

$[\text{ass}_{\text{sos}}]$	$\langle x := a, s \rangle \Rightarrow s[x \mapsto \mathcal{A}[a]s]$
$[\text{skip}_{\text{sos}}]$	$\langle \text{skip}, s \rangle \Rightarrow s$
$[\text{comp}_{\text{sos}}^1]$	$\frac{\langle S_1, s \rangle \Rightarrow \langle S'_1, s' \rangle}{\langle S_1; S_2, s \rangle \Rightarrow \langle S'_1; S_2, s' \rangle}$
$[\text{comp}_{\text{sos}}^2]$	$\frac{\langle S_1, s \rangle \Rightarrow s'}{\langle S_1; S_2, s \rangle \Rightarrow \langle S_2, s' \rangle}$
$[\text{if}_{\text{sos}}^{\text{tt}}]$	$\langle \text{if } b \text{ then } S_1 \text{ else } S_2, s \rangle \Rightarrow \langle S_1, s \rangle \text{ if } \mathcal{B}[b]s = \text{tt}$
$[\text{if}_{\text{sos}}^{\text{ff}}]$	$\langle \text{if } b \text{ then } S_1 \text{ else } S_2, s \rangle \Rightarrow \langle S_2, s \rangle \text{ if } \mathcal{B}[b]s = \text{ff}$
$[\text{while}_{\text{sos}}]$	$\langle \text{while } b \text{ do } S, s \rangle \Rightarrow$ $\langle \text{if } b \text{ then } (S; \text{while } b \text{ do } S) \text{ else skip}, s \rangle$

Table 2.2: Structural operational semantics for **While**