Outline for April 11, 2000

1. Greetings and felicitations!
   a. Homework
   b. Handouts

2. General case: It is undecidable whether a given state of a given protection system is safe for a given generic right.
   a. Represent TM as ACM; reduce halting problem to it

3. Take-Grant
   a. Introduce as counterpoint to HRU result
   b. Show bridges (as a combination of terminal and initial spans)
   c. Show islands (maximal subject-only tg-connected subgraphs)
   d. can\(\text{\textbullet\text{share}}(r; x, y, G_0)\) iff there is an edge from \(x\) to \(y\) labelled \(r\) in \(G_0\), or all of the following hold: (1) there is a vertex \(y''\) with an edge from \(y'\) to \(y\) labelled \(r\); (2) there is a subject \(y'\) which terminally spans to \(y''\), or \(y' = y''\); (3) there is a subject \(x'\) which initially spans to \(x\), or \(x' = x\); and (4) there is a sequence of islands \(I_1, ..., I_n\) connected by bridges for which \(x'\) is in \(I_1\) and \(y'\) is in \(I_n\).
   e. Describe can\(\text{\textbullet\text{steal}}\); don’t state theorem

4. Decidability vs. Undecidability
   a. Notion of type; subject, object types
   b. Attenuation:
   c. If attenuating acyclic, it’s decidable; so that is sufficient. Open question: is it necessary?