1. (a) $\%g \%x \text{big}(x), g(x)$
   where $\% = \lambda$

   A "smartass answer" is $\%g \%x \text{big}(x), \text{hat}(x)$,
   which ignores $g$.

   (b) first blank: $\exists%x 2(x)$ (where $\exists% = \"there exists\")
   second blank: $\%x 1(x), 2(x)$

   (c) first blank: $\%g \%x \text{big}(x), g(x)$
   second blank: $\%g \%x \text{red}(x), g(x)$
   third blank: $\%g \exists%x g(x)$

2. (a) $S: =>$
   $\text{NP}: =>$
   $\text{VP}: =>$

   (b) every politician: $\lambda f . \forall p . \text{politician}(p) => f(p)$
   every: $\lambda g . \lambda f . \forall p . g(p) => f(p)$

   (c) i. True. There is a $\forall$ or "generic" quantifier over "babies." See part iii. below.

   ii. False. Wouldn’t make sense. The quantifier is in the right place where it is.

   iii. True. The second argument of kisses should not be a predicate, like "babies". It should be a particular entity who is actually being kissed, like "Stewie."

   When we say "Barack kisses babies," it should mean something like
   most($\lambda b . \text{baby}(b), \lambda b . \text{kisses}(\text{Barack},b)$)
   so that $b$ refers to each individual baby in turn.
   (The actual quantifier isn’t "most" but something more like "typically," known as a "generic quantifier.")

   iv. False. There is nothing WRONG with writing kisses($x,y$) in the semantics, on the assumption that kisses is DEFINED to be a function something like
   $\lambda x . \lambda y .$
   exists $e . \text{act}(e,\text{kissing}), \text{time}(e,\text{present}),$
   \text{kisser}(e,x), \text{kissee}(e,y)$
   so that kisses($x,y$) MEANS
   exists $e . \text{act}(e,\text{kissing}), \text{time}(e,\text{present}),$
   \text{kisser}(e,x), \text{kissee}(e,y)\$'

   You are free to replace kisses($x,y$) with its definition (this is like inlining a function call), but there is nothing WRONG with writing kisses($x,y$).

   In fact, writing just \text{kisser}(x), \text{kissee}(y) would make things worse. That leaves out the event variable $e$, which is the only thing ensuring that the kisser and the kissee are involved in the same kiss.

   v. False. We can of course decide whether the first argument of kisses is the kisser or the kissee, but the tree as shown is completely consistent in assuming that the first argument is the kisser.
vi. True. This is related to i. and iii. When there are multiple quantifiers, often there are multiple semantic interpretations, having to do with the relative order of those quantifiers. (Remember: "A woman has a baby every 15 minutes.")

In this case, there is an "obvious" meaning: for every politician, he/she will kiss each typical baby in his context. Here, "forall" scopes over "generic."

But there is another meaning where "generic" scopes over "forall", meaning that each typical baby is kissed by every politician:

Babies are kept safe by society. Mothers feed babies. Schools educate babies. And every politician kisses babies, for a baby who is not kissed by every politician won’t grow up.

Notice that this meaning goes with a slightly different intonation when you read the sentence.

(d) \(\forall p. (\text{politician}(p), \text{met}(\text{we},p)) \rightarrow \text{kisses}(p,\text{babies})\)

(e)

```
S
 / \ \
NP     VP
 / \ / \\
Det N V NP
every / \ kisses babies
     N CP/NP
politician / \
    C S/NP
that / \ \
    NP VP/NP
we / \ \
    V NP/NP
met  e
```

(f) (N politician that we met): lambda \(p. \text{politician}(p), \text{met}(\text{we},p)\)
(N politician): lambda \(p. \text{politician}(p)\)
(CP/NP that we met): lambda \(g. \text{lambda}(p. g(p), \text{met}(\text{we},p))\)
(S/NP we met): lambda \(r. \text{met}(\text{we},r)\)
(C that): lambda \(h. \text{lambda}(g. \text{lambda}(p. g(p)), h(p))\)