Table 1. Rules that define a tock-CSP semantics for SLEEC. We use the following *metavariables* in the definitions of the rules: def as a metavariable to stand for an element of the syntactic category definitions, defS to stand for an element of definitions, eID for an eventID, mID for a measureID, T for a type, cID for a constID, v for a value, sp and subscripted counterparts for a scaleParams,r for a rule, rrS for an element of rules, rID for a ruleID, trig for a trigger, and finally resp for a response. These metavariables are also used in rules in Tables 2 and 3.

$[[\text{def\_start dB def\_end rule\_start rB rule\_end}]]_S = [[dB]]_{DS} \quad [[rB]]_{RS}$	

$[[\text{def}]]_{DS}$	$= [[\text{def}]]_D$
$[[\text{def defS}]]_{DS}$	$= [[\text{def}]]_D \quad [[\text{defS}]]_{DS}$
$[[\text{event eID}]]_D$	$= \textbf{channel eID}$
$[[\text{measure mID : T}]]_D$	$= \textbf{channel mID} : [[T, \text{mID}]]_T$
$[[\text{constant cID} = v]]_D$	$= \text{cID} = v$
$[[\text{boolean, mID}]]_T$	$= \textbf{Bool}$
$[[\text{numeric, mID}]]_T$	$= \textbf{Int}$
$[[\text{scale}(sp_1, \ldots, sp_n), \text{mID}]]_T$	$= ST\text{mID}$
	$\quad \textbf{datatype } ST\text{mID} = sp_1 \mid \ldots \mid sp_n$
	$\quad ST le\text{mID}(v1\text{mID}, v2\text{mID}) =$
	$\quad\quad \textbf{if } v1\text{mID} == sp1 \textbf{ then true}$
	$\quad\quad \textbf{else } (\textbf{ if } v1\text{mID} == sp_2 \textbf{ then } v2\text{mID} \notin \{sp_1\}$
	$\quad\quad\quad \textbf{else } \ldots$
	$\quad\quad\quad \textbf{else } v2\text{mID} == sp_n)$

$[[r]]_{RS}$	$= [[r]]_R$
$[[r\text{ rS}]]_{RS}$	$= [[r]]_R \quad [[rS]]_{RS}$
$[[\text{rID when trig then resp}]]_R$	$= \text{rID} = Trigger\text{rID}Monitoring\text{rIDrID}$
	$Trigger\text{rID} = [[\text{trig}, \alpha_E(\text{resp}), \textbf{Skip}, Trigger\text{rID}]]_{TG}$
	$Monitoring\text{rID} = [[\text{resp, trig}, \alpha_E(\text{resp}), Monitoring\text{rID}]]_{RDS}$

Table 2. Rules that define a tock-CSP semantics for SLEEC triggers. Additional metavariables used here are as follows: AR for an alphabet (set) of events, sp and fp for tock-CSP processes, mBE for an mBoolExpr, and MIDs for a list of measureID elements.

$[[\text{eID, AR, sp, fp}]]_{TG}$	$= \text{eID} \rightarrow sp \,\square\, (\square\, e : AR \bullet e \rightarrow fp)$
$[[\text{eID and mBE, AR, sp, fp}]]_{TG}$	$= \textbf{let } MTrigger = [[\alpha_{ME}(\text{mBE}), \text{mBE, sp, fp}]]_{ME}$
	$\quad \textbf{within eID} \rightarrow MTrigger \,\square\, (\square\, e : AR \bullet e \rightarrow fp)$
$[[\langle \rangle, \text{mBE, sp, fp}]]_{ME}$	$= \textbf{if } \text{norm}(\text{mBE}) \textbf{ then } sp \textbf{ else } fp$
$[[\langle \text{mID}\rangle \frown \text{mIDs, mBE, sp, fp}]]_{ME}$	$= 0(\text{mID}?v\text{mID} \rightarrow [[\text{mIDs, mBE}[v\text{mID/mID}], \text{sp, fp}]]_{ME})$

Table 3. Rules for the tock-CSP semantics of SLEEC responses. Additional metavariables used here are: const for a constraint, ARDS for a set of events, mp for a process, tU for a timeUnit, n for an index (a natural number), dfts for an element of defeaters, and dft for a defeater.

$[[\text{const, trig, ARDS, mp}]]_{RDS}$	$= [[\text{const, trig, ARDS, mp}]]_C$
$[[\text{const dfts, trig, ARDS, mp}]]_{RDS}$	$= \textbf{let } [[\langle\text{const}\rangle \frown \text{dfts}\restriction_{RP}, \text{trig, ARDS, mp, 1}]]_{LRDS}$
	$\quad \textbf{within } [[\alpha_{ME}(\text{dfts}), \text{dfts}, \#\text{dfts} + 1]]_{CDS}$
$[[\text{eID, trig, ARDS, mp}]]_C$	$= \text{eID} \rightarrow \textbf{Skip}$
$[[\text{eID within v tU, trig, ARDS, mp}]]_C$	$= \text{norm}(v, tU)(\text{eID} \rightarrow \textbf{Skip})$
$[[\text{not eID within v tU, trig, ARDS, mp}]]_C$	$= \textbf{Wait}(\text{norm}(v, tU))$
$[[\text{eID within v tU otherwise resp, trig, ARDS, mp}]]_C$	$= (\text{eID} \rightarrow \textbf{Skip}) \triangle_{\text{norm}(v,tU)} ([[\text{resp, trig, ARDS, mp}]]_{RDS})$
$[[\langle\text{resp}\rangle, \text{trig, AR, mp, n}]]_{LRDS}$	$= Monitoring\text{n} = [[\text{resp, trig, AR, mp}]]_{RDS}, \text{provided resp} \neq \textbf{NoRep}$
$[[\langle\textbf{NoRep}\rangle, \text{trig, AR, mp, n}]]_{LRDS}$	$= Monitoring\text{n} = \quad [[\text{trig, AR, mp}, Monitoring\text{n}]]_{TG}$
	$\qquad\qquad\qquad\quad \square$
	$\qquad\qquad\quad (\square\, e : \text{AR} \bullet e \rightarrow Monitoring\text{n})$
$[[\langle\text{resp}\rangle \frown \text{resps, trig, AR, mp, n}]]_{LRDS}$	$= [[\langle\text{resp}\rangle, \text{trig, AR, mp, n}]]_{LRDS}$
	$\quad [[\text{resps, trig, AR, mp, n} + 1]]_{LRDS}$
$[[\langle\rangle, \text{dfts, n}]]_{CDS}$	$= [[\text{dfts}, Monitoring1, \text{n}]]_{EDS}$
$[[\langle\text{mID}\rangle \frown \text{mIDs, dfts, n}]]_{CDS}$	$= 0(\text{mID}?v\text{mID} \rightarrow [[\text{mIDs, dfts}[v\text{mID}/\text{mID}], \text{n}]]_{CDS})$
$[[\text{unless mBE, fp, n}]]_{EDS}$	$= \textbf{if } \text{norm(mBE)} \textbf{ then } Monitoring\text{n} \textbf{ else } \text{fp}$
$[[\text{unless mBE then resp, fp, n}]]_{EDS}$	$= \textbf{if } \text{norm(mBE)} \textbf{ then } Monitoring\text{n} \textbf{ else } \text{fp}$
$[[\text{dfts dft, fp, n}]]_{EDS}$	$= [[\text{dft}, [[\text{dfts, fp, n} - 1]]_{EDS}, \text{n}]]_{EDS}$