$[\text{ass}_{\text{ns}}]$	$\langle x := a,\, s \rangle \rightarrow s[x \mapsto \mathcal{A}[\![a]\!]s]$
$[\text{skip}_{\text{ns}}]$	$\langle \texttt{skip},\, s \rangle \rightarrow s$
$[\text{comp}_{\text{ns}}]$	$\dfrac{\langle S_1,\, s \rangle \rightarrow s',\ \langle S_2,\, s' \rangle \rightarrow s''}{\langle S_1;S_2,\, s \rangle \rightarrow s''}$
$[\text{if}_{\text{ns}}^{\text{tt}}]$	$\dfrac{\langle S_1,\, s \rangle \rightarrow s'}{\langle \texttt{if } b \texttt{ then } S_1 \texttt{ else } S_2,\, s \rangle \rightarrow s'}$ if $\mathcal{B}[\![b]\!]s = \mathbf{tt}$
$[\text{if}_{\text{ns}}^{\text{ff}}]$	$\dfrac{\langle S_2,\, s \rangle \rightarrow s'}{\langle \texttt{if } b \texttt{ then } S_1 \texttt{ else } S_2,\, s \rangle \rightarrow s'}$ if $\mathcal{B}[\![b]\!]s = \mathbf{ff}$
$[\text{while}_{\text{ns}}^{\text{tt}}]$	$\dfrac{\langle S,\, s \rangle \rightarrow s',\ \langle \texttt{while } b \texttt{ do } S,\, s' \rangle \rightarrow s''}{\langle \texttt{while } b \texttt{ do } S,\, s \rangle \rightarrow s''}$ if $\mathcal{B}[\![b]\!]s = \mathbf{tt}$
$[\text{while}_{\text{ns}}^{\text{ff}}]$	$\langle \texttt{while } b \texttt{ do } S,\, s \rangle \rightarrow s$ if $\mathcal{B}[\![b]\!]s = \mathbf{ff}$

Table 2.1: Natural semantics for **While**