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# EARLY ACCESS

## Exceptional wide scope of bare nominals<sup>1</sup>

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**Abstract** One of the strongest arguments in favor of the kinds approach to bare nominals is that they always take narrow scope with respect to other scope bearing operators in the sentence (Carlson 1977; Chierchia 1998; Dayal 2011). The publications supporting the obligatory narrow scope of bare nominals in a wide range of typologically different languages vastly outnumber the ones that claim the opposite. In this paper, we survey the facts from the literature, work out how the kinds approach deals with them, and identify scrambled bare plurals as the ultimate challenge for the kinds approach. Dutch examples illustrate that scrambled bare plurals unambiguously take wide scope with respect to quantifiers and negation, while maintaining kind reference. The kinds approach proves unable to derive the wide scope reading of bare plurals under a surface-oriented composition of scrambled objects. Once we abandon the default kind shift, following Krifka (2004), and allow bare plurals to directly shift to an existential interpretation, we can easily derive the wide scope reading with a local type repair. We conclude that a flexible type shifting approach to bare nominals is preferred over a default kind shift for empirical reasons.

### 1. Introduction

Since Carlson's seminal work, the most influential analysis of bare nominals has been to assume that they refer to kinds, either directly – as in Carlson (1977) – or at least at some point in the derivation, as in Chierchia's updated and cross-linguistically extended version (Chierchia 1998). None of the competitors of the kinds approach (Krifka 2004; Farkas & de Swart 2003; Magri 2012) have achieved anything close to the same popularity. The central claim of the kinds approach is that the kind reading of *dogs* underlies the generic as well as the indefinite interpretation of the bare plural. (1a) illustrates the kind reading and (1b) the indefinite reading:

- (1) a. I like dogs.  
b. I saw dogs in the park this morning.

In (1a), *dogs* are presented as a species the speaker likes, so the bare plural directly refers to the kind. Kinds are abstract entities that are not subject to visual perception, so the seeing in (1b) concerns instantiations of the species.<sup>2</sup>

One of the strongest arguments in favor of the kinds approach is the preference bare nominals display for narrow scope with respect to other scope bearing operators in the sentence (Carlson 1977, Chierchia 1998, Dayal 2011). In Section 2, we will see that narrow scope is the general rule across languages, and we spell out how Chierchia (1998) derives narrow scope through a default kind shift followed by derived kind predication. Here and there, the literature brings up exceptional wide scope cases, as we will see in Section 3. Many reported cases of exceptional wide scope turn out not to be fully convincing, but modified bare plurals constitute a clear instance of wide scope. However, they are thought of as not involving kind reference, and as such, they are truly the exception to the rule. Section 4 brings up scrambled bare plurals as a novel challenge. Scrambled objects in languages like

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<sup>2</sup> We illustrate with bare nominals in object position because the interpretation of subjects is more involved. Indefinite readings of bare nominal subjects are cross-linguistically harder to get (see, e.g., Delfitto & Schroten 1991 and Laca 1996 on Italian and Spanish) and this is independent of the availability of kind readings for bare nominals (see Cheng & Sybesma 1999 on Mandarin, Vogels & Lamers 2008 on Dutch). Special interpretive effects such as the functional readings of bare plurals in subject position (Condoravdi 1992) fall outside the scope of the kinds approach. Given the complications subjects bring along, we focus on bare nominals in non-subject positions, such as (1).

Dutch appear to the left of adverbials and negation and take unambiguous wide scope with respect to the operators they scramble over (de Hoop 1992, 2003; Krämer 2000; Ruys 1992, 2001). Crucially, the phenomenon extends to bare plurals. Even unambiguously kind-referring bare plurals can scramble, so the escape hatch formulated for modified bare plurals is not available. A bottom-up composition assigns wide scope to scrambled singular indefinites, yet application of the same compositional analysis to scrambled bare plurals stubbornly leads to a narrow scope interpretation under the kinds approach. Given that we are unable to derive the empirical facts with the toolkit in Chierchia (1998), we switch to Krifka's (2004) flexible type shifting framework in Section 5. Krifka (2004) abandons the default kind shift, and derives the narrow scope reading of bare plurals by means of a local type repair and a direct existential shift. Application of the compositional analysis of scrambling to bare plurals that undergo a direct existential shift leads to the desired wide scope interpretation for scrambled bare plurals. Section 6 concludes that, other things being equal, a direct existential shift is preferred over an intermediate step through a default kind shift to handle the exceptional wide scope of bare nominals.

## 2. The standard case: narrow scope of bare nominals

We follow the literature in focusing the scope discussion on count nouns (or nouns on their count interpretation).<sup>3</sup> Section 2.1 presents the cross-linguistic generalization that bare plurals take narrow scope with respect to other scope bearing operators in the sentence. Section 2.2 shows how Carlson (1977) and Chierchia (1998) derive narrow scope as a side effect of kind reference.

### 2.1. The cross-linguistic generalization: narrow scope

Examples (2)-(4) illustrate the interactions of singular indefinites and bare plurals with a scope bearing operator. The generalization is that singular indefinites (2a, 3a, 4a) have variable scope – they can scope above and below quantifiers and negation – whereas bare plurals (2b, 3b, 4b) take obligatory narrow scope.

- |     |    |                                  |  |
|-----|----|----------------------------------|--|
| (2) | a. | Every critic saw a movie         | $\forall\exists/\exists\forall$            |
|     | b. | Every critic saw movies          | $\forall\exists/*\exists\forall$           |
| (3) | a. | I didn't see a spot on the floor | $\neg\exists/\exists\neg$                  |
|     | b. | I didn't see spots on the floor  | $\neg\exists/*\exists\neg$                 |
| (4) | a. | John wants to meet a movie star  | $\text{want}>\exists/\exists>\text{want}$  |
|     | b. | John wants to meet movie stars   | $\text{want}>\exists/*\exists>\text{want}$ |

The pattern extends to more complex sentences involving two scope bearing operators, so singular indefinites can have an intermediate scope interpretation in (5a) (cf. Farkas 1981, Ruys 1992, Abusch 1994 and others). In contrast, bare plurals do not admit intermediate scope readings, and are restricted to the narrow scope interpretation in (5b):

- |     |    |  |  |
|-----|----|--|--|
| (5) | a. | Every professor rewarded every student who read a book he had recommended. | $\forall\forall\exists/\forall\exists\forall$  |
|     | b. | Every professor rewarded every student who read books he had recommended.  | $\forall\forall\exists/*\forall\exists\forall$ |

<sup>3</sup> Motivation for the restriction to count nouns comes from French. French has developed an indefinite article for plurals (*des*) and for mass nouns (*du*), and lacks bare nominals in argument position. Crucially, *des N* can take wide scope whereas *du N* cannot (Bosveld-de Smet 1998). This suggests that wide scope is unavailable for mass nouns, independently of bareness.

(5a) has a reading where every professor picked some book out of all the books he had recommended and rewarded every student who read that book. Different books might have been recommended by different professors. This intermediate scope interpretation is missing for the bare plural in (5b).

English is not alone or unusual in displaying the pattern illustrated in (2)-(5). The examples in (6)-(9) are the Dutch counterparts of (2)-(5):<sup>4</sup>

- (6) a. Elke recensent keek een film.  
every critic saw a movie  
'Every critic saw a movie.'  
AE/EA
- b. Elke recensent keek films.  
every critic saw movies  
'Every critic saw movies.'
- (7) a. Helen praat niet met een geest op zolder.  
Helen talks not with a ghost on attic  
'Helen doesn't talk to a ghost in the attic.'  
AE\*/EA
- b. Helen praat niet met geesten op zolder.  
Helen talks not with ghosts on attic  
'Helen doesn't talk to ghosts in the attic.'  
-E/-E
- (8) a. Jurriaan wil met een Spaans meisje trouwen.  
Jurriaan wants with a Spanish girl marry  
'Jurriaan wants to marry a Spanish girl.'  
want >E/ E>want
- b. Jurriaan wil met Spaanse kinderen spelen.  
Jurriaan wants with Spanish children play  
'Jurriaan wants to play with Spanish children.'  
want >E/ \*E>want
- (9) a. Iedere professor beloonde iedere student die een boek  
every professor rewarded every student that a book  
had gelezen van de leeslijst.  
had read of the reading\_list  
'Every professor rewarded every student who had read a book from the reading list.'  
AAE/AEA/EA
- b. Iedere professor beloonde iedere student die boeken  
every professor rewarded every student that books  
had gelezen van de leeslijst.  
had read of the reading\_list  
'Every professor rewarded every student who had read books from the reading list.'  
AAE\*/AEA\*/EA

<sup>4</sup> Example (7) uses a construction with a prepositional complement in order to avoid incorporation of negation into the indefinite (de Swart 2000).

As a Germanic language, Dutch is closely related to English, but the obligatory narrow scope of bare nominals has been established for many typologically diverse languages, including Spanish (Espinal and McNally 2010 and references therein), Hungarian (Farkas and de Swart 2003), Russian (Geist 2010), Albanian (Kallulli 1999), Hebrew (Doron 2003), Hindi (Dayal 2003, 2004), Mandarin Chinese (Yang 2001, Rullmann & You 2006), Indonesian (Chung 2000, Sato 2008), Javanese (Sato 2008), Turkish (Bliss 2003), etc. Some examples are in (10) (from Espinal and McNally 2010), (11) (from Dayal 2003), (12) (from Rullmann & You 2006), and (13a) (from Chung 2000), vs. (13b) (from Sato 2008):

- (10) a. No busco piso. [Spanish]  
not look.for.1SG flat  
'I'm not looking for a(ny) flat.' -ɹɹ/ \*ɹɹ
- b. No busco pisos.  
not look.for.1SG flats  
'I'm not looking for (any) flats.' -ɹɹ/ \*ɹɹ
- c. No busco un piso. [Spanish]  
not look.for.1SG a flat  
'I'm not looking for a flat.' -ɹɹ/ ɹɹ
- (11) a. anu kitaab nahiiN paRhegii [Hindi]  
Anu book not read.FUT  
'Anu won't read any book.' -ɹɹ/ \*ɹɹ
- b. anu ek kitaab nahiiN paRhegii [Hindi]  
Anu one book not read.FUT  
'Anu won't read a book.' -ɹɹ/ ɹɹ
- (12) a. Meige ren dou du guo [Mandarin Chinese]  
every.CLF person all read ASP  
guanyu youchong de shu  
on caterpillar MOD book  
'Everyone read books on caterpillars.' -ɹɹ/ \*ɹɹ
- b. Meige ren dou du guo yiben [Mandarin Chinese]  
every.CLF person all read ASP one.CLF  
guanyu youchong de shu  
on caterpillar DE book  
'Everyone read a book on caterpillars.' -ɹɹ/ ɹɹ
- (13) a. Ali tidak jadi membeli buku. [Indonesian]  
Ali not finished buy book  
'Ali didn't finish any book(s).' -ɹɹ/ \*ɹɹ
- b. Ada sebuah buku yang Ali tidak jadi [Indonesian]  
exist one book that Ali NEG finish  
beli.  
buy  
'There is a book that Ali didn't buy.' -ɹɹ/ ɹɹ

Some of the languages illustrated have bare nominals with general number (12, 13), while others have bare singulars as well as bare plurals (9, 10, 11).<sup>5</sup> The restriction of the bare nominal to a narrow scope interpretation with respect to other scope bearing operators in the sentence is independent of the differences in number morphology. In contrast to the bare form, expressions with an overt indefinite article or a numeral construction built on ‘one’ takes wide or variable scope (10c, 11b, 12b, 13b).

## 2.2. Deriving narrow scope from kind reference

Carlson (1977) derives the narrow scope of bare plurals from kind reference. Carlson grounds the close link between bare nominals and kind-referring expressions in the analogy between (14) and (15).

(14) John didn’t see this kind of animal.

(15) John didn’t see dogs.

*This kind of animal* in (14) is unambiguously kind-referring. In Carlson’s enriched ontology, kinds are abstract entities that are realized by concrete individuals. The object position of verbs like *see* targets concrete individuals, so the interpretation of (14) appeals to the realization relation, along with existential quantification over instantiations. This outcome is a narrow scope interpretation of (14) under which John hasn’t seen any instantiations of the relevant kind of animal. Taking *dogs* to be kind-referring in the same way as *this kind of animal* provides a similar explanation for (15). We skip Carlson’s formalization of the kinds approach and focus on Chierchia’s (1998) neo-Carlsonian framework, because it is the standard in the current literature.

Chierchia (1998) takes a broader typological perspective than Carlson. He assumes languages come in one of three varieties: (i) those in which all bare nouns start out as kinds (e.g., Mandarin), (ii) those in which all bare nouns start out as properties (e.g. French), and (iii) those in which count nouns start out as properties and mass nouns as kinds (e.g. Russian, English).

In Chierchia’s (1998) type-shifting perspective, kinds are individual concepts (type  $\langle s, e \rangle$ ), construed as the individual counterpart of properties. The ‘up’ ( $\cup$ ) and ‘down’ ( $\cap$ ) operators from Chierchia (1984) mediate between kinds and properties. For instance, if  $\lambda x. \text{Dog}(x)$  is the property of being a dog, then  $\cap \text{Dog}$  is the corresponding kind *dog* (16a). Conversely, if *d* is the dog-kind,  $\cup d$  is the property of being a dog (16b):

(16) a.  $\cap \text{Dog} = d$

b.  $\cup d = \text{Dog}$

Chierchia models kinds as functions from worlds or situations into pluralities, the sum of all instances of the kind. Formally, the down operator  $\cap$  is defined as the nominalization operator in (17a), and the up operator  $\cup$  as the predication operator in (17b).<sup>6</sup>

(17) a. For any property *P* and any world/situation *s*

$$\cap P = \begin{cases} \lambda s. \iota P_s, & \text{if } \lambda s. \iota P_s \text{ is in the set of kinds } K, \\ \text{undefined otherwise.} \end{cases}$$

Where  $P_s$  is the extension of *P* in *s*.

b. Let *k* be a kind. Then for any world/situation *s*,

<sup>5</sup> Languages with general number are those where bare nouns are neither singular nor plural but neutral or unspecified for number (cf. Corbett 2000).

<sup>6</sup> Unless otherwise specified, the variables used are unsorted variables of type *e*, which range over singular objects as well as pluralities and kinds. Chierchia relies on a generalized use of the  $\iota$  operator that interprets the definite article as picking out the only or the largest member of the set. The domain *U* has the structure of a join atomic semilattice with *AT* the set of atoms in *U*, *K* the set of kinds in *U*, and  $K \subseteq AT$ . We refer to Chierchia (1998) for further details.

$$\ulcorner k = \begin{cases} \lambda x[x \leq k_s], & \text{if } k_s \text{ is defined,} \\ \lambda x [\text{FALSE}] & \text{otherwise.} \end{cases}$$

where  $k_s$  is the plural individual that comprises all of the atomic members of the kind in  $s$ .

The up operator comes into play when a bare plural appears in the object position of verbs like *see*. The sortal mismatch between the kind-denoting bare plural, and the concrete individual targeted by the verb is resolved by a shift from kinds to existential quantification over instantiations of the kind. Chierchia (1998) names this shift *Derived Kind Predication* (DKP), and provides the definition in (18) (minor details modified).

(18) *Derived Kind Predication*

$$(\text{DKP}(P))(k) \leftrightarrow \exists x[\ulcorner k(x) \& P(x)]$$

for  $P$  a predicate that targets concrete individuals and  $k$  a kind denoting expression

DKP applies locally, inside the body of the abstract, because this is where the sortal incompatibility between the kind argument and the predicate becomes apparent (Chierchia 1998:369). We spell out the full derivation of ‘John didn’t see dogs’ in (19).

(19)	[[see]]=	$\lambda y_e \lambda x_e. \text{see}(y)(x)$		
	[[dogs]]=	$\lambda z_e. \text{dogs}(z)$		
	[[not]]=	$\lambda P \lambda z. \neg P(z)$		
	[[John]]=	$j$		
	a. [[see dogs]]=	$\lambda y \lambda x. \text{see}(y)(x)$	$\lambda z. \text{dogs}(z)$	<i>application</i>
				<b>TYPE MISMATCH</b>
		$\lambda y \lambda x. \text{see}(y)(x)$	$\text{DOGS}_k$	<i>kind shift (<math>\ulcorner</math>)</i>
		$\lambda x \exists y[\ulcorner \text{DOGS}_k(y) \& \text{see}(y)(x)]$		<b>CONVERSION AFTER DKP</b>
	b. [[not see dogs]]=	$\lambda P \lambda z. \neg P(z)$	$\lambda x \exists y[\ulcorner \text{DOGS}_k(y) \& \text{see}(y)(x)]$	<i>application</i>
		$\lambda z \neg \exists y[\ulcorner \text{DOGS}_k(y) \& \text{see}(y)(z)]$		<i>conversion</i>
	c. [[John not see dogs]]=	$\lambda z \neg \exists y[\ulcorner \text{DOGS}_k(y) \& \text{see}(y)(z)]$	$j$	<i>application</i>
		$\neg \exists y[\ulcorner \text{DOGS}_k(y) \& \text{see}(j, y)]$		<i>conversion</i>

The bare plural *dogs* starts out as a property denoting expression, but the verb *see* applies to entities, not properties. The bare plural shifts to the individual counterpart of the property, a kind denoting expression of type  $\langle s, e \rangle$ , to resolve the type mismatch. Given that the object position of *see* targets concrete individuals, rather than kinds, the combination with a kind denoting expression leads to a sortal mismatch, which gets resolved by DKP. The local application of DKP ensures narrow scope of the existential quantifier over instantiations of the kind with respect to negation, so in the final interpretation of (19), John did not see any instantiations of the dog kind. Just like Carlson then, Chierchia derives the obligatory narrow scope of bare plurals from their underlying kind interpretation.

### 3. The exception: wide scope of bare plurals

#### 3.1 Reported cases of wide scope

The examples in Section 2.1 provide strong cross-linguistic support for the claim that bare nominals are restricted to narrow scope. However, the literature also discusses cases suggesting the possibility of a wide scope interpretation of bare nominals. Carlson (1977) acknowledges that both narrow and wide scope interpretations are available for sentences like (20):

(20) John didn’t see parts of that machine.  $\neg \exists / \exists \neg$

Geurts (2010) submits that the modified bare plurals in (16) allow for wide scope:

- (21) Several students reported that they had been harassed by professors.  
 (22) Several students reported that they had been harassed by professors wearing false beards and pink gowns.

Geurts prefers a narrow scope interpretation of the bare plural with respect to the scope island created by the clause embedded under *report* in (21) but accepts a wide scope interpretation in (22). Following up on Geurts (2010), Le Bruyn, Que & de Swart (2012) pursue an experimental approach to modified bare plurals. They compare the felicity of items like (23) (with NPI *any*) to that of items like (24) (with a bare plural):

- (23) Aidan and Brenda discuss the homework they are about to hand in, which consists of five assignments. The professor has announced that handing in at least four of them is the minimum requirement for a passing grade.  
 Aidan: Did you manage to finish all five assignments?  
 Brenda: No, I didn't have time to look at **any of them**.  
 Aidan: Sounds like you have a problem...  
 Brenda: Nah, I'll be fine. I finished four of them, so I should get a passing grade.
- (24) Eve and Flynn work for the same company. One of their colleagues has recently been fired.  
 Eve: Do you know why they sent Geoffrey packing?  
 Flynn: Well, he has not cooperated with **colleagues on his team** since last Christmas.  
 Eve: His team, that's Judy, Vikash and Alexander, right?  
 Flynn: That's right. He did work with Alexander, but he flat out refused to even talk to Vikash and Judy.

Brenda in (23) and Flynn in (24) would contradict themselves between their first and second turn unless *any of them* in (23) and *colleagues on his team* in (24) were to take wide scope. Le Bruyn, Que & de Swart (2012) find that items like (24) are considered significantly more acceptable than items like (23). This outcome suggests that NPIs are stubbornly taking scope below negation, but that bare plurals can escape the restriction to narrow scope.

The possibility of a wide scope interpretation of bare nouns has been discussed for other languages as well. Kratzer (1980) notes that in contexts like (25), the German bare plural *Tollkirschen* can take scope over the modal verb *wollte*:

- (25) Otto wollte Tollkirschen in den Obstsalat tun, [German]  
 Otto wanted belladonna\_berries in the fruit\_salad do  
 weil er sie mit richtigen Kirschen verwechselte.  
 because he them with real cherries confused  
 'Otto wanted to put belladonna berries in the fruit salad, because he mistook them for real cherries.'

We do not take (25) to convey that Otto wanted to poison the fruit salad, but rather that there was a case of mistaken identity.

Moving beyond Western European languages, Paul (2016) argues that Malagasy bare nouns allow for wide scope:

- (26) Tsy nahasitrana zaza ny dokotera.  $\neg \exists / \exists \neg$   
 Not PST.CAUSE.cure child DET doctor  
 'The doctor was not able to cure a child.'

According to Paul, (26) allows for the bare noun *child* to take scope over negation, such that there was a child that the doctor was not able to cure.

Nakanishi and Tomioka (2004) argue that Japanese determinerless plurals can and even have to take wide scope:

- (27) Sono byooin-wa kanguhu-tati-o sagasi-teiru  
 That hospital-TOP nurse-TATI-ACC look.for-PROG  
 ‘There is a group of nurses that hospital is looking for.’  
 \*look.for > nurse, nurse > look-for

In (27), *kanguhu-tati-o* is a plural noun without overt determiner that takes scope over the modal verb *sagasi*.

The data in (20)-(27) call for a more nuanced view on the scopal possibilities of bare nominals. In Section 3.2, we work out how the kinds approach handles the exceptional wide scope cases.

### 3.2. Exceptional wide scope under the kinds approach

Given that narrow scope of bare nominals constitutes a core ingredient of the (neo)-Carlsonian approach, a proper account of the problematic wide scope cases is crucial to uphold the kinds analysis. To maintain the discussion as clean as possible, we will first discard those cases from Section 3.1 in which the nominals are not really bare or where the data are inconclusive. We then move on to the cases that clearly go against the narrow scope generalization.

#### 1. Apparent bareness

The Japanese example in (27) can be argued not to involve a bare nominal. If so, it does not go against the narrow scope generalization. Studies of optional plural markers in various languages support the view that they often get specific or definite interpretations (Kester and Schmitt 2007 for Papiamentu and Brazilian Portuguese, Dalrymple and Mofu 2012 for Indonesian, Iljic 1994 for Mandarin Chinese). These facts have led to analyses in which plural markers function as *portmanteau* morphemes, filling both the number and determiner projections, and Nakanishi and Tomioka (2004) follow this line. If *tati*-nominals do not qualify as bare nominals, they do not threaten the narrow scope generalization.

#### 2. Apparent wide scope with modal verbs

According to Van Geenhoven (1998), *Tollkirschen* in Kratzer’s example (25), repeated here, does not take genuine wide scope. Rather, the mistaken identity reading points to a distinction between *de re/de dicto* interpretation of the descriptive content and wide/narrow scope of the existential quantifier.

- (25) Otto wollte Tollkirschen in den Obstsalat tun, [German]  
 Otto wanted belladonna\_berries in the fruit\_salad do  
 weil er sie mit richtigen Kirschen verwechselte.  
 because he them with real cherries confused  
 ‘Otto wanted to put belladonna berries in the fruit salad, because he mistook them for real cherries’.

Given that the sentence does not mean that there was a set of belladonna berries that Otto had the wish to put into the salad, there is no support for a wide scope existential quantifier. Van Geenhoven resorts to the framework of structured propositions to export the descriptive content of the bare plural *Tollkirschen* as *de re*, while the existential quantifier over instantiations of the berries remains inside the scope of the modal verb. In order to avoid interactions with modality, we restrict ourselves to quantifiers and negation as the relevant scope bearing operators.

#### 3. Malagasy bare nouns

The behavior of Malagasy bare nouns in (26) clearly calls into question the narrow scope generalization. If narrow scope is the result of an underlying kind interpretation, the first step in the account of Malagasy bare nominals would be to check whether they are kind-referring. A preliminary discussion in Paul (2016) shows that the data are inconclusive. We leave it to future research to clarify the position of Malagasy in the overall debate on kind reference across languages.

#### 4. Kinds and modification

Geurts' (2010) example in (22), repeated here, can be argued not to involve genuine wide scope.

- (22) Several students reported that they had been harassed by professors wearing false beards and pink gowns.

If *professors* takes wide scope, (22) states that the report of the students involved specific professors. There being specific professors mentioned in the report is however not excluded by the narrow scope reading that simply states that there was a report of professors harassing students. Configurations with weak quantifiers like (22), in which the wide scope reading entails the narrow scope reading, do not invalidate the claim that bare plurals take narrow scope. In order to avoid the entailment problem, Le Bruyn et al. (2012) use negation as the embedding operator. Experimental items like (24) confirm that a wide scope reading is accessible, at least with a modified bare plural.

This leaves us with the modified bare plural in (24) and *parts of that machine* in (20), repeated below, as clearcut examples where a wide scope reading is not only accessible, but also truth-conditionally distinct from the narrow scope reading.

- (20) John didn't see parts of that machine.  $\sqrt{\neg\exists}/\sqrt{\exists\neg}$

Rather than considering (20) a challenge for his analysis, Chierchia argues that it constitutes evidence in its favour:

"NPs can be modified, and not every modified NP is going to be associated with a kind. This will depend on whether it picks a class of objects that display a sufficiently regular behavior. What counts as sufficiently regular is determined by the shared knowledge and beliefs in the community of speakers (and is thus subject to a certain degree of variation). Our theory makes a prediction in this connection. Imagine having a bare plural  $\alpha$  whose nominalization does not denote a kind. This means that  $\hat{\alpha}$  will be undefined. The English category-type assignment leaves us free to turn an NP into an argument. But if  $\hat{\alpha}$  is undefined, some other type shifting device will have to be used. Now, English has a plural definite article; hence the blocking principle prevents us from using  $\iota$  as a shifter. It lacks, however, a plural indefinite article. This makes  $\exists$  an available option. So non-kind denoting NPs should behave like regular existentially quantified NPs (and should therefore also have 'strong' interpretations). This is, in essence, the prediction." (Chierchia 1998:372)

If we accept Chierchia's argumentation for *parts of that machine*, the data in (20) and – by extension – those in (24) can be handled by the kinds approach.

#### 3.3. The kinds approach to scope: taking stock

In Chierchia's (1998) neo-Carlsonian framework, narrow scope readings of bare nouns are derived from their underlying kind interpretation. A critical review of exceptional wide scope readings of bare nouns reported in the literature shows that most cases are not real counterexamples. Malagasy deserves further investigation, and modified bare plurals truly display wide scope, but Chierchia (1998) suspends scope restrictions for bare nominals that lack kind reference. So far then, we have not encountered fully convincing wide scope readings of kind-referring bare nouns. This picture will change in Section 4, which shows that scrambled bare plurals are kind-referring yet take unambiguous wide scope. The scrambling data raise a novel challenge for the kinds approach.



- (30) a. ... dat Otto altijd boeken over wombats leest. [Dutch]  
       ...that Otto always books about wombats reads  
       b. ... dat Otto boeken over wombats altijd leest.  
       ...that Otto books about wombats always reads

Despite the similarities between (29) and (30), the Dutch literature generally supports a weaker relation between scrambling and meaning. Note that the word order variation in (28) is related to information structure (Neeleman 1994), but there are no truth-conditional meaning effects. Moreover, different categories of NPs (indefinites, definites, pronouns) display differences in scrambling behavior (van der Does & de Hoop 1998). The corpus study carried out by Van Bergen & de Swart (2010) reveals that pronouns scramble almost categorically, without any meaning effect. Indefinites rarely scramble, and definites and proper names are somewhere in the middle. In sum, every category of NP has a default word order, word order variations are not always meaningful, and when they are, the meaning effect can be semantic or pragmatic. Based on the literature, we think that scrambling of bare plurals should not receive a separate treatment, but it should be analyzed as an instance of the more general phenomenon of word order variation in the *Mittelfeld*. Following de Hoop (1992, 2000, 2003) and van der Does & de Hoop (1998), we take scrambling to be a syntactic process of word order variation. If there is any semantic effect, it has to do with a change in scope relations between quantifiers brought about by the change in word order (Krämer 2000; Ruys 2001; Bobaljik & Wurmbrand 2012). Given that we are interested in scope, we leave the information structural differences in (28) aside, but we maintain the view that scrambling is a syntactically driven phenomenon.

The semantic interaction of a singular indefinite object with the adverbial quantifier it scrambles over is illustrated in (31).

- (31) a. Je mag twee keer een potje omdraaien. (Krämer 2000)  
       You may two times a pot around.turn  
       ‘You can turn a pot twice.’  
       b. Je mag een potje twee keer omdraaien. (Krämer 2000)  
       You may a pot two times around.turn  
       ‘You can turn a pot twice.’

The examples in (31) are experimental items in a setting in which the participant is invited to carry out particular actions. The unscrambled order in (31a) is compatible with the turning around of two different pots, whereas the scrambled order in (31b) invites the interlocutor to turn around the same pot twice. Thus, in scrambled position, the indefinite takes obligatory scope over the adverb, reflecting surface scope. Such interpretive facts may be analysed in terms of referentiality (de Hoop 1992), but Ruys (1992, 2001) maintains a scopal analysis, because scrambled indefinites can still take scope below other operators, as illustrated in (32).

- (32) ... dat elke premier een journalist meermalen heeft  
       ... that each PM a journalist multiple\_times has  
       weggestuurd.  
       sent\_away  
       ‘That for each PM there is a journalist that s/he has sent away several times.’

*Een journalist* takes scope over *meermalen* but it falls itself in the scope of *elke premier*, so (32) illustrates the intermediate scope reading of a scrambled indefinite. We follow the scopal analysis.

The scope effects in (29)-(32) fit the overall pattern of scope rigidity we find in free word order configurations. Bobaljik & Wurmbrand (2012) refer to Szabolcsi (1997) for the observation that there

is an inverse correlation between rigid word order and scope rigidity. We tend to find surface scope in languages with free word order, while languages with limited possibilities for word order permutation, like English, have a high tolerance for scope ambiguities. With two possible scope configurations (A takes scope over B or B takes scope over A), and two possible word orders (A precedes B or B precedes A), languages with free word order often display a pattern in which not 2, but 3 out of the 4 logical pairings are acceptable. Bobaljik & Wurmbrand call this the 3/4 effect. The 3/4 effect is visible in the Dutch scrambling data in the restriction of the scrambled indefinite in (31b) to a wide scope reading, while the unscrambled word order in (31a) is scopally underspecified. We will not commit ourselves to any particular analysis of the scope ambiguity of (31a), or of the 3/4 effect, but we refer to Bobaljik & Wurmbrand (2012) for further discussion and a possible analysis that is compatible with the semantics we propose. What matters to us is that the surface scope reading of the scrambled indefinite in (31b) is unambiguous, and in line with the literature as an instance of word order variation with possible semantic effects. In the remainder of this paper, we focus on the compositional analysis of the wide scope interpretation of the scrambled object.

We account for the wide scope reading of (31b) in a compositional way, formalized as function application in a bottom-up, right-to-left surface order. To illustrate, we work out the derivation of (31b) in (33). Here we analyze *twee keer* as an existential quantifier over events and add an event variable to the verb.

- (33) [[omdraaien]]=  $\lambda e \lambda y_e \lambda x_e . \text{turn\_around}(e)(y)(x)$   
 [[twee keer]]=  $\lambda P_{\langle v, \langle e, \langle e, t \rangle \rangle} \lambda v_e \lambda u_e \exists e \exists e' [P(e)(v)(u) \& P(e')(v)(u) \& e \neq e']$   
 [[een potje]]=  $\lambda P_{\langle e, \langle e, t \rangle \rangle} \lambda w_e \exists z [\text{pot}(z) \& P(z)(w)]$   
 [[je]]=  $j$
- a. [[twee keer omdraaien]]= *application*  
 $\lambda P \lambda v \lambda u \exists e \exists e' [P(e)(v)(u) \& P(e')(v)(u) \& e \neq e'] \quad \lambda e'' \lambda y \lambda x . \text{turn\_around}(e'')(y)(x)$   
 $\lambda y \lambda x \exists e \exists e' [\text{turn\_around}(e)(y)(x) \& \text{turn\_around}(e')(y)(x) \& e \neq e']$  *conversion*
- b. [[een potje twee keer omdraaien]]= *application*  
 $\lambda P \lambda w \exists z [\text{pot}(z) \& P(z)(w)] \quad \lambda y \lambda x \exists e \exists e' [\text{turn\_around}(e)(y)(x) \& \text{turn\_around}(e')(y)(x) \& e \neq e']$   
 $\lambda w \exists z [\text{pot}(z) \& \exists e \exists e' [\text{turn\_around}(e)(z)(w) \& \text{turn\_around}(e')(z)(w) \& e \neq e']]$  *conversion*
- c. [[je (mag) een potje twee keer omdraaien]]=  
 $\lambda w \exists z [\text{pot}(z) \& \exists e \exists e' [\text{turn\_around}(e)(z)(w) \& \text{turn\_around}(e')(z)(w) \& e \neq e']] \quad j$  *application*  
 $\exists z [\text{pot}(z) \& \exists e \exists e' [\text{turn\_around}(e)(z)(j) \& \text{turn\_around}(e')(z)(j) \& e \neq e']]$  *conversion*

Through a straightforward process of function application and lambda conversion, the composition in (33) leads to the invitation to turn the same cup twice, in line with the wide scope interpretation of the singular indefinite over the adverbial quantifier.

So far, we established the basic facts about Dutch scrambling, and adopted the mainstream position that scrambling constitutes a syntactic option of word order variation with possible semantic effects. When an indefinite object interacts with an adverbial scope bearing operator, scrambling fixes the interpretation to surface scope. A bottom-up composition derives the desired wide scope reading. We now turn to the relevant data about bare plurals.

#### 4.2 Scrambled bare plurals as a challenge for the kinds approach

Just like singular indefinites, bare plurals take wide scope over other scope bearing operators in scrambled position. We already saw an example with an adverbial quantifier in (30), here we add

examples with negation to avoid the complications surrounding the interpretation of adverbs of quantification (see de Swart 1992 for discussion). Both (34) and (35) are naturally occurring examples:<sup>7</sup>

(34) Als ik jou was zou ik eerder te veel dan te  
 weinig mensen uitnodigen voor je huwelijk. Je zal  
 few people invite for your wedding you will  
 eerder spijt hebben dat je **mensen** niet hebt uitgenodigd  
 rather regret have that you people not have invited  
 dan omgekeerd.  
 than the\_other\_way\_around  
 'If I were you, I'd invite too many rather than too few people to your wedding. You're more likely to regret that there are people you didn't invite than the other way around.'

(35) Het klopt dat ik **boeken** niet heb uitgelezen. Dan begon ik  
 it knocks that I books not have uit.read then began I  
 er aan maar kwam ik er achter dat ik het toch  
 ER on but came I ER after that I it after\_all  
 niet leuk vond.  
 not fun found  
 'It's true that there are books that I didn't finish. I started reading them but then found out that I didn't like them.'

In (34), the speaker warns the addressee that he will regret not having invited enough people. This corresponds with a wide scope interpretation of *mensen*, where the addressee is predicted to regret that there are people he has not invited. The follow-up sentence in (35) confirms the wide scope interpretation under which that the speaker did not finish some of the books she had started to read. A narrow scope reading of *mensen* and *boeken* is incongruous in the larger context of (34) and (35). Clearly, there is no implication in (34) that the addressee will not invite any guests to the wedding, and neither does (35) imply that the speaker did not read any books. The conclusion must be that existential bare plurals in scrambled position take genuine wide scope over negation. These data are uncontroversial for native speakers that we consulted, and replicate earlier examples in Ruys (2001). The bare plurals in (34) and (35) are unmodified. Independently of which strategy the kinds approach adopts to deal with wide scope readings of modified bare plurals, it cannot be appealed to as an escape hatch here. Also, the nouns in question (*mensen* 'people' and *boeken* 'books') allow for a straightforward kind reading in scrambled position in (35) and (36).

(35) a. ... dat ik **mensen** altijd gehaat heb  
 ... that I people always hated have  
 b. ... dat ik **boeken** altijd gehaat heb  
 ... that I books always hated have  
 '...that I've always hated people/books.'

<sup>7</sup> We made slight adaptations to condense the examples and to eliminate possible confounds. (33) is based on an example found at <https://www.ouders.nl/forum/off-topic-discussies/wat-ik-mij-afvraag-over-getrouwd-zijn?page=1> (consulted 22 May 2020). (34) is based on an example found at <http://nfictiedossier.blogspot.com/2012/09/samenvatting-startdocument-fictie.html> (consulted May 22, 2020).

- (36) a. ... dat ik **dit soort mensen** altijd gehaat heb  
 ... that I this type people always hated have  
 b. ... dat ik **dit soort boeken** altijd gehaat heb  
 ... that I this type books always hated have  
 ‘...that I’ve always hated this type of people/books’

Predicates like *hate*, which can take kind-referring objects, confirm that scrambling does not interact with kind formation in Dutch. This is crucial for the argumentation: if scrambling led to wide scope readings of bare plurals but blocked kind readings, it would fall in the same category as modified bare plurals (Section 3.2 above). Examples (36) and (37) show that kind-referring bare plurals and other kind-referring expressions can scramble.

If the wide scope reading of the scrambled bare plurals in (34) and (35) emerges as an instance of surface scope, we should be able to account for it by means of the compositional approach in (33), modulo the interpretation of the bare plural as a property denoting expression that shifts to a kind, and, through DKP, to instantiations of the kind. Unfortunately, the derivation of (35) in (38) shows that bare plurals stubbornly take narrow scope on the kinds approach, even in scrambled position.

- (38) [[uitlezen]]=  $\lambda y_e \lambda x_e. \text{read}(y)(x)$   
 [[not]]=  $\lambda P_{\langle e, \langle e, t \rangle \rangle} \lambda v_e \lambda u_e. \neg P(v)(u)$   
 [[boeken]]=  $\lambda y_e. \text{books}(y)$   
 [[ik]]=  $i$   
 a. [[niet uitlezen]]=  $\lambda P \lambda v \lambda u. \neg P(v)(u)$   $\lambda y \lambda x. \text{read}(y)(x)$  *application*  
 $\lambda y \lambda x. \neg \text{read}(y)(x)$  *conversion*  
 b. [[boeken niet uitlezen]]=  
 $\lambda y \lambda x. \neg \text{read}(y)(x)$   $\lambda z. \text{books}(z)$  *application*  
**TYPE MISMATCH**  
 $\lambda y \lambda x. \neg \text{read}(y)(x)$   $\text{BOOKS}_k$  *type-shift to kind ( $\cap$ )*  
 $\lambda x \neg \exists y [\cup \text{BOOKS}_k(y) \& \text{read}(y)(x)]$  **CONVERSION AFTER DKP**  
 c. [[ik boeken niet uitlezen]]=  $\lambda x \neg \exists y [\cup \text{BOOKS}_k(y) \& \text{read}(y)(x)]$   $i$  *application*  
 $\neg \exists y [\cup \text{BOOKS}_k(y) \& \text{read}(i, y)]$  *conversion*

The derivation in (38) follows the same bottom-up composition as (33), so *uitlezen* first combines with the negation *niet*. Application of *niet uitlezen* to the bare plural *boeken* leads to a type mismatch that is resolved by a kind shift. Because *uitlezen* targets concrete objects, DKP applies to resolve the sortal mismatch. The outcome is a narrow scope reading in which the speaker didn’t read any books. Clearly, this is not the wide scope reading of the scrambled bare plural we were after.

We could try to amend the kinds approach by reinterpreting the DKP mechanism and making it apply non-locally. In the light of examples like (39), this is an unattractive move, though:<sup>8</sup>

<sup>8</sup> This example is taken from <https://hvana.nl/lees/2540/hva-docent-intimideerde-studenten-jarenlang-ongestraft> (consulted May 22, 2020).





$\lambda x \exists z [\text{books}(z) \& \neg \text{read}(z)(x)]$	i	application
$\exists z (\text{books}(z) \& \neg \text{read}(i, z))$		conversion

The surface-oriented composition leads to the application of negation to the verb as a first step. We face a type mismatch when the property denoting bare plural combines with *niet uitlezen*. Just like in (40), we opt for a direct existential shift in (41). This local type repair straightforwardly leads to *books* taking scope over the negated predicate. Interestingly, a local type repair with an existential shift forces *dogs* to scope under negation in (40), but will not push *books* to scope below negation in (41). The result is a straightforward wide scope interpretation of the scrambled bare plural in (35). No extra assumptions are needed to derive the obligatory wide scope interpretation of scrambled bare plural objects in Krifka's (2004) framework, in contrast to the kinds approach (see Section 4.2).

## 6. Discussion and conclusion

The goal of this paper was to test the possibility of exceptional wide scope for bare plurals. We took our starting point in the neo-Carlsonian analysis developed by Chierchia (1998), because this is the most influential account of bare nominals in the current literature. We found that Chierchia can deal with all of the issues that have been raised in the literature so far. However, the kind-based analysis proves unable to account for the obligatory wide scope reading of scrambled bare plurals. In contrast, the closely related type-shifting analysis developed by Krifka (2004) derives the Dutch facts in a standard compositional analysis of scrambling. We can quibble over the theoretical reasons to prefer one approach over the other, but we cannot escape the conclusion that Krifka's framework is better suited to derive the obligatory wide scope of scrambled bare plurals than Chierchia's.

There are a number of choices we have made throughout the paper and these result in a series of follow-up questions. First, we focused on bare nominals in object position. We had good reasons to set subjects aside but the locality of type shifts that we rely on to get the scrambling facts right seems to predict wide scope to be equally available in (preverbal) subject position. Word order variation is not limited to the *Mittelfeld*, but also occurs in the Germanic *Vorfeld* (de Hoop 1992, Bouma 2008), so getting the facts straight and working out how type-shifting interacts with interpretive mechanisms in subject position is an important follow-up step. Given the complexity of the data, we leave this for further research.

Second, we have illustrated scrambling exclusively with Dutch examples, even though our claims extend beyond this language. Future empirical work should investigate the impact of word order variation on the scope of bare nominals in other scrambling languages. For German, Diesing (1992) drew attention to the wide scope interpretation of bare plurals over adverbials in contexts like (29). The attested examples (42), and (43) suggest that the German scrambling patterns with negation are similar to those in Dutch.

- (42) Ich    wußte auch    nicht, was    ich    da    bauen sollte oder    habe  
 I        knew also    not    what I        there build should or    have  
**Komponenten** nicht gefunden    oder    es    war    mit    dem    kleinen  
 components not    found        or    it    was    with    the    small  
 Inventar        so    nervig.  
 inventory      so    annoying  
[German]  
 'I didn't know either what I should build or [if I did know], there were components I couldn't find, or [if I did find the components], the small inventory made it an annoying experience.'<sup>9</sup>

<sup>9</sup> Example (42) is taken from the discussion forum <https://www.gamestar.de/xenforo/threads/das-lohnenswerteste-weltraum-erkundungsspiel.469486/> (consulted August 27, 2021).

- (43) Ich habe **Menschen** nicht wiedererkannt, ich konnte ihre Gesichter  
 I have people not recognized, I could their faces  
 und ihre Namen nirgends einordnen.  
 and their names nowhere classify.<sup>10</sup>

Under the most natural interpretation of (42), *oder* is strengthened to exclusive *or*, such that every problem that the player managed to solve in the computer game led to a new one. This construal leads to a wide scope interpretation in which certain components were hard to find, once the speaker had decided what to build. The speaker of (43) suffered an aneurysm, and reports on his experiences recovering from and living with his brain injuries. From the pronouns in the follow-up sentence, it is clear that a wide scope reading is intended under which the speaker didn't suffer from complete memory loss, but had difficulty recognizing certain people. Scrambled bare plurals also appear with predicates that can take kind-referring objects, as illustrated in (44).

- (44) Falls es schon immer so war, dass du **Bücher** nicht magst und  
 In\_case it already always so was, that you books not like and  
 dich zum lesen zwingen musst, dann rate ich dir  
 yourself to read force must then advise I you  
 mit anderen Methoden neues zu lernen.  
 with other methods something\_new to learn  
 'If it has always been the case that you don't like books, and have to force yourself to read,  
 then I advise you to learn new things through other methods.'

The addressee in (44) is hypothesized to dislike books in general and is advised to learn new things through other methods than reading. The fact that kind reference is possible in scrambled contexts blocks the escape hatch formulated for modified bare plurals and invites a compositional analysis of the wide scope interpretation of the bare plural in (42) and (43) through a compositional account of scrambling. A full cross-linguistic exploration of wide scope interpretations of scrambled bare plurals will hopefully provide further confirmation of the proposals made in this paper, but the observation that the central empirical facts about Dutch carry over to German is promising.

We conclude that the observations about Dutch scrambling constitute the strongest empirical case for exceptional wide scope of bare nominals in the literature so far. The unambiguous wide scope of bare plurals in scrambled position is problematic for Chierchia's (1998) kinds approach. Following Krifka (2004), we abandoned the default kind shift, and derived the facts through a direct existential shift in a compositional analysis of scrambling.

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<sup>10</sup> The example is taken from a website about reintegration in the job market after brain injury, see: <https://derarbeitsmarkt.ch/de/print-artikel/Mein-Leben-wird-nie-mehr-so-sein-wie-frueher> (consulted August 22, 2021).

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