

1. Explain how currying works.¹

2. Fill in the blank spots

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| (1) $\{ x \in D \mid \{ y \in D \mid y \text{ saw } x \} \}$ | $f : D \rightarrow \{ g \mid g : D \rightarrow \{ 1, 0 \} \}$
for all $x \in D$, $f(x) =$
$g : D \rightarrow \{ 1, 0 \}$
for all $y \in D$,
$g(y) = 1$ iff y saw x | _____ |
| (2) $\{ x \in D \mid \{ z \in D \mid z \text{ knows } x \} \}$ | $f : D \rightarrow \{ g \mid g : D \rightarrow \{ 1, 0 \} \}$
for all $x \in D$, $f(x) =$
$g : D \rightarrow \{ 1, 0 \}$
for all $z \in D$,
$g(z) = 1$ iff z knows x | _____ |
| (3) $\{ x \in D \mid \{ y \in D \mid y \text{ likes } x \} \}$ | _____ | $\lambda x \in D. \lambda y \in D. \text{likes}(x)(y)$ |

3. β -Convert each of the following λ -expressions (*i.e.* give the result of plugging in these arguments). Then, give the English expression that corresponds to that result.

1. $[\lambda z \in D. \lambda y \in D. \text{hugged}(z)(y)](\text{Asia})(\text{Yolanda})$
2. $[\lambda x \in D. \lambda y \in D. \text{called}(x)(y)](\text{Imogen})(\text{Barry})$

4. Write the denotations of the following English expressions as functions, using the λ -notation.

1. *smash*
2. *carry*

¹or: Explain how schönfinkelization works.