Definite Descriptions and Negative Polarity

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1 Introduction

This paper uses data from linguistics to explore some old (and ongoing) debates about the semantics of definite descriptions. In the end, I will argue that a serious and perhaps insurmountable empirical hurdle confronts any account which follows Bertrand Russell (1905) in supposing that definite descriptions are used to express uniqueness claims.

The argument here comes from consideration of a certain sort of linguistic expression called negative polarity items (NPIs). These are expressions such as "any," "at all" and "ever." NPIs are of particular interest for semantics because they can only be used in contexts with a certain rather abstract semantic feature. However, the precise characterization of the feature is itself a matter of some controversy. For those interested in the semantics of natural language it is worthwhile to figure out precisely what this feature is. Once we have an account of it, we can use the account to infer facts about the meanings of various expressions that interact with NPIs.

The first part of this paper considers some data concerning negative polarity items and arrives at a statement of the semantic condition under which an NPI is allowed. The condition is that an NPI must be in a *domain-sensitive* environment. Roughly speaking, a sentence has a domain-sensitive environment if the truth-value of the sentence is sensitive to expansions of the domain in which more individuals satisfy the predicate in the environment.

Once this account is in hand, I apply it to the controversial case of singular definite descriptions. I argue that accounts of definite descriptions that treat them as asserting or presupposing uniqueness run afoul of the data on NPI licensing. I briefly sketch an account of the meaning of definite descriptions that is compatible with their general inability to license

NPIs.

2 Negative Polarity Items

A few examples of NPIs are "any," "ever" and "at all." The reason they are known as *negative* polarity items is that they seem happy under negation and are sometimes unhappy without negation. When an NPI is used felicitously we say that it is *licensed*. Here are two examples in which NPIs are licensed in negative contexts:

(1) John didn't see any people.

(2) This isn't white at all.

Negative polarity items are not peculiar to English but appear in a wide variety of different languages (see, for instance, Giannakidou, 1998).

Generally, NPIs are infelicitous in normal positive sentences, as in the following examples:

(3) * At five o'clock yesterday I shot any bird.

(4) * I came at all to the AA meeting.

(5) * Susan ever saw her parole officer.

This sort of data might lead you to think that NPIs simply require a negative operator above them to be licensed. However, this simple account of the licensing of NPIs cannot be right because NPIs are allowed in some sentences without any negative operators:

(6) Everyone who ate any fish developed a rash.

Examples like (6) show that the task of describing the conditions under which NPIs are licensed is not so simple.

Before I discuss the distribution of NPIs in detail, I need to note a couple of features of NPIs. The first is that "any" is known to have at least two uses: the so-called free-choice "any" and the NPI "any." Here are two examples of the free-choice "any."

(7) Any person with back troubles should try acupuncture.

(8) Anyone is welcome.

Both of these examples are roughly paraphrasable with "every" or "everyone," one sign of a free-choice usage. Here is an example of an NPI "any":

(9) I didn't see any birds yesterday.

In (9) a paraphrase with "every" does not work. Nonetheless, the two uses are obviously closely related and how exactly they are related is a persisting problem.[1] I want to focus on the licensing of NPIs generally so I will put aside the free-choice "any" here. Since other NPIs like "ever" and "at all" don't have any counterpart with a free-choice use this is not merely an arbitrary stipulation.

Another thing to note is that, even putting "any" aside, not all NPIs have the same distribution. For instance, NPIs like "budge" or "a red cent" are known to be tougher to license than "ever" or "at all" (see, e.g., Krifka, 1995). In this paper, I'll only discuss the NPIs with less restrictive distributions which are often called *weak* NPIs.

3 Predicative Contexts and NPIs

An important concept for talking about sentences is the semantic notion of a *predicate*. I mean to use this word in a very broad sense. A predicate is a semantic unit whose role is to mark some feature which an object, event or individual may have. Often verb phrases, like "ate," "ran a stoplight," are thought of as applying to individuals (though we could also think of them as predicates of events). For instance, "ate" applies to all and only the individuals who ate (the set of which forms the extension of "ate"). We can also think of common nouns, such as "boy," as predicates which apply to the individuals satisfying them. On the other hand, entire noun phrases, like "the boy," "every boy," and "some boys" are not predicates.

A little bit of terminology about quantifiers and predicates will be useful. In generalized quantifier theory, we think of quantifiers, like "every" and "some," as taking two predicates: a *restrictor* and a *matrix*. The restrictor is the nominal predicate that comes right after the quantifier like "men" in "Some men smoke." The matrix predicate is the verbal predicate,

[1] Kadmon and Landman (1993) gives the classic case that the two uses are the same, but the point is very much in dispute.

e.g. “smoke” in “Some men smoke.”

I’ll treat predicates, in this very loose sense, as the basic semantic environments within which NPIs appear. Whether or not an NPI is licensed in a predicate depends on the *predicative context*. Predicative contexts can be thought of as sentences with holes in them: when you add the right sort of predicate to the hole you get a complete sentence. (How exactly you describe predicative contexts will depend on your view of the syntax and the language, but syntactic details won’t come up much in this paper.) What it means for an NPI to be licensed in a predicative context is that a predicate with an NPI can be placed in the context and yield a correct sentence.

Here is an example:

(10) John didn’t see *High Noon*.

We’ll think of “see *High Noon*” as being a predicate in the predicative context “John didn’t __,” where“__” indicates a hole where a predicate must be added. This predicative context is one which licenses NPIs. We can see this because if we put a predicate in it that includes an NPI the sentence is felicitous:

(11) John didn’t see any movie at all.

(12) John didn’t ever see a movie.

However, this way of thinking about NPI licensing is a bit too simplistic. Some predicates with NPIs can appear almost anywhere, such as the predicate “didn’t do any work.” For instance, the predicative context, “A boy __” can take this predicate and yield a felicitous sentence:

(13) A boy didn’t do any work.

But we do not want to think of “A boy __” as NPI-licensing since most predicates with NPIs are infelicitous in it:

(14) * A boy ever came.

So, the basic test of whether a predicative context is NPI-licensing is whether or not we can put in it a predicate with an NPI which is not allowed just anywhere. (Whatever context

we put "didn't do any work" in, it will always be acceptable since the NPI will be under negation.)

What determines whether an NPI is licensed is its predicative context. In fact, NPI licensing depends only upon certain special features of a context. In particular, the meaning of most predicates in a sentence, like "dog" and "man," do not have any effect on NPI licensing. Rather, whether NPIs are acceptable or not depends upon more abstract semantic features such as negation operators, quantifiers, and modal operators. This means that when a given context is NPI-licensing, replacing some lexical predicates in it with other ones won't make it non-NPI-licensing. Here are a couple of minimal pairs indicating that changes in the meaning of the lexical predicates don't affect NPI licensing:

(15) a. Every man with any sense saw a movie.

b. Every house near any barn consumes water.

(16) a. If you come any further, you risk tax evasion.

b. If fortitude hurts any bit, it might explode.

The project on which much of the literature on NPIs focuses is figuring out exactly what makes a predicative context NPI-licensing. Eventually, I'll develop my own account of this, but first I'll review the standard account.

4 Downward-Entailing Contexts

The standard account of NPI licensing is formulated in terms of entailment relations between sentences. To see how it works we need to develop a bit of terminology and machinery. Let us say a predicate **P'** is *more inclusive* than a predicate **P** just in case **P'** applies to everything that **P** applies to in addition to at least one other thing. A predicate **P'** is *more exclusive* than **P** if **P'** is more inclusive than **P**. So "coat" is more inclusive than "red coat" and "saw a chicken" is more exclusive than "saw a bird."

We also need a particular notion of the entailment relation between sentences. To start with, we can say that a sentence S entails a sentence S' just in case in any situation in which S is true, S' is true also. The sense of entailment I have in mind here is entailment in virtue of the basic logical form of the sentences. In other words the entailment does not depend on

the meanings of the various lexical predicates in sentence. So while perhaps in some sense "John is a bachelor" entails "John is male," that is not the sort of entailment relevant here. Rather, we are interested in the notion under which "Ted is tall and wide" entails "Ted is a tall."

We are now in a position to define the basic notion required for the standard account of NPI licensing, which is *downward-entailment*. Intuitively, a context is downward-entailing if whenever the sentence is true you can replace the predicate in the context with a more exclusive one and still get another true sentence. For instance, if "John didn't see a bird" is true then "John didn't see a red bird" is true also. In this case the context containing the predicate "bird" is downward-entailing. A bit more formally, a predicate context **c**, with a predicate **P**, in a sentence S is downward-entailing just in case in every context in which S is true, S entails all S' s.t. S' is a sentence yielded by replacing **P** in **c** by a more exclusive predicate. Since entailment relations are independent of the meanings of the individual lexical predicates, the facts about which contexts are downward-entailing are also independent of such meanings.

Another example of a downward-entailing context is the restrictor of the quantifier "every." For example in any situation in which (17) is true, (18) will also be true.[2]

(17) Every person who went to Paris enjoyed himself.

(18) Every American who went to Paris enjoyed himself.

It will also be useful to have a definition for the opposite of downward-entailment, namely *upward-entailment*. Upward-entailing contexts are those where replacement of **P** by a more

[2]The predicate "person who went to Paris" in (17) may not, strictly speaking, be in a downward-entailing context. This is because we might think that quantifiers like "every" presuppose a non-empty domain. In this case, (17) might not entail all of the possible strengthenings of its predicate "person who went to Paris" since some of them would involve a presupposition failure, as in this example:

(1) Every person who squared the circle went to Paris and loved it.

To handle this problem we can stipulate that the determination of entailment relations does not depend on the cases where there is presupposition failure. So a predicate context c is downward-entailing just in case, when predicate P in context c yields a true sentence then replacement of P in **c** by a more exclusive predicate P' will yield either a true sentence or a presupposition failure. This is equivalent to the proposal of von Fintel (1999), who calls this form of entailment "Strawson-entailment."

inclusive predicate preserves truth. The predicate which is the restricter of the quantifier "some" is upward-entailing in a simple sentence of the form "Some X is Y." For example the sentence in (19) entails any sentence yielded by replacing the restrictor of "some," i.e. "French film" with a more inclusive predicate, for example "film" in (20).

(19) Some French film is playing at the Angelica.

(20) Some film is playing at the Angelica.

The most important and influential proposal for explaining NPI licensing has it that NPIs are allowed in predicate-contexts which are downward-entailing (Fauconnier, 1975; Ladusaw, 1980):

NPI licensing Standard A predicate-context c is NPI-licensing if and only if it is downward-entailing.

This account of the licensing of NPIs is simple and precise and explains a wide-range of otherwise seemingly haphazard data. To begin with it explains why the restrictor predicate of "every" licenses NPIs but the matrix predicate does not, as in this pair:

(21) Everyone who's ever been to Barbados is crazy.

(22) * Everyone who's been to Barbados is crazy at all.

I showed above that the restrictor of "every" is downward-entailing. The matrix predicate by contrast is not, as shown by the fact that (21) does not entail (23):

(23) Everyone who's ever been to Barbados is very crazy.

The downward-entailing account also explains the close relation between negation and NPIs. In general, expressions under the scope of negative operators are downward-entailing:

(24) John didn't see a duck.

(25) John didn't see a golden duck.

We can see that "duck" is in a downward-entailing predicative context in (24) since the sentence entails (25). Predicative contexts under negation, of course, license NPIs:

(26) John didn't see any duck.

The downward-entailing account of NPI licensing is very impressive. Perhaps most interesting is that it explains a seemingly syntactic fact in semantic terms. For when NPIs are not licensed they create a sense of infelicity common to violations of syntactic rules. However, unlike many syntactic facts we are able to explain the licensing of NPIs almost entirely in semantic terms. This is a major achievement. However, in the next section I will provide data that suggests that the downward-entailing account is not quite adequate and must be expanded.

5 Problems with the Standard Account: non-monotonic contexts

There are a few types of related cases in which contexts that are not downward-entailing nonetheless license NPIs. The first set of cases are quantifier phrases.[3]

(27) Most Catholics who went to mass at all voted for Kennedy.

(28) Half of those who've ever voted are no longer living.

The predicative contexts in which the NPIs appear in these sentences, e.g.. the X in Most Xs Y, aren't downward entailing. To see this note that (29) doesn't entail the more exclusive (30).

(29) Most people who've been to Paris love it.

(30) Most people who've been to Paris and gotten mugged there love it.

In addition, the restrictor of "most" is also not generally upward-entailing as this pair shows:

(31) Most songbirds sing well.

(32) Most birds sing well.

[3]Non-monotonic quantifier phrases are discussed in some of the literature on NPIs, a few prominent discussions are Linebarger (1980), Heim (1987) and Israel (1996, 656–659), but there are many more.

When a context is not upward-entailing or downward-entailing we will call it *non-monotonic*.

The same problem arises in sentences with adverbs of quantification which create non-monotonic contexts. Adverbs of quantification are words like "always," "sometimes," and "usually"; they are generally thought either to be unselective quantifiers, i.e. quantifiers which can bind any free variable (Lewis, 1975), or quantifiers over situations (e.g. von Fintel, 1995). Here are some examples where adverbs of quantification license NPIs without creating downward-entailing environments.

(33) Usually, women who've ever seen Paris want to go back sometime.

(34) Normally, people with any sense at all move out of the Midwest.

(35) Mostly, if a nihilist has any faith it's in human weakness.

That the adverbs of quantification in (33) through (35) create non-monotonic predicative contexts can be easily shown.[4] Consider a simple sentence:

(36) Usually, Frenchmen like steak au poivre.

This sentence neither entails a sentence with a more inclusive predicate replacing "frenchmen," (37), nor a sentence with a more exclusive predicate, (38).

(37) Usually, men like steak au poivre.

(38) Usually, Frenchmen from Toulouse like steak au poivre.

It is likewise easy to confirm that "normally" and "mostly" produce non-monotonic predicative contexts. However, these adverbs of quantifications do produce contexts that license NPIs as in (33)–(35).

Another set of potentially problematic cases are counterfactuals.[5] We can think of both the antecedent and the consequent of counterfactual as predicates of possible worlds. On the standard account a counterfactual is true just in case the nearest world satisfying the antecedent also satisfies the consequent (as in Lewis, 1973). The antecedent of a counterfactual generally licenses an NPI as in this example:

[4]It's worth noting that even without the adverbs of quantification, NPIs would be fine in (33)–(35). In this case, I would say they are licensed by implicit generic quantifiers.

[5]These cases are discussed by Heim (1987) and von Fintel (1999) both of whom give proposals for handling them using the normal DE proposal.

(39) If kangaroos had any sense of balance, they wouldn't topple over.

However the antecedent of a counterfactual is also non-monotonic. That they are not downward-entailing is evidence by the fact that (39) doesn't entail (40).

(40) If kangaroos had any sense of balance and no legs or arms, they wouldn't topple over.

It is easy to see that the antecedents of counterfactuals are also not upward-entailing.

The downward-entailing account of NPI licensing is inadequate. Quantifiers like "most," adverbs of quantification like "usually," and the antecedents of counterfactuals create non-monotonic contexts (and so not downward-entailing), but still license NPIs. Being downward-entailing may be sufficient for NPI licensing but these examples show it is not necessary. In the next few sections, I will develop a different account that handles these cases in addition to the ones covered by the downward-entailing account.

6 A Quick Fix

A first start is to suppose that, along with downward-entailing contexts, non-monotonic contexts also license NPIs. This is the natural response to the examples I have just presented.[6] The rationale for this fix should be obvious: every predicate is in a context that is downward-entailing, non-monotonic, or upward-entailing. All downward-entailing predicative contexts license NPIs. We saw that some non-monotonic contexts license NPIs. On the other hand, we have seen no examples of upward-entailing contexts that license NPIs. So let us take it as a working hypothesis that downward-entailing *and* non-monotonic predicative contexts license NPIs.

However, merely noting such a generalization about NPIs does not give us much of an intuitive grasp on the situation. Moreover the monotonicity categories all depend on entailment. But the entailment relations between some sentences, especially those involving definite descriptions, are often not at all obvious. So it will be useful to have an independent

[6] I am not the only one to suggest this, see, e.g., Progovac (1994), Neale (2000, 2004), and Nishiguchi (2003) . This account is also similar to an influential recent account of NPI licensing as non-veridicality, which attempts to provide more cross-linguistic coverage than most current accounts do (Giannakidou, 1998), which I discuss in section 13. Much of the literature on NPIs tries instead to show how certain non-monotonic contexts might be thought of as downward-entailing (e.g. Heim, 1987; von Fintel, 1999).

grasp on what the semantic feature is that characterizes both non-monotonic and downward entailing environments. To to do this, I will reformulate the criterion in a different way in the next two sections.

7 Checking Truth and NPIs

One way of understanding NPIs is to think about the process by which we use to confirm that a sentence is true, when it is true. This can differ from the process needed to see if a sentence is false, when it is false. Here are a couple of examples:

(41) Every boy who ever went to class knows when the final is.

(42) John didn't meet a man who'd ever been to Brazil.

To confirm the truth of (41) we need to check every boy that ever went to class to see whether he knows when the final is. To make sure (42) is true we need to check every man John met to see if any of them has been to Brazil (or check everyone who has been to Brazil and make sure John didn't meet any of them).

Here are two similar examples which do not allow NPIs.

(43) Some boy who (*ever) went to class knows when the final is.

(44) John met a man who'd (*ever) been to Brazil.

In (43) and (44) one does not always need to check every boy or every man. Rather, in the cases where the sentence is true, one can stop checking after finding a single boy or a single man which makes the sentence true.

I suggest that the contrast in how many things we need to check, illustrated in these examples, correlates with NPI licensing. As a first approximation, NPIs are licensed in contexts where one needs to check every element that satisfies the predicate that the NPI appears in to establish that the sentence is true. NPIs are not licensed where one need only check a fixed number of elements to establish the truth of a sentence.

We have seen that the checking account of NPI licensing is adequate to get the NPI data right with some quantifiers, in (41) and (43), and under negation, in (42). We also need to

see if it works with examples of non-monotonic contexts. Let us begin with an adverb of quantification.

(45) Normally, someone with any sense who had a lump on her forehead would see a doctor.

Our criterion above fails here. To confirm the truth of (45) one does not need to check *every* person with a lump on her forehead with any sense. However, to know for sure one does need to check a large proportion of such people. We can reformulate the checking criterion for NPI licensing to handle this as follows:

NPI licensing Checking A predicative context c is NPI licensing just in case, for the sentence S yielded by any predicate P in c: in order to confirm the truth of S the number of individuals satisfying P one needs to check gets larger as the total number of things satisfying P in the domain gets larger.

Roughly speaking, the number of things one needs to check is proportionate to the size of the entire domain.

Now let us consider an NPI-licensing phrase like "the average student."

(46) The average student who knows calculus at all knows the derivative of x^2.

To confirm the truth of (46) one needs to check some large proportion of the total students under question, so it satisfies **Checking**.

Counterfactuals provide an interesting case for the checking account of NPI licensing. As we saw, the antecedents of many counterfactuals license NPIs:

(47) If *The Catcher in the Rye* had ever been adapted into a movie, then I would have seen it.

As before, let us assume that counterfactuals are true just in case in all the nearest worlds where the antecedent is true, the consequent is true also (Lewis, 1973). If this account is correct then we need to check every world where the antecedent is true to make sure either that it is sufficiently unlike ours or that the consequent is true in it. So the antecedents of counterfactual conditionals are correctly predicted to license NPIs under **Checking**.

There is a prima-facie problem with the checking account, however. Consider this example:

(48) John didn't laugh at all.

So far I've treated verb phrases like "laugh" as predicates of individuals. The extension of "laughed" would be all the people who laughed. Now, in (48) the NPI is in the verb phrase "laugh." To check the truth of (48) we only have to check one man, i.e. John, to make sure the predicate doesn't apply to him, and we are done. So the NPI "at all" in (48) does not seem to be accounted for by the checking story.

We can, however, get the story to work if we allow ourselves a more sophisticated account of the semantics of verb phrases. A neo-Davidsonian treatment of verbal predication takes verb phrases to introduce existential quantification over events (e.g. Parsons, 1990; Schein, 1993). For example, (49) is taken to have a logical form along the lines of (50):

(49) A man laughed.

(50) $\exists x \exists e$, e is an event, x is a man, x is the agent of e, e is a laughing.

On the neo-Davidsonian view, verbs and their modifiers predicate things of *events* not of the agents of those events. So our checking metaphor must be expanded to include a process of checking *events*.

Returning to (48), the question now is how many events satisfying the predicate "laugh at all" we need to check. Clearly all of the events are potentially relevant, since John could be the agent of any of them. So we need to check every event satisfying the predicate "laugh at all" and make sure that John is not the agent of any of them. In this case, **Checking** correctly predicts that it licenses NPI.

There are a number of arguments for and against the neo-Davidsonian approach. It is the only way I can see to give a unified treatment of NPI licensing along the lines I've sketched, so we will need to use it here.

Unfortunately the talk of checking is a bit vague. I have not given any specific algorithm to explain how one determines exactly what one checks for any given sentence. There are clearly different ways of finding out whether a sentence is true, and these will involve looking at slightly different domains of objects. The point of this section, however, was to give a

sense of what NPI licensing depends on; in the next section I will formulate a more precise semantic criterion along these lines.

8 Domain-Sensitivity

I assume that the truth of most sentences depends (in some way) on individuals, events, properties and relations. I will not give any full account of truth-in-a-model for sentences, I will just rely on our intuitions about the truth values of sentences in different possible situations. These are intuitions we have by virtue of understanding English. For example, we understand that the sentence "Every boy is over twelve" is true in a situation in which all the boys in the domain are over twelve. Thus, if we have a model which has three entities that satisfy the predicate "boy" and those three entities also all satisfy a predicate "over twelve" then we can understand that the sentence is true in that model.

I will discuss models that include interpretations of the names and predicates of English and the domain of individuals and events available for quantification. So a model is a set of individuals and events along with an interpretation function that goes from predicates and proper names in the object language to sets and individuals. We'll idealize and suppose that a given sentence S is either true or false relative to any model M. This is all the basic machinery necessary to give a definition of the *domain-sensitivity* of a predicative context, which will be the semantic feature on which NPI licensing depends.

Before I give the formal definitions let me sketch the basic idea. A predicate in a sentence is domain sensitive just in case when the sentence is true in one model, then adding more thing satisfying the predicate in the context to the model can make the sentence false. So, for instance, for sentences of the form "Every **F** is **G**," **F** is domain-sensitive. This is because if the sentence is true in some context then adding more things satisfying **F** can make it false.

Conservative Extension A model M' is a *conservative extension* of a model M if M' contains all the individuals and events in M, and at least one more individual or event not in M, and the predicate-extensions in M' are the same as in M in so far as they apply to entities of M alone.

Domain-Sensitive A predicative context c, with a 1-place predicate **P** in it, a sentence S

is a *domain-sensitive* context if and only if for every model M such that S is true in M there exists a conservative extension of M, M', s.t.

1. S is false in M' .
2. For each $i \in [M' - M]$, $\mathbf{P}i$.

A predicate-context is domain-sensitive, roughly speaking, if for any model in which the sentence is true, one can expand that model by adding more things satisfying the predicate to make the sentence false. My claim is that a predicative context licenses an NPI if and only if it is domain sensitive.[7] (A significant qualification regarding locality conditions will be made in section 11 below.) Here are some examples to briefly examine:

(51) Most sailors (who have ever been at sea) are NCOs.

(52) Every mathematician (with any sense) is rational.

(53) John did his homework.

(54) John didn't do his work (at all).

Suppose (51) is true in some model. Then, an extension of that model with enough more sailors who are not NCOs will falsify the model. For (52) it is clear that extending a model in which it is true by adding one mathematician who is not rational will falsify it. In (54) any extension including an event where John does his homework will falsify it. By contrast if (53) is true no conservative extension of individuals or events will make it false.

It is also worth noting that this model-theoretic apparatus makes the question of whether a predicative context is NPI licensing independent of the meaning of the predicate in the context. This is because domain-sensitivity depends on features common to *all* models, and thus does not depend on the extension of predicates or proper names which vary from model to model. Of course, the meanings of the quantifiers and certain special terms cannot vary from model to model, since they are the ones upon which NPI licensing depends.

[7] I'm ignoring cases where two contexts in a sentence express the same predicate—these create problems which can easily be fixed.

9 NPI Meanings

I will show that this account of the licensing of NPIs is compatible with an intuitive picture of their semantic function. There are two features quite easily perceivable in any use of NPIs and these two features relate closely to their licensing conditions.[8] I will argue that we can understand these features in such a way as to fit in with the generalization that NPIs are licensed in domain-sensitive environments.

The first feature, loosely following Kadmon and Landman (1993) and others, is that NPIs intuitively make the predicates they appear in more *inclusive*; in other words, weaker. Consider for instance, the difference between "red" and "at all red." If something is red then it follows that it is at all red; the reverse entailment is not so obvious, however. So "at all' seems to weaken the predicate it appears in.

With "ever" and "any" the story is slightly different. They seem to involve what might be called pragmatic weakenings of the predicates they appear in. If I ask you if you *ever* went to the zoo then I am making explicit that I am not only interested in some restricted time period. Thus the standards for an event counting as a zoo-going relevant to the conversation may be explicitly lowered. "Any" is more complicated and has been treated in quite a bit of detail in the literature (Kadmon and Landman, 1993; Horn and Lee, 1994, revised version, 1995). The standard claim is that "any," as opposed to "a" has lower standards of specificity.

(55) Everyone who sold any policies was retained.

In this sentence, it is clear that the relevant policies are not limited to some special few but rather can be of any sort. Similarly, in phrases like "do any work" the function of "any" seems to be to reduce the specificity or quantity of work required to count. The exact account of these weakenings of predicates is quite complex, but I hope I have made plausible the idea that, if NPIs have any semantic effect on the predicate, it is a weakening one.

One thing to note, is that like many NPIs, "at all" in certain contexts may seem semantically vacuous. Take for instance,

(56) π isn't an integer at all!

[8] Many of the observations here follow Kadmon and Landman (1993) and Horn and Lee (1994, revised version, 1995).

It might be thought that something is either an integer or not and so there is no coherent way of weakening the predicate "integer." We might nonetheless say that the function of NPIs is to weaken the predicate, and that even though such weakening are sometimes impossible the NPI-licensing system does not see actual predicate meaning and so is unaffected by them. In other words, the licensing system does not care whether weakenings are really possible.[9]

The other feature of NPIs is that wherever they appear they seem to *strengthen* the statements they appear in—if they have any effect at all.[10] For instance (58) might be a stronger claim than (57) and (60) might be a stronger claim than (59).

(57) John didn't go the super-market.

(58) John didn't ever go to the supermarket.

(59) All the people who bathed developed a skin ailment.

(60) All the people who bathed at all developed a skin ailment.

The combinations of these two features actually yields something like an account of NPI licensing. The idea is that NPIs can only appear when the weakening of a predicate they are in would lead to strengthening of the entire statement.[11] This story, though, is too simplistic and cannot be quite right. For it would imply that NPIs can only be used in downward-entailing contexts, since these are exactly the context where weakening a predicate yields a logically stronger statement. To see this, recall that a predicative-context is downward-entailing just in case all strengthenings of the predicate are entailed. This makes it the case that weakening the predicate in a downward-entailing context, yields an overall stronger statement.

The natural conclusion is that NPIs do not, in fact, yield logically stronger statements in non-monotonic contexts when they weaken a predicate. Consider, for instance, these two statements:

(61) Most who ate any porcini are sick.

[9] Chierchia (2004) also takes a similar approach.

[10] Again I am following Kadmon and Landman (1993).

[11] A similar story is defended in detail for "any" in Kadmon and Landman (1993), it is also endorsed (in part) by Chierchia (2004) and Israel (1996) amongst others.

(62) Most who ate porcini are sick.

If we think "any" weakens the predicate that it is part of in (61), then (61) makes a *broader* statement than (62). Broader statements are ones which make assertions of larger domains of objects. In this case if the predicate "ate porcini" is weakened by the "any" in (61) then it can be used to make an assertion about a larger domain of people than (62) can be used to do.

An NPI will lead to a broader statement only if it is in a domain-sensitive context. This is because only in domain-sensitive predicative contexts does the truth of the sentence depend on a number of entities which is proportionate to the entire domain of things satisfying the predicate. So only in domain-sensitive contexts does weakening a predicate allow the sentence to make an assertion about a wider domain of things. Thus, if we abandon the idea that NPIs necessarily participate in strengthenings, and replace it with the idea that they participate in broadenings, then we derive the result that NPIs can only appear in domain-sensitive environments.[12]

10 NPIs in Questions

A prominent use of NPIs is in questions. Since questions are not assertions with truth-values the domain-sensitivity criterion does not obviously apply to them. Here is an example of an NPI in a yes/no question:

(63) Did you see anyone yesterday?

To answer a yes/no question like (63) positively one need only find a single satisfier of the predicate the NPI appears in. So to defend the hypothesis that questions create either

[12]This story, however, as some have noted, cannot be the complete story about NPI licensing. For one thing there are some NPIs that do not contribute to stronger statements but rather seem to make them weaker, for instance, "much":

(1) * I did much.

(2) I didn't do much

I want to follow Israel (1996) in supposing that different NPIs have different conventional rhetorical force—in other words only some NPIs have as a lexical requirement that they participate in broadenings, others have different requirements, which, hopefully, can be used to explain their distributions.

downward-entailing or domain-sensitive environments is quite difficult. I do not know what to say about this issue at the moment. However, I want to note that until one understands exactly how to treat questions semantically, they do not necessarily pose a counterexample to any account of NPIs. The account I have given here is simply too narrow to deal with questions at all.[13]

Nonetheless, where my account may usefully apply is when questions are embedded in sentences. Embedded questions may generally be domain-sensitive contexts. Here is one example:

(64) Whether John could win any prize depended on his passing the drug test.

Intuitively speaking, "any" is in a domain-sensitive environment in (64). If, for instance, we added an extra prize to the domain and if John could win that prize without passing a drug test then the sentence might become false. One would needs to check more contexts, but there is hope that embedded questions create domain-sensitive contexts.

11 Locality and Intervention

The account of NPI licensing in terms of domain-sensitivity is still not able to account for some basic data about the licensing of NPIs. In this section, I sketch how to expand it to deal with limitations involving what I will call locality conditions and intervention effects. Linebarger (1980) pointed out that NPI licensing exhibits locality conditions of a certain sort. Consider:

(65) It's not true that there isn't any coke left.

The predicative-context of "any coke" is not domain-sensitive. After all, one just needs to find a little coke and that will make the sentence true. Yet the NPI is still licensed. The obvious explanation is that this has something to do with the fact that there is a smaller sentence within (65) that has the content that there isn't any coke left. In this embedded sentence "any coke" is in a domain-sensitive predicative context and the NPI is licensed.

[13]See van Rooy (2003) for a promising recent attempt to explain the use of NPIs in questions. His account also tries to preserve some of the spirit of the proposal of Kadmon and Landman in that it has it that (certain) NPIs must contribute to a strengthening of the informative value of the question.

This means however, that NPI licensing is not dependent on the truth conditions of the *entire* sentence, but rather on the truth-conditions of some part of the sentence. In other words the determination of whether an NPI gets licensed depends on some *local* semantic context which is sometimes smaller than the whole sentence.

Not only can NPIs which are not domain-sensitive in the whole sentence get licensed if they are downward entailing in their local environment, but it is also true that NPIs which are domain-sensitive in the whole sentence nonetheless might *not* be licensed. Here is a version of the classic example from Linebarger (1980):

(66) ? It's not the case that everyone has any coke left.

In this case the infelicitous "any coke" is in domain-sensitive environment. As before, we will think of "has any coke" as a predicate of events. For if (66) is true in some model, than there will always be a conservative extension of that model where the sentence is false (just add more events of coke-having).

The data above might tempt one to say that NPI licensing depends only on some local context the NPI is in. But this will not work because an NPI can be licensed by an operator quite far away from it:

(67) It's not the case that John bought any coke.

Here the "not" creates the domain-sensitive environment but there is still a smaller proposition inside which does not license NPIs, i.e. that John bought any coke.

Chierchia (2004) argues that an NPI is licensed if it is in a downward-entailing environment unless there is some intervener in the way. He notes that possible interveners include strong determiners ("every," "most," the definite article), numerals, and "and." Thus, on his account, what makes (66) infelicitous is the presence of "everyone" between the negation and the NPI. Chierchia argues that what determines whether an expression is an intervener is its semantic features, so that the category of interveners like the category of NPI-licensers seems to be a semantic category.[14]

So a predicative context, c is NPI-licensing if and only if it satisfies these two conditions:

[14]The issue of which numerals act as interveners is quite complicated. An anonymous reviewer noted that large integers but not small integers after "exactly" and "at most" seem to block NPIs. This contrast is exhibited by this minimal pair (though judgments on this pair vary quite a bit):

1. There is a some (potentially) smaller context c' within c and c' is domain sensitive.

2. There are no interveners within c'.

This is just a sketch of how to handle locality and intervention within my account of NPI licensing. The details of how to define smaller contexts and what the semantic category of interveners consists in are beyond the scope of this paper.

12 Definite Descriptions

Now that we have a basic account of the licensing conditions of NPIs we can use it to do some work for us. I'll first argue that the account is incompatible with the standard Russellian treatment of singular definite descriptions.[15]

The Russellian proposal has it that "the" is a quantifier which is used to assert that one and only one thing satisfies the restrictor predicate and that this thing also satisfies the matrix predicate (Neale, 1990). Put another way, "the F is G" means that there is exactly one thing that satisfies F (the restrictor predicate) and everything that satisfies F also satisfies G (the matrix predicate).

(1) Exactly 3 people in the university have ever read Finnegan's Wake.

(2) ? Exactly 335 people in the university have ever read Finnegan's Wake.

If these judgments are correct (and speakers I've consulted sometimes share a sense that there is a contrast in some contexts, but certainly not all find (2) to be bad) we might explain it by supposing that large integers but not small integers are interveners in Chierchia's sense (as Chierchia himself suggests). This would also support Chierchia's generalization that interveners tend to be at the higher end of entailment scales. And, indeed, we find that in other contexts small numerals don't act as interveners but large ones do:

(3) I doubt three people did any work.

(4) ? I doubt three hundred people did any work.

This seems also to support an observation of Szabolcsi (2005) that NPI-interveners tend to be higher members of a scale. (I think "many' is also an intervener.)

[15] While developing the arguments here I discovered that Neale (2000) also notes a potential conflict between some accounts of negative-polarity licensing and the Russellian semantics of definite descriptions (particularly, plural definite descriptions). His discussion there and mine here naturally contain points of contact, but they differ substantially on most points of substance. For his most recent discussion of these issues, which discusses an earlier version of this paper, see Neale (2005, p. 850–854).

(68) The red tire is flat.

On the Russellian semantics, (68) is true just in case one thing satisfies "red tire" and that one thing is flat.

We will focus on the semantic features and the NPI-licensing properties of the restrictor predicate of singular definite descriptions. Some examples sentences illustrate that, on the Russellian account, this predicate is non-monotonic.

(69) The boy with a red hat is happy

(70) The boy is happy

(71) The boy with the red top hat is happy

Note that (69) does not entail either (70) or (71). To see this consider a context in which there are two boys, one of whom has a red hat, which is not a top hat, and is happy. In such a context, on the Russellian account, (69) is true but neither (70) nor (71) is. (It is worth noting that there is an intuitive sense in which (70) and (71) are not false in this case but rather somehow infelicitous; this sense has led many to think that the Russellian account is not quite right, and needs to be replaced by a presuppositional account.)

As with other non-monotonic contexts, the predicative-contexts of the restrictors of Russellian definite descriptions are domain-sensitive. This is because if we expand the domain of things satisfying the restrictor predicate we can make a statement with a definite description false by making the uniqueness claim false. For instance, (69) is true only if there is a exactly one boy with a red hat. If we take some model in which (69) is true and add another boy with a red hat then it becomes false (according to the Russellian).

My account of NPI licensing combined with the Russellian account of definite descriptions thus predicts that they license NPIs in their restrictor. However, singular definite descriptions generally do not do so as shown in the following examples:

(72) * I saw the man who'd ever gone to Universal Studios.

(73) * The kid with any toys is outside.

So, if my account of the licensing of NPIs is correct, the Russellian view of definite descriptions is wrong.

There are a couple of different replies the Russellian can make. One is to argue that my semantic account is not correct. This would require coming up with an account of NPI licensing that handles the cases that bedevil the downward-entailing account while somehow carving out an exception for Russellian descriptions. I will discuss the potential for doing this in the next section.

Another move for the Russellian is to argue that *semantic* accounts along the general lines of mine are not the right way to explain NPI licensing. However, given the power of abstract semantic properties like downward-entailment to predict the licensing of NPIs this is an extremely unappealing response for the Russellian. This is not to deny that there may be some syntactic property (call it a +NPI feature) that licenses NPIs. The point, however, is that the distribution of such a feature, if it exists, is perfectly predicted by semantic properties. So the Russellian still needs to make the awkward claim that "the" constitutes the sole exception to an otherwise robust generalization about quantifiers. Such a claim should only be a last resort.

13 Existence and NPIs

The best bet for the Russellian, then, is to try and give a refinement of the licensing conditions of NPIs that both lets in the standard domain-sensitive cases, but excludes the restrictors of definite descriptions. The most promising option I can think is to add to domain-sensitivity the condition that NPIs are not licensed when they appear in a predicate which is part of an existence assertion. In other words, NPIs cannot appear in any predicate if the sentence asserts that something satisfying that predicate exists. This rule might give something like a principled reply for the Russellian. Indeed, the resulting proposal is very close to a prominent account of NPI licensing according to which NPIs are only licensed in predicates for which there is no entailment that anything satisfying the predicate exists; these contexts are called *non-veridical* ones (Giannakidou, 1998).[16]

Such a suggestion, moreover, is compatible with at least some of the data on non-monotonic quantifiers which presented the original problem for the downward-entailing ac-

[16]The concept of non-veridicality, as applied to determiners here, is based on Montague (1969).

count. For instance, "generally" might not entail that something satisfying its restrictor predicate exists, as in this example:

(74) Generally, people with car trouble go to the dealer.

Perhaps we could say that quantifiers like "most" also do not entail the existence of any particular person satisfying their restrictor. On the other hand, almost all uses of singular definite descriptions do seem to entail that someone satisfying them exists (as the Russellian account predicts):

(75) The person with car trouble is going to the dealer.

I do not think this proposal will ultimately work out very well. First, consider this minimal pair:

(76) The one man with any money left after the trip is here.

(77) * The man with any money left after the trip is here .

These two sentences show that while "the" alone does not license an NPI, "the one" does. In other words, the predicative context "the one __ ..." licenses NPIs, but the context "the __ ..." does not. Yet, it seems quite plausible that if "the" makes an existence assertion, then "the one" does also. This the leaves open the question of how "the one" can license NPIs, but "the" cannot.

In fact, this pair on its own, independently of any particular account of NPI licensing represents a problem for the Russellian semantics for definite descriptions. The Russellian must explain what the semantic difference is between "the" and "the one" that makes the latter but not the former license NPIs. The problem with "the one" is that it seems only to make explicit the uniqueness assertion that the Russellian claims is part of the meaning of the definite description to begin with. For the Russellian, then, "one" should be semantically idle. However, if it is idle then it is left unexplained why "the one" licenses NPIs.

The obvious move for the Russellian is to try and appeal to the locality conditions on NPI licensing to explain this. For any NPI to be licensed it need only be licensed in some local domain,; it cannot be anti-licensed by operators higher up (as discussed in section 11). The Russellian can thus claim that, although "the one" and "the" might be semantically

equivalent, the NPI allowed by "the one" is licensed by "one" alone, and cannot be anti-licensed by adding "the." This suggestion seems plausible since "one" might license NPIs on its own, especially if it is given focal stress. Here is one such example:

(78) I saw ONE person with any money in all of the casinos.

Nonetheless, I do not think these responses ultimately work well for the Russellian. Consider "both" which, like the Russellian definite description, seems to make an existence claim *and* a uniqueness claim (at least in the sense that "both" requires a unique pair satisfying the restrictor). Here is an example:

(79) Both students came to the opera.

In (79) it seems to be asserted that there are exactly two (relevant) students and no others and that both of them went to the opera. This parallels perfectly the Russellian singular definite description which, in the same position as "both" in (79), would be used to assert that there is exactly one student and that this student went to the opera. But "both," unlike "the," *can* license NPIs. Imagine it is French Day in Ann's sixth-grade class. Consider these two statements about what happened:

(80) Both students who'd ever been there told the class about Paris.

(81) * The student who'd ever been there told the class about Paris.

If the Russellian view were right, one would expect (80) and (81) to be equally bad, but they are not.[17] Moreover, since "both" is obviously a single lexical item, no appeal to locality conditions can save the Russellian here. So, pending a radical rethinking of the semantics of "both" it does not seem that existence entailments actually affect NPI licensing.

Another problem for the proposal that NPIs are not licensed in definite descriptions because of the existence assertion is that the proposal is not compatible with the usual Russellian semantics for plural definite descriptions (Neale, 1990). On this semantics, plural definite descriptions are used to assert the existence of at least one thing satisfying the restrictor and assert that all the things satisfying the restrictor also satisfy the matrix. For

[17] I have consulted many native speakers on pairs like this one. All of them find sentences like (80) better than (81). Many, but not all, find (80) acceptable. All of them find (81) very bad.

example, (82) asserts that there is at least one pianist and all pianists (in the relevant domain) played rugby.

(82) The pianists played rugby.

Neale (1990) takes the parallels between the semantics of plural and singular definite descriptions to be a major point in favor of the Russellian analysis of definite descriptions. To maintain this parallel, plural definite descriptions must have existence implications just like singular definite descriptions. Nonetheless it is well-known that plural definite descriptions often *do* license NPIs.

(83) The pianists with any trace of self-respect played rugby.

So, it does not seem likely that the existence claims of singular definite descriptions can be responsible for the fact that they do not license NPIs.[18]

What this evidence, in total, reveals is that the problem for the Russellian with NPIs is not a mere artifact of my definition of NPI licensing. The Russellian treats definite descriptions as making a combination of existence and uniqueness claims. But uniqueness claims, in general, as my account predicts, license NPIs (as witnessed by "the one," "the sole" and "both"). Moreover, plural definite descriptions and expressions such as "the one" and "both" indicate that existence claims do not affect the ability of a determiner to license NPIs. So there seems to be little room for a principled account of NPI licensing that is compatible with the Russellian semantics of definite descriptions.

14 Presuppositional Definite Descriptions

My conclusion is that we need to think of definite descriptions in some way which does not take them to make uniqueness assertions.[19] Luckily, there are many well-developed theories of definite descriptions which consider any uniqueness implication to be part of the presupposition or conversational implicature of a definite description rather part of its

[18] Note that even if we think some plural definite descriptions do not have existence entailments, (83) is a clear examples where there is a existence implication and the NPI is licensed.

[19] Of course, speakers make assertions not words. But the Russellian semantics makes definite descriptions apt tools for asserting that exactly one entity satisfying the description exists.

semantics. I will review two of them here to show that we can do without the Russellian account, though I do not intend this to be an exhaustive discussion of all accounts of definite descriptions.

The notion of presupposition is critical to much recent work in formal semantics, though it is not as widely used within the philosophy of language.[20] We can think of a presupposition itself as something that is taken for granted by participants of a conversation. If an expression triggers (or carries) a presupposition then the use of that expression requires that some sort of assumption be in existence. One mark of presuppositional expressions is that they seem to imply things without quite asserting them. For example, (84) seems to imply that I have a brother, though it does not quite assert it.

(84) My brother does calisthenics.

There is, of course, much more to presuppositions than this, but this is not the place to discuss them in detail.

On the standard presuppositional view, definite descriptions presuppose that there is a unique satisfier of the restrictor predicate in the contextually relevant domain. One version of this view (the so-called "Fregean" view of definite descriptions) takes definite descriptions to be referring expressions which refer to the unique satisfier of the descriptive content in the context. Where there is no such satisfier the use is infelicitous. One could also, however, think of definite descriptions as regular existential quantifiers that trigger the presupposition that there is only one thing satisfying the restrictor predicate. The relevant feature these variations share is that under both of them definite descriptions presuppose uniqueness rather than assert it.

On a competing view descriptions presuppose that there is a maximally salient item satisfying the restrictor predicate in the contextually relevant domain. On such an account definite descriptions do not presuppose anything about the uniqueness of the item relative to some domain in the world, but rather presuppose that there is a *most salient* satisfier of the description which is familiar to the conversational participants. Of course, this account must not be too naïve: we need to allow for cases where descriptions are used to introduce new items, cases where they do not refer to any real entity in the world, and cases where

[20] See Beaver (2001) and Soames (1989) for review of some of the major literature.

descriptions have what appears to be narrow scope relative to other quantifiers. But these issues have been addressed by proponents of the view elsewhere, and this is not the appropriate place to discuss them.[21] Again there are different ways of spelling out the semantics of definite descriptions which are compatible with this account of their presuppositions: we can think of descriptions as existential quantifiers or as referring expressions of some sort. However, what matters about this account for our purposes is just what sort of presuppositions definite descriptions give rise to on it and and the lack of any uniqueness assertion.

On the surface, all of these accounts of the semantics of descriptions are compatible with the account of NPI licensing I am advocating. Suppose for instance we take definite descriptions to be referential expressions. If definite descriptions refer to existing items that are presupposed to be unique or salient, then to be felicitous definite descriptions must always refer to something in the relevant domain. If they do so, expanding the domain of individuals that satisfy the restrictor predicate without violating the presupposition of the definite description will not change the truth of the sentence they figure in—at least as far as the definite description is concerned. Definite descriptions on this view are not domain-sensitive because they do not require a search through the domain; they are always used to pick out something in particular.

On the other hand, if definite descriptions are existential quantifiers with certain presuppositions then we should not necessarily expect them to license NPIs. For normal existential quantifiers like "a" and "some" do not license NPIs. It thus remains an open question whether presuppositions of uniqueness or familiarity should be able to license NPIs. (In fact, I will argue that they do in Section 16, and thus give evidence against the view that singular definite descriptions even *presuppose* uniqueness.)

[21] The classic statement of this sort of view within the framework of formal semantics is Heim (1982); a similar view is suggested in Lewis (1983). Novel defenses and elaborations of similar views have recently been put forward by Ludlow and Segal (2004), Szabó (2000) and Roberts (2003).

15 NPI-licensing Definite Descriptions

One objection that may have occurred to the reader is that some uses of singular definite descriptions *do* license NPIs.[22] These cases, combined with my account of NPI licensing, might be taken to support a Russellian semantics for definite descriptions. I do not think, however, that cases of NPI-licensing definite descriptions give any support for the Russellian account. Rather, I think that in every case in which a singular definite descriptions contains an NPI some element of the sentence or context besides the uniqueness assertion of the description explains why the NPI is allowed.

Let us consider some of the singular definite descriptions which license NPIs within their restrictors. Examples are "the one man," "the only man" "the tallest man," "the worst ball-player." The critical issue here is what makes the difference between these definite descriptions and the normal definite descriptions which do not license NPIs. The most plausible story I can think of is that these descriptions have some extra element that makes them semantically domain-sensitive. Indeed this can be supported a bit by intuitions about what uses of such definite descriptions do. When we use definite descriptions like "the one man" or "the tallest man" it does seem necessary to convey, implicitly or explicitly, which domain we are speaking of to our audience. However, when we use normal definite descriptions like "the tall man" it only seems necessary that we make it clear to our audience which individual we are speaking of, not what domain he belongs to.

I cannot here give an account of the exact syntax and semantics of superlatives and expressions like "only" and "one." However, whatever account is given must explain their quantificational force. When we say that Babe Ruth is the best baseball player we are not only making a statement about Babe Ruth but also about all baseball players.[23] It is this quantificational force that creates a domain-sensitive predicative context and thus licenses NPIs. Thus, in all these cases there is an extra element in the descriptions, an adequate of

[22]Indeed, Nishiguchi (2003) claims that definite descriptions generally license NPIs (this was pointed out to me by an anonymous reviewer). I assume her claim is based on a bad generalization from the exceptional cases in which singular definite descriptions do license NPIs.

[23]There is, of course, a massive amount of literature on the semantics of "only" and much discussion of its NPI-licensing capacity (Horn, 1996; von Fintel, 1999, e.g.). My point here is just that whatever semantics one gives for "only" it is clearly domain-sensitive, and so should be expected to license weak NPIs in English.

the semantics of which will make them domain-sensitive.[24]

Another example of a uses of definite descriptions that can license NPIs are generic ones. Here is an example:

(85) The mayor with any sense will control the school board.

In these cases, I would argue, it is the generic quantification that licenses the NPI, not the uniqueness assertion of the NPI. Evidence for this is that an indefinite description will do just as well to license the NPI in this case:

(86) A mayor with any sense will control the school board.

Neale (2005, p. 854, fn. 146), in a discussion of the main argument of this paper, suggests that, in certain contexts, singular definite descriptions can license NPIs without the presence of any other operator. Likewise an anonymous reviewer of an earlier version of this paper gave an example where a singular definite description licenses an NPI:

(87) The reason one ever bothers to decant a wine is to leave the sediment ... behind in the bottle. [*SouthWest Airlines Spirit* August 1994: 47]

I am tempted by the suggestion of the reviewer that this may be a case where there is an implicit "only" licensing the NPI (i.e. the sentence really reads "the only reason...). What is odd is that this implicit "only" is only available in a few exceptional cases. We know this because, normally, NPIs within singular definite descriptions are simply bad and, hence, we cannot freely add an implicit "only" to rescue the NPI. This makes me think that perhaps what is implicit in (87) is actually a generic operator again.

One more type of case worth noting involves modals and future tense:

(88) The man who ever steps into this room must be stopped.

(89) The man who ever tries to steal the diamond will face a gruesome end.

In these cases, I would suggest the NPI forms part of the restrictor of the universal quantification over possible worlds or possible future states of affairs and thus is in a domain-sensitive

[24]It follows, of course, that superlatives are predicates with meanings that the system of NPI licensing *is* sensitive to. So while the system doesn't care about the difference in meaning between "dog" and "cat" it does care about the difference between "best" and "good."

position. That versions of these sentences in the past indicate are not acceptable indicates, again, that it is not the NPI itself doing the licensing:

(90) * The man who ever stepped into this room was stopped.

(91) * The man who ever tried to steal the diamond faced a gruesome end.

These examples seem bad unless one gives them a generic reading (which itself is hard to get).

16 Presuppositions of Uniqueness and Domain-Sensitivity

In section 14, I listed two forms of presuppositional treatments of definite descriptions: One view, the Fregean view, has it that descriptions presuppose uniqueness, the other view, the familiarity/salience view, has it that descriptions presuppose a certain sort of familiarity or maximal salience (to both speaker and audience). In this section, I argue that the first of these view may not be compatible with the data on NPI licensing.

My account of domain-sensitivity did not make a distinction between asserted content and presupposed content. I merely claimed that if a predicative context was domain-sensitive in terms of its truth conditions, then the context licensed NPIs. However, once we add the notion of presupposition to our conceptual repertoire my account no longer tells us in all cases whether or not a predicative context is NPI-licensing. For it does not tell us whether domain-sensitive *presuppositions* license NPIs. Presuppositional views of definite descriptions which take them to presuppose uniqueness are only tenable if, in general, presuppositions of uniqueness do not license NPIs. This, in turn, is an empirical question.

Unfortunately, there are not many expressions that are said to presuppose uniqueness besides "the." Some candidates are the expressions I discussed above when I considered existence assertions in section 13. These include "the one," "the sole," and "both." All of these expressions, as we saw, licensed NPIs. For those who endorse a presuppositional view of definite descriptions, it is natural to treat such expressions as also presupposing uniqueness (or uniqueness of the pair in the case of "both"), as in Heim and Kratzer (1998, 74-75). As I showed above, all of these expressions, unlike singular definite descriptions, are NPI licensing. Here is another minimal trio to look at:

(92) In the study, both dogs that received any physical therapy eventually managed to walk again.

(93) In the study, the one dog that received any physical therapy eventually managed to walk.

(94) * In the study, the dog that received any physical therapy eventually managed to walk again.

In both (92) and (93) a presupposition of uniqueness (or the uniqueness of the pair) seem to license a negative polarity item. (Again, judgments vary among informants on (92)—some people find it fairly bad.) But in (94) the singular definite description clearly does not license a negative polarity item. If the best empirical generalization is that presuppositions of uniqueness license NPIs, then it seems that we should not maintain that singular definite descriptions presuppose uniqueness. Singular definite descriptions may still have uniqueness implications, but we have strong evidence that they are not encoded as either assertions or presuppositions of singular definite descriptions. I am not entirely confident these conclusions cannot be avoided, but, at the least, those who want to build uniqueness into the semantics of descriptions, even as presuppositions, have some work to do.[25]

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[25]Thanks to Eliza Block, Jessica Boyd, Kai von Fintel, Delia Graff, Gilbert Harman, Irene Heim, Mark Johnston, Tom Kelly, Sarah-Jane Leslie, Stephen Neale, Jim Pryor, Barry Schein, Brett Sherman, Philippe Schlenker, Zoltán Szabó, Brian Weatherson, Edwin Williams, for useful discussion on this topic and/or comments on earlier drafts.

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