

Review questions 1 & 2

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$P_{1a} == \text{inp } c\ x; \mid \text{out } c\ x; \mid \text{new } n; \text{decrypt } x \text{ is } \{y\}_k; \text{out } y\ n;$

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Annotations:
 - x is bound (scope = stop)
 - c is free
 - n is bound by $\text{new } n$
 - y is bound by $\text{decrypt } x \text{ is } \{y\}_k$
 - n is a name, not a variable
 - not closed

n is a bound name (in all cases)
 k and c are free names

$P_{1b} == \text{inp } c\ x; \mid \text{out } c\ x; \mid \text{new } n; \text{decrypt } x \text{ is } \{y\}_k; \text{out } y\ n;$

x is bound by $\text{inp } c\ x;$

y is bound by $\text{decrypt } x \text{ is } \{y\}_k;$

this process is closed

$P_{1c} == \text{out } c\ x; \mid \text{inp } c\ x; \mid \text{new } n; \text{decrypt } x \text{ is } \{y\}_k; \text{out } y\ n;$

x is free

x is bound by $\text{inp } c\ x;$

y is bound by $\text{decrypt } x \text{ is } \{y\}_k;$

process not closed

$P_{1d} == \text{inp } x\ x; \mid \text{out } x\ x; \mid \text{new } n; \mid \text{out } x\ n; \mid \text{inp } n\ x;$

x is free

x_1 is bound by $\text{inp } x\ x;$

x_2 is bound by $\text{inp } n\ x;$

process not closed