

Namn: _____

Appendix - operational semantics

pattern matching

$$\begin{array}{c}
\frac{a \equiv s}{P\sigma(a, s) \rightarrow \sigma} \qquad \frac{a \not\equiv s}{P\sigma(a, s) \rightarrow \text{fail}} \\
\frac{v/t \notin \sigma}{P\sigma(v, s) \rightarrow \{v/s\} \cup \sigma} \qquad \frac{v/t \in \sigma \quad t \not\equiv s}{P\sigma(v, s) \rightarrow \text{fail}} \\
\frac{v/s \in \sigma}{P\sigma(v, s) \rightarrow \sigma} \qquad \frac{}{P\sigma(_, s) \rightarrow \sigma} \\
\frac{P\sigma(p_1, s_1) \rightarrow \sigma' \wedge P\sigma'(p_2, s_2) \rightarrow \theta}{P\sigma(\{p_1, p_2\}, \{s_1, s_2\}) \rightarrow \theta} \\
\frac{P\sigma(p_1, s_1) \rightarrow \text{fail}}{P\sigma(\{p_1, p_2\}, \{s_1, s_2\}) \rightarrow \text{fail}} \qquad \frac{P\sigma(p_1, s_1) \rightarrow \sigma' \wedge P\sigma'(p_2, s_2) \rightarrow \text{fail}}{P\sigma(\{p_1, p_2\}, \{s_1, s_2\}) \rightarrow \text{fail}}
\end{array}$$

scoping

$$\frac{\sigma' = \sigma \setminus \{v/t \mid v/t \in \sigma \wedge v \text{ in } p\}}{S(\sigma, p) \rightarrow \sigma'}$$

expressions

$$\begin{array}{c}
\frac{a \equiv s}{E\sigma(a) \rightarrow s} \qquad \frac{v/s \in \sigma}{E\sigma(v) \rightarrow s} \qquad \frac{v/s \notin \sigma}{E\sigma(v) \rightarrow \perp} \\
\frac{E\sigma(e_1) \rightarrow s_1 \quad E\sigma(e_2) \rightarrow s_2}{E\sigma(\{e_1, e_2\}) \rightarrow \{s_1, s_2\}} \qquad \frac{E\sigma(e_i) \rightarrow \perp}{E\sigma(\{e_1, e_2\}) \rightarrow \perp} \\
\frac{E\sigma(e) \rightarrow t \quad S(\sigma, p) \rightarrow \sigma' \quad P\sigma'(p, t) \rightarrow \theta \quad E\theta(\text{sequence}) \rightarrow s}{E\sigma(p = e; \text{sequence}) \rightarrow s} \\
\frac{E\sigma(e) \rightarrow t \quad S(\sigma, p) \rightarrow \sigma' \quad P\sigma'(p, t) \rightarrow \text{fail}}{E\sigma(p = e; \text{sequence}) \rightarrow \perp} \\
\frac{E\sigma(e) \rightarrow \perp}{E\sigma(p = e; \text{sequence}) \rightarrow \perp}
\end{array}$$