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Semantics Midterm

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Note: Some figures are at the end of the paper. I worked with Laurence and Dylan.

1 Gricean reasoning (pragmatics)

[a] B's utterance implies that B has a type of cat that is not a Siamese. Rather than responding as B' did, B flouts the maxim of relevance, perhaps to open the conversation to what type of cat he has. This is an implicature and not an entailment because "I have a cat and I don't have a Siamese" passes the cancellation test. 3/3

2 Possessives and more (compositional semantics)

[a] Symbolically: $Borrow(a_e, \iota x_e \,.\, (Book(x_e) \wedge (x_e \in c_{\{e\}})))$

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In words, the truth conditions are that there exists a unique book in the context that Alfonso, who also exists, borrowed.

[b] The two types of nouns are Sortal or class-based, like *chair* and *book* that simply categorize nouns into distinct groups, and relational nouns like *mother* and $wife$ that interact with other nouns and imply the existence of other entities which have a specific relationship with the relational nouns. For example "wife" implies the existence of a "husband" and some past event of "marriage". The relational nouns open the possibility for holes, via triggers like possession, that allow presuppositions into the sentence, namely the existence of a husband or child and some events that solidified that existence, such as marriage or birth. A normal categorical noun will just contribute the regular truth conditions to a sentence. The relationship between possessor and possessee can also be undefined, since the presuppositions may not be met in the sentence. For instance, John may not have a wife even though "John's wife" was mentioned.

goo d

Specifically, the denotation of mother that I used was:

$$[\![\text{mother}]\!]_{\langle e,\langle e,t\rangle\rangle} = \lambda x_e \,.\, \lambda y_e \,.\, (\iota z_e \,.\, (Female(z_e) \wedge Child(z_e, x_e)) = y_e)$$

[c]

Along with the denotation of $POSS$: $[\![\text{POSS}]\!]_{\langle\langle e,\langle e,t\rangle\rangle,\langle e,e\rangle\rangle} = \lambda f_{\langle e,\langle e,t\rangle\rangle}.\lambda x_e.\iota y_e.f_{\langle e,\langle e,t\rangle\rangle}(x_e)(y_e)$

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((POSS * mother) * Joanna).trace()
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Full composition trace. 1 path:

Step 1: $[\![\textbf{POSS}]\!]_{\langle\langle e,\langle e,t\rangle\rangle,\langle e,e\rangle\rangle} = \lambda f_{\langle e,\langle e,t\rangle\rangle} \,.\, \lambda x_e \,.\, \iota y_e \,.\, f_{\langle e,\langle e,t\rangle\rangle}(x_e)(y_e)$

Step 2: $[\![\textbf{mother}]\!]_{\langle e,\langle e,t\rangle\rangle} = \lambda x_e \,.\, \lambda y_e \,.\, (\iota z_e \,.\, (Female(z_e) \wedge Child(z_e, x_e)) = y_e)$

Step 3: $[\![\textbf{POSS}]\!]_{\langle\langle e,\langle e,t\rangle\rangle,\langle e,e\rangle\rangle}$ * $[\![\textbf{mother}]\!]_{\langle e,\langle e,t\rangle\rangle}$ leads to: $[\![[\textbf{POSS mother}]]\!]_{\langle e,e\rangle} = \lambda x_e \,.\, \iota y_e \,.\, (\iota z_e \,.\, (Female(z_e) \wedge Child(z_e, x_e)) = y_e)$ **[by FA]**

Step 4: $[\![\textbf{Joanna}]\!]_e = j_e$

Step 5: $[\![[\textbf{POSS mother}]]\!]_{\langle e,e\rangle}$ * $[\![\textbf{Joanna}]\!]_e$ leads to: $[\![[[\textbf{POSS mother}]\ \textbf{Joanna}]]\!]_e = \iota y_e \,.\, (\iota z_e \,.\, (Female(z_e) \wedge Child(z_e, j_e)) = y_e)$ **[by FA]**

Figure 1: Derivation of "Joanna's Mother" for 2c

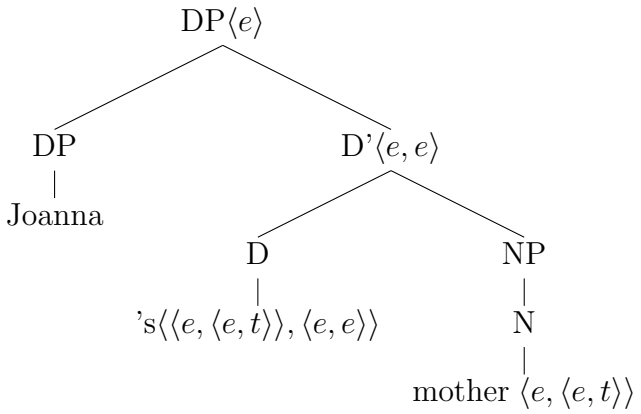

Figure 2: Parse Tree of "Joannas mother." for 2c with types labeled

the denotation of $Joanna's mother$ is found in Figure 1:

Since the type of Mother is $\langle e, \langle e, t\rangle\rangle$ and the type of Book is $\langle e, t\rangle$, you will need two definitions of $POSS$, which alludes to the ambiguity hint in the question. I suppose it is acceptable to have two definitions of possessiveness depending on what type of noun is being possessed. The types in the parse tree are given in Figure 2.

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The possessive morpheme triggers the presupposition that the possessor must exist and is salient in context. All of these derivations are only defined if the presuppositions hold.

[d] The best way is to use quantifier raising to rearrange the parse tree and make the types work out.

not quite but worth a try! we would actually assume that the head noun (Joanna is a sister to mother/ book at LF so that Joanna and mother compose first so that the node composing with POSS is always type <e,t>

[e] See the attached notebook and Figure 3 for an automatic derivation of the sentence. The presupposition is that there exists a salient Joanna in context who has a mother. The fact that a doctor met with her is an entailment, not a presupposition.

great 8/8

3 Expressive adjectives (semantics/pragmatics)

[a] At first glance, an epithet seems to contribute nothing more than a subjective adjective like "silly" or "distant". Neither these nor the epithets can be given truth values. But an epithet contributes more to the mood or tone of a sentence, which is beyond the

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((a * doctor) * (met * ((POSS * mother) * Joanna))).trace()
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Full composition trace. 1 path:

Step 1: $[\![\textbf{a}]\!]_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle} = \lambda f_{\langle e,t\rangle} . \lambda g_{\langle e,t\rangle} . \exists x_e . (f_{\langle e,t\rangle}(x_e) \wedge g_{\langle e,t\rangle}(x_e))$

Step 2: $[\![\textbf{doctor}]\!]_{\langle e,t\rangle} = \lambda x_e . Doctor(x_e)$

Step 3: $[\![\textbf{a}]\!]_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$ * $[\![\textbf{doctor}]\!]_{\langle e,t\rangle}$ leads to: $[\![\textbf{[a doctor]}]\!]_{\langle\langle e,t\rangle,t\rangle} = \lambda g_{\langle e,t\rangle} . \exists x_e . (Doctor(x_e) \wedge g_{\langle e,t\rangle}(x_e))$ **[by FA]**

Step 4: $[\![\textbf{met}]\!]_{\langle e,\langle e,t\rangle\rangle} = \lambda x_e . \lambda y_e . Met(y_e, x_e)$

Step 5: $[\![\textbf{POSS}]\!]_{\langle\langle e,\langle e,t\rangle\rangle,\langle e,e\rangle\rangle} = \lambda f_{\langle e,\langle e,t\rangle\rangle} . \lambda x_e . \iota y_e . f_{\langle e,\langle e,t\rangle\rangle}(x_e)(y_e)$

Step 6: $[\![\textbf{mother}]\!]_{\langle e,\langle e,t\rangle\rangle} = \lambda x_e . \lambda y_e . (\iota z_e . (Female(z_e) \wedge Child(z_e, x_e)) = y_e)$

Step 7: $[\![\textbf{POSS}]\!]_{\langle\langle e,\langle e,t\rangle\rangle,\langle e,e\rangle\rangle}$ * $[\![\textbf{mother}]\!]_{\langle e,\langle e,t\rangle\rangle}$ leads to: $[\![\textbf{[POSS mother]}]\!]_{\langle e,e\rangle} = \lambda x_e . \iota y_e . (\iota z_e . (Female(z_e) \wedge Child(z_e, x_e)) = y_e)$ **[by FA]**

Step 8: $[\![\textbf{Joanna}]\!]_e = j_e$

Step 9: $[\![\textbf{[POSS mother]}]\!]_{\langle e,e\rangle}$ * $[\![\textbf{Joanna}]\!]_e$ leads to: $[\![\textbf{[[POSS mother] Joanna]}]\!]_e = \iota y_e . (\iota z_e . (Female(z_e) \wedge Child(z_e, j_e)) = y_e)$ **[by FA]**

Step 10: $[\![\textbf{met}]\!]_{\langle e,\langle e,t\rangle\rangle}$ * $[\![\textbf{[[POSS mother] Joanna]}]\!]_e$ leads to: $[\![\textbf{[met [[POSS mother] Joanna]]}]\!]_{\langle e,t\rangle} = \lambda y_e . Met(y_e, \iota y_e . (\iota z_e . (Female(z_e) \wedge Child(z_e, j_e)) = y_e))$ **[by FA]**

Step 11: $[\![\textbf{[a doctor]}]\!]_{\langle e,t\rangle,t}$ * $[\![\textbf{[met [[POSS mother] Joanna]]}]\!]_{\langle e,t\rangle}$ leads to: $[\![\textbf{[[[a doctor] [met [[POSS mother] Joanna]]]}]\!]_t = \exists x_e . (Doctor(x_e) \wedge Met(x_e, \iota y_e . (\iota z_e . (Female(z_e) \wedge Child(z_e, j_e)) = y_e)))$ **[by FA]**

Figure 3: Derivation of "A doctor met Joannas mother." for 2e

realm of syntax or semantics. The literal meaning of a sentence may not change with the presence of an epithet, but its impact on the receiver does. The context also plays an important role in directing "blame" or frustration at a person or object. For example "Alfonso broke the fucking computer" seems to favor the interpretation that the computer is somehow more problematic than Alfonso. But "that damn Alfonso broke the computer" seems to portray Alfonso as a nuisance. In both of these scenarios, Alfonso broke a computer, but the epithets attach more significance to one actor over the other, construing them as annoying. So there is a level of implicature associated with the epithets, but it's harder to establish formally.

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[b] As alluded to above, there are conversational implicatures in portraying some actors or objects as annoying, mischievous, or malignant. But there are cases where an epithets affects only the emotions surrounding a whole sitution, and not any one entity. For instance, "What the fuck is going on?" may serves to express surprise or disgust in a situation, depending entirely on the context. But in general, I believe that epithets interact with context to contribute primarily to tone and mood, but there are cases where they make implicatures about specific entities.

[c] See Figure 4 for the derivation. In this example I replaced "ADJ" with "darn". The only obvious problem here is that you can't assign a truth value to "darn" like you can to "blue". If you were to implement this in a computer program, the computer would have no way to verify if a computer really is "fucking" or only "darned".

[d] My approach would to express epithets as linear combinations of attributes that can be more easily be mapped to the number line. For instance there are different attributes of these epithets such as "annoying", "pleasant/happy", "awe-struck", "silly".

The goal here is to capture the synonymy between epithets by expressing them as vectors of fundamental adjectives, such as those in the list above. For example "brilliant"

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(the * (darn * computer)).trace()
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Full composition trace. 1 path:

Step 1: $[\![\textbf{the}]\!]_{\langle\langle e,t\rangle,e\rangle} = \lambda f_{\langle e,t\rangle} \,.\, \iota x_e \,.\, (f_{\langle e,t\rangle}(x_e) \wedge (x_e \in c_{\{e\}}))$

Step 2: $[\![\textbf{darn}]\!]_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle} = \lambda f_{\langle e,t\rangle} \,.\, \lambda x_e \,.\, (f_{\langle e,t\rangle}(x_e) \wedge Darn(x_e))$

Step 3: $[\![\textbf{computer}]\!]_{\langle e,t\rangle} = \lambda x_e \,.\, Computer(x_e)$

Step 4: $[\![\textbf{darn}]\!]_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle}$ * $[\![\textbf{computer}]\!]_{\langle e,t\rangle}$ leads to: $[\![\textbf{[darn computer]}]\!]_{\langle e,t\rangle} = \lambda x_e \,.\, (Computer(x_e) \wedge Darn(x_e))$ **[by FA]**

Step 5: $[\![\textbf{the}]\!]_{\langle\langle e,t\rangle,e\rangle}$ * $[\![\textbf{[darn computer]}]\!]_{\langle e,t\rangle}$ leads to: $[\![\textbf{[the [darn computer]]}]\!]_{e} = \iota x_e \,.\, ((Computer(x_e) \wedge Darn(x_e)) \wedge (x_e \in c_{\{e\}}))$ **[by FA]**

Figure 4: Derivation of "The ADJ computer" for 3c

would fire "pleasant" and "awe-inspiring" but "wonderful" would fire "awe-inspiring" a bit less perhaps. "fucking" would weight "annoying" more perhaps than "damn". This model allows for two properties of epithets to be captured: their meaning can change (by changing the values in the vector), and you can easily compare epithets by comparing their vectors. Again, all of these would depend on the context, and I would go so far as to say that the context itself should have a vector of "moods" that would interact with the epithets as they arise: the mood would heighten some aspects of an epithet and the epithets would give rise to changes in the mood. This is not completely thought out but I don't see how else to deal with the subjectivity of epithets and the moods they influence.