

# Arbitrariness: a definite account

Sophia A. Malamud

*University of Pennsylvania*

## 1. Introduction

This paper develops a uniform semantics for a large class of items involving arbitrary interpretation. Subject pronouns in Russian and English sentences in [1], and implicit agents in sentences in [2] exemplify some of the items claimed to have ‘arbitrary interpretation’<sup>1</sup>.

- (1) a. Korabl’ vchera  $\emptyset$  potopili.  
Ship yesterday  $\emptyset$  sank-3pl.  
‘They sank the ship yesterday.’  
b. V Amerike  $\emptyset$  govorjat po-anglijski.  
In America  $\emptyset$  speak-3pl in-English.  
‘They speak English in America.’
- (2) a. Vchera byl potoplen vrazheskij korabl’.  
Yesterday was sunk enemy-adj. ship.  
‘Yesterday, the enemy ship was sunk.’  
b. Novyj God (v etot raz/bychno) prazdnovalsja pyshno.  
New Year (in this time/usually) celebrated-SJA splendidly.  
‘The New Year (this time around/usually) was celebrated with splendour.’

The semantics of arbitrariness has received significant attention in the literature (Jaeggli (1986), Cinque (1988), Condoravdi (1989), Kim (1991), Chierchia (1995), Koenig and Mauner (1999), Alonso-Ovalle (2002), Cabredo-Hofherr (2002), *inter alia*), yet to-date no adequate uniform semantic analysis has been proposed.

In this paper I will concentrate on 3rd-person plural arbitrary pronouns in English and Russian, and implicit agents in short verbal passives in these

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1. Other examples of ‘arbitrary’ items are the uncontrolled PRO subjects of infinitival clauses, and lexical impersonal pronouns, like German *man* and French *on*. The semantics of these items, though extremely interesting, is beyond the scope of this paper.

languages and in Russian SJA-passives, arguing that a uniform treatment of these items as definite descriptions accounts for the full range of available interpretations. The analysis also accounts for the influence of linguistic and extra-linguistic context on the reading preferences for these items. The properties of 3rd-person plural arbitrary pronouns and implicit agents with respect to their effect on subsequent discourse are discussed.

## 2. Previous accounts

Existing accounts of arbitrariness fall into two main categories: those treating arbitrary items uniformly as indefinites, and those taking them to be ambiguous.

### 2.1. Uniform indefinite translation is inadequate

The standard treatments (e.g., Cinque (1988)) of the 3rd-person plural arbitrary pronouns (3pl. arbs) translate them as a kind of indefinite (e.g., a free variable). The indefinite is then bound by the sentence-level operator, e.g., in episodic sentences, the existential quantifier over events unselectively binds the free variable introduced by the indefinite; in generic sentences, the unselective binding is done by the generic operator.

This has the effect of existential quantification over the agent in episodic sentences [1a], and of universal-like quantification of the agent in the scope of generic or habitual operators [1b].

While elegant, this account undergenerates, however. As Cabredo-Hofherr (2002) points out, arbs have a wider range of interpretations than this account predicts. Consider the sentences below:

- (3) a. Zdes'  $\emptyset$  igrajut v karty na urokax.  
Here  $\emptyset$  play-3pl in cards on classes.  
'They play cards here during classes.'
- b. Vchera v Amerike  $\emptyset$  radostno otprazdnovali Den'  
Yesterday in America  $\emptyset$  joyfully PRF-celebrated-3pl. Day  
Nezavisimosti.  
of-Independence  
'Yesterday in America they have celebrated Independence Day with joy.'

The sentence in [3a] has a reading in which only a couple of hooligans play cards during classes - so the sentence is existential with respect to the agents. At the same time, the most natural reading of the sentence in [3b] is almost-universal over the agents - pretty much everyone in America celebrated Independence Day with joy. The existence of existential arbs in

generic sentences [3a], and of generic/universal arbs in episodic sentences [3b] suggests that the uniform account translating the arb as an indefinite is inadequate.

Thus, while attractive, the uniform *indefinite* translation for the arbs is untenable.

## 2.2. Ambiguity account

In a recent proposal, Cabredo-Hofherr (2002) treats the arbs as ambiguous between a free variable interpretation, which gives rise to the various existential readings [1a, 3b], and a definite-plural interpretation, which is responsible for the quasi-universal and “corporate responsibility” readings [1b, 3b, 4].

- (4) Opjat'  $\emptyset$  podnjali nalogi.  
 Again  $\emptyset$  raised-3pl. taxes.  
 ‘They’ve raised the taxes again.’

In the following sections I am going to argue against this approach, first showing that the indefinite translation of the arb (i.e., the free variable translation) is unnecessary since the existential readings can be derived from the plural definite translation (Section 3.1). I will then provide evidence that the indefinite translation is empirically inadequate, since arbs behave like overt definite plurals and unlike overt indefinites with respect to quantificational variability effects (Section 3.2). I will then extend this analysis to account for implicit agents in short passives [2a] and SJA-passives [2b] (Section 4).

## 3. Uniform analysis for third-plural arbs

This account proposes that arbs are translated unambiguously as definite descriptions. The argument is twofold: first, I show that we do not need the existential translation for the arbs; then, I present evidence that this translation is actually undesirable.

### 3.1. Indefinite translation is not needed

In order to derive the existential readings for sentences with arbs from the plural definite translation, I will make an excursus into some properties of overt plural definites, namely, intermediate distributivity and pragmatic weakening.

#### Covers

Examples like [5] provide evidence that arbs behave like definite plurals with respect to distributivity. A predicate distributing over its definite plural

subject does not have to go all the way to atoms (Schwarzschild (1991)). Instead, this subject denotation can be broken into intermediate pieces, and then the predicate distributes up to these pieces.

For example, both [5] are true in a situation [6a], where it's neither the case that each boy individually lifted the piano [6b], nor that all of them collectively did so [6c].

- (5) a. On the fourth floor, they lifted the piano.  
 b. The boys lifted the piano.
- (6) Residents of the fourth floor are the boys Ed, John, Bill, and Harry.  
 a. **Scenario:** Ed and John lifted the piano together, then Bill and Harry did.  
 b. **Scenario:** Ed, John, Bill, and Harry each lifted the piano  
 c. **Scenario:** Ed, John, Bill, and Harry together lifted the piano

The different distributivity possibilities are achieved by using covers over the domain of discourse.

A cover is defined as follows:

**Definition.** Cover - a collection of sets of entities, such that the union of the sets in the cover gives you the entire universe of discourse.

**Examples.** Universe=Bill, John, Mary, and Sue

**Possible Covers:**

Cover1={ {Bill}, {John}, {Mary, Sue} }

Cover2={ {Bill, John}, {John, Mary}, {Sue} }

Cover3={ {Bill, John, Mary, Sue} }

**Not a cover:** { {Bill, John, Mary} }

Assuming the universe of discourse  $D=\{\text{Ed, John, Bill, Harry}\}$ , the covers in [7a-7c] correspond to the situations [6a-6c] respectively.

- (7) a. Cover = { {Ed, John}, {Bill, Harry} }  
 b. Cover = { {Ed}, {John}, {Bill}, {Harry} }  
 c. Cover = { {Ed, John, Bill, Harry} }

A (pragmatically determined) variable over covers is an inherent part of each VP denotation, allowing predicates to distribute up to each cover-cell in the NP denotation, as illustrated in [8].

- (8)  $(\text{Part}(Cov_i)(\text{lifted-the-piano}'))(\text{the boys}) = \forall x[x \in [[Cov_i]] \wedge x \subseteq [[\text{theboys}']] \rightarrow x \in [[\text{lifted-the-piano}']]]$

The distributive operator applies to the ‘covered’ denotation: every cell  $x$  in the cover, such that  $x$  is a subset of ‘the boys’, lifted the piano. Assuming definite denotations for arbs, we can thus account for the different distributivity levels [6] available for [5a].

### Teams

Brisson (1998) builds on the ideas of Schwarzschild (1991) to account for pragmatic weakening of sentences with plural definites (e.g., [5b] can be true even if only a few of the boys participated as in [9]).

(9) **Scenario:** only Ed and John lifted the piano.

This approach allows sentences with definites to be compatible with essentially existential scenarios. This is equivalent to assigning team credit to the boys for lifting the piano. In Brisson (1998), pragmatic weakening is achieved by putting the exceptional members of the NP denotation in a cover-cell with non-members (‘pragmatic junkpile’). Then, the boys in [5b], interpreted with respect to the cover in [10] will essentially mean ‘the boys except Bill and Harry’.

(10) Universe = {Ed, John, Bill, Harry, Mary, Sue}  
Cover = {{Ed, John},{Bill, Harry, Mary, Sue}}

Whatever the implementation, team credit assignment allows existential readings for the definite-plural translation of the arbs, reducing the ambiguity analysis to a uniform treatment of arbs as definite descriptions.

So, we have shown that the ambiguity analysis of arbs is unnecessary, since translating them uniformly as definite plurals allows us to derive both universal-like and existential-like readings.

### 3.2. Indefinite translation is empirically inadequate

In this section, I will provide evidence that the indefinite translation of the arbs is actually undesirable, since it makes incorrect empirical predictions. The evidence comes from the different behavior of definites and indefinites with respect to quantificational variability effects.

It has been noted that Q-adverbs like *usually* with indefinite subjects yield the effect of quantification over the variable introduced by the indefinite (QVE) [11]<sup>2</sup>.

(11) Students at Penn are usually smart.  
**QVE available:** *Most students = QVE on students*

2. Non-QVE readings (i.e., “most situations...”) are ignored throughout.

In contrast, QVE over a plural definite is achieved with operators like *for the most part* [12], not with Q-adverbs [13] (Nakanishi and Romero (2003)).

- (12) The students sitting over there now are for the most part smart.  
**QVE available:** *Most students = QVE on students*
- (13) The students sitting over there now are usually smart.  
**QVE not available:** the only reading is '*Now they are smart, now they are not*'

The same pattern holds for Russian [14].

- (14) a. Studenty obychno gordjatsja dekanom.  
 Students usually are-proud with-dean.  
 'Students are usually proud of the dean.'  
**QVE available:** *Most students = QVE on students*
- b. Eti studenty bol'shej chast'ju gordjatsja dekanom.  
 These students most-INSTR part-INSTR are-proud with-dean.  
 'These students are for the most part proud of the dean.'  
**QVE available:** *Most students = QVE on students*
- c. Eti studenty obychno gordjatsja dekanom.  
 These students usually are-proud with-dean.  
 'These students are usually proud of the dean.' **QVE not available:** the only reading is '*Now they are proud, now they are not*'

Notably, QVE readings with 3pl arbs in Russian and English are achieved with *for the most part*, but not with Q-adverbs [15].

- (15) a. Na etom fakul'tete bol'shej chast'ju ∅ gordjatsja  
 On this department most-INSTR part-INSTR ∅ are-proud  
 dekanom.  
 with-dean.  
 'In this department, they're for the most part proud of the dean.'  
**QVE available:** *Most people in the department = QVE on people in the department*
- b. Na etom fakul'tete obychno ∅ gordjatsja dekanom.  
 On this department usually ∅ are-proud with-dean.  
 'In this department, they're usually proud of the dean.'  
**QVE not available:** the only reading is '*Now they are proud, now they are not*'

As this pattern of QVE readings indicates, 3pl arbs are never translated as indefinites, but are strikingly similar to overt definite plurals.

#### 4. Payoffs: implicit agents in passives and SJA-passives

The definite semantics given above is also applicable to the implicit (syntactically present yet phonologically null) agents in short verbal passives [16] or in Russian SJA-passives [17] (compare [18]).

- (16) V Ispanii, Rozhdestvo bylo otmecheno pirom.  
In Spain, Christmas was celebrated with-feast.  
'In Spain, Christmas was celebrated by a feast.'
- (17) V Ispanii, Rozhdestvo otmechaetsja pirom.  
In Spain, Christmas celebrates-SJA with-feast.  
'In Spain, Christmas is celebrated by a feast.'
- (18) V Ispanii, Rozhdestvo  $\emptyset$  otmechajut pirom.  
In Spain, Christmas  $\emptyset$  celebrate-3pl. with-feast.  
'In Spain they celebrate Christmas by a feast.'

While the discourse conditions under which implicit agents and 3pl arbs are used are somewhat different (with different readings being generally preferred), their truth-conditions (the range of scenarios with which they are compatible) is the same. Thus, [19] is compatible with [20a-20d] ([20d] being preferred). Note the intermediate distributivity effects, which are triggered by contextually salient intermediate covers [20c], as they would be for overt definites.

- (19) V Gruzii byl obvinen v korruptsii prezident.  
In Georgia was accused in corruption president.  
'In Georgia, the president was accused of corruption.'
- (20) a. Each Georgian personally accused the president in a general vote.  
b. The Georgians collectively accused the president.  
c. Abkhassians, Adjarians, Osetins, population of Tbilisi, and other groups of Georgians in turn accused the president.  
d. Team credit assigned to the collective of all Georgians, or to each cover-cell, so representative(s) did the actual accusing.

Moreover, implicit agents also exhibit definite-like QVE [21].

- (21) a. QVE patterns in short passives:
- i. In Spain, Michael Jackson is for the most part admired.  
**QVE available:** *Most Spaniards = QVE on Spaniards*
  - ii. In Spain, Michael Jackson is usually admired.  
**QVE not available:** the only reading is 'Now he's admired, now he's not.'

- b. QVE patterns in SJA-passives:
- i. V Rossii, “Pravda” bol’shej chast’ju preziraetsja.  
In Russia, “Pravda” most-INSTR part-INSTR despises-SJA.  
‘In Russia, “Pravda” is for the most part despised.’  
**QVE available:** *Most Russians = QVE on Russians*
  - ii. V Rossii, “Pravda” obychno preziraetsja.  
In Russia, “Pravda” usually despises-SJA.  
‘In Russia, “Pravda” is usually despised.’  
**QVE not available:** the only reading is ‘*Now it’s despised, now it’s not.*’

Thus, the definite translation of implicit agents is in fact required; more so since definite-like QVE [21] are present only in the agentive verbal passives and SJA-passives, but not in the adjectival or non-agentive ones [22], which involve no agent denotation.

- (22) In this building, the door is usually/for the most part unopened.  
**QVE not available:** the only reading is ‘*Now it’s unopened, now it’s not*’

### 5. Pragmatics of arbs: effects of context

All definites, existentials, and universals are subject to what has been called in the literature “contextual domain restriction”. This is an operation magically narrowing the restrictor-set of the quantifiers or the maximality operator to just the relevant individuals. The same operation applies during the interpretation of arbs: a salient domain restriction applies to the ‘base’ meaning of the definite. If a locative expression is present, it provides a very salient property that serves as the domain restriction [23a, 23b]; otherwise, the definite is restricted to mean “the relevant individuals” [23c] in the same way as are overt NPs.

- (23) a. Na galerke  $\emptyset$  zataili dyhanie.  
On gallery  $\emptyset$  held-3pl breath.  
‘In the gallery, they held their breath.’ = ‘The people in the gallery held their breath.’
- b. They speak English in America = ‘The people in America speak English.’
- c. [source - ‘The Gulag Archipelago’, on various kinds of arrests]  
Chernorabocheho  $\emptyset$  vyzyvajut v kontoru.  
Blue-collar-worker  $\emptyset$  call into office.

‘They call a blue-collar worker into the office.’ = ‘The perpetrators of GULAG call a blue-collar worker into the office (in order to arrest him).’

The exact mechanism for determining relevance remains an open question, which is outside the scope of this paper.

### 5.1. Pragmatic strengthening: the choice of cover

While vagueness is an inherent part of both overt definites and arbs, in most contexts of use there is a clear, strong preference for a particular reading. That is, hearers tend not to be terribly confused by definite plurals, whether null or overt. In our framework, this means that the choice of cover is made easy by some factors.

In his discussion of cover-set semantics for plural definites, Schwarzschild (1991) mentions that a cover can be made extremely salient (and thus a particular reading for the definite strongly preferred) by an immediately preceding mention [24], or by extralinguistic situation [25].

- (24) The cows and the pigs were in the barn. The animals hated each other.
- (25) *Situation: apples arrive to the store neatly packed in baskets holding about 10 lb each. The store has a very small scale, for weighing a couple of fruits at a time, and a very big scale, for weighing small truckloads. Utterance: The apples are too heavy for the small scale and too light for the big scale!*

In addition, pragmatic strengthening effects in overt definites, discussed in Krifka (1996), point to gricean-like factors influencing the choice of cover. In particular, when situational and grammatical factors do not enforce a particular reading, upward-entailing contexts favour a universal/exhaustive interpretation for the definite, while downward-entailing contexts trigger an existential interpretation for the definite:

- (26) (I believe) The windows are made of security glass. → believe that all
- (27) I doubt the windows are made of security glass. → believe that none

Krifka proposes a two-rule principle that derives pragmatic strengthening effects in plural predications.

1. Grammar does not fix whether predication P over a sum individual is universal or existential, **except if there is explicit information enforcing one or the other**

Examples of explicit information:

- overt lexical items: *All the windows...*, *The men each...*
- extra-linguistic information about the predicate (do all subparts need to fulfill the predicate in order for the plural to fulfill it, or is one/some enough)

2. When multiple interpretations are available, pick the strongest one that's consistent with general background assumptions.

This principle will, in upward-entailing contexts, *when several options are available, make the cover as well-fitting, and cover-cells as small as possible* (and it will make cover-cells as large as possible in downward entailing contexts), to ensure the strongest interpretation.

Krifka's observations hold for arbs as well. Here is a naturally-occurring example involving a 3pl arb, with two simpler variants given below:

- (28) Odnako vcherashnij opyt pokazal, chto etomu rasskazu  
But yesterday's experience showed, that this-DAT story-DAT  
ne verjat ili ponimajut jego kak-to izvrashchenno.  
not believe-3pl. or understand-3pl it-ACC somehow perversely.  
'But yesterday's experience showed that this story is not believed, or is understood somehow perversely.'
- (29) Opyt pokazal, chto etot rasskaz ponimajut  
Experience showed, that this-ACC story-ACC understand-3pl  
izvrashchenno.  
perversely.  
'Experience showed that this story is understood perversely.' → I think everyone misunderstands this story
- (30) Ja somnevajus', chto etot rasskaz ponimajut  
I doubt, that this-ACC story-ACC understand-3pl  
izvrashchenno.  
perversely.  
'I doubt that this story is understood perversely.' → I think nobody misunderstands this story

The entailingness of the context affects implicit agents as well:

- (31) V etom godu, Pasxa byla otprazdnovana obzhiralovkoj, a Jom  
In this year, Passover was celebrated by-overeating, and Yom  
Kippur - postom.  
Kippur - by-fasting.  
'This year, Passover was celebrated by overeating, and Yom Kippur - by fasting.'

- (32) Ja somnevajus', chto v sledujushchem godu Pasxa budet  
 I doubt, that in next year Passover will-be  
 otprazdnovana obzhiralovkoj, a Jom Kippur - postom.  
 celebrated by-overeating, and Yom Kippur - by-fasting.  
 'I doubt that next year Passover will be celebrated by overeating, and  
 Yom Kippur - by fasting.'

The preferences are easily overridden by extra-linguistic set-up (as they should be).

In fact, Cabredo-Hofherr (2002) ambiguity analysis for arbs predicts that in the absence of an individual-level locative or a corporate-reading-inducing predicate, the existential reading is the only one available (at the very least, strongly preferred). Thus, in such sentences, upward-entailing context should not induce universal-like preferences. This is patently untrue.

In fact, the behaviour of arbs with respect to pragmatic strengthening is very much the same as that of overt definites, as expected under our approach.

### 5.2. Effects of arbs on subsequent discourse

While truth-conditionally arbs function like overt definite plurals, their effect on subsequent discourse is quite different. Koenig and Maurer (1999) show that implicit agents in short verbal passives can provide antecedents for discourse anaphora. This is true for all the arbs under discussion, as the following constructed follow-ups to naturally occurring examples show [33] (Note that in Russian, conveniently, 3pl arbs must be null, while anaphoric pronouns must be overt).

- (33) a. Ivan uzhe privyk, chto ego rasskazu ne verjat ili  
 Ivan already got-used, that his story-ACC not believe-3pl or  
 ponimajut ego kak-to izvrashchenno. Oni ved'  
 understand-3pl it-ACC somehow perversely. They indeed  
 ne vstrechalis' s d'javolom.  
 not have-met with devil.  
 'Ivan already got used to the fact that his story was not believed  
 or understood somehow perversely. Unlike him, they haven't met  
 the devil.'
- b. The ship, made of iron, was cleaned and made environmentally  
 safe before it was sunk to the seabed. They wanted to create an  
 artificial reef.
- c. Na trave mojetsja krasnaja loshad'. Oni skrebut jejo  
 On grass washes-SJA red horse. They scrub its  
 golovu i boka.  
 head and sides.

‘On the grass a red horse is being washed. They are scrubbing its head and sides.’

However, an analysis of corpus data shows that these items are almost never actually followed with intersentential anaphora. This suggests that while agents of sentences involving arbs can provide antecedents for future anaphora (at least when this is the only way to make sense of a discourse), they are not preferred topics<sup>3</sup>. This becomes apparent in sentences containing a competing antecedent for plural anaphora: even nonsensical overt antecedents provide strong competition for arbs [34a, while overt and sensible ones antecedents are almost unbeatable competition[34b].

- (34) a. Zdes’ pekut horoshije pirogi. Oni starajutsja ugodit’  
 Here bake-3pl good pies. They try to-please  
 klientam.  
 clients.  
 ‘They bake good pies here. They try to please the clients.’
- b. Zdes’ vybirajut horoshih artistov. Oni starajutsja  
 Here choose-3pl good performers. They try  
 ugodit’ klientam.  
 to-please clients.  
 ‘They choose good performers here. They try to please the clients.’

Given that overt subjects in Russian are typically the likeliest antecedents for future anaphora (and likeliest topics for subsequent discourse), we can conclude that one discourse function of impersonal constructions, short passives and SJA-passives is exactly to prevent the agent(s) from becoming preferred topics.

## 6. Conclusion

This work proposes a unified semantics for a class of arbitrary pronouns, and implicit agents in short verbal passives and Russian SJA-passives. The proposed semantics for these items is that of plural definite descriptions. The existential-like readings are derived using a mechanism proposed by Schwarzschild (1991) and Brisson (1998) to account for distributivity facts in overt definite plurals : cover-sets and team credit. This semantics captures the full range of readings for 3rd-person plural impersonal pronouns, as well as implicit agents.

3. Non-sentence-final subjects in Russian are preferred topics. The notions of topics and preferred antecedents for future anaphora are given precise operational content in the framework of Centering theory as backward-looking centers and preferred centers.

The effects of context on the interpretation of these items suggests further, non truth-conditional similarities between arbs and overt definite plurals. At the same time, the properties of arbs and overt plurals with respect to discourse anaphora are shown to be quite different. A corpus study showing that arbs are not preferred antecedents for subsequent anaphora suggests that one discourse function of arbs is precisely to ‘demote’ the agent pragmatically.

The cross-linguistic coverage of the analysis can be extended to 3pl arbs and implicit agents in Spanish and Italian (both in passive and in *se/si* constructions).

A further investigation is under way to explore the differences in preferred readings for 3pl arbs and implicit agents: a preliminary corpus study suggests that implicit agents tend to existential-like readings more than 3pl arbs. The two types of sentences have quite different focus structures, a very strong factor influencing reading preferences.

Similarly, a cross-linguistic comparison of the constructions with arbs (short passive, 3pl arbs, *se/sja/si* construction) suggests that the same construction can have slightly different felicity conditions in different languages[35]. An investigation into the nature and possible explanation for these differences is being conducted.

- (35) Ruki           mojut   pered jedoj.  
 Hands-ACC wash-3pl. before eating.  
 ‘They wash hands before eating.’ = ‘One should wash hands before eating.’ (impossible reading in English)

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