) are not found in most number marking languages. While measure DPs in Hungarian take bare singular nouns, measure DPs in English are felicitous with plural and mass terms (e.g. *thirty kilos of books/mud*). Also, while Hungarian has optional classifiers for counting objects and can also use classifiers for counting portions of substances (while classifiers are required for counting anything in classifier-languages like Mandarin), English only has classifier-like constructions for mass nouns (e.g. *three pieces of mud/kitchenware*). How one analyses singular nouns, measure DPs, and classifier(-like) constructions, will therefore shape how such nouns are characterized in respect to the mass/count distinction.

3 The Dual-Life Analysis of Hungarian Nouns

Rothstein (2017) and Schvarcz and Rothstein (2017) claim that, unlike many number-marking languages, Hungarian has few nouns that only have a count

denotation and it has many nouns with both count and mass denotations—i.e. dual-life nouns like *stone* in English, which can occur in either count or mass syntax. This claim that most notionally count, singular nouns in Hungarian, like *könyv* ('book') are dual-life rests on the (i) occurrence of these nouns in measure DPs and classifier constructions, and (ii) the controversial assumption that nouns that occur in these environments are mass. Rothstein (2017) and Schvarcz and Rothstein (2017) build their analysis of Hungarian on the semantic theory of the mass/count distinction in Rothstein (2010) also taking inspiration from the analysis of measure DPs in Rothstein (2011) and the analysis of classifier constructions in Chierchia (1998, 2010).

In respect to measure DPs, Rothstein (2017) and Schvarcz and Rothstein (2017) rely on the assumption that nouns in measure DPs are mass. Nouns like *könyv* ('book'), they argue, must therefore have a mass denotation in addition to having a count denotation (the latter being shown with data such as (5)). Additionally, Rothstein (2017) and Schvarcz and Rothstein (2017) take the fact that questions like (9) can be felicitously answered in terms of measure (e.g., *három kiló-t* 'three kilos') as evidence that most Hungarian notionally count, singular nouns have bona fide mass denotations, and so are best viewed as dual-life. As they argue, given that most of these nouns can both be straightforwardly individuated in terms of cardinality, and directly measured (by e.g., weight), they must have both count and mass denotations, which means that they are dual-life nouns.

With respect to their mass denotations, Hungarian dual-life nouns are interpreted as object mass nouns, such as *furniture* in English (Schvarcz and Rothstein 2017), rather than as shifted by a universal grinder-like mechanism into a substance interpretation. Object mass nouns, like *furniture* in English, denote discrete objects, as opposed to substance denoting mass nouns like *water*, which do not. *Objects* and *substances* in the sense of Soja et al. (1991), respectively refer to concrete solids like *knives* that hold their shape across the space-time continuum, and non-solids like *mud*. Object mass nouns are of particular importance because they show a mismatch between grammatical mass behavior and conceptual individuation. However, Gyarmathy (2016) has suggested that Hungarian has no object mass nouns, though this claim has not been the thoroughly investigated.

The empirical basis for Rothstein's (2017) and Schvarcz and Rothstein's (2017) claim that nouns in measure DPs are mass is examples like (11), taken from Rothstein (2011) [p. 24, example (45b)].

(11) #Twenty kilos of books are lying on top of each other on the floor.
(Rothstein 2011,p. 24)

According to Rothstein (2011, 2017), (11) is infelicitous, and the individual books are not semantically accessible by the reciprocal operator *on top of each other*, so *each* has no grammatical antecedent. This is precisely because the plural count noun *books* must first shift into a mass interpretation in order to intersectively combine with the measure phrase *twenty kilos (of)*. On this intersective analysis,

the whole pseudo-partitive (measure) DP is mass, which is also supported by data like (12), according to Rothstein (2011).

(12) a. #I have read many of the twenty kilos of books that we sent.
b. I have(n't) read much of the twenty boxes/kilos of books in our house. (Rothstein 2011, p. 23)

In summary, according to Schvarcz and Rothstein (2017), measure readings of *mennyi* N ('what quantity of N') questions are aligned with mass interpretations of N, and cardinality interpretations of *mennyi* N ('what quantity of N') questions are aligned with count interpretations of N, hence, given that ('what quantity of N') questions formed with singular nouns like *könyv* ('book') admit both interpretations, singular nouns like *könyv* ('book') have both a count and a mass interpretation (are dual life).

In respect to classifiers, Rothstein (2017) and Schvarcz and Rothstein (2017) assume that any noun in a classifier construction must have a mass denotation, as argued by Chierchia (1998, 2010). For Chierchia (2010), all nouns in classifier languages are kind denoting predicates of type k. Given the assumption that numerical expressions are universally of the adjectival type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$, Chierchia (2010) argues that classifiers are of type $\langle k,\langle e,t\rangle\rangle$, meaning they combine with mass nouns to form a countable NP. Following this line of thought, and given the fact that most notionally count, singular nouns in Hungarian can occur with classifiers, Rothstein (2017) and Schvarcz and Rothstein (2017) argue that most Hungarian notionally count, singular nouns must (also) have a mass denotation.

The formal representation of the claim in Rothstein (2017) and Schvarcz and Rothstein (2017) that Hungarian notionally count, singular nouns like *könyv* ('book') are simultaneously mass and count is as follows. On its mass reading, *könyv* ('book') denotes a root noun, a plural subset of the domain M equal to the upward closure of a set of atoms (N_{root} = *A where *X = m ∈ M: ∃ Y ⊆ X: m = $\sqcup_M$Y). Count nouns are derived from the root via the COUNT_k operation, which picks out a set of *semantic atoms*. Semantic atoms (⟨d,k⟩: d ∈ k) are atoms relative to the context k : k ⊆ M (Rothstein 2011). On its count reading, *könyv* ('book') denotes a set of countable *semantic atoms*. Each dual-life noun in Hungarian, therefore, has two denotations, one mass and one count.

4 Counterarguments to the Dual-Life Analysis

As we have seen above, the claim that notionally count nouns in Hungarian are dual-life relies on two assumptions: (i) all nouns in measure DPs are mass, and (ii) all nouns in classifier constructions are mass. It also rests on the assumption that notionally count, singular nouns in count syntax denote only single entities. In what follows we will provide four main arguments, including novel data from native speakers, against this claim and the assumptions it relies on.

First, we provide data against the claim that pseudo-partitive (measure) DPs require only mass predicates. The key evidence comes from the observation that

the individuals denoted by a plural count noun are accessible to semantic operations, even if that noun is in a pseudo-partitive (measure) DP (see also Landman 2016). We first note that native English speakers are divided on the acceptability of sentences such as (13).

(13) Twenty kilos of books are lying on top of each other on the floor.

Some native speakers, including the native English speaking authors of this paper and six consultants we have asked, straightforwardly interpret (13) as meaning that the books are stacked one on top of the other—i.e. the individual books are accessible by *on top of each other*, and their cumulative weight is twenty kilos. We, therefore, think that placing any theoretical burden on the felicity or infelicity of such constructions should be at least questioned until further empirical work has been done to clarify matters.

More compellingly, perhaps, continuations of measure DPs show that plural count nouns retain their atomic denotations, but atoms in the denotation of object mass nouns are not straightforwardly accessible to semantic operations. This can be shown by the observation that it is possible to anaphorically refer to the countable individuals in the plural count denotation of the dual-life noun *chocolate* in a measure DP (14). Such an anaphoric reference is impossible with a substance denoting mass noun like *hummus* (15), without a shift to a portion reading, and anaphoric reference is also excluded with an object mass noun in the same context (16), despite its denoting perceptually and conceptually salient objects (e.g. individual pieces of furniture).

(14) I bought 200 g of chocolates, each of which was filled with a different kind of ganache.

(15) #I made 1.5 kg of hummus, each of which was eaten at the party.

(16) #I shipped 200 kg of furniture, each of which went to a different address.

The view that nouns in measure DPs uniformly have an (object) mass interpretation (Rothstein 2011, 2017)—i.e. lack denotations with an accessible atomic structure—cannot straightforwardly explain the differences in (14)–(16). Further complicating the picture are nouns like *livestock* and *cattle* which seem more acceptable than those like *furniture* in such a construction (17). Allan (1980) has shown that such nouns like *cattle* belong in a class of their own, separate from other nouns given they do not pattern with object mass nouns like *furniture* or substance denoting mass nouns like *water* (18).

(17) ?I sold 50 tonnes of livestock, each of which went to a different farmer.

(18) a. Quite a few livestock/cattle have disappeared today.
b. #Quite a few furniture/water have disappeared today.

In sum, our first argument against the assumption that nouns in measure DPs are mass denoting is that plural nouns retain their atomicity when used in measure DPs, and the objects they denote are semantically accessible by reciprocal operators. Based on this evidence, we conclude that measure DPs do not require

nouns to be mass, rather they also sanction plural count predicates (denoting what is measured), contrary to Rothstein (2011). Given the claim of Rothstein (2011) is fundamental to the arguments of Rothstein (2017) and Schvarcz and Rothstein (2017), their claims are weakened as well.

Our second counterargument is that Hungarian notionally count, singular nouns do not have available mass interpretations when used in a (full) argumental position. If these nouns were truly dual-life, then they could have either a count or a mass reading—i.e. it should be able to refer to either one book or a collection of books—but this prediction is not borne out. In Hungarian, an object mass reading is not available, at least with a definite determiner, and cannot be enforced with context.

(19) A könyv 2 kg-ot nyom.
the book 2 kg-ot weigh
'The book weighs 2 kg.' (only refers to one book) (Elicited data)

While an anonymous reviewer points out that *a könyv* ('the book') might only have a singular count reading and not a mass reading in (19) because of competition with the definite plural, which would be used to refer to individuals and sums thereof. However, for dual-life nouns in other languages, we do not see any blocking of the mass reading for sentences in which the dual-life noun is in a definite DP in the object position. For example, in English, the dual life noun used in a definite DP, has either the count or mass definite reading straightforwardly available in (20), depending on its context.

(20) The seed in the shed was damaged by the cold and dampness.

Context A: Alex had two sunflower seeds. One single seed was stored in the shed over the winter, the other was stored indoors. In this context, (20) refers to a single seed.
Context B: Alex, a farmer, had several sacks of seed. Some sacks were stored in the shed over the winter, the others were stored in an indoor storage room. In this context, (20) refers to a collection of seeds (all those in the relevant sacks).

Furthermore, in Hungarian, a small number of object denoting nouns can get an object mass reading in such a context. *Löszer* ('ammunition'), *felsszerelés* ('equipment'), and *csomagolás* ('packaging') can equally felicitously refer to one or more than one object depending on the situation as in (21).

(21) A löszer 2 kg-ot nyom.
the ammunition 2 kg-ot weigh
'The ammunition weighs 2 kg.' (one or several pieces)
(Elicited data)

True dual-life nouns, therefore, have two readings when singular and definite, though this is not seen with Rothstein's (2017) and Schvarcz and Rothstein's Schvarcz and Rothstein (2017) proposed dual-life nouns. Also, certain object denoting singular nouns can have mass interpretations when definite while most do not. These characteristics of singular count nouns like *könyv* ('book') is not

addressed by Rothstein (2017) or Schvarcz and Rothstein (2017), though we take it as evidence that most Hungarian notionally count, singular nouns do not have a mass denotation and therefore are not dual-life.

Turning from measure phrases to classifier phrases, we now present two counterarguments against the claim that Hungarian nouns like *könyv* are dual-life is that nouns need not be mass in classifier constructions. Recall that Rothstein (2017) and Schvarcz and Rothstein (2017) argue that the co-occurrence of nouns with classifiers indicates the availability of a mass reading. This adheres to one of two main approaches to the analysis of classifiers, namely those like Chierchia (1998, 2010) in which classifiers combine with nouns thereby making the nouns countable. In the other approach, e.g. Krifka (1995), classifiers combine with numerals and form a numerical determiner. Here, we collate two arguments from the body of research which favor an approach to classifiers like that in Krifka (1995). We use the data therein to argue against the claim made in Rothstein (2017) and Schvarcz and Rothstein (2017).

Our first argument against the view that all nouns have uniform denotation in classifier languages is that classifier languages like Japanese have at least some reflexes of a grammaticized lexical mass/count distinction (Bale and Barner 2012; Sudo 2016, 2017). Rothstein's (2017) and Schvarcz and Rothstein's (2017) analyses of Hungarian classifiers emulate Chierchia's (2010) analysis of classifiers in classifier languages like Mandarin, which also presupposes Chierchia (1998). However, there are reasons to doubt this is the right analysis for classifiers in all languages, given that it fails to yield the right predictions for Japanese, as Sudo (2016, 2017) shows. He suggests that there are nouns in Japanese, namely those for objects like houses, books and the like, that can be straightforwardly used in certain quantifying constructions without any classifier, while nouns for substances, liquids, and gases are infelicitous in such constructions. Good examples are the quantifiers *nan-byaku-to-iu* ('hundreds of') or *dono mo* ('every'), as in (22) below:

(22) a. dono-ie-mo totemo furui
which-house-MO very old
'Every house is very old.'
b. #dono-ase-mo arainagashita
which-sweat-MO washed.off
Intended: '(I) washed off all the sweat.' (Sudo 2017,p. 6, ex. 12)

While the existence of examples like (22) in classifier languages was not noticed by Chierchia (2010, 1998), Sudo (2017), based on such data, argues for a novel analysis of Japanese classifiers, which is similar to Krifka's (1995) analysis of classifiers in Mandarin. Sudo (2017) suggests that Japanese classifiers are required by numerical expressions, rather than by nouns: Numericals are of type n, classifiers are of type $\langle n, \langle e, t\rangle\rangle$, and together they form a predicate of type $\langle e, t\rangle$. Sudo (2016, 2017) concludes that there are nouns in Japanese with countable denotations, and that nominal denotations in Japanese, a classifier language, are not so different from those in non-classifier languages like English.

Our second argument that nouns need not be mass with classifiers is from analyses of languages like Chol (Mayan) that have an idiomatic use of classifiers that is insensitive to the mass/count distinction (Bale and Coon 2014). On their view, the idiosyncratic classifier use in languages like Chol (Mayan) speaks for Krifka's (1995) analysis of classifiers, and against Chierchia's (1998; 2010) analysis; i.e. classifiers combine with numerals to form numerical determiners rather than combining with nouns to form countable nouns.

The idiosyncratic use of classifiers in Chol results from the contact of the Chol counting system with Spanish. Chol numerical expressions for numbers 1–6, 10, 20, 40, 60, 80, 100, and 400 require the use of classifiers (23-a), and Spanish-based numerical expressions cannot be used with classifiers (23-b).

(23) a. ux-*(p'ej) tyumuty
three-CL egg
'three eggs'
b. nuebe-(*p'ej) tyumuty
nine-CL egg
'nine eggs' (Bale and Coon 2014,p. 701)

Given that languages like Chol use classifiers only with certain numbers, but never with others, Chierchia's (1998) analysis, as Bale and Coon (2014) argue, is implausible. Moreover, it would require the ad hoc assumption that all countable nouns in Chol are mass when used with Chol numerical expressions, but count when used with Spanish-based numerical expressions. This would mean that all countable nouns in Chol are dual-life and that there would have to be rules specifying which of the noun's denotations is to be used with each number expression. Such an ad hoc assumption is avoided on Krifka's (1995) analysis. Chol numerical expressions would denote numbers, e.g. $[\![ux]\!] = 3$, and, therefore, require a classifier in order to combine with a noun. Spanish-based numbers in Chol would have a built in cardinality function and, therefore, straightforwardly occur with a noun but not be able to occur with a classifier.

We take the evidence from Japanese and Chol to mean that classifier languages may have a grammaticized lexical mass/count distinction in which classifiers combine with numericals, contrary to the common view, and also capitalize on the arguments made in the studies cited above that the most straightforward analysis of the relevant data in Japanese and Chol is one in which the classifier combines with numericals rather than nouns. The presence of classifier constructions in Hungarian, therefore, does not require that notionally count, singular nouns like *könyv* ('book') have a mass denotation, *pace* Rothstein (2017) and Schvarcz and Rothstein (2017).

To summarize our counterarguments, we have given four negative arguments against Rothstein's (2017) and Schvarcz and Rothstein's (2017) dual-life analysis. We have provided reasons to doubt that all nouns in pseudo-partitive (measure) DPs are mass (their atoms can be accessed with distributive determiners like *each* in some contexts), and we have provided data which casts doubt on the claim that notionally count Hungarian nouns in the singular are in fact dual-life

(they lack mass readings in some grammatical contexts). Lastly, we provided arguments that the Hungarian classifiers need not be analyzed as requiring mass nouns, rather a growing body of evidence supports an analysis in which classifier languages have a grammaticized lexical mass/count distinction in which classifiers combine with numericals. Each of these counterarguments miltate against the assumptions of Rothstein (2017) and Schvarcz and Rothstein (2017), and they point to an analysis in which notionally count, singular nouns like *könyv* are number neutral rather than dual-life.

5 Evidence for Number Neutrality

If most notionally count, singular nouns in Hungarian are not dual life, then an alternative is that they are number neutral (denote countable entities and sums thereof). Indeed, there is direct evidence for number neutrality: Hungarian notionally count, singular nouns in count syntax cannot denote only single entities, because they often refer to sums of individuals as well. Farkas and de Swart (2010) have shown that, in addition to denoting individuals, notionally count, singular nouns also denote sums of individuals with the data in (24-a).

(24) a. sok / több / mindenféle gyerek / *gyerekek
many / more / all.kind child / child.pl
'many/more/all kinds of children'
b. egy pár gyerek / *gyerekek
a couple child / child.pl
'a couple of/some children' (Farkas and de Swart 2010)

Most notionally count, singular nouns denote both singularities and pluralities in yet more syntactic environments. For example, one can use the bare singular as in (25) to announce that one or more books have arrived, and then follow up with a specific number, for instance, four. The plural *könyvek érkeztek* ('Books arrived') could also be used, but would entail exclusive plural reference (only to sums), while the singular makes no commitment to the reference of sums.

(25) könyv érkezett. Négy.
book.SG.NOM arrived.3SG four
'Books arrived. Four.' (Elicited data)

Hungarian notionally count, singular nouns in the translative case can also denote individuals and sums thereof. In (26), the use of the singular *pillangó* ('butterfly') in the translative case entails that one or more butterflies have undergone a complete transformation from caterpillars.

(26) Láttuk, ahogy a hernyók pillangó-vá váltak.
see.1PL.PST as the caterpillar.PL butterfly.SG-TRANS become.3PL.PST
'We saw the caterpillars become butterflies.' (Elicited data)

The examples above provide evidence that notionally count, singular nouns denote individuals and sums thereof. In other words, notionally count, singular nouns are number neutral. The fact that singular nouns receive number-neutral interpretation in Hungarian has also been discussed as the result of pseudo-incorporation in Farkas and De Swart (2003), though the examples discussed therein involve nouns in the accusative case. The examples we provide and those from Farkas and de Swart (2010) show that bare singular nouns can also receive number-neutral interpretation when outside of a pseudo-incorporation environment.

6 Analysis

Based on the evidence from the previous section, our analysis starts out with the assumption that Hungarian singular count nouns like *könyv* ('book') denote number-neutral predicates. As we argue below, this assumption explains their straightforward acceptability in constructions in which they occur bare and can be interpreted as singular or plural, in counting constructions, measure DPs, and quantifed DPs. At the same time, it also prompts the following question: What purpose do classifiers serve in Hungarian? We answer this question by proposing that sortal classifiers, such as *darab*, restrict what counts as 'one' individual in counting constructions.

On the widespread view of the semantics of measure phrases (e.g Krifka 1989; Filip 1992, 2005; Nakanishi 2003; Schwarzschild 2006, i.a.), measure phrases like *twenty kilos (of)* select for cumulative predicates, which in English are expressed either by mass (e.g. *flour*) or plural count nouns (e.g. *books, apples*), and are built with extensive measure functions (e.g., KILO) which can only apply to cumulative Ps (27) (or non-quantized predicates, see Krifka 1989) to yield quantized predicates (e.g. *twenty kilos of flour/books*), modified from (28) (Krifka 1989).

(27) $\forall\, P[CUM(P) \leftrightarrow \forall x\, \forall y[P(x) \wedge P(y) \rightarrow P(x \sqcup y)]]$

(28) $\forall\, P[QUA(P) \leftrightarrow \forall x\, \forall y[P(x) \wedge P(y) \rightarrow \neg y \sqsubset x)]]$

Crucially, English measure phrases (e.g. *twenty kilos (of)*) cannot apply to singular count nouns like *book*, because they are already quantized[4]. In other words, since the evidence above supports an analysis in which Hungarian notionally singular nouns are number-neutral, they have cumulative (and thus not quantized) reference, and can straightforwardly occur in measure DPs. We, therefore, have an alternative answer for why Hungarian sentences like (9): *Mennyi könyvet tudsz cipelni?* ('What quantity of books can you carry?'), can be answered with both *hármat* ('three') and *három kiló-t* ('three kilos'): Number-neutral count nouns are atomic, and so suitable for counting, and cumulative, and so suitable for measuring. Such an analysis better accounts for the data above and is

[4] Not all singular count nouns like *fence* and *wall* are quantized, as originally observed by Zucchi and White (1996). Notably, however, such nouns are also felicitous in measure phrases, e.g., *Alex put up 400 m of fence* (Filip and Sutton 2017).

compatible with a widely accepted account of measure DPs on which measure phrases sanction cumulative predicates (Krifka 1989; Filip 1992, 2005; Nakanish 2003; Schwarzschild 2006, i.a.).

An analysis in which Hungarian singular count nouns like *könyv* ('book') denote number-neutral predicates is also compatible with an analysis of classifier constructions like, that in Krifka (1995), in which classifiers modify numericals rather than nouns. While it is the case that classifiers are required for counting portions of mass nouns in Hungarian, this does not force us to conclude that nouns must be mass in order to occur in a counting construction with a classifier. We propose a novel analysis of classifiers in Hungarian on which they introduce selectional restrictions to counting DPs. We propose that Hungarian classifiers combine with numerical expressions to restrict what counts as 'one' individual in counting constructions. In addition to the arguments by Sudo (2016, 2017) and Bale and Coon (2014) for an analysis like Krifka's (1995), in which classifiers combine with numeral interpretations of numerical expressions, we provide independent observations that classifiers like *darab*, *szál*, and *szem* restrict what counts as 'one': while a 'numerical + noun' combination can be used to count individuals or kinds (29), a 'numerical + $darab_{CL}$ + noun' combination, for instance, only sanctions counting of individuals (30).

(29) három sütemény
three cookie
'three (individual/kinds of) cakes/cookies.' (Elicited data)

(30) három darab sütemény
three CL_{piece} cookie
'three (individual/*kinds of) cakes/cookies.' (Elicited data)

We assume that numerical expressions in Hungarian (*egy* 'one', *kettő* 'two', *három* 'three') denote numerals—e.g. $[\![három]\!] = 3$. Similar to Krifka's (1995) analysis, classifiers such as *darab* shift numeral denoting numerical expressions into numerical determiners (i.e. function from predicates, P, to the set of individuals that have the relevant cardinality with respect to that predicate). However, our novel proposal is that the semantics of classifiers like *darab* also introduces a selectional restriction on P, namely, that the atoms of P are individuals (as opposed to (sub)kinds).

6.1 Counting and Measuring Singular NPs

Recent analyses of the mass/count distinction all incorporate some notion of context in order to account for interactions between nominal denotation and countability. For instance, object(s) in the denotation of a given noun can be counted in more than one way, depending on our counting perspective or context (Filip and Sutton 2017; Landman 2011, 2016; Rothstein 2010, 2017; Sutton and Filip 2016). Sutton and Filip (2016) synthesize the two distinct, but related, notions of context formalized in Rothstein (2010) and Landman (2011) in order to account for variations in countability within a particular language and across

languages. For Rothstein (2010), count nouns denote *semantic atoms* (formally, entity-context pairs, see Sect. 3). This context-indexing, crucially, allows her to capture how non-quantized count nouns like *fence*, are nonetheless countable: they denote (possibly different) sets of entities in different contexts. In Landman (2011), sets of entities that count as one are called *generator sets*. Count nouns have disjoint generator sets and mass nouns have overlapping generator sets. Object mass nouns such as *kitchenware* and *furniture* have overlapping generator sets because these sets admit of different *variants*, namely, maximally disjoint subsets of the generator sets, that also contain entities that count as 'one'. For example, a teacup and saucer sum would be a different variant of the generator set for *kitchenware* than the individual teacup and individual saucer. *Kitchenware* is thus mass on Landman's account because, for example, "the cup, the saucer, the cup and saucer all count as kitchenware and can all count as one simultaneously in the same context" (Landman 2011, pp. 34–35).

Sutton and Filip (2016) argue that crosslinguistic patterns in the encoding of countability are the result of two functions on predicates, $P_{\langle e,t\rangle}$. The function $\mathbf{IND}_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle}$ identifies a, possibly overlapping, set of individuals in the denotation of a noun, and the function $c_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle}$ identifies what individuals are counted in a specific context, i.e., subjected to grammatical counting operation. Similar to Landman's (2011) variants, the c function can have different results for certain sets of objects. For example, take the set of things that count as one for *kitchenware* in c: $c(\mathbf{IND}(\text{KITCHENWARE}))$ (the counting base set for *kitchenware* at c). A mortar and pestle could be counting base set when $c = c_1$, and their sum could be in the counting base set when $c = c_2$. With a specific counting schema, c_i, applied to X, the denotation will be maximally disjoint subset of X. However, with the null counting scheme, c_0 applied to X, the denotation is a set of all, possibly overlapping partitions in X (which comes out as equivallent to X). So at the null counting schema (when $c = c_0$), the pestle and mortar sum, the individual pestle, and the individual mortar are all members of the counting base set which means that $c_0(\mathbf{IND}(\text{KITCHENWARE}))$ has members which overlap.

Grammatical counting is possible when the counting base is a disjoint set, c_i, but counting goes wrong when the counting base is an overlapping set, c_0. The possibility of resolving an overlap at specific counting schemas explains variation in mass/count lexicalization patterns for collective artifact nouns like *furniture* and *meubel* ('(piece of) furniture', Dutch). Collective artifact nouns interpreted at c_0 are mass, e.g. *furniture*, and collective artifact nouns interpreted at a specific counting schema, c_i, are count, e.g. *meubel* ('(piece of) furniture', Dutch).

Sutton and Filip (2016) also argue that predicates for substances and objects are semantically distinguished in their lexical entries. This is supported by the ability of pre-linguistic infants to distinguish substances from objects (Soja et al. 1991). Formally, only object denoting nouns have the **IND** function in their lexical entries. Sutton & Filip therefore account for the fact that the notional distinction between substances and objects does not perfectly mirror the

grammatical mass/count distinction in that the interaction of **IND** and c gives rise to the misalignment of these categories.

Filip and Sutton (2017) build on the analysis of the mass/count distinction in Sutton and Filip (2016), and accounts for the fact that nouns like *fence, wall,* and *twig* can be counted, thereby displaying the characteristic property of count nouns, but can also occur in the singular in a pseudo-partitive measure DP, thereby behaving like a mass noun. Filip and Sutton (2017) argue that English count nouns like *fence* can be straightforwardly counted and admitted to pseudo-partitive (measure) NPs because they are quantized at specific counting schemas, which is required for counting, and they are non-quantized at the null counting schema, which is required for admittance to pseudo-partitive NPs. The same is true of Hungarian notionally count, singular nouns like *könyv* ('book') under our number neutral analysis. Furthermore, for Filip and Sutton (2017), counting in English resembles counting in Mandarin under Krifka's (1995) analysis in that numericals denote numerals and therefore require a modifier to compose with nouns. Erbach et al. (2017) make use of this resemblance to account for object mass nouns in Japanese are infelicitous with certain count quantifiers but can nevertheless be counted with classifiers.

Because the analysis in Filip and Sutton (2017) can account for non-quantized singular count NPs in measure DPs and classifier constructions, it is uniquely situated in that it can straightforwardly be applied to the nominal semantics in Hungarian. The empirical facts about Hungarian singular nouns that we have discussed in this paper require an analysis of counting and measuring that can accommodate non-quantized, singular count NPs in measure DPs, straightforward counting, and classifier constructions. Filip and Sutton (2017) provide such an analysis of such measure constructions and counting in English, which has already been extended to capture classifier constructions in Japanese (Erbach et al. 2017). We therefore build our analysis of Hungarian on Filip and Sutton (2017) rather than adopting other analyses like Krifka (1995) or Landman (2016), which fit some of the data but would require further adaptation to capture the Hungarian data.

6.2 Nominal Semantics in Hungarian

We interpret concrete nouns as tuples of the kind $\langle$*extension, counting_base, precondition*$\rangle$, following Filip and Sutton (2017). The first projection is the extension of the predicate, and the second projection is the set of entities that count as one relative to a counting schema. The third projection lists the preconditions and/or presuppositions relating to, for example, the selectional restrictions of classifiers. Count nouns like *könyv* ('book') are interpreted at a specific counting schema that specifies disjoint counting base (31). Mass nouns like *kosz* ('dirt', as in (32)) are substance denoting and lack the **IND**-function in their denotation.

This analysis is in agreement with Farkas and de Swart (2010) in that singular notionally count nouns in Hungarian are number-neutral.[5]

(31) $[\![könyv]\!]^{c_i} = \lambda x.\langle {}^{*}c_i(\mathbf{IND}(\text{BOOK}))(x),\ \lambda y.c_i(\mathbf{IND}(\text{BOOK}))(y),\ \varnothing\rangle$

(32) $[\![kosz]\!]^{c_i} = \lambda x.\langle {}^{*}c_0(\text{DIRT})(x),\ \lambda y.c_0(\text{DIRT})(y),\ \varnothing\rangle$

We use the projection functions π_1, π_2, and π_3 in order to modify the projections of the lexical entries in composition with other expressions.

If $X = \langle \phi, \psi, \chi \rangle_{\langle a \times b \times c \rangle}$, then: $\pi_1(X) = \phi_a$, $\pi_2(X) = \psi_b$ and, $\pi_3(X) = \chi_c$

Numerical expressions in Hungarian denote numerals: e.g., *egy* 'one', *kettő* 'two', *három* 'three' denote 1, 2, 3, respectively. Numeral denoting numerical expressions can be type-shifted with a modifying operation that allows the numerical expressions to combine with nouns and count individuals or kinds.

(33) $$\text{MOD} = \lambda n.\lambda P.\begin{cases} \lambda x.\left\langle \begin{array}{l} \pi_1(P(x)), \\ \mu_{card}(x, \lambda y.\pi_2(P(y)) = n, \\ \text{QUA}(\lambda y.\pi_2(P(y))) \end{array} \right\rangle, \\ \lambda c.\lambda k.\left\langle \begin{array}{l} c(\mathbf{SK}(^{\cap}P))(k), \\ \mu_{card}(k, \lambda k'.c(\mathbf{SK}(^{\cap}P))(k')) = n, \\ \text{QUA}_k(\lambda k'.c(\mathbf{SK}(^{\cap}P))(k')) \end{array} \right\rangle \end{cases}$$

The function takes, as an argument, a numeral n, and the interpretation of a common noun P and returns either a set of Ps that have a cardinality n with respect to a quantized counting base, or a context indexed set of subkinds of P that have a cardinality n with respect to a quantized counting base ($^{\cap}$ is a kind forming operator, **SK** applies to a kind and returns a set of subkinds, k is a variable over (sub)kinds). (See Sutton and Filip (2017) for a notion of disjointness for subkinds (and a mereology for subkinds) that could be extended to a notion of a quantized set of subkinds.) When combined with a numeral, the MOD function selects for count nouns (since mass nouns do not have quantized counting bases). It entails that, for example, *három könyv* 'three books', is ambiguous between the set of (sums of) entities that are books and that number three relative to a quantized counting base in counting schema c_i and the set of (sums of) subkinds of books that number three with respect to a quantized counting base in counting schema c_i.[6] We use **book** to refer to the *book* kind.

[5] Farkas and de Swart (2010) also argue that plural morphology includes explicit reference to pluralities and whether singular individuals are also specifically referred to is determined by the strongest meaning hypothesis for plurals. However, we remain agnostic as to whether Hungarian plurals are inclusive or exclusive.

[6] This enrichment of Filip and Sutton (2017) requires that counting schemas be made polymorphic with respect to applying to sets of individuals or sets of subkinds.

(34) $$[\![három]\!]^{c_i} = 3$$

(35)
$$[\![három\ könyv]\!]^{c_i} = \mathrm{MOD}([\![három]\!]^{c_i})([\![könyv]\!]^{c_i}) = \left\{ \begin{array}{l} \lambda x. \left\langle \begin{array}{l} {}^*c_i(\mathbf{IND}(\mathrm{BOOK}))(x), \\ \mu_{card}(x, \lambda y.c_i(\mathbf{IND}(\mathrm{BOOK})(y)) = 3, \\ \mathrm{QUA}(\lambda y.c_i(\mathbf{IND}(\mathrm{BOOK}))(y)) \end{array} \right\rangle, \\ \\ \lambda k. \left\langle \begin{array}{l} {}^*c_i(\mathbf{SK}(\mathbf{book})(k), \\ \mu_{card}(k, \lambda k'.c_i(\mathbf{SK}(\mathbf{book}) = 3, \\ \mathrm{QUA}_k(\lambda k'.c_i(\mathbf{SK}(\mathbf{book})(k')) \end{array} \right\rangle \end{array} \right.$$

Classifiers like *darab* combine with numerical expressions in much the same way as the type shifting counting modification, though they restrict counting schemas to those that count individuals. They also introduce the counting schema of utterance into the argument noun interpretation so allowing mass nouns to be modified by numerical-classifier combinations. When a numerical is combined with *darab*, the result is a numerical determiner that has a precondition that the extension of the argument noun is a solid object which matches the intuitions of Hungarian speakers that *darab* denotes, for example dried up clumps of mud when it composes directly with *sár* ('mud')[7].

(36)
$$[\![darab]\!]^{c_i} = \lambda n.\lambda c.\lambda P.\lambda x. \left\langle \begin{array}{l} \pi_1(P(x)), \\ \mu_{card}(x, \lambda y.\pi_2(P(y)) = n, \\ \mathrm{QUA}(\lambda y.\pi_2(P(y))) \wedge \forall z.(\lambda y.\pi_2(P(y)))(z) \wedge z \sqsubseteq x \rightarrow \mathrm{SOLID}(z) \end{array} \right\rangle$$

(37)
$$[\![három\ darab\ könyv]\!]^{c_i} = \lambda x. \left\langle \begin{array}{l} {}^*c_i(\mathbf{IND}(\mathrm{BOOK}))(x), \\ \mu_{card}(x, \lambda y.c_i(\mathbf{IND}(\mathrm{BOOK})(y)) = 3, \\ \mathrm{QUA}(\lambda y.c_i(\mathbf{IND}(\mathrm{BOOK}))(y)) \wedge \\ \forall z.c_i(\mathbf{IND}(\mathrm{BOOK}))(z) \wedge z \sqsubseteq x \rightarrow \mathrm{SOLID}(z) \end{array} \right\rangle$$

Measure NPs (pseudo-partitives) are also represented as tuples with three projections. For instance, *három kiló könyvet* ('three kilos of books') has an extension consisting of sums of whole, quantized, countable books. The second projection is a set of books that measures three kilos in weight. The third projection contains the precondition that the extension of the predicate is not quantized.

(38) $$[\![\text{kiló}]\!] = \lambda n.\lambda P.\lambda x.\langle \pi_1(P(c_0)(x)),\ \mu_{kg}(x) = n,\ \neg\mathrm{QUA}(\lambda y.\pi_1(P(c_0)(y)))\rangle$$

(39)
$$[\![\text{három kiló könyvet}]\!]^{c_i} = \lambda x.\langle {}^*c_0(\mathbf{IND}(\mathrm{BOOK}))(x), \mu_{kilo}(x) = 3, \neg\mathrm{QUA}({}^*\lambda y.c_0(\mathbf{IND}(\mathrm{BOOK}))(y))\rangle$$

[7] Gyarmathy, PC.

This representation allows us to capture the insight that bare plural count nouns (which are semantically cumulative) retain their atomicity when used in pseudo-partitive (measure) DPs (Krifka 1989; Landman 2016), *pace* Rothstein (2011) (see e.g. (14)), on the assumption that measure phrases select for cumulative predicates. Most importantly, analyzed in this way, pseudo-partitive (measure) DPs straightforwardly can admit Hungarian notionally count, singular nouns like *könyv* ('book') as long as they are cumulative predicates, i.e., denoting a whole semi-lattice from which either mass or plural count nouns take their denotation. This reflects our conclusion that such Hungarian notionally count, singular nouns are semantically number-neutral. Moreover, it can be shown that while such nouns are straightforwardly acceptable in the pseudo-partitive (measure) DP and in this respect pattern with mass nouns, they fail to behave like mass nouns in a number of other syntactic environments, contrary to Rothstein (2017) and Schvarcz and Rothstein (2017).

While our analysis based on Filip and Sutton (2017) is not alone in its ability to capture these insights, it has provided us the means to formally distinguish the Hungarian and English nominal systems, and to account for classifiers and kinds in a way that would not be possible without enriching the systems of Krifka (1989) and Landman (2016). Our system, unlike that of Krifka (1989) places the context sensitivity of individuation at its core, thus accounting for counterexamples raised against this account such as non-quantized count nouns like *twig* (see e.g. Zucchi and White 1996; Rothstein 2010, and references therein). Landman's (2016) treatment of pseudo-partitive measure phrases makes no use of the property of *not-quantized* which we have exploited here. It is possible that an account in the spirit of the one we have provided here could be given within Landman's (2016) system, but we leave that as a matter for further research.

Taken all around, we converge on the same insight independently reached in Farkas and de Swart (2010) in proposing that the meaning of notionally count, singular nouns like *könyv* ('book') in Hungarian, taken as lexical items, corresponds to the number-neutral property whose denotation is built from the set of entities that count as single books closed under sum. From this, we can conclude that the denotation of *könyv*-like ('book') nouns in Hungarian can be assimilated to that of count nouns and therefore that balance of the distribution of mass, count and dual-life nouns in Hungarian is closer to English, *pace* the analysis of Rothstein (2017) and Schvarcz and Rothstein (2017).

7 Conclusion

Hungarian is a number marking language that allows the use of classifiers in counting constructions with both mass nouns and count nouns. Furthermore, singular nouns are straightforwardly used in counting constructions, pseudo-partitive (measure) DPs, and classifier constructions. In order to account for this puzzling property, Rothstein (2017) and Schvarcz and Rothstein (2017) argue that notionally count, singular nouns like *könyv* ('book') are dual-life, presupposing both the mass/count theory of Rothstein (2011), who argues that nouns

must be mass to be used in pseudo-partitive (measure) DPs, and the analysis of classifiers by Chierchia (2010) who assumes that classifiers combine with nouns in order to make them countable.

We provided several arguments based on novel data against such analyses. We first argued against the analysis of pseudo-partitive measure DPs in Rothstein (2011) by showing that count nouns do not behave like object mass nouns when in a pseudo-partitive measure DP—i.e. atoms denoted by count nouns are accessible by reciprocal operators while those of object mass nouns are not—and therefore count nouns are not mass in such an environment. Second, we showed there is reason to doubt that notionally count, singular nouns like *könyv* ('book') are dual-life: they do not get an object-mass interpretation when in the argument position, which should not be the case if they are dual-life. Lastly, drawing from work on other classifier languages (Japanese and Chol) we showed that there are classifier constructions in natural languages which do not require mass nouns.

We then provided data in support of the view that notionally count, singular nouns in Hungarian are compatible with both singular and plural interpretations in many morphosyntactic environments, which strongly suggests that they are number-neutral. This formed the basis for our formal analysis. An advantage of analyzing notionally count, singular nouns like *könyv* ('book') as semantically number-neutral is that such an analysis is compatible with the standard analysis of pseudo-partitive (measure) DPs (Krifka 1989; Filip 2005, 1992; Nakanishi 2003; Schwarzschild 2006), and also under the sort of analysis of the mass/count distinction proposed by Krifka (1995), thereby providing a sound alternative to previous analyses of Hungarian.

If our proposal that Hungarian notionally count, singular nouns are number-neutral, is correct, then this has the following major implication. Not only is it compatible with a widespread view of pseudo-partitive (measure) DPs, but also Hungarian turns out to pattern with English, rather than with Brazilian Portuguese (as analyzed by Pires de Oliveira and Rothstein (2011)), when it comes to the distribution of nouns across countability classes—namely, a substantial number of mass and count nouns, but few dual life nouns—and therefore shifts the typological classification of Hungarian.

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