

1 The Mass-Count Distinction

We have so far only considered **count nouns**, which are nouns that have a singular and plural form. English and many other languages also have nouns that are called **mass nouns**, which have different morphosyntactic properties from count nouns. What is interesting for us is that the morphosyntactic mass-count distinction seems to correlate with their semantic properties, which is reflected in the terminology *mass* and *count*, but what exactly are the semantic effects of mass-count is not at all a simple matter, as we will see. Let us review the major problems posed by mass nouns.

Firstly, what are mass nouns? We can define count and mass nouns based on their grammatical properties, such as the following. Notice, however, that since these diagnostics are rely on certain specific properties of English, they might not be applicable to other languages, though comparable grammatical phenomena could be found in other languages (but there might be languages without a grammatical mass-count distinction; see the lecture notes for Week 9).

1. Count nouns have plural forms, mass nouns don't.

(1)	Count		(2)	Mass	
	book	books		saliva	*salivas
	table	tables		petrol	*petrols
	moment	moments		information	*informations
	story	stories		advice	*advices

NB: Some count nouns have identical singular and plural forms, *sheep, deer, fish, shrimp*, etc. (some have two plural forms), but they are still count nouns, as they exhibit all the other features of count nouns, including that they trigger plural agreement on the verb, as in (3).

(3) Sheep **are** hoofed.

2. Mass nouns, but not count nouns, can appear completely bare as arguments.

- (4) a. *I received **book**. (Count)
 b. I received **advice**. (Mass)

3. Some determiners/modifiers have two forms, one for count nouns, one for mass nouns.

(5)	Count	Mass
	many	much
	few	little

(6)	Count	
	many books	*much book
	many table	*much tables(s)
	many moments	*much moment(s)
	many stories	*much story/stories

(7)	Mass	
	*many saliva(s)	much saliva
	*many petrol(s)	much petrol
	*many information(s)	much information
	*many advice(s)	much advice

Not all expressions of this category have two forms. For instance, *some, any, the, no, a lot, more, and less* are insensitive to the mass-count distinction and compatible with both kinds of nouns.

4. Determiners like *a, each* and *every* are only compatible with (singular) count nouns.

(8)	Count	Mass
	every book	*every saliva
	every table	*every petrol
	every moment	*every information
	every story	*every advice

Similarly, Cardinal expressions can directly modify count nouns, but not mass nouns. Mass nouns require so-called 'classifier expressions', e.g. *piece of*.

- (9) a. *One information
- b. One letter
- c. One piece of information

2 The Semantics of Mass/Count

2.1 The Mapping Hypothesis

The terminology 'mass/count' reflects the following intuition: The distinction between the two classes of nouns has semantic consequences along the lines of the hypothesis in (10) (which is often attributed to Quine 1960; see also Link 1983, Landman 1989a,b for similar ideas).

(10) **The Mapping Hypothesis:**

Count nouns describe discrete, countable objects. Mass nouns describe non-countable substances.

However, this simple hypothesis has a number of problems:

1. Nouns can describe abstract things that do not have physical properties, but some abstract nouns are count and some are mass.

- (11) a. **Count:** virtue, prejudice, theory, joy, pleasure, belief, suggestion
- b. **Mass:** information, knowledge, advice

The Mapping Hypothesis makes no predictions about these nouns.

2. Count and mass nouns can describe the same thing, suggesting that the physical properties of what is being described do not uniquely determine the mass/count status of the noun in question.

- (12) a. You've got some **letters/mail**.
- b. I have some **coins/change**.
- c. He carried a lot of **suitcases/luggage**.

3. **Hybrid nouns** can be used as either count or mass nouns (Gillon 1999, Pelletier 1975, 2012, Rothstein 2017).

- | | | |
|------|--|--|
| (13) | <i>Mass</i>
We need much more chocolate .
We need high-quality paper .
We don't need much rope .
There isn't much discussion .
There is reason for this.
There is a lot of difference .
There is war here. | <i>Count</i>
We need many more chocolates .
We need high-quality papers .
We don't need many ropes .
There aren't many discussions .
There is a reason for this.
There are a lot of differences .
There is a war here. |
|------|--|--|

More examples of hybrid nouns. *detail, complexity, error, effort, shortage, exposure, change, variation*, etc. (see Gillon 1999 for some more). Note that hybrid nouns are abstract nouns, e.g. *discussion, reason, difference, war*.

We can talk about the same objects with either the count or mass version of the same hybrid noun, contrary to what the Mapping Hypothesis predicts. Here are some more examples of hybrid nouns:

- | | | |
|------|--|---------------------|
| (14) | a. John is drinking beer .
b. We've just ordered six beers . | |
| (15) | I ordered a pizza, not a slice of pizza! | (Gillon 1999:57) |
| (16) | a. Kim produces sculpture .
b. Kim is producing a sculpture . | (Pelletier 2012:14) |

Here are more examples of canonically count nouns used as mass nouns:¹

- | | | |
|------|---|---------------------|
| (17) | a. This salad contains a lot of apple .
b. John ate two apples . | |
| (18) | a. Leslie has more car than garage.
b. He's got woman on his mind. | (Pelletier 2012:14) |
| (19) | a. Bill got a lot of house for \$100,000.
b. How much floor did you lay today? | (Gillon 1999:58) |

The conclusion that emerges from this is that the mass-count distinction cannot be solely rooted in the properties of the objects/stuff described by the noun. Rather, it is a property of the expressions and language use. However, the mass-count distinction is not only a morphosyntactic issue, since there seems to be a semantic correlate of the morphosyntactic difference. Above all, it is undeniable that the intuition expressed by the Mapping Hypothesis captures the overall tendency. Furthermore, one can sense a systematic semantic shift associated with the two mode of a hybrid noun. This leads us to the second hypothesis.

2.2 The Contextual Individuation Hypothesis

Some proposed the following hypothesis about the semantics of mass/count (cf. Bunt 1985, Borer 2005, Pelletier 2012):

- (20) **The Contextual Individuation Hypothesis:** If there is a contextually salient/relevant way of individuating the objects to be described, a count noun is used. If not, a mass noun is used.

¹Gillon (1999) says there are several sub-regularities. Nouns denoting animals (e.g. *chicken, duck, lamb*), plants (e.g. *potato, turnip, rutabaga*) can be used as mass nouns to denote aggregates of their parts that are suitable for human consumption. Nouns denoting trees (e.g. *oak, maple, birch*) can be used as mass nouns to denote aggregates of these parts useful for human use. Also, those nouns that denote products can be used to denote their parts that contribute to the enlargement or enhancement of the products.

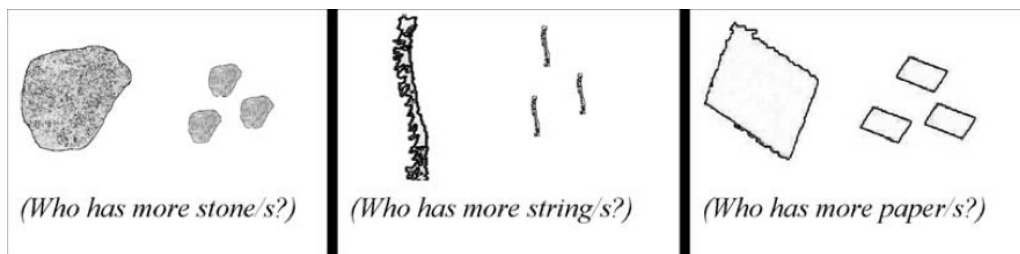
The idea is that the mass/count distinction reflects whether the conversational participants are interested in the **individuation** of the objects being described. In other words, count nouns somehow 'presuppose' a way to determine what counts as one instance of the object that they describe, while mass nouns are used when such a way of individuation is unavailable or unimportant for the purposes of the conversation.

For instance, in a typical situation, *juice* is used as a mass noun because there is clearly no salient way of individuating different portions of juice. However, if you are in a restaurant, for instance, there is a clear way, i.e. one juice corresponds to one serving. So you use it as a count noun.. Similarly, one says *beers* usually in a situation where it is clear how to count beers.

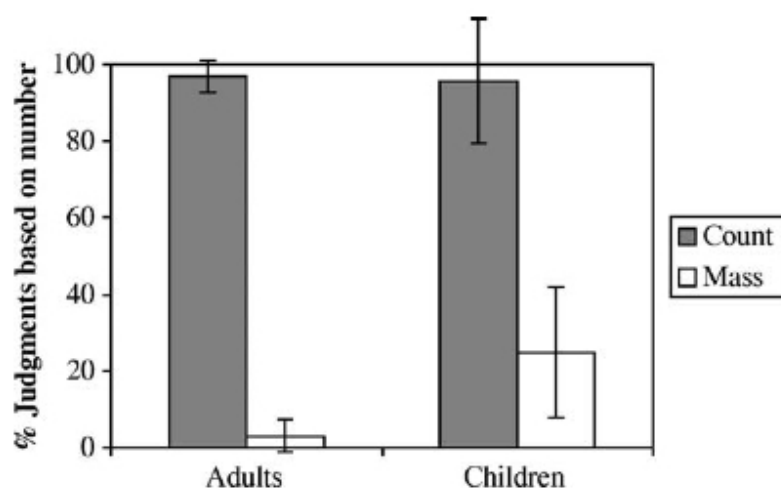
The following (in)famous example shows that even *dog* can be used as a mass noun in certain contexts:

When I say *a dog*, I can safely presuppose shared knowledge about what constitutes one dog. For instance, when you count dogs, you don't count their heads, tails, paws, eyes, etc. separately. But in certain contexts, a salient way of counting becomes either irrelevant or unavailable, e.g. if you blow up a dog, there'll be dog all over the place!

Barner & Snedeker (2005) conducted an experiment whose results support the hypothesis. In each trial, the subject was presented with pictures of two people who have some things, e.g. stones, such that one person has one big stone, the other person has three small stones. So in terms quantity, the first person has more, but in terms of number, the second person has more. And the subject was asked to answer either of the following questions: *Who has more stones?* or *Who has more stone?*



The results clearly indicate clear semantic effects along the lines of the above hypothesis.



This hypothesis, however, has some problems as well:

- Cross-linguistic difference: the same thing in the same context is described by a count or mass noun, depending on the language.

(21) Count	Mass
information (French)	information (English)
cheveu (French), capello (Italian)	hair (English)
meuble (French), mobile (Italian)	furniture (English), meubilair
relative (English)	kin (English), parentela (Italian)
giyr (Hebrew)	chalk (English)
strawberry (English)	klubnika (Russian)
onion (English)	luk (Russian)

It's implausible that speakers of different languages conceive of, e.g. information, differently depending on which language they speak. That said, such a view (*linguistic relativism*) is sometimes proposed (see the lecture notes for Week 9).

- Some nouns are rigidly mass. Context does not seem to matter. There are count nouns that describe the same or similar things (McCawley 1975, Chierchia 1998a, Rothstein 2010, Pelletier 2012, Rothstein 2017).

(22) Rigidly mass nouns	Similar count nouns
mail	letter
luggage	suitcase
change	coin
laughter	laugh
spaghetti	noodle
garlic	onion
rice, corn	bean, pea, lentil
footware	shoe, sandle
carpeting	carpet
silverware	fork, knife
foliage	leaf
wildlife	animal
gear, equipment	tool
software	app(lication), program
sushi	fishcake
baklava	brownie
fruit	vegetable
flu	cold
success	failure
advice	suggestion
knowledge	belief

- Among the nouns in (22) those that describe clearly individuated and countable objects are called **object mass nouns** (a.k.a. fake mass nouns), e.g. *luggage, furniture, garlic* (Gillon 1992, Chierchia 1998a,b, Gillon 1999, Barner & Snedeker 2005, Rothstein 2017). An experiment conducted by Barner & Snedeker (2005) shows that object mass nouns semantically pattern with count nouns. The task is the same as the experiment for hybrid nouns. This time, three types of nouns are tested:

(23) a. Who has more silverware?	Object mass noun
b. Who has more shoes?	Count noun
c. Who has more toothpaste	Substance mass noun

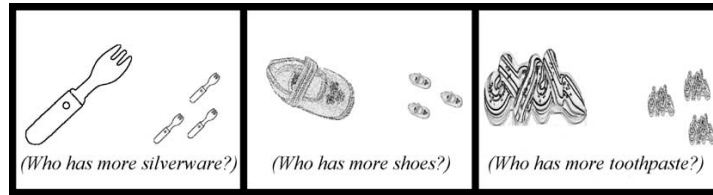


Fig. 1. Images of selected stimuli from Experiment 1 (object-mass: *silverware*; count: shoes; substance-mass: *toothpaste*).

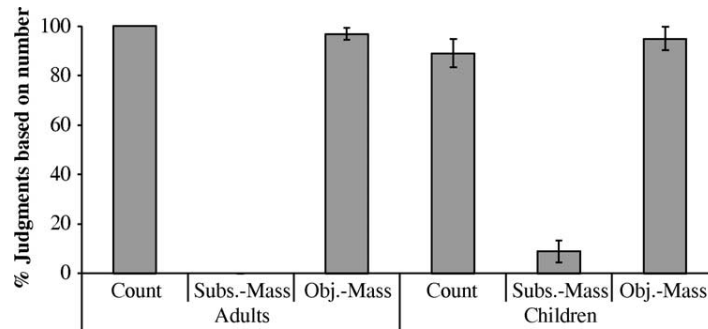


Fig. 2. Adults' and children's quantity judgments, as a percentage of judgments based on number of individuals.

So the Contextual Individuation Hypothesis is also untenable.

2.3 Other Hypotheses

The Contextual Individuation Hypothesis is bi-conditional (count \Leftrightarrow salient individuation). It seems that a weaker version of this is tenable (Barner & Snedeker 2005, 2006, Bale & Barner 2009, Rothstein 2010, 2017).

- (24) **The Asymmetric Individuation Hypothesis:** When a count noun is used, there is always a contextually salient/relevant way of individuating/counting the objects in question. When a mass noun is used, there might or might not be.

According to this idea, mass nouns are underspecified for the semantic effects. So there can be object mass nouns and substance mass nouns. However, there cannot be 'substance count nouns', according to this idea.

However, there are some potential issues. For instance, there are count nouns that do not seem to entail an obvious way of individuation:

- (25) reason cloud puddle ripple mountain valley
instant detail wave

Another open issue concerns the semantic effects of hybrid nouns. In the mass mode, they do not seem to be semantically underspecified, as Barner & Snedeker's (2005) experiment shows. One possibility is to analyze this as a pragmatic inference along the following lines: If a hybrid noun is used as a mass noun, the hearer reasons about the speaker's not using the count version of the same noun. The hearer can conclude that there is no contextually salient/relevant way of individuating/counting the objects being described. In order for this account to be complete, however, we somehow need to ensure that an utterance containing *luggage* does not trigger an implicature about *suitcase*.²

²It should be noted in this connection that we do not yet have a general theory of alternatives for conversational implicatures to begin with at this moment. See Katzir (2007, 2014), Breheny, Klindinst, Romoli & Sudo (2018) for relevant discussion.

Chierchia (1998a,b) puts forward another view according to which the extensions of count and mass nouns are structured differently. This idea is appealing in certain respects, but it rests on a particular view of plural count nouns, which Chierchia himself later renounced. Chierchia's (2010) works with a new assumption about plural nouns, but this version is a bit disappointing, as he essentially ends up saying that object mass nouns are semantically count nouns but syntactically mass nouns and he doesn't offer an insightful explanation of why that's the case (see Landman 2011 for discussion on this).

Landman (2011) is another attempt to encode the mass/count distinction in the structure of the denotations of count and mass nouns.

3 The Denotations of Mass Nouns

Now, let us turn to the denotations of mass nouns (or mass uses of nouns). As we have not reached a firm conclusion about the semantics of the mass/count distinction, the discussion here will be inevitably inconclusive. But we will review major views on the denotations of mass nouns.

3.1 Review: Count Nouns

First, to remind you of our theory of count nouns (or count uses of nouns), their denotations characterise sets of entities.

- (26) For any model M
- $\llbracket \text{book} \rrbracket^M = \lambda x \in SG. x \text{ is a book in } \mathcal{M}$
 - $\llbracket \text{books} \rrbracket^M = \lambda x \in D_e. \text{ each singular part } y \text{ of } x \text{ is a book in } \mathcal{M}$

If there are three books in the model M_1 , b_1 , b_2 and b_3 , we have:

- (27) a. $\text{set}(\llbracket \text{book} \rrbracket^{M_1}) = \{ b_1, b_2, b_3 \}$
- b. $\text{set}(\llbracket \text{books} \rrbracket^{M_1}) = \left\{ \begin{array}{ccc} b_1, & b_2, & b_3, \\ b_1 \oplus b_2, & b_1 \oplus b_3, & b_2 \oplus b_3, \\ & b_1 \oplus b_2 \oplus b_3 & \end{array} \right\}$

Importantly, these sets have 'atoms', i.e. those entities that do not have proper parts, i.e. singular entities. Numerals and 'counting expressions' like *a lot*, *several*, *most* etc. count the number of these atoms.

- (28) For any model M ,
- $\llbracket \text{two} \rrbracket^M = \lambda x \in D_e. x \text{ has two singular parts}$

- (29) $\text{set}(\llbracket \text{two books} \rrbracket^{M_1}) = \{ b_1 \oplus b_2, b_1 \oplus b_3, b_2 \oplus b_3 \}$

3.2 Mass Nouns

What does mass nouns like *water* and *furniture* denote? The first clue comes from the property called **cumulative reference** (Quine 1960).

- (30) A predicate P refers cumulatively iff for any $x, y \in D_e$, whenever $P(x) = 1$ and

$$P(y) = 1, P(x \oplus y) = 1.$$

As we can see, plural count nouns and mass nouns refer cumulatively, while singular count nouns do not.

- Suppose that we have a pile of books, x , and another pile of books, y . Both x and y are 'books' ($\llbracket \text{books} \rrbracket^M(x) = \llbracket \text{books} \rrbracket^M(y) = 1$). If we put them together and create another pile of books, $x \oplus y$, it also counts as books ($\llbracket \text{books} \rrbracket^M(x \oplus y) = 1$).
- Suppose we have a portion of milk x in a glass and another portion of milk y in another glass. Then x is milk and y is milk ($\llbracket \text{milk} \rrbracket^M(x) = \llbracket \text{milk} \rrbracket^M(y) = 1$). If we put them together in one jug, we have $x \oplus y$, which is also milk ($\llbracket \text{milk} \rrbracket^M(x \oplus y) = 1$).
- Singular nouns do not refer cumulatively. Suppose we have a book x and another book y ($\llbracket \text{book} \rrbracket^M(x) = \llbracket \text{book} \rrbracket^M(y) = 1$). If we put them together, we have books, not a book! ($\llbracket \text{book} \rrbracket^M(x \oplus y) = 0$).
- Note that being able to sometimes describe $x \oplus y$ by the noun is not enough. It must be always possible. Take two lines, x and y ($\llbracket \text{line} \rrbracket^M(x) = \llbracket \text{line} \rrbracket^M(y) = 1$). You can certainly combine them to produce another line $x \oplus z$. But this requires a particular geometrical arrangement.

So cumulative reference distinguishes mass nouns and plural count nouns from singular count nouns. Notice that our analysis does assign a cumulative denotation to plural count nouns, and a non-cumulative denotation to singular count nouns. Since mass nouns refer cumulatively, their denotations should be closed by \oplus , just like the denotations of plural count nouns are.

This view is further supported by the observation that mass nouns, just like plural count nouns and unlike singular count nouns, give rise to distributive-collective ambiguity (Gillon 1992, 1999, Nicolas 2005, Schwarzschild 2009, Lasersohn 2011):

- (31) These boxes are expensive.
- Distributive: Each of these boxes is expensive.
 - Collective: The group consisting of these boxes as a whole is expensive.

- (32) [pointing at 6 bottles of wine]
This wine is expensive.
- Distributive: Each bottle of wine is expensive.
 - Collective: The group consisting of the 6 bottles of wine as a whole is expensive.

Then, what distinguishes mass nouns from plural count nouns? Cheng (1973) proposes that it is another property called the **divisive reference** (see also Bunt 1985):

- (33) A predicate P refers divisively iff for any x , if $P(x) = 1$, then for any part y of x , $P(y) = 1$.

This says: If P is true of something, it is true of any of its parts. The thought is, if there's, say, something that can be described by the noun *time*, any part of it also counts as *time*. Although this might work for nouns like *time*, this is clearly problematic as a characterisation of mass nouns in general.

- Firstly, for fake mass nouns, (33) simply does not hold. Consider *future*. It's clearly not

the case that every part of a piece of furniture is also furniture. E.g., a leg of a desk is not furniture.

- Secondly, even for a more canonical mass noun like *coffee*, it does not hold: if you keep breaking a portion of coffee into its components, at some point, you will have pure water, which is not coffee!
- And even for mass nouns like *water*, if one keeps dividing water, at some point, there will be hydrogen atoms and oxygen atoms (and you can go on to break them too). These things themselves are not water!³

That at least some mass nouns have atomic parts is called the **minimal parts problem** (Quine 1960)⁴ This problem shows that divisive reference is not a general property of mass nouns.⁵

In the literature, there are two major views on the denotations of mass nouns, but they have pros and cons.

- Link (1983) assumes that there is a domain of discrete entities, D_e , and a separate domain of substances, D_s , and in D_s , divisive reference holds. Count nouns denote subsets of D_e , while mass nouns denote subsets of D_s . So they are inherently about two different types of things. However, Link (1983) ignores fake mass nouns. It is highly counter-intuitive to say, as Chierchia (1998a,b, 2010) argues, that *furniture* is about different types of things from what *chairs* and *desks* are about. Also, D_s is meant to allow divisive reference, but it is not a crucial property, as we have just discussed.
- Chierchia (1998a,b, 2010) claims that mass nouns have the same kind of denotations as plural count nouns (see also Gillon 1992 for a related view). According to Chierchia, the main difference between mass and plural count nouns is that for mass nouns, the criterion for what counts as atomic is 'vague' (in a technical sense). However, I think it's counterintuitive to assume that the criteria for individuation for fake mass nouns like *furniture* are vague, while those for nouns like *cloud* are not.

As remarked above, we need to leave this issue unsolved.

3.3 'Plural Mass Nouns'

To add another layer of complexity in the present problem, there is one class of nouns in English that have not been paid enough attention in the theoretical literature (Ojeda 2005 contains interesting discussion on them; see also McCawley 1975, Gillon 1992, Schwarzschild 2009). They are sometimes called **plural mass nouns**. In short, they are plural nouns that behave like mass nouns, and often lack singular forms. Here are some examples:

³For this, one might say that the ontology of entities in semantic models does not have to reflect the reality. Rather, it is a function of how we conceive of the world (in the spirit of 'natural language metaphysics' in the sense of Bach 1986). And maybe we regard water that way. However, as Pelletier (2012) points out, this would entail that we use language in a way that does not reflect our beliefs, for (almost) all of us in fact believe that water consists of hydrogen and oxygen atoms.

⁴In the words of (Quine 1960:99): "there are parts of water, sugar, and furniture too small to count as water, sugar, furniture. Moreover, what is too small to count as furniture is not too small to count as water or sugar; so the limitation needed cannot be worked into any general adaptation of 'is' or 'is a part of' but must be left rather as the separate reference-dividing business of the several mass terms".

⁵There are also count nouns that refer divisively to some extent, e.g. *sequence*, *twig*, *fence*, etc. See Zucchi & White (2001) and Rothstein (2010) for discussion on these nouns.

- (34) clothes dregs guts bowels brains dues annals
earnings goods spirits shavings belongings valuables

These nouns show certain features of plural count nouns, e.g.

(35) My **clothes are/*is** in this locker. (McCawley 1975:320)

- (36) a. The club requires **these/*this dues** to be paid immediately.
b. **Dues are/*is** to be paid upon joining.
c. The person who collects dues knows how much **they are/*it is**.
(Gillon 1992:612)

However, in other respects, they behave like mass nouns, e.g.

- (37) a. *I've just bought **several/five clothes**.
b. ***Many clothes** are too expensive for me to buy. (McCawley 1975:320)

- (38) a. How **much/*many brains** does Bill have?
b. How **little/*few brains** does Bill have? (Gillon 1992:613)

4 'Group Nouns'

There are nouns that denote groups of entities, sometimes called **groups nouns**:

- (39) team family committee faculty staff class

Unsurprisingly, they can behave like normal nouns in the sense that they characterise sets of groups as entities, e.g. *committee* characterises a set of committees. Our semantics works for examples like (40) straightforwardly.

- (40) a. One committee was founded two years ago.
b. The team has a lot of supporters.

What is interesting about these nouns is that they sometimes behave like plural individuals consisting of the describe group, even when they are singular.

- (41) a. The committee is smiling.
≈ The members of the committee are smiling.
b. The Dutch team is very tall.
≈ The members of the Dutch team are very tall.

These nouns also license collective predication.

- (42) a. The family gathered in the living room.
b. The team can't stand each other.

In British and Canadian English, plural agreement is possible (Barker 1992, Pearson 2011, De Vries 2012)

- (43) a. The committee **hope** that you will accept the job.
b. The basketball team have surpassed **themselves** with their recent perfor-

mance.

(Pearson 2011:161)

Pearson (2011) also points out that these nouns can appear in cardinal partitive quantifiers:

- (44) a. Three of the committee came to the meeting.
b. Several of the family objected to Bill marrying Mary.
c. Many of the present cabinet will have to resign. (Pearson 2011:162)

In sum, the puzzle here is that group nouns sometimes behave like regular nouns but sometimes like plural nouns denoting the members of the described groups.

It is also interesting that in British and Canadian English, the plural agreement is optional. but there is an interpretive difference between singular and plural agreement, as observed by Barker (1992). In order to see this, consider:

- (45) a. The committee is old.
b. The committee are old.

The singular agreement (45a) is ambiguous here. Either the committee is an old committee, or the members of the committee are old people. On the other hand, (45b) is unambiguous and only has the latter reading. In other words, with plural agreement, only the distributive reading is available.

To reinforce this generalisation, consider (46) with a collective predicate. Here, only singular agreement is possible, even in British and Canadian English.

- (46) a. The team was formed in 1991.
b. *The team were formed in 1991.

4.1 'Collection Nouns'

Interestingly, Pearson (2011) points out that nouns like (47), which she calls 'collection nouns', behave differently from group nouns like *committee* (see also Barker 1992).

- (47) bunch pile group list heap pile

Firstly, these nouns are incompatible with collective predicates:

- (48) a. *The bunch of flowers looks nice together.
b. *The heap of papers is equally interesting. (Pearson 2011:163)

Secondly, even in British and Canadian English, plural agreement is impossible.

- (49) a. *The bunch of flowers are tall.
b. *The pile of dishes are touching each other.
c. *The group of statues resemble themselves. (*Ibid.*)

Thirdly, these nouns cannot appear in cardinal partitives (unless plural):

- (50) a. *Three of the bunch of flowers had died.
b. *Several of the deck of cards had gone missing.
c. *Many of the pile of dishes needed to be washed. (*Ibid.*)

So simply put, collection nouns do not have the special properties that group nouns have, i.e. they lack the plural behavior. In other words, collection nouns are well-behaved normal count nouns.

Generally, nouns that describe groups of inanimate entities (e.g. *bunch of flowers*) do not give rise to the ‘member reading’, while those that describe groups of animate individuals (e.g. *committee*) do.

4.2 Towards the Semantics of Group Nouns

What are the denotations of group nouns? What cannot be true is the idea that *the committee* has the same semantics as *the members of the committee*. As Schwarzschild (1996) and Pearson (2011) point out, this analysis fails to account for the following contrast.

- (51) a. The committee was formed.
 b. *The members of the committee were formed.

In other words, as we already saw above, *the committee* can describe a group as a single entity, which *the members of the committee* cannot.

There are three possible analyses:

- Group nouns and collection nouns are like normal nouns and characterise sets of groups as entities.

- (52) For any model M ,
 $\llbracket \text{committee} \rrbracket^M = \lambda x \in D_e. x \text{ is a committee in } M$

But there is a special process that turns animate groups into the plural individual consisting of the members.

- (53) For any model M ,
 $\llbracket \text{committee} \rrbracket^M \rightsquigarrow \left[\lambda x \in D_e \begin{array}{l} \text{for some committee } c \text{ in } M, \\ \text{each singular part of } x \text{ is a member of } c \end{array} \right]$

We can assume that this rule has animacy restrictions, and does not apply to collection nouns.

- Another possibility is the converse of the above analysis. *Committee* characterises a set of committee members, as in (53), and get turned into their groupings, based on who belongs to which committee, i.e. (52). The animacy restriction is stated as follows: for group nouns (with animate members), the process is optional, but for collection nouns (with inanimate members), the process is obligatory.

This is a topic that is still actively investigated and we do not have a definitive conclusion yet.

5 Further Readings

There is tons of papers and books on mass nouns and how they are different from count nouns, both in linguistics and philosophy. Lasersohn (2011) is a nice overview article, and a recent book by Rothstein (2017) contains an accessible and up-to-date overview. Some of the major works on the semantics of mass nouns are cited in the main text (Link 1983, Bunt 1985, Gillon 1992, Chierchia 1998a,b, Nicolas 2005, Bale & Barner 2009, Chierchia 2010, Rothstein 2010), but this list is by no means exhaustive.

Roger Schwarzschild has a very interesting take on this issue. Based on the behavior of predicates like *large*, *small*, *round* and *long*—which he calls *stubbornly distributive predicates*—Schwarzschild (2009) claims that there are two types of mass nouns, which he calls *multi-participant* and *mixed-participant nouns*. He further claims that count nouns are *single-participant nouns*. He cashes out this idea in a theory where nouns are predicates of ‘events’, rather than predicates of individuals. He develops this view further in Schwarzschild (2014) (which will be available as a paper soon).

Nouns like *group* and *committee* are discussed extensively by Landman (1989a,b), Barker (1992), Schwarzschild (1996), Pearson (2011) and de Vries (2015). While Barker (1992) and Schwarzschild (1996) analyse them as denoting singular entities, Landman (1989a,b) assigns a special ontological status to it that is different from both singular and plural individuals of a normal kind (Link 1983 seems to countenance this view). Pearson (2011) explores a possibility that these nouns have singular intensions and plural extensions. In de Vries (2015), Hanna de Vries argues that group nouns denote plural individuals (which are sets for her), rather than singular individuals.

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