1   The 'i-within-i' constraint

According to Heim and Kratzer, pronouns are interpreted as bound variables in exactly the same way as traces: whenever they are coindexed with a c-commanding "binding index" created by syntactic movement, which in turn triggers application of Predicate Abstraction. On this view, bound variable interpretaions of pronouns *require* movement, and movement in turn always derives a configuration which should license a bound variable reading (in the absence of other stipulations).

With this assumption as background, consider the examples in (1). In both cases, it is possible to understand the pronoun *her* as referring to a contextually salient individual. (This interpretation implies that the individual corresponding to *her childhood sweetheart* had several wives, which may be a little weird, but it is clearly a possible interpretation of these sentences.)

(1)   a.   Every wife of her childhood sweetheart is unhappy.
        b.   Every woman who is married to her childhood sweetheart is unhappy.

(1b) also has an interpretation along the lines of (2).

(2)   For every x such that x is a woman and x is married to x's childhood sweetheart, x is unhappy.

(1a), however, does not allow this sort of interpretation, even though the meaning of *wife of x* is presumably something very close (if not truth-conditionally equivalent) to the meaning of *woman who is married to x*. In the syntactic literature, the impossibility of interpreting (1a) as (2) is sometimes claimed to be the result of the so-called '*i*-within-*i* constraint', which forbids structures in which a pronominal expression is coindexed with the NP that contains it, as shown in (3).

(3)   *The i-within-i constraint*
        $*[_{\text{NP}} \ ... \ pro_i \ ... \ ]_i$

A problem for the *i*-within-*i* constraint is that under standard assumptions about coindexing (i.e., <u>not</u> the assumptions we have made in this class!), it predicts that both (1a) and (1b) should fail to have the interpretations in (2), since this would require syntactic representations like (4a) and (4b), both of which violate (3).

(4)   a. $[_{\text{NP}}$ every wife of her$_i$ childhood sweetheart$]_i$ is unhappy.
        b. $[_{\text{NP}}$ every woman who is married to her$_i$ childhood sweetheart$]_i$ is unhappy.

As it turns out, Heim and Kratzer's theory of how pronouns are interpreted as bound variables derives these facts. Your task in this part of the assignment is to show how. Specifically, you should show that the system provides a way of getting from (1b) to

the the truth conditions in (2), but it does not provide a way of getting from (1a) to comparable truth conditions.

To facilitate your work and avoid irrelevant complications, make the following assumptions:

1. The relational noun *wife* has the denotation: $[\lambda x \in D_e.[\lambda y \in D_e.y$ *is the wife of* $x]]$

2. The *of* in the NP in (1a) is a dummy element that has no interpretation.

3. $[\![_{NP}$ *her$_i$ childhood sweetheart*$]\!]^g$ = the x such that x is $g(i)$'s childhood sweetheart.

As usual, you should make all assumptions explicit, and illustrate crucial points with derivations and trees.

2   Weak Crossover

Although the Heim and Kratzer framework provides us with an account of the lack of a bound variable reading of (1a), it <u>fails</u> to explain the lack of a bound variable interpretation of (5): this sentence only has the interpretation in (5a), in which the pronoun is interpreted referentially; it cannot be understood with the bound variable interpretation in (5b), even though this is a sensible thing to say.

(5)   Her mother took every girl to soccer practice.
    a.   Every girl x is such that [some salient individual]'s mother took x to soccer practice.
    b.   *Every girl x is such that x's mother took x to soccer practice.

(5) is an example of a configuration known as "Weak Crossover", whereby a pronoun is contained inside a constituent which c-commands a quantificational DP. (In (5), the pronoun is contained in the subject, which c-commands the direct object.) In such configurations, it is impossible to interpret the pronoun as a variable bound by the object.

Part A Explain why Weak Crossover presents a problem for the theory of pronoun binding developed in Heim and Kratzer. Say what the problem is generally, and show specifically why the theory makes the wrong predictions about (5).

Part B Use Weak Crossover to develop an argument in favor of the alternative analysis of pronoun binding we considered in class last Tuesday, which does not link bound variable interpretations to movement, but rather hypothesizes a special "pronoun binding index" i_P, distinct from a "movement binding index", which triggers a variant of the Predicate Abstraction rule:[1]

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[1]We also considered a type-shifting variant of this analysis at the very end of class; feel free to deveop your answer in such terms if you prefer.

(6)   *Predicate Abstraction: Pronouns*
        If α is a constituent consisting of daughter i_P and β, then for any assignment
        function g, $[\![\alpha]\!]^g = [\lambda x \in D_e.[\![\beta]\!]^{[x/i]}(x)]$

In order to develop this argument fully, you may need to make some additional
assumptions — about indexing, about how quantifiers are interpreted, about the
interaction between (6) and the "Movement" version of Predicate Abstraction, and
so forth. That is, it may not be enough to simply assume (6), though assuming (6)
(or something equivalent) is an important starting point. So be sure to fully think
though your analysis, considering broader predictions and how you will deal with
other kinds of structures. Make all crucial assumptions explicit, and as in the first
part, illustrate important points with derivations and trees as appropriate.

3   Putting it all together

Does your analysis of Weak Crossover allow you to maintain the account of the i-
within-i constraint that you presented in Section 1? If yes, show how; if not, explain
what the new problem is. If you have some ideas about how to resolve the problem,
you should say what they are, but if you do not it will be sufficent to just explain
where things stand.