

Anaphora and Negation

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The dynamic semantic framework is motivated by the insight that meaning is not something that can be calculated in isolation from discourse. Expressions are not just generally parts of sentences, but parts of discourses, and they contribute information that flows through the discourse, information that can be picked up by subsequent expressions. At any given point in the discourse, one can pinpoint the current state of information. This is often called *the information state*, *the context*, or *the conversational record*. I will use the term *context*. Contexts are always evolving as a discourse unfolds; this is what makes discourses dynamic things. Meaning can then be conceived as the effect an expression has on a context, i.e. semantic content is *context change potential* (CCP), or in other words, a function from input context to output context. Intuitively, on the dynamic semantic framework, semantic contents are like recipes for updating the context. Truth-conditions are derivable from CCPs, but are not the basic semantic notion.

Traditional, static semantics, on the other hand, generally takes truth conditions to be the central semantic notion, with the semantic content of sub-sentential expressions being their contributions to truth conditions.¹ But meaning is not calculated in isolation from discourse — many expressions in a static semantics are considered to be context-sensitive, that is, their values are partly determined by the context in which they occur. Nor does static semantics have to ignore the fact that sentences have an effect on the context. It's just that sentences themselves don't encode these effects. It is rather the assertion² of a sentence by a person that has the effect of

¹Of course, we can have static notions of meaning that don't take truth conditions as the central semantic notion. I put these aside for the purposes of the paper.

²Or other speech act, though I will look only at assertions here.

changing the context. Call the view that context is updated because of pragmatic rather than semantic features of discourse *dynamic pragmatics*.³

One of the earliest motivations for the dynamic semantic framework comes from examples of pronominal anaphora on indefinite antecedents as in:

- (1) a. A woman walked in.
- b. She sat down.

I'll discuss this example as well as the dynamic semantic treatment of it in more detail in §2, but the intuitive idea behind this sort of example is that it shows that information flows throughout a discourse — (1a) introduces something, namely a woman who walked in, that the pronoun in (1b) picks up on. On a dynamic semantic view, it is by virtue of the semantics of “a woman” that it introduces an appropriate value for “she”. By contrast, on a dynamic pragmatic view, the fact that (1a) introduces something for “she” to pick up on is a matter of what conversational participants are *doing* when they say things like (1a) and (1b). Here the dynamics of discourse is explained in broadly Gricean terms; it is a matter of appealing to the fact that conversations are more or less cooperative endeavors among rational agents. My preferred implementation of this will be discussed in §2 below.

I have argued in past work for a dynamic pragmatic treatment of example like (1).⁴ My focus on this paper will be on the relationship of anaphoric pronouns to potential antecedents that are embedded under quantifiers and operators. The specific case I will look at is the case of negation, but let me introduce the idea more generally. Suppose we grant for the sake of argument that the dynamic pragmatic account is right for the kind of discourse level dynamics demonstrated by examples like (1), that is, where the update to the context can be construed as happening between sentences. One might reasonably think that even if this is the case, *embedded* dynamics present a problem for the approach. One of the things that dynamic semantics is designed to do is account for the contrast between the felicity of the pronouns in the (a) sentences in the following discourses and the infelicity of the pronouns in the (b) sentences:

- (2) a. If a farmer owns a donkey, he deducts it from his taxes.
 - b. #It lives in a stable.
- (3) a. Every farmer who owns a donkey deducts it from his taxes.

³This term has been used in various ways in the literature, but it is also used this way by, e.g., Dever (2013) and Stalnaker (2014).

⁴See Lewis (2012, 2014).

- b. #It lives in a stable.
- (4)
- a. It's not the case that a student came to see me and ask for a better grade on her assignment.
 - b. #She was doing well in the course.

On dynamic semantics, it is built into the semantics of the connectives and quantifiers like *not*, *if*, and *every* that they license anaphoric connections within their scope (call this *internal felicity*) and block anaphoric connections outside of their scope (call this *external infelicity*). In the terminology of Groenendijk and Stokhof, this means that they are internally dynamic, but externally static. Another, more general way of describing the phenomenon, is that they create a *local context*. A local context is a temporary context that we get en route to processing a larger construction. Within the local context, anaphora is licensed because there is an appropriate discourse referent in this temporary context. But when the local context disappears, so do the discourse referents it contains. Consequently, in the global context, anaphora is not licensed. (Since I will only be concerned with anaphora in this paper, the concepts of local vs. global context and being internally dynamic or static and externally dynamic or static are equivalent for our purposes.)

One reason to think that dynamic pragmatics fails worse when it comes to embedded dynamics is that on classical theories of pragmatics, pragmatic explanations come into play once semantic content has already been calculated. Hence, at least on this classical incarnation, a pragmatic theory runs into trouble explaining anything that happens at a sub-sentential level. One may also think that a pragmatic account is just not in a position to account for data that appears to be so systematic, and appear to be systematically related to scope. Asher & Lascarides (2003) write that explaining anaphoric constraints is the most important contribution of dynamic semantics:

Logical operators such as *not* and *every* constrain which variables in the representation have a defined value in the output context and hence can act as antecedents to the variables introduced by anaphora. This will predict the difference in acceptability between [examples like (1)] and [examples like (3)]. *These constraints are arguably the most important contribution of dynamic semantics.* (p.42, My emphasis)

Dever (2013) claims that the “general challenge to the classical picture... is to account for the existence of local contexts, using pragmatic principles rather than semantically encoded update rules” (p.115), and proceeds to argue, although using the case

of presupposition rather than anaphora as his central case, that the prospects for such a pragmatic explanation are dim.

I will argue for the following points, focusing only on the case of negation. We don't need dynamic semantics to predict the difference in acceptability between examples like (1) and (4); dynamic pragmatics does it quite well. We don't need dynamic semantics to predict the difference in acceptability between the pronoun in (4a) and (4b); dynamic pragmatics plus static semantics does it quite well.⁵ My last point is that static semantics plus dynamic pragmatics actually does better than dynamic semantics in these explanations because it accounts for two phenomena that do not sit well with the dynamic semantic framework. It can account for cases of *internal infelicity*, where a pronoun is *not* licensed on a coreferential interpretation even though it is under the scope of the same negation as its antecedent, such as (5).

(5) ??It's not the case that a man walked in and he put down his hat.

And it can account for cases of *external felicity*, where a pronoun is licensed on a coreferential interpretation even though it is not under the scope of the same operator as its antecedent, which is under the scope of negation, as in:

- (6) a. There wasn't a thief here.
b. He would have had to have been magical (to break in without leaving a trace).
- (7) a. Mary doesn't have a car.
b. So she doesn't have to park it.
- (8) a. Bryan doesn't have an apartment in Paris (anymore).
b. He gave it up years ago.

I will begin in the next section by describing the general framework of my preferred semantics and pragmatics. The following section will look at the basic cases

⁵I think the same holds for the difference in acceptability between (2a) and (2b) and (3a) and (3b), though I won't be discussing these in this paper. But here is a rough preview of the central idea: the felicity of cases like (2a) is explained by the semantics, in this case by the event or situation structure that the semantics of conditionals requires anyway (before we even take anaphora into consideration). The infelicity of (2b) is explained by the looking at what it is people are doing when they assert sentences like (2a), and the short story is that they are not making as if to talk about a single object, which is what is going to determine whether pronominal anaphora is licensed in general.

of unembedded anaphora and cases of anaphora and negation in more detail from both a dynamic semantic perspective and my dynamic pragmatic one. In the last two sections I'll compare the dynamic semantic and dynamic pragmatic accounts as they deal with cases of internal infelicity and external felicity, respectively.

1 A static semantics and dynamic pragmatics

The sort of view I favor is one with a static notion of semantic content, but one that takes conversational dynamics seriously. Where dynamic semantics goes wrong, in my opinion, is in codifying what are essentially pragmatic practices, that is, practices of rational agents engaged in more or less co-operative activity, in the semantics.

Take a context C to be a tuple $\langle \Omega, \iota \rangle$. Ω is the context set, the subset of W (the set of all worlds) that are still open give the mutual presuppositions of the conversation at any given point. ι is a sequence of annotated discourse referents, represented as lower case variables with or without subscripts and associated conditions. Discourse referents represent objects under discussion without necessarily being anchored to a particular object in the world. Intuitively, they are like pegs in the context on which to hang predicates that belong to the same object according to the conversation. I take the first element of the context is uncontroversial; it's what contexts in a static semantics with dynamic pragmatics typically look like. But what does it mean to have discourse referents in such a system? On my view, the set of discourse referents is a formal representation of the psychologically real fact that conversational participants keep track of the objects under discussion, or things that are considered single objects according to the conversation, where objects under discussion may or may not be identified with specific objects in the world, and include hypothetical objects. This takes very literally the idea that “[i]ntuitively, a discourse referent is the address for a maximal cluster of information assumed by the interlocutors to bear on a single individual”.⁶ Conversational participants often make *as if* a particular object is under discussion, e.g. in (1), there is a sense in which we treat the conversation as being about a specific woman even though the truth of what the speaker has said does not depend on a particular woman. Truth conditionally, (1) is very different from (9):

- (9) a. Michelle Obama walked in.
 b. She sat down.

⁶Roberts (2003, 294-5)

(1a) has existential truth conditions while (9a) has object-dependent truth conditions (its truth depends on Michelle Obama), but the tracking of objects under discussion goes in exactly the same way. The assertion of (1a) introduces a discourse referent, say x , along with conditions that x is a woman and x walked in. The assertion of (9a) introduces a discourse referent, say y , along with the conditions that y is identical to Michelle Obama and y walked in. The set of discourse referents is based on what idealized participants would be keeping track of at each point in the conversation (where “idealized” means attentive, competent, and reasonable, not omniscient or anything of the sort).

When a speaker makes an assertion,⁷ each element of the context is (potentially) updated. One, if speakers accept the content of the assertion, the informational content is added to the common ground, formally represented as the intersection of the proposition expressed and the context set.⁸ The set of discourse referents is updated with the addition of a new variable when it is understood by conversational participants that a novel discourse referent is being introduced (more details about this shortly). Individual variables can have conditions added to them when it is understood that an existing discourse referent is being ascribed a property. For example, the evolution of the context when (1) is processed goes as follows (let’s assume (1) occurs discourse initially):

C (before (1) is asserted):

Context Set: $W' = \{w \in W \mid w \text{ verifies the mutual background knowledge of the conversational participants}\}$

Discourse Referents: \emptyset

C + (1a) = C':

Context Set: $W' \cap \llbracket(1a)\rrbracket = W''$

Discourse Referents: $\{[x : \textit{woman}(x), \textit{walked.in}(x)]\}$

C' + (1b) = C'':

Context Set: $W'' \cap \llbracket(1b)\rrbracket$

Discourse Referents: $\{[x : \textit{woman}(x), \textit{walked.in}(x), \textit{sat.down}(x)]\}$

The central idea about the addition of discourse referents is that one is added to the context when it is reasonable to expect a conversational participant to say more

⁷Of course there are other speech acts, but I am only dealing with assertions for the moment.

⁸Here I am not differing at all from traditional dynamic pragmatic accounts; see for example Stalnaker (1978), Stalnaker (2014).

about an object. I am using the term “object” here to include both real objects in the physical environment of the conversation, specific objects mentioned by speakers and things that are treated as specific objects for the purposes of the conversation. Reasonableness is a matter of recognizing speakers’ plans, where plans are treated as sets of coherent intentions. The difference between this view and some other pragmatic ones is that it is not sufficient for the addition of a discourse referent that the object in question be *inferred* to exist, and it’s not necessary for it to be salient, though both of these are important factors in determining conversational expectations.

The semantics of the logical connectives are the usual static semantics for connectives. In this paper, among the connectives only conjunction and negation will be looked at:

1. $\llbracket \phi \wedge \psi \rrbracket^{g,w} = 1$ iff $\llbracket \phi \rrbracket^{g,w} = 1$ and $\llbracket \psi \rrbracket^{g,w} = 1$
2. $\llbracket \neg \phi \rrbracket^{g,w} = 1$ iff $\llbracket \phi \rrbracket^{g,w} = 0$

I will not be dealing with conditionals or quantifiers aside from indefinite and definite descriptions in this paper, in part because, as I mentioned earlier (fn.5) conditionals and quantification require an event or situation semantics and so a complication of the semantic framework that won’t be introduced in the present work. I will also not be dealing with disjunction, and I am making no claims about whether disjunction can (or cannot) be treated in the classic way.

Indefinite descriptions have the semantics of ordinary, static existential quantifiers, that is, *An F is G* is true iff there is at least one object in the world that is both F and G. The view I propose is compatible with more than one semantics for pronouns, but for the sake of concreteness, assume that pronouns are d-type, that is, they are disguised definite descriptions, and that they presuppose that there is a familiar discourse referent in the context. I am not going to give a semantics for definite descriptions here; what I say is compatible with a (neo)Fregean or (neo)Russellian interpretation of definite descriptions. Nor am I going to argue for this view of pronouns here since I am primarily concerned with explaining the licensing facts about anaphora, not giving a semantics of anaphora. Despite all this, it is certainly worth pausing for a minute to consider why I bother with discourse referents and dynamic pragmatics if I’m already treating pronouns as d-type. After all, d-type pronouns are typically treated as a complete static alternative to dynamic semantics, not a view that needs to be supplemented with a theory of context change. I don’t think d-type theory alone can account for the anaphora facts. There are many reasons why I think a d-type theory needs to be supplemented with a notion of discourse

referents (see Lewis (2013, ms) for more details), but in the following subsection I’ll consider just the one that has to do with anaphora licensing, since that is the main focus of the present work.

1.1 D-type digression

On dynamic semantics, the semantics of quantifiers and operators as well as that of pronouns predict that discourses like (2), (3), and (4) will *crash*, that is, there will be no possible (non-absurd) output context for the b-sentences. By contrast, standard d-type semantics for pronouns predict that we can semantically interpret the pronoun; they have to explain the infelicity some other way. To clarify, painting in broad strokes, there are two kinds of theories about how the material for the covert definite description is recovered, pragmatic theories and syntactic theories. On the pragmatic theories, the material comes from a contextually salient description. On syntactic theories, the descriptive material is recovered from previous linguistic material of the appropriate form in the discourse. Both predict that cases like (2b), (3b), and (4b) are interpretable. For example, in (4), the description “the student who came to see me” (or simply “the student”) is both made salient and recoverable from prior linguistic material in the discourse. Different d-type theorists have explained the infelicity of discourses like (4) in different ways. Evans (1977) stipulated two well-formedness conditions for d-type descriptions:

- a. The antecedent determiner must be existential in force.
- b. The antecedent-containing sentence must be affirmatively embedded relative to the minimal sentence that contains the pronoun.⁹

So, for example, the determiner “no” is not existential in force, and so there is no well-formed d-type pronoun anaphoric on sentences like “No woman walked in”, and “a woman” is not affirmatively embedded under negation relative to “she sat

⁹The definition of affirmative embedding is a little hard to apply here, because 1) Evans is only thinking about sentences rather than discourses when he defines affirmative embedding and 2) he is thinking of pronouns as referring expressions, the reference being fixed by a definite description. The definition is as follows: Let $\Sigma(\sigma, \sigma')$ be a sentence embedding an existential sentence, σ , and a sentence σ' that contains a pronoun anaphoric on the indefinite in σ . σ is affirmatively embedded in Σ relative to σ' iff when the truth of Σ turns on the truth or falsity of σ' , σ is true. Intuitively, the idea is that whenever a sentence’s truth turns on the truth or falsity of the pronominal sentence, there is something that the pronoun refers to. We can extend this idea to discourses by thinking of the discourses as the conjunction of the sentences within them, and we could tweak the definition to better suit d-type theories so that the requirement is that there is a unique object that satisfies the description.

down” in a subsequent sentence, hence “It is not the case that a woman walked in” also doesn’t license cross-sentential anaphora.¹⁰ Heim (1990) attributes the infelicity to presupposition failure; for example, if the first sentence of (4a) is true, there is nothing (in the context) that satisfies the description, and so the description fails to denote anything. Neale (1990) says something similar; on his theory definite descriptions assert rather than presuppose uniqueness (or maximality, in the case of plural definites), so “it would make no practical sense to use these sentences” (p.232) as discourses of this type always come out as straightforwardly contradictory.¹¹ I am sympathetic with much of these ideas taken very broadly, particularly appealing to practicality and usefulness. But the exact explanations offered by the d-type theorists locate the problem in the wrong place: in the content or presupposition of the pronoun rather than something to do with the connection between (potential) antecedent and pronoun. (Evans’s conditions do address the connection between antecedent and pronoun, but they are stipulations that don’t flow from anything else in the theory.) Heim and Neale’s theories each fail to account (in different ways) for many of the problem cases I present for dynamic semantics in the next section. I will mention those failures along the way as I explain my positive view, but one way to quickly see why the explanation in terms of presupposition failure or contradictory discourse is inadequate is that it does not explain why anaphora is often bad when the indefinite antecedent is under the scope of double negation. Consider this example from Groenendijk & Stokhof (1990) (p.27):

- (10) a. It is not the case that no man walks in the park.
 b. #He whistles.

In this case there is no presupposition failure or contradiction, but the anaphora is still bad. The lack of ability to predict the anaphora licensing facts is not an argument against the d-type theory as a theory of the semantics of pronouns; what it does show is that it is not a complete theory of the anaphora facts in discourse, in particular, the licensing facts. Therefore I think a d-type theory is best implemented in a dynamic pragmatic framework, which I shall turn to presently.

¹⁰King (1994) claims something similar with respect to his CDQ theory, “that an occurrence of a quantifier in a sentence must be existentially positive to support subsequent (simple) anaphora in another sentence” (p.229), where a quantifier being existentially positive means it is not non-existence entailing, i.e. $(\exists x:Fx)Gx$ does not entail that the intersection of F and G is empty.

¹¹Elbourne (2005, 2013) is silent on these cases; his theory runs into the same problems, but he could appeal to the same purported solution as Heim.

2 Basic cases

Let's begin with the basic case of unbound discourse anaphora, (1). The problem posed by (1) is that while *a woman* clearly acts as antecedent for *she*, *a woman* is not a referring expression, so we cannot simply say that *she* refers to the same object that *a woman* refers to. And since *she* is not within the syntactic scope of *a woman*, it can't be treated as a case of bound anaphora (as in *Every girl cherishes her first toy science kit.*). This is where discourse referents become a useful tool.

In a dynamic semantic framework (glossing over details and the differences between various specific theories), by virtue of the meaning of the indefinite, *a woman* changes the context to add a new discourse referent for a woman. The predicate *walked in* updates the discourse referent with this further condition. The pronominal sentence (1b) further updates the discourse referent with the property of sitting down. Thus there is a sense in which the indefinite antecedent binds the pronoun in a semantic, though not syntactic, way; this is often called *dynamic binding*. This also explains why the pronoun in (1b) is licensed — there is an appropriate discourse referent to update. This explains the contrast with the reverse discourse (on the intended reading where 'she' and 'a woman' are coindexed), in which the pronoun is not licensed, since it has no appropriate discourse referent in the context to update:

- (11) a. #She sat down.
b. A woman walked in.

On my view (1) is explained as follows. Like dynamic semantics, I think that what licenses a pronoun is generally the presence of a discourse referent in the context. On the semantics of pronouns I proposed, after all, a pronoun presupposes the existence of a familiar discourse referent. However, the presence of a discourse referent in the context is not a matter of an indefinite introducing one by virtue of its semantics, but rather that a discourse referent is added to the discourse because it is reasonable to have a high expectation that someone will go on to say more about a woman under discussion after (1a) is asserted. Conversations are generally coherent things, in the sense that speakers, qua rational participants in a joint activity, don't just utter a series of disconnected, unrelated sentences. Speakers have intentions for what they say in discourse that hang together as a coherent plan. This is not to say that every speaker knows everything that she is going to say at the outset of a given conversation (this would be to have a complete plan, which is the exception, as in, perhaps, a pre-written speech). Rather, I'm positing that in addition to the common belief that speakers have communicative intentions, they have intentions

that cohere. We can think of these discourse intentions that cohere together as a discourse plan. That speakers have plans for discourses reflects that they don't just have intentions towards the sentence they are currently uttering, but how that sentence fits with what has come before and with what might come after. One of the things that dynamic semantics does nicely is that by building in the introduction of a novel discourse referent into the semantics of the indefinite, it explains both why indefinites introduce novel discourse referents rather than add information to old ones, and why they license pronouns, since the presence of an appropriate discourse referent licenses a subsequent anaphoric pronoun. (Of course, it also, in conjunction with some other theoretical pieces, accounts for how the indefinite provides a value for the pronoun.) My contention is that both of these are pragmatic features, and that these are captured by related pragmatic reasoning about speakers' discourse plans.

In asserting an existential proposition like (1a), the speaker has explicitly asserted the existence of some object. Since the speaker has done so, what she says is connected to the discourse referents tracked in the context, since these are just straightforwardly tracking what objects have been brought into play in the discussion. The question is whether she is adding information to an existing discourse referent or intending to introduce a new one. I take novelty to be a type *Quantity* implicature, where we are considering informativeness relative to the set of discourse referents ι in the context. The contextual alternatives to using an indefinite in a sentence, insofar as it is a linguistic device for picking out an object, are: names, pronouns, definite descriptions, and demonstratives. In the case of (1), the alternatives for “a woman” are: “the woman”, “that woman” (and related demonstratives like “that woman I was telling you about”), “she” and possibly “N”, where “N” is the name of the woman the speaker has in mind, if any. These don't form a Horn scale (this is not a straightforwardly *scalar* implicature), but they do form something like a contextually determined alternative set of the type posited by Hirschberg (1985). All the devices listed in the alternative set are ways of picking out an object under discussion. This is not to presume that each of them presupposes familiarity, but merely that by some feature of their semantics, they can be used to perspicuously pick out an object already under discussion. Since the speaker did not use any of these (absent contextual or explicit cancellation), she must have intended to talk about something new. Since introducing something new into the conversation indicates a plan to potentially say something more about it — or make it available for someone else to say more about — it is only rational to add a new discourse referent to the record of discourse referents in the context for a woman who walked in. When we get to the pronoun in (1b), then, it is licensed, because there is a discourse

referent in the context for it to pick up on.

I think it is a general truth about conversation that when it is reasonable to have a high expectation that someone in the conversation will (locally) go on to say something more about a particular object (conceived as a discourse referent rather than actual referent), an anaphoric pronoun is licensed. One way to see this is through non-linguistic licensing of discourse referents. To use a well-worn example originated by Stalnaker, suppose a goat walks into the room we're in. Nothing has been said about the goat yet, but presumably this is a salient and remarkable experience. It is perfectly acceptable to for someone to say, discourse initially, "It is about to eat your shoe". One way of explaining this, the way I think it should be explained, is that as soon as the goat walks into the room, it is reasonable for each conversational participant to have a high expectation that someone says something about the goat. So a discourse referent for the goat is added to the context, which explains why the pronoun is licensed.

I'm not arguing that the *proposition* that the speaker intends to add a new discourse referent to the context is derived as a Gricean conversational implicature. Rather, I'm arguing that the reasons why the context is updated in the way it is derived from similar Gricean considerations, i.e., the cooperative principle and the nature of discourse. On my view, this guides not only what is implicated, but also how the context changes. In this way, it is Gricean in the same spirit as Stalnaker's view of assertion. On Stalnaker's view, when a speaker asserts something, so long as the hearers do not object, the proposition expressed is added to the common ground. The addition of the proposition asserted is modeled by set intersection with the context set, thereby eliminating all the worlds from the context set in which the proposition does not hold. This act is ultimately explained by the rationality of the agents engaged in the activity of inquiry. It would be irrational to keep around possibilities that have been eliminated by something accepted in the conversation. I am arguing the addition of a novel discourse referent is also best explained on general pragmatic grounds. Briefly, here are two more pieces of evidence in favor of the pragmatic view.¹² One, novelty is cancellable, e.g.:

- (12) a. A student walked into Sue's office and asked her about his exam.
b. Finally, a student needed her help!

Two, if dynamic semantics is right, two instances of "An F" in a row (as in (13)) should be equivalent to saying "An F is G. Another F is H.", but these kinds of discourses are actually quite confusing as to their (intended) meaning, which exactly

¹²See Lewis (2012) for a more discussion of this view.

the prediction of an account such as mine that takes the perspicuity of a speaker's plan as central to the introduction of a novel discourse referent:

(13) A woman walked in. A woman sat down.

We're now in a position to compare dynamic semantic and static semantic/dynamic pragmatic treatments of negation cases, e.g. the prediction that examples like the following are bad:

(14) a. There wasn't a thief here.
b. #He was sneaky.

(15) a. Mary doesn't have a car.
b. #It is blue.

In dynamic semantics, negation is generally treated as follows:

$$C[\neg\phi] = C - C[\phi]^{13}$$

In other words, updating a context with a negation is equivalent to updating with the material under the scope of the negation and subtracting the result from the context. To see how this works, consider a straightforward wide-scope negated sentence:

(16) It is not the case that Claudia saw Stacey.

In this simple case, it suffices to take the context to be just a context set. The clause for negation says to temporarily update the input context with the sentence *Claudia saw Stacey*, which amounts to intersecting the set of worlds that makes the sentence true with the input context, thus insuring that all worlds in the output are worlds in which Claudia saw Stacey (I am suppressing any account of tense here). Then this temporary output is subtracted (via set subtraction) from the original input context. Thus we are left with all and only the worlds from the input context in which Claudia fails to have seen Stacey.

To apply this to a case involving indefinites and anaphora, we have to add that the conversational context tracks discourse referents. Let's apply this to a case with an indefinite description within the scope of a negation now. Consider:

(17) It is not the case that a woman walked in.

¹³See for example, Yalcin (2012), Veltman (1996), Heim (1983), Beaver (2001).

Again, the clause for negation tells us to temporarily update with the sentence in the scope of the negation, i.e., *a woman walked in*. As explained above, this adds a discourse referent for a woman who walked in to the context. But this discourse referent is merely temporary. When the negation is processed, the context we are left with is just the opposite — the one without a discourse referent for a woman who walked in. Thus negation creates a local context. Within the scope of the negation, the discourse referents introduced by indefinites are live. Outside the scope of negation, the temporary, local context disappears, and they go away. This is what explains the infelicity of the pronominal sentences in examples like (14) and (15); when we get to the pronominal sentences, there is no discourse referent for a thief or Mary’s car for the pronoun to pick up on. This is what I earlier labeled *external infelicity*. Furthermore, the same clause for negation explains why the pronoun “his” in (19) is good, since it occurs *within* the scope of the negation, and so within the local context set up by the negation (*internal felicity*):¹⁴

(19) It is not the case that a man walked in and put down his hat.

On the static semantic/dynamic pragmatic framework, external infelicity is not explained by the semantic clause for negation and its interaction with indefinites, since both negation and indefinites are treated in a standard, static way, where negation switches the truth value of the proposition within its scope and indefinites have the semantics of existential quantifiers. It should be clear, however, given

¹⁴I’ve discussed the clause for negation as formulated in terms of update semantics, but these predictions hold equally for other formulations of dynamics semantics, such as Groenendijk & Stokhof (1991)’s Dynamic Predicate Logic (DPL) or Chierchia (1995)’s Dynamic Intensional Logic (DIL). In DPL, the clause for negation is:

$$(18) \quad \llbracket \neg\phi \rrbracket = \{ \langle g, h \rangle \mid h = g \ \& \ \neg\exists k : \langle h, k \rangle \in \llbracket \phi \rrbracket \}$$

The criteria that the input assignment function g has to be identical to the output assignment function h is what makes negation externally static. In other words, no changes can be made to assignment functions outside the scope of negation, which is what represents that no discourse referents are introduced into the global context. Thus external infelicity is predicted. To calculate a negation, the material in the scope of the negation is processed as a whole, similarly to the update semantics version. Thus we expect internal felicity. Similarly, Chierchia’s DIL also predicts external infelicity and internal felicity, since the clause for negation is (where the underlined negation sign is dynamic negation and the other is regular static negation): $\neg A = \uparrow \neg \downarrow A$. The down arrow is an assertion operator — it takes a CCP to a static proposition — and the up arrow is the opposite — it maps a static proposition to its corresponding CCP. So A is calculated normally (with all the dynamic CCPs it may contain inside), but the negation blocks its context change potential by taking only its static content, negating it, and turning the result into a test (its corresponding CCP) on the context.

what I have said, why (14b) and (15b) are infelicitous. The felicity of a pronoun requires there to be an appropriate discourse referent already in the context. But when a speaker asserts a negation like (14a) or (15a), the speaker has not asserted the existence of any object at all; it is not reasonable to expect that the speaker or anyone else in the conversation plans to go on to say anything else about some non-existent object, and thus no discourse referent is added to the context.

More specifically, I take the relationship between the set of discourse referents and the context set to be as follows. When there is a discourse referent tracked in the context, it is presupposed for the purposes of the conversation that the properties associated with it are jointly satisfied in every world in some relevant set of worlds. In the ordinary case, in which the lifespan of a discourse referent is the whole conversation (i.e. the discourse referent is available in the global context), this is all the worlds in the context set. That is to say, if we're discussing a woman who walked in and sat down, then every world in the context set is such that it contains at least one woman who walked in and sat down. In the case of negation, accepting the content of the utterance *eliminates* all the worlds from the context set in which there was a thief at the relevant time and place, or in which there is a car that Mary owns. Therefore there are no worlds in which a discourse referent for a thief or for Mary's car is satisfied. Thus no discourse referent for a thief or car is added, and subsequent anaphora is not licensed.

The pragmatic theory says nothing about internal felicity, since nothing I have said is a theory of sentence internal pragmatics. I have not given a pragmatic theory of the creation of local contexts. This is how it should be, I think, for these cases (I do think there are some cases of sub-sentential pragmatics, but these won't come into play for the purposes of this paper). Examples like (19) can be accounted for by a classic static semantics, e.g. in the tradition of Heim & Kratzer (1998). Abstracting away from a lot of detail, the syntax of (19) looks like this:

(20) $[\neg [_{DP} \text{ a man}] [_{\alpha} \lambda_1 t_1 \text{ walked in and put down his}_1 \text{ hat}]]$

The lambda operator binds both the trace and the pronoun *his*. By predicate abstraction, this ascribes a particular compound property to a man, namely the property of walking in and putting down one's hat: $\lambda x.x$ walked in and put down x 's hat. Internal felicity is not a matter of creating a local context but of a syntactically bound pronoun. In the next section, I'll compare the predictions of my framework with dynamic semantics when it comes to internal felicity. In the following section, I'll turn to a comparison of the views on external infelicity.

3 Internal felicity and infelicity

If I'm right that internal felicity is actually a case of syntactic binding, and so not a case of unbound anaphora at all, then the following variation on (20) should be bad.

(21) ??It's not the case that a man walked in and he put down his hat.

Undoubtedly, it is bad. On my view its bad because it involves CP conjunction rather than VP conjunction and the lambda abstractor doesn't have scope over the second conjunct in CP conjunction.¹⁵ But dynamic semantics doesn't make this prediction; it predicts that (21) should mean the same thing as (20). But it's impossible to hear (21) as meaning this; most people who hear this sentence cannot get any anaphoric reading at first hearing at all. To further support this, consider a contrast that draws out the relevant readings. Suppose the speaker works in a suit store:

(22) It's not the case that a single man came in today and picked up his order. No one was here all day.

(23) #It's not the case that a single man came in today and he picked up his order. No one was here all day.

This contrast is surprising on the dynamic semantic view because (20) and (21) should mean the same thing. After all, the clause for negation says that we should first calculate what is inside the negation — which is a perfectly good sentence — and then subtract the result from the input context. The embedded sentence *a man walked in and he put down his hat* means the same thing as *a man walked in and put down his hat*. Both result in the introduction of a discourse referent (say x) that is associated with a man, and is updated to be further associated with the properties of walking in and putting down x 's hat. Call this *the problem of internal infelicity*.

Furthermore, dynamic semantics cannot rule out (21) on syntactic grounds, since it is in fact grammatical on an anaphoric reading (it is also clearly grammatical on a deictic reading, but this plays no role in the present argument). It has a felicitous reading in contexts where pronouns are also licensed beyond the scope of the negation, as in:

¹⁵Note that I am *not* arguing that it is syntactically ill-formed. There is a perfectly good, syntactically well-formed reading of (21), roughly: $\neg[[A\ man\ walked\ in][conj][he\ put\ down\ his\ hat]]$. I am only claiming that there is no syntactically well-formed reading in which the pronouns are bound.

(24) It's not the case that a man walked in and he put down his hat. Rather, he ran in and he put down his coat.

It is also felicitous on what might be called an 'echo' reading. Suppose some says:

(25) A man walked in and he put down his hat.

Someone who wanted to deny (25) could say (21).

This is all surprising if the dynamic semantic account is right, since if it is right, (21) should be a way of straightforwardly expressing that no man came in and put down his hat. But it is not — the sentence is only good on these other readings, both of which involve having a discourse referent for a man in the global context, rather than merely in the local context created by negation.

A few people (including an anonymous reviewer) have pointed out that perhaps the problem with (21) is a problem of scope — the negation doesn't naturally take scope over both conjuncts, and so the pronoun in the second conjunct is infelicitous, just as dynamic semantics would predict. I am not unsympathetic to this worry; adding in the extra pronoun, and consequently have CP instead of VP conjunction is a bit weird if you intend the operator to take wide scope. But I think there is evidence that the negation is taking wide scope (or at least, can take wide scope, and not just on felicitous readings like (24) and echo readings). First, there is a contrast between examples like (21) and (26):

(26) It's not the case that Bryan walked in and he put down his hat.

Upon reading these sentences, most people (in an informal survey) find (26) to be fine, or at least much better than (21), and the natural reading to be the one where the negation takes wide scope over the whole conjunction. People also find (27) to be just fine (and the wide scope negation reading natural):

(27) It's not the case that I walked in and I put down my hat.

In case intuitions are muddled by the non-colloquial "it's not the case that", there are other more natural ways of expressing negation that demonstrate the same contrast:

(28) ??There's no way that a student came to my office while I was gone and she demanded to see me.

(29) There's no way that Jane came to my office while I was gone and she demanded to see me.

- (30) There's no way that I came to your office while you were gone and I demanded to see you.

The attitude of doubting is not the same as straightforward negation, but involves a negative component and demonstrates a similar contrast:

- (31) ?I doubt that a student came to my office while I was gone and she demanded to see me.
- (32) I doubt that Jane came to my office while I was gone and she demanded to see me.

I maintain that “it’s not the case that” can take wide scope in examples like (21), and that the prediction of dynamic semantics is wrong. Three clarifications are in order. First, I am not making the argument that because this prediction is wrong, dynamic semantics must be false. That would be too strong and too hasty. I think that dynamic semantics starts from the wrong place in its treatment of anaphora licensing, that is, with the semantics of indefinites, the connectives, quantifiers, and operators rather than with the pragmatics of conversation. The bad prediction about internal felicity is symptomatic of this approach. Second, one of the main purposes of this paper is to argue that static semantics/dynamic pragmatics is not in a worse position than dynamic semantics vis-a-vis explaining anaphora licensing facts. A cursory look at the data suggests that dynamic semantics has simple and powerful tools on this front that a static semantics/dynamic pragmatics does not, namely building these predictions into the semantics of the relevant expressions. Dynamic semantics’ bad prediction on internal felicity and the static/pragmatic good ones suggest the opposite. I will look at more data in the next section that also tips the scales in favor of the dynamic pragmatic account. Third, my account explains the felicitous readings of (21), as in (24) and in echo readings. I think the felicity of echo readings are parasitic on the positive assertion. Cases like (24) do not involve a local context, because the discourse referent is introduced into the global context. What is being denied in the first sentence of (24) is that the man in question *walked* in and put down his *hat*, not that there is a man in question. As with most negated sentences, presumably (24) doesn’t come out of the blue but in a context in which it was suggested that some man walked in and put down his hat. I will talk more about these kinds of cases in the next section, as they fall into a category of cases I will introduce.

4 External felicity and infelicity

4.1 External felicity cases

There are many cases, many of which are noted in the literature, where a pronoun outside the scope of a negation does seem to be licensed by an indefinite under the scope of negation. For example, sometimes when the pronoun is under the scope of a modal, anaphora is just fine:

- (33) a. There wasn't a thief here.
b. He would have had to have been magical (to break in without leaving a trace).
- (34) a. I don't have a microwave oven.
b. I wouldn't know what to do with it.¹⁶

An intuitive, pre-theoretic gloss on these cases is that we understand them as though there is an implicit counterfactual antecedent in the second sentence like “if there was a thief” or “if I did have a microwave”.

Another category of cases is one in which the pronoun is under the scope of another negation as in:

- (35) a. Mary doesn't have a car.
b. So she doesn't have to park it.¹⁷

In this sort of example, we are implicitly imagining a context in which someone has said something about Mary parking her car. For example, this would be an appropriate thing to say if someone had suggested that Mary is late because she is having trouble finding parking. We can roughly paraphrase (35b) by replacing “it” with “Mary's car”. For example, imagine the following discourse:

- (36) a. A: Where's Mary? She's never so late.
b. B: Maybe she's having trouble finding parking.
c. A: That can't be it. Mary doesn't have a car, so she doesn't have to park her car.

¹⁶Geurts (1999, 188)

¹⁷This kind of example was first pointed out to me by Maria Bittner (p.c.).

In a way, A is playing along with B’s presupposition that Mary has a car in her denial of that very fact.

A third class of cases is when there is reason to think there was a relevant object in the past, even though there is no such object now.

- (37) a. Bryan doesn’t have an apartment in Paris (anymore).
b. He gave it up years ago.¹⁸

Discourse (37) with the “anymore” presupposes that Bryan used to have an apartment in Paris, and without the “anymore” strongly suggests it. “It” in the second sentence can be glossed as “Bryan’s Paris apartment”.

Related to this last type, there are also cases in which what is being denied is not the existence of a certain entity (in this case, a restaurant that Moses owns), but a certain property of that entity (it being a sushi restaurant):

- (38) a. Moses doesn’t own a sushi restaurant.
b. It’s a pizza restaurant.

In this case, “it” can be glossed as “Moses’ restaurant”. This category is related to the last because one way of glossing the last category is that what is being denied is not the existence of Bryan’s apartment in Paris, but its property of it *presently* being in Bryan’s Paris apartment. Cases like (24) above are also of this kind.

Call these all of the above cases of *external felicity*.

4.2 Dynamic semantics and external felicity

How does the dynamic semantic framework deal with these? Recall that dynamic semantics, by virtue of the meaning of negation, predicts that anaphora is not possible between an indefinite under the scope of negation and a pronoun outside of its scope. External felicity cases are not, of course, reasons to think that negation in dynamic semantics should actually be externally dynamic, as there are very many cases in which external infelicity of anaphoric pronouns holds, as in (14) and (15) above.

The existence of such examples alone does not mean dynamic semantics makes the wrong prediction, but I will argue that none of the ways of accommodating the data are particularly successful. There are five categories of proposed solutions in the literature that I know of; these appear to exhaust the viable options for solutions.

¹⁸Examples of this kind are found in Chierchia (1995).

They are: an ambiguity in pronouns, an ambiguity in operators and quantifiers, treating these as cases of modal subordination, accommodation/pragmatic repair, and bridging. I will examine each one in turn, and argue that none of them provide a satisfying solution.

Chierchia (1995) argues that some pronouns should be treated as dynamically bound variables, while others are d-type pronouns (while still others are ambiguous between both interpretations). Examples like (37) are one of the motivations for adopting this view, and the pronoun in (37b) is treated as a d-type pronoun on Chierchia's view. As mentioned previously (in footnote 14), Chierchia's semantics, a dynamic version of Montague's intensional logic, builds constraints on anaphoric connections into the meaning of operators like negation. Negation turns a context change potential into a test, i.e., it checks the input context for a particular property, but does not have the power to change the context. Hence, nothing in the scope of a negation establishes a discourse referent for future anaphoric connection. This nicely explains the many cases of external infelicity. But Chierchia also recognizes that there are many cases of external felicity. He thinks these are rightfully treated separately from the cases of donkey anaphora, since they are "highly sensitive to various aspects of the context—what is known or presupposed by the speaker, the specific properties of the lexical items involved in interaction with what the extralinguistic facts are, and so on" (p.9) while the cases of donkey anaphora are "no more affected by contextual and pragmatic factors than ordinary c-command [i.e. bound] anaphora" (p.10). Thus Chierchia thinks it is plausible to study them (and presumably account for them) independently. The sort of pragmatic, contextual factors that Chierchia is alluding to are exhibited by examples like (37), where background facts are such that it is known (or communicated by the second sentence) that Bryan used to have an apartment in Paris.

However, as Elbourne (2005) points out, regular donkey anaphora is just as susceptible to these same pragmatic factors, e.g.:

(39) If a man doesn't have a car anymore, Paul (generally) has it.¹⁹

The same holds true for the other sorts of pragmatic factors that Chierchia notes. For example, he notes that an indefinite under the scope of *I think* allows anaphora better than under the scope of *I hope*, as in the following contrast:

- (40) a. I think that John has an apartment in Paris.
b. I hope he hasn't sold it. (Chierchia, 1995, 9)

¹⁹p.24

- (41) a. I hope that John has an apartment in Paris.
b. ?? I believe he hasn't sold it. (Chierchia, 1995, 9)

Furthermore, adding *still* or some background facts that give reason to think the object under discussion exists to the *I hope* sentence makes the discourse perfectly good again. Again, Elbourne points out that the same contrast holds true for donkey sentences:

- (42) ?? I believe that every man that I hope has an apartment in Paris hasn't sold it.
(43) I believe that every man that I hope still has an apartment in Paris hasn't sold it.

Though Elbourne himself doesn't give this example, replacing *I hope* with *I think* has a similar effect:

- (44) I believe that every man that I think has an apartment in Paris hasn't sold it.

So there seems to be no reason to think that the cases of cross-sentential anaphora, or any subset of them, should be treated by one theory and donkey sentences by a different theory.²⁰ Furthermore, though Chierchia doesn't think that his mixed theory amounts to an ambiguity theory, since he treats both kinds of pronouns as variables at the level of syntax, they are still interpreted differently by the semantics,

²⁰It should be noted that these sorts of examples are not Chierchia's only motivation for a mixed dynamic/d-type approach. He also uses it to account for the weak/strong ambiguity in donkey sentences, which is the contrast seen in (45) and (46) below. In (45), the natural reading is the strong one, i.e., that every farmer deducts *every* donkey he own from his taxes. In (46), the natural reading is the weak one, i.e. that every person who has a dime put *at least one* of their dimes in the meter.

- (45) Every farmer who owns a donkey deducts it from his taxes.

- (46) Everyone who had a dime put it in the meter.

It is beyond the scope of the paper to fully discuss why the mixed view is also not motivated by this, but as Elbourne points out, it seems like a d-type theory should also be able to capture these, since the following sentence also has a weak reading:

- (47) Everyone who had a dime put the dime in the meter.

Furthermore, other static accounts such as the CDQ theory (see King (2004)) already capture the weak readings of relative clause donkey sentences.

which is in the end an ambiguity theory: some are dynamically bound and others get assigned a value by a salient function. Since there doesn't seem to be any evidence of an overt ambiguity in pronouns in any language, positing an ambiguity theory should be a last resort.²¹

The second proposed solution in the literature is an ambiguity (or at least some sort of polysemy) in negation (and other operators and quantifiers) instead of ambiguity in the pronouns. In other words, the hypothesis is that *sometimes* negation is externally static and sometimes it is externally dynamic. This view is tentatively proposed by Groenendijk & Stokhof (1990). When it comes to negation, they are motivated by cases in which pronouns anaphoric on an indefinite embedded under double negation are felicitous. As mentioned above, in dynamic semantics, double negation is not equivalent to no negation — a second negation does not allow anaphoric connections across sentences. Rather than a 'plug unplugged' double negation is a 'double plug'. This sometimes makes the right predictions, as evidenced by (10) above. But this is not always right, as Groenendijk and Stokhof observe:

- (48) a. It is not the case that John doesn't own a car.
b. It is red and it is parked in front of his house. (Groenendijk & Stokhof, 1990, 27)

So they posit an externally dynamic negation in addition to the externally static negation operator. The view is not exactly an ambiguity theory, since the static and dynamic interpretations of the operators are not independent — the static interpretation is reached by a closure operation on the dynamic interpretation. By their own admission, they don't have a general theory that predicts when a particular instance of negation should be interpreted as dynamic or as static.²² But suppose such an account could be worked out — perhaps something like the pragmatic account I am arguing for here — dynamic semantics still loses its predictive power regarding anaphora licensing facts, since for any given instance, for all the formal semantics tells us, we could have an externally dynamic interpretation of the operator or quantifier, predicting that anaphora is licensed, or an externally static interpretation of the quantifier, predicting that anaphora is blocked. It would be the pragmatic story

²¹Kurafuji (1998, 1999) argues that there is evidence for a dynamically bound variable/d-type distinction in third-person Japanese pronouns. Elbourne (2005) (pgs.26-31) argues persuasively that the data does not support this ambiguity.

²²They do propose that whatever the rules are, they obey a monotonicity constraint, namely that $\neg\phi$ is interpreted dynamically only if ϕ is downward monotonic (so that every step in a discourse is upward monotonic in the sense that we never lose truth conditional information as updates occur). But even if this is right, this only provides a necessary condition.

(that presumably determines which version of the operator is in play) that accounted for these facts. Perhaps this is a good way to go for those who think that dynamic semantics is required for other reasons, e.g. that we need dynamic binding in the compositional semantics to account for donkey anaphora or something like that. But this solution simply abandons the nice dynamic semantic story appealed to above in explaining the contrast between (1) and (14) or between (4a) and (4b). Furthermore, even though the two interpretations of the operators and quantifiers are related, it is on the face of it a less parsimonious theory than one that doesn't posit multiple interpretations for each operator and quantifier.

It has been defended by Roberts (1996) and Frank & Kamp (1997), among others, that cases like (33) and (34) are cases of modal subordination. Modal subordination is the phenomenon by which the domain of a modal in a discourse is interpreted relative to a set of possibilities introduced by an earlier sentence. Pronouns anaphoric on indefinites under the scope of a modal are licensed so long as the discourse continues to be modal (in a way that is understood to be subordinate to the initial possibility introduced), as in:²³

- (49) a. A wolf might come to our campsite.
 b. It would eat you first.

For the negation/modal cases such as (33) and (34), the idea roughly goes, negation introduces counterfactual worlds, i.e., worlds in which there is a thief or the speaker does have a microwave oven, which the subsequent modal sentence can pick up on.²⁴

The assimilation of the negation cases to cases of modal subordination is not viable for several reasons. First, it doesn't cover all of the cases. If it worked, it would cover cases like (33) and (34), and maybe (35), which have a modal and a negation in the second sentence, respectively. However, it wouldn't cover cases like (37) and (39), in which the anaphora is felicitous even though the pronoun is not

²³Technically, on some views, such as Roberts's, the pronoun is not anaphoric on the original indefinite, but on the indefinite in the accommodated material. These details need not concern us, because I rest nothing on them for the purposes of my argument.

²⁴Since it doesn't matter for present purposes, I am glossing over the details of the accounts, including important differences between them, such as whether modal subordination is accounted for by antecedent accommodation (Roberts) or anaphorically (Frank & Kamp). It also doesn't matter whether we really want to treat the negation itself akin to a modal or not. As an anonymous reviewer pointed out, the important part is that the pronoun is under the scope of a modal. Since modals require some sort of domain restriction to a modal base (or something similar), we could think of the counterfactual worlds not as introduced by the negation but as accommodated to satisfy the modal's required restriction, and as being the set of worlds most clearly provided by the context, or something along these lines.

under the scope of a modal or negation. But this is not the biggest point against the modal subordination view. Perhaps if the view could be worked out, it would make sense to give separate accounts of different types of examples. The biggest point against it is that the negation data is very different from the modal subordination data. This can be seen in at least two ways. First of all, the pronoun(s) in a modal subordination case is (are) equally felicitous whether the two sentences succeed one another, separated by a period, as in (49), or are conjoined as in (50):

(50) A wolf might come to our campsite and it would eat you first.

This contrasts with the case of negation. Though (33) is perfectly felicitous, its conjunction counterpart is significantly marked, if not downright infelicitous:

(51) ?? There wasn't a thief here and he would have to have been magical to get in without leaving a trace.²⁵

This is surprising on the proposed view, in which the licensing of a pronoun is triggered by the presence of a modal (since the modal supposedly triggers a domain restriction or something of the sort that brings with it an appropriate antecedent for the pronoun). Second, in cases of modal subordination, no matter how far-fetched the discourse (and so perhaps infelicitous in other ways), as long as the modal discourse continues, the pronouns are felicitous, for example:

(52) a. My sister might have had a boyfriend.
b. He might have been a unicorn-tamer.

But not so for negation examples:

(53) a. My sister doesn't have a boyfriend.
b. ??He might have been a unicorn-tamer.
b'. ??He is not a unicorn-tamer.²⁶

²⁵The same goes for (34).

²⁶Geurts (1999) makes a similar point, but two of his three examples are problematic because the modal sentence is in the indicative mood, which Frank & Kamp (1997)'s theory rules out anyway. Geurt's remaining example works well for making this same point, though, without resorting to anything far-fetched:

(54) ?Nobody turned up at Betty's party. He would have seen her wearing a gorgeous evening dress.(p.189)

This is surprising, because accommodating material like “if my sister did have a boyfriend” to (53b) makes it perfectly good. Yet the presence of the modal alone doesn’t license this kind of accommodation (or equivalent). There is nothing in particular about farfetchedness that is required to come up with infelicitous examples of this kind; it simply makes the intuition clearer because one cannot easily search for a context that makes the discourse sound felicitous. Whatever the phenomenon of external felicity in negation cases is, it is a lot more limited than modal subordination. Theories that appeal to modal subordination to explain the felicity of these cases cannot account for these limitations; they predict a widespread phenomenon. This is not to say that in the end, one couldn’t use the tools of modal subordination in the formal account of the modal cases (and perhaps the negation cases, depending on how one treats negation); but at the very least something else would have to be appealed to to explain when the cases are felicitous and when they are not; the presence of the modal (or negation) and a modal subordination treatment alone doesn’t do that.

Another potential solution that dynamic semantics might appeal to is *accommodation*. Accommodation is the phenomenon by which the context is tacitly adjusted so that something that would otherwise be infelicitous is felicitous. Accommodation is undoubtedly a real phenomenon, one that I will appeal to myself in the positive theory below, so I have no in principle problem with appeals to accommodation. One might think that this is the best bet for dynamic semantics, since it does have a history of appealing to accommodation when it comes to presupposition (including the familiarity presupposition on definites when they lack an explicit anaphoric antecedent in discourse).

There are two issues with appealing to accommodation within a dynamic semantic framework. The first is more contentious, and I will just mention it without resting my argument on it. Accommodation has an uneasy relationship with dynamic semantics in general; dynamic semantics, by design, is supposed to account for allegedly systematic relationships between various elements in discourse, like anaphoric relationships. Appealing to pragmatic repair exactly when those predictions go wrong — where the data is not as systematic as it first appeared to be — seems like an *ad hoc* solution, especially if the exceptions constitute a widespread phenomenon. For example, though many share something along the lines of her view, I’ve always thought it to be a large problem with the novelty-familiarity theory of Heim (1982) that she argues for a strict novelty-familiarity theory of indefinites and definites, though by her own admission (p. 370) the familiarity theory cannot account for (in her own words) the *majority* of the uses of the definite article (by the taxonomy she appeals to, the condition is not obeyed by six out of eight types of uses!). She then appeals to accommodation to account for the rest of these uses. But I won’t rest anything on

this thought, because I accept that it may be too demanding of dynamic semantics to think it can only appeal to accommodation in very limited cases. Even if dynamic semantics is right and certain discourse elements are introduced conventionally, this doesn't preclude them from *also* being introduced pragmatically, though I do think that this leads to an unparsimonious view when accommodation is invoked widely.

Suppose, then, for the sake of argument that appealing to accommodation is generally a completely legitimate strategy for dynamic semantics in the face of recalcitrant data. The second problem, and the more important one for the topic at hand, is that the strategy is not available in this case. There is a long history in dynamic semantics of viewing the anaphoric relationship between antecedent (especially an indefinite one) and pronoun as more stringent than other discourse relationships — the thought is that there has to be a formal, linguistic link between indefinite antecedent and anaphoric pronoun. This is often cited as a central reason in favor of dynamic semantics.²⁷ For example, van der Sandt (1992) argues that presupposition just is a species of anaphora (this is not an uncommon view). But one of the central differences between presupposition and anaphora on his view is that “*unlike pronouns* they [presuppositions] contain descriptive content which enables them to accommodate an antecedent in case discourse does not provide one” (van der Sandt, 1992, 341, emphasis mine). This “more descriptive content” difference is also often invoked to explain why there doesn't have to be the same sort of formal link between definite descriptions and their antecedents as there does with pronouns:

- (55) a. Sam is married. His wife is a lawyer.
b. Sam is married. #She is a lawyer.
- (56) a. If John is married, his wife is very patient.
b. #If John is married, she is very patient.
- (57) a. Every married man is sitting next to his wife.
b. #Every married man is sitting next to her.

Another example of the formal link between antecedent and pronoun is that, infamously, being common ground that a certain object exists is not sufficient for licensing an anaphoric pronoun. In fact, these sorts of cases motivate dynamic semantic treatments:

- (58) a. Bryan is a bicycle-owner.

²⁷See e.g. Heim (1982, 1990), Elbourne (2005).

- b. #It is grey.
- (59)
- a. Bryan owns a bicycle.
 - b. It is grey.

So, take one of the external infelicity cases like (37), for example. Dynamic semantics can't say that since the discourse makes it common ground that Bryan used to own an apartment in Paris, a discourse referent is available to anchor the pronoun. If this were right, then we'd expect (55b), (56b), (57b), and (58b) to be felicitous too. The existence of a formal link between anaphoric pronoun and indefinite antecedent is central to the dynamic semantic narrative on anaphora. To abandon this formal link and allow for accommodation in these recalcitrant cases would be *ad hoc* indeed. An anonymous reviewer pointed out that “anymore” is a presupposition trigger (to the effect that Bryan used to have an apartment in Paris) and so the pronoun might be anaphoric on the content of the (accommodated) presupposition, and not the indefinite in the first sentence. This may be right for some cases and under certain treatments of accommodation (e.g. in DRT), but (37) is felicitous with or without the “anymore”. Of course, anyone who understands the discourse will understand that Bryan used to have a apartment in Paris, but that content will not be triggered by any linguistic item, and so there will be no discourse referent for an apartment that Bryan used to have. To say that inferring the existence of an apartment is enough to license the pronoun fails to explain the kinds of differences in examples (55-59), which are exactly the sorts of differences that dynamic semantics sets out to explain. Furthermore, an explanation in terms of presupposition triggers is insufficiently general, in that it offers no explanation of cases like (38) (the sushi restaurant case) or of why we get the differences in anaphoric potential between indefinites under the scope of attitude verbs like “I hope” as opposed to “I think”.

A final potential solution is a bridging account along the lines of Geurts (2011). Bridging is the phenomenon by which an antecedent for a definite expression is accommodated because the existence of a witness to the definite is inferred from previous discourse, though it wasn't explicitly introduced as in:

- (60)
- a. I was at a wedding last week.
 - b. The bride was pregnant.
 - c. The mock turtle soup was a dream.²⁸

²⁸Example from Geurts (2011, 1998).

Geurts doesn't explicitly consider negation cases in the paper, but since the cases he does consider involve modal and quantificational subordination, and since bridging generally occurs precisely when there is no appropriate antecedent for a definite expression, the sort of view Geurts espouses can plausibly be extended to the cases at hand. I am sympathetic to the basic idea, that a pronoun will be licensed when there is good reason to infer that a witness for it exists (i.e., by the bridging inference), and the existence of such a witness is made salient enough. However, it is not clear that the view can be applied to dynamic semantics, or, at least, if it is, that dynamic semantics is really doing any work anymore in explaining anaphora licensing. Geurts himself implements the view in a static version of DRT and says himself that it is not clear whether the insights can be implemented in certain versions of dynamic semantics (p.2009). But let's assume for the moment it can be. There are two ways in which to think of what extending this idea to dynamic semantics entails. Narrowly construed, we can consider implementing Geurts' exact theory (or something close to it) in a dynamic framework. But Geurts theory includes a static interpretation of the quantifiers and connectives — for example, donkey anaphora is not explained in terms of internal dynamicness of the universal quantifier (because it is not internally dynamic), but in terms of bridging. This is not any kind of argument against this view,²⁹ but just that it of course won't work as a defense of the idea that accessibility of antecedents to potential anaphoric pronouns is built into the semantics of operators and quantifiers, because for Geurts, it is not. Broadly construed, we can extend the spirit, but not the letter, of the view to dynamic semantics, so that accessibility is still built into the semantics of operators and quantifiers, but modal subordination, quantificational subordination, and external felicity cases like the ones I raise are treated as instances of bridging. In this case, similar concerns to the ones I raised for modal subordination and accommodation apply (bridging, after all, is a matter of accommodating a discourse referent). We would still need additional (presumably pragmatic) constraints on when bridging inferences could take place, since, as I've argued, modal and negation cases are not as general a phenomenon as modal (or quantificational) subordination; they are not licensed merely by the fact that the pronoun is scope under a modal or negation. Furthermore, dynamic semantics doesn't usually endorse bridging for pronouns for the exact reasons argued for in the previous paragraph, illustrated by examples like (55-58).³⁰ If we do allow that pronouns can be licensed by bridging inferences, we still need a pragmatic

²⁹In fact, I am more sympathetic to this sort of view than standard versions of DRT or dynamic semantics.

³⁰It should be noted that Geurts himself doesn't draw the same line between definite descriptions and pronouns when it comes to accommodation; he explicitly denies it, and I tend to agree.

account of when they can and can't be. It's not that we can't supplement dynamic semantics with a pragmatic story. But then the pragmatic story is doing the work in these cases, not dynamic semantics. And I will argue that once we have the right pragmatic account, it is all we need; explanations of the external felicity cases fall out naturally from the general pragmatic account of anaphora I outline above.

4.3 Dynamic Pragmatics and external felicity

As I argued in Lewis (2012), it should be expected in the kind of pragmatic framework that I am proposing that there are cases of felicitous pronouns that do not have “proper” antecedents. Conversational participants are not perfect planners, and under certain circumstances, it is natural for plans to change between sentences or for the speaker's plans not have been perfectly perspicuous in the first place. In these circumstances, a discourse referent is accommodated, that is, the context is changed so that a discourse referent is added to satisfy the presupposition of the pronoun. Rather than being *ad hoc*, this kind of accommodation is expected in a dynamic pragmatics. Sometimes speakers will say something that raises everyone's expectations that they or someone else will go on to say something more about a particular object under discussion; in this case, a discourse referent is added before we get to any pronoun. But sometimes speakers will make as if this plan was already enacted — when it is clear enough what their intentions are, or when there was a reason to change plans (such as a change in speaker or a pause to think) — these intentions can be accommodated. For example, I have argued in past work that the following contrast makes this point. It is often noted that despite the truth-conditional equivalence between the first sentences of the following discourses, only the first licenses the pronoun in the second sentence:

- (61) a. I dropped ten marbles and found all but one.
b. It's probably under the couch.
- (62) a. I dropped ten marbles and found nine of them.
b. #It's probably under the couch.

But it is also often noted that (62) improves — in fact many judge it perfectly felicitous — if there is a pause in between (62a) and (62b). If dynamic binding is what explains the licensing of a pronoun and how it gets its value, this is mysterious. But if we explain this phenomenon as I have, both the contrast between the two examples, and the improvement of the second with a pause (or a change of speakers)

fall out of the same pragmatic notions. Explicitly mentioning the one lost marble in (61a) is perspicuously indicative of a plan to (potentially) go on and say something more about it. Hence, a discourse referent for the marble is added to the context, and the pronoun in (61b) is licensed. On the other hand, mentioning the nine found marbles (only implying the existence of a lost marble) is not a perspicuous way of indicating a plan to go on and say something more about the lost marble — conversational participants should not have a high expectation that someone will go on to say something about the lost marble. So no discourse referent for the lost marble is added, and the pronoun in (62b) is not licensed. But conversational participants are not perfect planners, and pausing to think, or a change in speakers after a pause can be indicative of a slight change in plans. It is odd for a single speaker to change plans mid-sentence, or in between two sentences said in quick succession, expressing a single thought. But when a speaker pauses to think, perhaps to look for the missing marble, or when someone else in the conversation speaks, it becomes a lot more acceptable. Hence a discourse referent is added by *accommodation*. By accommodation, I mean that a discourse referent is added to ι so that the presupposition of the pronoun in (62) is satisfied after all. Accommodation does not occur every time a presupposition is not satisfied (otherwise nothing would be infelicitous). Accommodation occurs under these constrained circumstances, when attributing a change in plans is reasonable, the intended discourse referent can be clearly inferred from previous discourse or other aspects of the conversational environment, and often, when it's clear why the circumlocutory route was taken. Invoking accommodation here is neither *ad hoc* nor unconstrained. Here is another example, from the movie *When Harry Met Sally*:

- (63) a. Harry: I'm getting married.
 b. Sally: You are? (Long pause in which Harry says “mmhmm”...) *You* are. (Another pause.) Who *is* she?

In this example, it is clear that Harry has a plan to tell Sally about his impending marriage. Marriage is already a topic of conversation at this point, since Sally has just told Harry that she has no interest in marriage at all. But Sally finds Harry extremely annoying and is shocked that anyone would want to marry him, and therefore clearly has a plan to switch the conversation to talk of his fiancée. The long pause indicating Sally thinking, as well as the change in speakers, make the conversational participants (and anyone watching the movie) primed to accept a change in conversational plan. And since it is utterly unambiguous about whom Sally is asking, the pronoun sounds perfectly fine.

Exactly the same phenomenon is going on in the external felicity cases. These cases all have something in common: it is clear what the intended discourse referent is for the pronoun, it is clear why the speaker began with a negated sentence even though this is not usually a good way to introduce a discourse referent, and it's clear why the speaker wants to (at least temporarily, in some cases) continue the conversation *as if* there was a specific object under discussion. These are not things that can be attributed solely to the presence of certain linguistic expressions in the examples (e.g. modals, negation, “anymore”), those these of course help makes the cases felicitous. Rather it is these general principles about what it is rational to take speakers to be doing in these sorts of discourses that explain their felicity, and it does so in a way that is entirely consistent with both the unembedded cases and the other (infelicitous) negation cases.

The negation cases of external felicity divide into three (non-mutually exclusive) types that support this picture. First, there are cases in which there is reason to think that the entity in question exists after all. This is exemplified by cases like (37), repeated here:

- (64) a. Bryan doesn't have an apartment in Paris (anymore).
 b. He gave it up years ago.

The assertion of (64a) does *not* add a discourse referent for Bryan's former apartment to the context:

C (before (64a) is asserted):

Context Set: $W' = \{w \in W \mid w \text{ verifies the mutual background knowledge of the conversational participants}\}$

Discourse Referents: \emptyset

C' (after (64a) is asserted):

Context Set: $W' \cap \llbracket (64a) \rrbracket = W''$

Discourse Referents: $\{[x : x = \textit{Bryan}], [y : y = \textit{Paris}]\}$

When the speaker utters (64b), it is clear that she is talking about the apartment in Paris that Bryan used to have. Since an apartment in Paris was already mentioned, and not having one is compatible with once having had one, the speaker's intentions in (64) are clear and a discourse referent can be accommodated. The discourse is even better when ‘anymore’ is included in the first sentence, since this straightforwardly presupposes that Bryan used to have an apartment in Paris, priming the

conversational participants for accommodation when we get to (64b).

C'' (accommodation step):

Context Set: $W'' \cap \{w \in W \mid w \text{ is a world in which Bryan formerly had an apartment in Paris}\} = W'''$

DR: $\{[x : x = \textit{Bryan}], [y : y = \textit{Paris}], [z : \textit{apartment}(z), \textit{in}(z, y), \textit{own}(x, z)]\}$

C'' (after (64b) is asserted):

Context Set: $W''' \cap \llbracket(64b)\rrbracket = W''''$

DR: $\{[x : x = \textit{Bryan}], [y : y = \textit{Paris}], [z : \textit{apartment}(z), \textit{in}(z, y), \textit{own}(x, z), \textit{gave.up}(x, z)]\}$

This explanation also predicts a contrast between (64) and examples like (65):

- (65) a. Bryan doesn't have an apartment in Paris.
b. #It was large.

Nothing about (65) changes the fact that not having an apartment in Paris is compatible with having had one, and largeness is a reasonable property to attribute to Bryan's former apartment. What makes accommodation impossible is that nothing about (65) reveals a perspicuous discourse plan, i.e. it doesn't make it clear that the speaker is talking about an apartment that Bryan used to have, either by using "anymore" or by talking about giving one up, and so the preconditions for accommodation aren't met.

Similar considerations apply to (38), repeated here:

- (66) a. Moses doesn't own a sushi restaurant.
b. It's a pizza restaurant.

Again, it's clear once we get to (66b) to see what the speaker's plan is. The speaker was using (66a) to deny that Moses owns a *sushi* restaurant, not to deny that he owns a restaurant. It is important to note that we can easily get this reading without focus on "sushi", so it's not just a matter of the interaction between negation and focus. Thus the preconditions for accommodation are met — the existence of a restaurant that Moses owns is easily inferred, and the speaker's reasons for speaking this way are completely clear.

The second and third cases of external felicity are examples of the same general kind: cases in which there is good reason to talk about a hypothetical entity even though no such entity exists. I posit that there are two conditions under which this is acceptable: when the speaker is explaining why there is no such entity and when

the speaker is answering a question under discussion that presupposes the existence of the relevant non-existent entity (these are not mutually exclusive). Consider (33), repeated here:

- (67) a. There wasn't a thief here.
b. He would have had to have been magical (to break in without leaving a trace).

Asserting (67a) is not a perspicuous indication of a plan to go on and talk about a thief. But when we get to (67b), there are good reasons to take the speaker to be talking hypothetically about a thief and therefore add a discourse referent for a thief to the set of discourse referents. One, the speaker is speaking counterfactually by using “would”; second, the speaker is offering an explanation as to *why she asserted there was no thief*. It is like the speaker is making a little *reductio ad absurdum* argument: Suppose there was a thief; the thief would have had to have been magical; there are no magical thieves; therefore, there was no thief. Third, the natural context for saying (67) in the first place is one in which someone has suggested or asserted that there was a thief, and so the question under discussion is either whether there was a thief or one that presupposes there was a thief (e.g. *were your pens stolen?*). Hence, it is reasonable to be talking hypothetically, as though there was a thief, and attributing to him a property it is conversationally understood that he couldn't have by way of explanation of (67a). Earlier I explained the relationship between the set of discourse referents and the context set: that for each discourse referent, the context set reflects that there is at least one witness in each world that satisfies the discourse referent (this follows from the informational content of the propositions by which the discourse referents were introduced or from accommodated information). Following this, we can also define what it is for a discourse referent to be *temporary*. Sometimes, the relevant context set is not only the primary one, but also a derived set, e.g. a set of counterfactual worlds for counterfactual modal discourse or the set of a certain agent's belief worlds for talk about that agent's beliefs. In this case, the match between discourse referent and set of worlds is not a match between the discourse referent and the regular context set, but between the discourse referent and derived context set. When this derived set is no longer in play, neither is the associated discourse referent. So in this case a temporary discourse referent is accommodated, its lifespan lasting so long as the hypothetical explanation continues. Here is how the context evolves; I will assume for the sake of illustration that the set of discourse referents is empty at the time of utterance of (67a), though this may not be the case since it is unlikely that it is discourse initial.

C (before (67a) is asserted):

Context Set: $W' = \{w \in W \mid w \text{ verifies the mutual background knowledge of the conversational participants and the informational content of the conversation thus far}\}$

Discourse Referents: \emptyset

C' (after (67a) is asserted):

Context Set: $W' \cap \llbracket(67a)\rrbracket = W''$

Discourse Referents: \emptyset

C'' (accommodation step):

Context Set: W''

Counterfactual Context Set: $W'''' = \{w \in W \mid w \text{ is one of the closest worlds to the actual world in which there was a thief in the location in question}\}$

Discourse Referents: $\{[x : \textit{thief}(x)]\}$

C''' (after (67b) is asserted):

Context Set: $W'' \cap \llbracket(67b)\rrbracket = W'''$

Counterfactual Context Set: $W'''' \cap \llbracket\textit{prejacent of (67b)}\rrbracket$

Discourse Referents: $\{[x : \textit{thief}(x), \textit{magical}(x)]\}$

This explanation predicts the contrast with (14), repeated here:

- (68) a. There wasn't a thief here.
b. #He was sneaky.

Here the speaker has no reasonable or perspicuous plan; (68b) is not hypothetical and does not offer any sort of explanation of why the speaker asserted (68a). This also explains why (69) is bad (this example was first mentioned in the discussion of why the negation cases can't be treated as cases of modal subordination):

- (69) ??There wasn't a thief here and he would have to have been magical to get in without leaving a trace.

As I've already said, it is bad for a speaker to change plans mid-stream, when expressing a single thought without a pause. The first conjunct does not indicate that the speaker has a plan to introduce a discourse referent for a thief, and the "and"

indicates that what follows is a continuation of the same thought, without any indication that it is an explanation of why the first conjunct was asserted; hence the anaphora is unlicensed.³¹

Examples like (35), repeated here, are cases that are good when the question under discussion presupposes or otherwise strongly suggests the existence of the relevant entity:

- (70) a. Mary doesn't have a car.
b. So she doesn't have to park it.

(70) is odd if uttered out of the blue. As I mentioned above, the sort of context that makes (70) sound good, and the kind of context I take it that we are tacitly imagining, is one in which the question under discussion has something to do with Mary parking. For example, this would be an appropriate thing to say if someone had suggested that Mary is late because she is having trouble finding parking. That is, even if there is no explicit linguistic antecedent for the pronoun, the question under discussion is one that presupposes that Mary has a car. There are then two things that make accommodation natural here: the question under discussion presupposes (or suggests) the existence of Mary's car, and (70b) is an answer to the question under discussion. Similarly to the previous case, it makes sense to temporarily accommodate a discourse referent for a car, so long as one continues to address the question under discussion.³² This also explains why some utterances of (71) are fine,

³¹This also explains why (69) with "because" replacing "and" is acceptable. The d-type theories, if they are not supplemented with a dynamic pragmatic story like the one here, make the wrong predictions for modal cases. Evans's stipulations rule out any cases of external felicity. Heim's explanation of external infelicity in terms of presupposition failure doesn't explain why modal cases are ever good, since presupposition failure for definites persists under the scope of a modal (for example, one cannot say "I might cut the bagel" if there is no unique, familiar bagel in the context). On the other hand, Neale's explanation as it stands doesn't explain why modal cases are ever bad. If we take the modal operator "would" to range over a counterfactual set of worlds, then the negated sentence and the modal sentence are always compatible (recall that for Neale, definite descriptions assert rather than presuppose existence). Similarly, all might-sentences (on a metaphysical reading) are going to result in non-contradictory discourses.

³²Again, Evans's stipulations here predict that all such cases are bad. Heim also predicts that they are bad, since the presupposition of definites persists under negation. Neale does ok on such cases, in the sense that he can predict that such discourses can be felicitous or infelicitous depending on the scope of the negation in the second sentence. If the negation takes wide scope, then the sentences are compatible and the discourses are predicted to be good. If the negation takes narrow scope, the sentences are incompatible and the discourses are bad. This doesn't, however, really explain why in certain contexts it is really hard to get the so-called good reading (if we are imagining conversational participants to be charitable).

such as in a context in which someone asks what color John's car is, but decidedly odd out of the blue:

- (71) a. John doesn't have a car.
b. ?It would be red.
b.' ?So it isn't red.

The proposed theory also offers a partial explanation of why some, but not all, cases of double negation license pronouns outside its scope. For example, as was observed above, (72) is infelicitous, but (73) seems perfectly fine:

- (72) It is not the case that it is not the case that a man walks in the park. #He whistles.
(73) It is not the case that John doesn't own a car. It is red and it is parked in front of his house.

First of all, it's not clear that this data point, though generally accepted in the literature, is exactly right. Both are actually pretty bad if we're really imagining someone saying them out of the blue. But it is easier to tacitly imagine a natural default context for (73), one in which someone has asserted something to the effect that John doesn't own a car, and the speaker of (73) is denying that. The present theory can explain why anaphora in these cases often seems infelicitous; out of the blue, a double negation is a really non-perspicuous way of revealing a plan to go on and talk about some object or other (out of the blue, it is not clear what doubly negated locutions are doing at all!). But in a context in which it is clear why the speaker uses the double negation, the locution is a good indication of such a plan, and so conversational participants are right to add a discourse referent. Imagine that Alfred has just denied that Bob saw anyone walking in the park, and so Bob felicitously asserts:

- (74) It is not the case that there is not a man walking in the park. He is whistling.³³

³³As mentioned in §1.1 above, neither Heim nor Neale predict that double negation discourses are ever bad. Evans's stipulation regarding affirmative embedding technically only applies to antecedents and pronouns that are in the same sentence, but if we extend the notion by thinking of the discourses as conjunctions, Evans also predicts that they are all felicitous.

I have been arguing that the pragmatic picture can explain both the external infelicity cases and the external felicity cases. External infelicity is just what we would expect by default — it is not reasonable to have a high expectation that anyone will go on to discuss something that doesn't exist (at least, asserting that there is no such object with a particular property is a fairly obscure way of introducing an object into the discussion). But sometimes, when someone uses an anaphoric pronoun after just such a negated sentence, it is easy to understand what they mean. In fact, given the particular kinds of circumstances I've described, it seems like a very reasonable, coherent thing to do. Thus a discourse referent is accommodated. This accommodation is not an afterthought on the pragmatic account. It is expected, given that the licensing of pronouns is explained by appealing to plans and plan recognition. On the other hand, the dynamic semantic account has to appeal to a variety of factors to explain what is going on: the semantics of negation, the semantics of modals, presupposition triggers like “anymore”, and I have argued that even this grab basket of tools doesn't offer a complete explanation of all the cases. Pragmatic principles are at least required to explain why the modal and negation cases are limited, how cases like the “anymore” cases but without the explicit “anymore” work, cases like the sushi restaurant case, and the double negation cases.³⁴

5 Conclusion

In this paper, I have done three things. One, I argued that a static semantics and dynamic pragmatics can account for the contrast between the felicitous use of anaphora on indefinites when the antecedent is not embedded under anything and the infelicitous use of anaphora on antecedents embedded under negation. The pragmatic principle appealed to was in essence that when it is reasonable to have a high expectation that conversational participants will go on to say something about an object under discussion, a discourse referent is added. I further argued that this clearly applies in the former case but not the latter. Second, we don't need to appeal to the addition of discourse referents in a local or global context to explain cases of internal felicity. Internal felicity cases were accounted for by a standard syntax and semantics in the spirit of Heim & Kratzer (1998). Finally, I argued that my preferred version of static semantics plus dynamic pragmatics does better than dynamic semantics in its account of anaphora and negation because of its account of internal infelicity and external felicity cases.

³⁴On some dynamic semantics, e.g. Krahmer & Muskens (1995) double negation can license anaphora, but we still need an explanation of when it can and when it can't.

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