Operation	$=$	**createAppointment**

Description $=$ A Tutor tries to create an appointment at a specific time. You can assume the tutor exists.

Input $=$ email: String, time: Date, online: Boolean

Reads $=$ $ma : ManageAppts$,
$maccount : ManageAccountes$ with $(ma, maccount) \in communicates\_1$,
$t : TutorData$ with $(maccount, t) \in manages1 \land t.email = email$,
$r : tutoringRoom$ with $(ma, r) \in manages3, manages3, manages1$,
$communicates\_1$

Changes $=$ $campusAppointment, ca : CampusAppointment$ type$, located\_in$,
$onlineAppointment, oa : onlineAppointment$ type$, schedules, knows$,

Sends $=$ $Tutor : \{Already\ 5\ appointments\ at\ this\ time, Appointment\ created\}$

Pre $=$ **implicit**

Post $=$ LET
$already5 = \#\{appt : campusAppointment \mid a.time = time \land (appt, r) \in located\_in\} > 4$

$\bullet$
$(online \Rightarrow$
   $oa\ new \land oa.time = time \land knows' = knows \cup (ma, oa) \land$
   $schedules' = schedules \cup (t, oa) \land$
   $\nexists a : Appointment \bullet a.id = oa.id \land$
   $is\_sent\{Appointment\ created\} \land no\_effect$
$) \land$
$(\neg online \Rightarrow$
   $(already5 \Rightarrow$
     $is\_sent\{Already\ 5\ appointments\ at\ this\ time\} \land no\_effect$
   $) \land$
   $(\neg already5 \Rightarrow$
     $ca\ new \land ca.time = time \land knows' = knows \cup (ma, oa) \land$
     $schedules' = schedules \cup (t, ca) \land$
     $located\_in' = located\_in \cup (ca, r) \land$
     $\nexists a : Appointment \bullet a.id = ca.id \land$
     $is\_sent\{Appointment\ created\} \land no\_effect$
   $)$
$)$