Nominals don't provide criteria of identity

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> Or else maybe they are all the selfsame electron. In 1948 John Archibald Wheeler, in a telephone conversation with his student Richard Feynman, proposed the delightful hypothesis that there is just one electron in the universe. The single particle shuttles forward and backward in time, weaving a fabulously tangled "world line." At each point where the particle's world line crosses the spacetime plane that we perceive as "now," it appears to us as an electron if it is moving forward in time and as a positron if it is going backward. The sum of all these appearances constructs the material universe. And that's why all electrons have the same mass and charge: because they are all the same electron, always equal to itself.

—Brian Hayes. 1998. Identity Crisis. *American Scientist* **86**.6: 508–512.

1. What's at stake

Geach (1962:39,154) suggests that nouns carry, as part of their meaning, criteria of identity:[1]

(1) Heraclitus bathed in some river yesterday, and bathed in the same river today.

(2) Heraclitus bathed in some water yesterday, and bathed in the same water today.

Geach notes that (1) can very well be true (he washed in the same river) at the same time that (2) can be false (he washed in different water). Apparently, whether the fluid Heraclitus washed in on the two days counts as the same or not depends on whether we conceive of that fluid either as a river, or as water. (Geach explicitly assumes that whatever is a river is water.)

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More specifically, Geach proposes that nouns, in addition to having criteria of application—roughly, the properties in virtue of which an object counts as a river—also have criteria of identity: criteria that determine whether the river Heraclitus bathed in yesterday is the same river as the one he bathed in today. If the criteria of identity for *river* and *water* differ, then two distinct quantities of matter can count as the same river without counting as the same water.

But surely in this case it is enough to know the criteria of application. That is, if we can reliably answer the question "Is this object a river?", then we already know everything we need in order to judge whether two objects are the same river: we simply observe whether they are related to each other spatially, temporally, and causally in the way that we expect different parts or different stages of a single object to be related. This is not to say that judgments of identity are always easy or simple (see, e.g., Brennan 1988 for the familiar paradoxes); only that they do not depend on special lexical meaning for resolution.

Nevertheless, a number of philosophers and linguists have endorsed lexical criteria of identity, including Gupta (1980), Carlson (1982), and Baker (2003) (not to mention myself in earlier work, Barker 1998, 1999). For instance, Gupta (1980:2), commenting on Geach, allows that a common noun supplies a principle of identity: "A common noun, such as 'river', provides a rule that determines when an object at a time (and a world) is *the same river* as an object at another time (and a world)" [italics in original].

Indeed, Baker (2003:105) builds relative identity into the syntax and the semantics of nouns at the most fundamental level:

> For any noun X, the syntactic representation $X_{\{j,k\}}$ corresponds semantically to the interpretation 'j is the same X as k', or in symbolic terms **same**$(X)(j,k)$.

Thus each nominal introduces a pair of referential indices, rather than the usual single index:

(3) I bought a pot$_{\{i,k\}}$ and a basket$_{\{l,m\}}$. The pot$_{\{n,i\}}$ is heavy.

Since we have that object i is the same pot as object k, and that object n is the same pot as object i, we recognize that the objects indexed by i, k, and n all count as the same pot.

In fact, Baker (2003:95, 105) proposes criteria of identity as the essential element distinguishing nouns from all other lexical categories cross linguistically. The stakes could hardly be any higher!

I will argue here that nouns do not in fact have criteria of identity, at least not as any idiosyncratic part of their meaning. The mistaken impression that

they do comes from the fact that some nominals (especially certain productive nominalizations) have meanings that promote the likelihood of a certain kind of pragmatic shift in meaning that replaces a set of individuals with a set of stages.

2. Arguments in favor of nominal criteria of identity

Before arguing against criteria of identity, we should consider the case in favor. Geach's proposal rests on the following reasoning suggesting an intimate connection between counting, sameness, and identity (p. 39):

> [We] cannot count As unless we know whether the A we are now counting is the same A as we counted before.

Geach's claim is that objects will be distinct relative to a nominal concept N only if we count them as more than one N. Conversely, if we can refer to one of them as *the same N* as some other, those two objects must be identical, relative to the choice of the noun N.

Geach's observation generalizes Frege's (1884, §62) ideas relating specifically to the concept of number:

> If we are to use the sign a to signify an object, we must have a criterion for deciding in all cases whether b is the same as a... In doing this, we shall be giving a general criterion for the identity of numbers (*ein allgemeines Kennzeichen für die Gleichheit von Zahlen*).

This translation (by J.L. Austin) appears to be the origin of the expression 'criteria of identity'.

2.1. Counting passengers

There is a non-essential weakness in Geach's motivating examples, since he confounds criteria of identity with the difference between mass and count. For instance, in (1), *river* is a count noun, and in (2), *water* is a mass noun. The same confound is present in other examples of Geach's (the statue versus the stuff the statue is made of, etc.). Ever since Link (1983), it is common to provide a systematic mapping (more specifically, a homomorphism preserving joins) from the set of individuals into the quantities of matter that make them up, e.g.:

$$\mu(\text{earring}_1 \oplus \text{earring}_2) = \mu(\text{earring}_1) + \mu(\text{earring}_2)$$

Here '$\oplus$' is the mereological join operation in the domain of count individuals, '$+$' is the corresponding join operation in the domain of mass quantities, and μ maps individuals to the quantity of matter that make them up. Then

this equation expresses the thought that the stuff that makes up the sum of the earrings is the same as the sum of the stuff that makes up each individual earring. Link explicitly allows for the entities in the individual domain to be distinct from the corresponding entities in the mass domain (his "wild ontological caprice"). As long as the earrings (earring$_1$ $\oplus$ earring$_2$) denote a distinct entity from the stuff that makes them up (μ(earring$_1$ $\oplus$ earring$_2$)), it is easy to understand how we can count two earrings without counting two 'golds'.

Adopting Link's proposal, the river/water puzzle can be resolved by allowing the homomorphism μ to change over time, so that the two distinct quantities of water can easily be part of the matter making up the same river. Thus the case for criteria of identity would be stronger if we could find examples that did not depend on mass nouns.

Well, Frege (1884, §22) observes that if we confront a person with a pile of playing cards and ask him to count them, he cannot oblige unless we provide a noun such as *card* or *deck*, since there may be 52 cards but only 1 deck. The contrast between *card* and *deck* establishes that the counting of objects must be relative to a specific noun (*deck* versus *card*). However, it does not follow that this difference depends on postulating criteria of identity. Schwarzschild (1992, 1996) and Barker (1992) argue that group nouns such as *deck* denote atomic objects that are independent of (though related to) the individuals (the cards) that serve as members of the group. Given a linguistic semantics on which decks are distinct objects from collections of cards, the observed counting behavior depends only on the criteria of application for these nouns, and there is no need for postulating differences in criteria of identity.

Fortunately for advocates of criteria of identity, Gupta (1980) provides a case that does not run afoul of either the mass/count issue or the individual/group issue:

(4) Easyjet served 10 million passengers last year.

(5) Easyjet served 10 million people last year.

The intuition is supposed to be that (4) can be true at the same time that (5) is false. The idea is that if a person flies on Easyjet twice, that one person counts as two passengers. Gupta (p. 23) concludes that "the principle of identity for *passenger* is clearly non-trivial": if the noun *passenger* has more stringent criteria of identity than *people*, then the same person on two different trips can count as two distinct passengers.

So at this point we have at least a prima facie case for contemplating criteria of identity as part of the lexical meaning of nouns.

2.2. Stages, events, and deverbal nominalizations

Neither Geach nor Gupta say much about what criteria of identity might be like, beyond claiming that we need them. Carlson (1982) makes an explicit connection between criteria of identity and events.

(6) Clements struck out 15 batters in a row in the game last night.

This sentence is supposed to be capable of being true despite the fact that baseball teams consist of only nine players, as long as these nine players continued to go to bat over the course of 5 innings until Clements has achieved his 15 strike-outs. Just as in the *passenger* example, we arrive at an argument in favor of criteria of identity by observing a counting discrepancy: we count 15 batters, but only 9 players.

Carlson (1982) suggests that some nouns, such as *batter*, have stages in their extension, where a stage is a temporal slice of an individual. In the same way that a neck is a part of a person that is limited in its spatial extent (say, the part that extends from the head to the shoulders), a stage is a part of an individual that is limited instead in its temporal extent: the portion of the individual that extends from one moment of time until some other later moment of time. Thus *caterpillar*, *boy*, and *teenager* all arguably have stages of individuals in their extension.

But *caterpillar*, *boy*, and *teenager* do not lead us to suspect that some nouns have non-trivial criteria of identity, since they all involve stages that occur once per lifetime. In order to give rise to a counting discrepancy, it is necessary for a noun to describe stages that an individual can go through more than once. That is why it is important for present purposes that a single person can be a passenger again and again, and a single baseball player can be a batter more than once in a single game.

It appears, then, that the most persuasive examples of nouns with non-trivial criteria of identity are nouns describing objects that are systematically linked with events. That is, a batter is a person who participates in a certain role in a batting event; a passenger is a person who participates in a certain way in a travelling event; and so on (see section 3.3). Furthermore, given that at least agentive *-er* nominals are a productive class, we appear to have an unbounded class of nouns that may need (non-trivial) criteria of identity. Barker (1998, 1999) claims that the only productive nominalizations in English that can have non-trivial criteria of identity are agentive *-er* nominals and *-ee* nominals.

3. Arguments against nominal criteria of identity

The arguments in this section challenge the claim that nominals have criteria of identity distinct from criteria of application.

3.1. If criteria of identity do exist, they're not (exclusively) lexical

Krifka (1990) discusses a phenomenon that bears a striking similarity to the Geach/Gupta facts:

(7) 4000 ships passed through the lock (last year). [Krifka 1990]
(8) 4000 different ships passed through the lock. [Barker 1998]

Krifka judges that (7) is ambiguous: it either has a per-ship reading, which guarantees that there are at least 4000 distinct ships that passed through the locks; or else it has a per-event reading, on which there may be fewer than 4000 distinct ships, as long as the total number of lock traversals is at least 4000. In contrast, as pointed out in Barker (1999), (8) seems to only have the per-ship reading.

On Krifka's analysis, (7) contains an ambiguous silent determiner. One version of the determiner gives the usual per-individual reading, and the other gives the per-event reading. The fact that (8) does not (easily) have a per-event reading is surprising on such an analysis: if it is the determiner that introduces the ambiguity, we should expect that *ships* and *different ships* both denote a set of distinct ship individuals, incorrectly predicting that (8) should have all of the interpretations available to (7). The alternative, of course, is that the different construals are local to the nominal (*ship* versus *different ship*).

If the variability in construal illustrated in (7) and (8) is indeed part of the same phenomenon as the *passenger/person* opposition, as I believe it is, it has an important consequence: it shows that criteria of identity are not exclusively part of lexical meaning, but depend also on compositional or pragmatic variability. The reason it shows this is that, as Krifka points out, it is implausible that the noun *ship* is ambiguous between an individual-level denotation and a stage-level denotation. Unlike, e.g., *passenger*, objects in the extension of *ship* do not have any systematic association with any specific event. Therefore the per-event reading is contributed by some semantic or pragmatic factor independent of the noun itself. (Deciding how best to account for the per-event reading is quite challenging; see Krifka 1990, Musan 1997, Doetjes and Honcoop 1997, and Barker 1999.)

If per-event readings are available for nouns such as *ship*, the simplest analysis is that whatever mechanism provides the per-event interpretation for *ship* also provides the per-event interpretation for nouns like *passenger* and *batter*. If so, two predictions follow. The first prediction is that even the most

implacably individual-level noun should be capable of a stage-level use under the right circumstances.

This seems to be the case. For instance, consider *person*, our paradigm case of a noun that picks out individuals rather than stages. Certainly when *person* is explicitly contrasted with *passenger*, as in Gupta's original examples given above in (4) and (5), we will be more likely to associate a per-individual interpretation with *person* and a per-event interpretation with *passenger*.

But in other contexts, a per-event interpretation of *people* does arise. The careful arithmetic in the following excerpt from the web page of the Baton Rouge United Way guarantees that the first occurrence of *people* must receive a per-event interpretation:

> A recent report shows that in 2005, CAUW Member Agencies served 1,807,113 people. There are 788,235 people in the 10-parish area according to the July 1, 2006 Census update. That means that the agencies provided services equivalent to 2 1/4 services per person in the 10-parish area!

Similarly, in the following example, notice that *people* must be a per-event use.

Q. How many passengers flew out of Denver International Airport in the year 2000?

A. In 2000, 19,357,290 people deplaned at Denver Intl.

The answer-writer clearly intended for the word *people* to answer a question about *passengers*. The size of the numbers make it highly likely that *people* is used here with a per-event interpretation, counting each deplaning passenger as a distinct person.

A similar point is made by this example:

> Newton has a new, state-of-the-art, award-winning Library which served 602,951 people in 1993.

This sentence appeared on a real estate profile which reports that the population of Newton as 84,603. Given that public libraries typically require proof of local residence, it is highly unlikely that the author of this sentence assumed that the library served more than half a million different people. In other words, this appears to be a per-event interpretation of *people*.

I claim, then, that *person* can be used with per-event criteria of identity. This is certainly not because *person* can have as part of its criteria of application anything like charity-recipient or library-patron. Thus even if some nouns arguably have non-trivial criteria of identity, it is certainly possible for

non-trivial criteria of identity to be supplied either by semantic context or by the pragmatics.

The second prediction that follows from assuming that per-event interpretations are not exclusively lexical is that even those nouns like *passenger* or *batter* that are highly compatible with a per-event interpretation should be capable of a per-individual use. The question, then, is whether *Easyjet served exactly 1 million passengers* can be true if Easyjet served 1 million different people, each of whom flew on Easyjet twice (for a total number of trips of 2 million). I suspect that the sentence does have such an interpretation, but it is difficult to be sure. We can, however, get indirect support for this claim based on examples such as (9).

(9) Half of the passengers were women.

If *passenger* only had a per-event interpretation, we would expect this sentence to be able to be true if 5 million tickets were purchased by 1 million women, even if the other 5 million tickets were purchased by 5 million different men. I suspect that this sentence could be used in such a situation. However, my native speaker informants agree that it also has a reading on which it is true if each woman passenger flies only once but each male passenger flies five times, as long as the number of women is at least as large as the number of men. The only way the sentence could be true in such a situation is if *passenger* received a per-individual interpretation.

In sum, under the right pragmatic circumstances, all nouns seem capable of a per-event interpretation; and even those nouns most heavily biased in favor of a per-event interpretation can be interpreted with per-individual criteria of identity.

3.2. *Availability of per-event interpretations is pragmatically restricted*

If per-event readings did arise from lexical meaning, they should be available no matter what the pragmatic context. Yet per-event readings are difficult if not impossible in contexts in which it is implausible that the discourse participants could loose track of the identity of the individuals involved.

It is no accident that Gupta's key example involves millions of passengers, and that Krifka's key example involves thousands of lock traversals. The principle I am suggesting is that an interpretation will fail to recognize two objects as the same individual in roughly the same circumstances in which a human would. The best examples of this phenomenon concern situations in which there are too many individuals to easily keep track of; in which the individuals involved are so similar that they are difficult to distinguish; or in which events are typically widely separated in time from each other or from

the utterance time. Carlson's example (*batter*) is an interesting case, since a batting sequence of nine players is just long enough to be difficult to hold in one's mind at once. In contrast, it is not possible to say that McGwire hit home runs off three pitchers in a row unless there are three different pitchers involved: spectators are expected to keep careful track of when pitchers are replaced.

Similarly, it would be odd for me to report that I drove five of Easyjet's passengers to the airport if all five of them were my husband. Yet if the same person on different trips really did count as a different passenger, that it what we would expect. In the same situation, it would be even more difficult to respond to the question *How many of Easyjet's passengers live in your house?* with the answer "5".

In order to emphasize that counting granularity depends on the pragmatic circumstances, note that *different* (as in (8)) does not always force an individual-level individuation. Rather, it signals that special care must be taken to keep track of which entity is which in view of the needs of the situation at hand. If we can construct a situation in which it is important not to count a single stage more than once, but in which we don't care about identifying which stages are part of the same individual, it should be possible for *different* to do some useful work without forcing an individual-level interpretation.

Imagine therefore that you work for Easyjet, and you are faced with a stack of receipts for drinks that have been bought on two recent Easyjet flights. Your job is to calculate the average amount spent on alcohol per passenger. Then your boss might ask you *How many different passengers do these receipts correspond to?* There is no need to figure out which passengers correspond to the same individual across the two flights; rather, it is only necessary to figure out which receipts correspond to a single passenger stage. If so, then *different* is not guaranteeing per-individual identity, but only stage identity.

It follows that (8) does not force an individual-level reading in any absolute sense, but rather, only favors an individual-level reading, especially in contrast with (7). In general, then, the choice of granularity when distinguishing among objects for the purposes of counting or for applications of *same* or *different* depend on the practical needs of the situation at hand, and not on aspects of the lexical noun involved.

3.3. Criteria of identity are suspiciously limited in variation

If nouns were able to lexically specify criteria of identity, we would expect to see a wide variety of non-trivial criteria of identity. However, as near as I can tell, criteria of identity come in an extremely limited number of flavors. So

far, we have only the normal, default per-individual criteria (the usual interpretation of *person*), and per-event criteria (*passenger*) (though see section 4 below on type/token variation).

In the case of nominalizations such as *traveller* or *batter*, the putative criteria of identity are closely related to a prominent component of the criteria of application. A person is a traveller by virtue of participating in a travelling event, and a person is a batter by virtue of participating in a batting event. In general, we can say that a nominalization is EPISODICALLY LINKED to its stem verb just in case an object satisfies the predicate only if it participates in the type of event corresponding to the stem verb. Similarly, we can say that *passenger* is EPISODIC, since a person counts as a passenger only by virtue of participating in a certain kind of traveling event. Whether episodically linked or merely episodic, these nouns apply to an object only if the object participates in a characteristic QUALIFYING EVENT.

Thus the reason episodic nominals are such good candidates for a per-event interpretation is that their criteria of application make a certain class of events—the relevant qualifying events—highly salient. When such a noun appears in a sentence in which the main predicate describes their qualifying event, a stage-level reading becomes prominent: when Easyjet serves 10M passengers, each (atomic) serving event is coextensive with the travelling event that qualifies the person in question as a passenger; when Clements strikes out 15 batters, each striking-out event is simultaneous with the batting event that qualifies the person as a batter, and so on.

In order to see how limited the range of criteria of identity proposed so far is, it will help to imagine what a class of nouns with a more idiosyncratic set of identity criteria might look like. Therefore consider the *brother* relation: a person x counts as a brother just in case x is male and x stands in a sibling relation with some other person y. If being a sibling were a qualifying eventuality, and if nouns could have arbitrary lexical criteria of identity, we might expect the number of brothers could exceed the number of people. That is, if John, Bill, and Tom all have the same parents, and if *brother* had per-eventuality criteria of identity the way *passenger* is supposed to, then John, Bill, and Tom will count as three people but six brothers (one for each being-the-sibling-of eventuality that qualifies the person as a brother). But this is not remotely possible in English, nor, I strongly suspect, in any other language.

Well, perhaps non-trivial criteria of identity require participation in a verbal event, rather than a stative eventuality such as being a sibling. Imagine, then, a room containing Paul Erdős and two other mathematicians. Erdős is collaborating with each of the other mathematicians, so Erdős is involved in

exactly two distinct projects. (The two non-Erdős mathematicians are not collaborating with each other.) How many collaborative teams are there in the room? The answer is clear and robust: two teams, with Erdős as a member of both. How many collaborators are there in the room? The answer "four" is completely impossible. Erdős cannot count as two distinct collaborators, despite the fact that he is involved in two distinct collaborations.

On the other hand, now imagine that each collaboration resulted in a single paper. How many authors put their names on the papers? Here, four may be a possible answer, since "Erdős" put his name on both papers (though I am skeptical); however, how many published authors are in the room? Definitely only three. Similarly, if Erdős is simultaneously playing two games of chess, one with each of his collaborators, there are still only three chess players in the room, not four; and if Erdős wins both games, there is only one winner, not two.

Thus on any given occasion, the number of individuals counted for the nominals *collaborators*, *authors*, *winners*, and *players* cannot exceed the number of individuals.

As near as I can tell, it is never possible to have more stages than there are individuals at any given moment of time.

> **Spatio/temporal exclusion principle**: if two objects count as distinct with respect to a nominal predicate N, then the objects either occupy different places or different times.

The ring and the gold the ring is made of can be distinct objects occupying the same place at the same time because we individuate them with respect to different nominal predicates (say, *ring* versus *gold*). But for a given fixed choice of noun, say *passenger*, a single person at some particular moment of time cannot count as more than one. The number of passengers in a room at a particular moment of time can never exceed the number of people.

This is surprising if nouns really did have non-trivial criteria of application. If nominals had the lexical power to distinguish more individuals than there are objects, why shouldn't the number of collaborators in a room be able to exceed the number of people?

4. Sameness versus identity, types versus tokens

How many letters in the word *Typewriter*? "Ten" is clearly a valid answer. But how many *different* letters? Since there are two *t*'s, two *e*'s, two *r*'s, "seven" now seems the most appropriate answer. Just as we sometimes count stages and sometimes count individuals, we sometimes count tokens and sometimes

count types. And just as I have argued that counting stages is a pragmatic strategy independent of any special lexical meaning, so too with the counting behavior of types and tokens.

Note that the type/token variation is in one respect the inverse of individual/stage variation. That is, Gupta imagines adding "non-trivial" criteria of identity to the noun *passenger* in order to distinguish between two stages of the same person. For Gupta, then, special criteria of identity are associated with nouns that make more fine-grained distinctions among entities (hyper-individuation). However, in the present case, we are supposing that the noun *letter* provides, in addition to its criteria of application, criteria of identity that classify a capital *T* and a lowercase *t* as the same letter. Thus for types versus tokens, the special criteria of application are to be associated with nouns that make less fine-grained distinctions among individuals (hypoindividuation).

This conception of criteria of identity as blurring distinctions rather than sharpening them may have been more like what Geach originally had in mind, since he imagined that the criteria of identity for *river* allow distinct bodies of water to count as the same river, just as distinct graphical objects can count as the same letter.

The question at hand, then, is whether we need to stipulate lexical criteria for recognizing when two objects are members of the same type. In this case, criteria of application clearly suffice: what makes *T* and *t* able to count as the same letter is that they are both tokens of the letter named "Tee". It is knowing the criteria of application for the noun *tee* that allows us to recognize them as the same type, not knowing the supposed criteria of identity for the noun *letter*.

Part of the temptation for postulating criteria of identity comes from confusing sameness with identity. In the literature advocating criteria of identity, there is an unexamined assumption that expressions such as *the same N*, whether in the object language or in the metalanguage, provide a reliable guide to which objects are identical. For instance, Geach (1962:152) tells us that "*[T]he same A* and *the same B* will give criteria of identity iff *A* and *B* are substantival terms [i.e., common nouns]." (See also, e.g., Gupta 1980:2.) But in fact *same* is notoriously flexible in its criteria for similarity, and means something like 'similar enough in all respects relevant for present purposes'. (Likewise, mutatis mutandis, for *different* and other expressions in the same semantic field.) If I tell you that I read the same book that you did, it could be the same volume, the same edition, or merely the same story, perhaps even translated into a different language.

Nor does it seem likely that there is any natural language expression that means absolute identity. In German there is at least a prescriptive rule that distinguishes *dasselbe* 'self-same' from *gleich* 'same'. As Frege (1884, §76) puts it, "*dasselbe* may indeed be thought to refer to complete agreement in all respects, *gleich* only to agreement in this respect or that." As the joke goes, if I say to a waiter *Ich hätte gern dasselbe wie der Herr dort drüben* 'I'd like to have the same thing as that man over there', using *dasselbe* rather than *gleiche*, I am supposedly asking the waiter to bring me the very self-same plate the other diner is eating from. However, my native speaker German consultants tell me that although overt contrasts between *gleich* and *dasselbe* certainly go in the predicted direction, even *dasselbe* is often used for similar but distinct objects. A referee points out that this occurs most often precisely when the difference between types and tokens is least clear: *Mein Tapete hat dasselbe/das gleiche Muster wie deine* 'My wallpaper has the self-same/the same pattern as yours'. In view of these considerations, arguments that rely on the existence of a perfect identity predicate should be treated with skepticism.

The point I am making is that shifting from tokens to types, and in general, variability in tolerance for degrees of similarity, is a pervasive, systematic feature of language use, and should not be encoded in information associated with specific lexical items. Rather, this variability is a matter of semantic interpretation (e.g., Nunberg 1984) or pragmatics (e.g., Lasersohn 2000).

5. Conclusions

There is no need for positing lexical criteria of identity, and so nominals provide only criteria of application after all. The impression that some nominals have non-trivial criteria of identity is due to the fact that in certain limited pragmatic situations, nominals can shift their meaning from a set of individuals (people) to a set of stages (passengers). (See von Heusinger and Brandtner's discussion of predicate transfer in this volume for a similar kind of pragmatically-triggered meaning shift.) Because some nominals are episodically linked to a set of events (*passenger*, *batter*), they are especially likely to undergo this meaning shift, but under the right circumstances, other nominals can shift (*ship*). Circumstances that promote per-event shifts include situations in which tracking individuals becomes difficult: large numbers of individuals, long periods of time between observations, or salience of a nominal's qualifying events. Under no circumstances, however, can two distinct stages occupy the same place and the same time.

Ultimately, then, the granularity of individuation depends on spatial, temporal, and causal contiguity, in combination with the pragmatic needs of the discourse, and not on lexical criteria of identity.

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