Semantyka i weryfikacja - praca domowa nr 2

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1 Expressions

1.1 e

$$[\![e]\!]\ \varrho_V, \varrho_P, s = q \in \mathbb{Q}$$

1.2 x

$$[\![x]\!]\ \varrho_V, s = s\ (\varrho_V\ x)$$

1.3 e + e

$$[\![e_1 + e_2]\!]\ \varrho_V, s = [\![e1]\!]\ \varrho_V, s + [\![e2]\!]\ \varrho_V, s$$

1.4 e * e, e - e - analogicznie

2 Bool Expressions

2.1 true

$$[\![true]\!]\ \varrho_V, s = tt$$

2.2 false

$$[\![false]\!]\ \varrho_V, s = ff$$

2.3 e < e

$$[\![e_1 < e_2]\!]\ \varrho_V, s = ifte(\ [\![e_1]\!]\ \varrho_V, s < [\![e_2]\!]\ \varrho_V, s,\ tt, ff\ )$$

2.4 e = e, b ∧ b, ¬b - analogicznie

3 Declarations

3.1 var x = e

$$[\![var\ x = e]\!]\ \varrho_V, \varrho_P, s = \varrho_V[x \mapsto l], \varrho_P, s[l \mapsto n]$$
$$where\ l = newloc(s),\ n = [\![e]\!]\ \varrho_V, s$$

3.2 ϵ

$$[\![\epsilon]\!]\ \varrho_V = id_P$$

3.3 proc p(x) I

$$[\![proc\ p(x)\ I]\!]\ \varrho_V\ \varrho_P = \varrho_P[p \mapsto P]$$
$$where\ P = \lambda.s : State.[\![I]\!]\ \varrho_V\ \varrho_P[p \mapsto P]\ s[l \mapsto [\![s\ (\varrho_V\ x)]\!]\ \varrho_V, s],$$
$$l = newloc(s)$$

3.4 $D_1; D_2$

$$[\![D_1; D_2]\!]\ \varrho_V\ \varrho_P = [\![D_2]\!]\varrho'_P\varrho'_D$$
$$where\ \varrho'_P\ \varrho'_D = [\![D_1]\!]\ \varrho_V\ \varrho_P$$