context C1 (mobile phone)

r_{11} $incoming\_call, \neg silent\_mode, \neg important\_activity \Rightarrow ring$
r_{12} $lecture \rightarrow important\_activity$
r_{13} $\rightarrow incoming\_call$
r_{14} $\rightarrow normal\_mode$
r_{15} $2 : scheduled\_CS566, 5 : location\_RA201 \Rightarrow lecture$
r_{16} $4 : \neg class\_activity \Rightarrow \neg lecture$

context C2 (laptop)

r_{21} $\rightarrow day(tuesday)$
r_{22} $\rightarrow time(19 : 50)$
r_{23} $day(tuesday), time(X), 19 : 00 \leq X \leq 20 : 00 \rightarrow scheduled\_CS566$

context C3 (localization service)

r_{31} $\rightarrow location\_RA201$

context C4 (classroom manager)

r_{41} $\rightarrow projector(off)$
r_{42} $5 : persons\_detexcted(X), X < 2, projector(off) \Rightarrow \neg class\_activity$

context C5 (persons detection service)

r_{51} $\rightarrow persons\_detected(1)$

The challanges of reasoning with the available context information:

- local knowledge may be **incomplete**
- context knowledge may be
  - ambiguous (**conflicting**)
  - **imprecise**
  - errroneous
  - agents may use **different vocabularies**