

## Homework 5

1. Access control is about deciding whether a principal that issues a request should be trusted on this request. Explain how such decision problems can be solved by using logic.
2. The informal meaning of the formula  $P \text{ controls } F$  is ' $P$  is entitled to do  $F$ '. Give a definition for this formula in terms of *says*.
3. Explain what is meant by a *derived* inference rule.
4. Give a justification for the derived rule

$$\frac{\Gamma \vdash P \text{ controls } F \quad \Gamma \vdash P \text{ says } F}{\Gamma \vdash F}$$

5. Assume  $\Gamma$  is a set consisting of the three formulas:

$(\text{Admin says } del\_file) \Rightarrow del\_file$   
 $\text{Admin says } ((\text{Alice says } del\_file) \Rightarrow del\_file)$   
 $\text{Alice says } del\_file$

Give a proof of the judgement

$$\Gamma \vdash del\_file$$