

Outline for April 8, 2003

1. 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
2. Take-Grant
 - a. Introduce as counterpoint to HRU result
 - b. Show symmetry
 - c. Show islands (maximal subject-only tg-connected subgraphs)
 - d. Show bridges (as a combination of terminal and initial spans)
 - e. $\text{can_share}(r, \mathbf{x}, \mathbf{y}, G_0)$ iff there is an edge from \mathbf{x} to \mathbf{y} labelled r in G_0 , or all of the following hold:
 - i. there is a vertex \mathbf{y}' with an edge from \mathbf{y}' to \mathbf{y} labelled r ;
 - ii. there is a subject \mathbf{y}'' which terminally spans to \mathbf{y}' , or $\mathbf{y}'' = \mathbf{y}'$;
 - iii. there is a subject \mathbf{x}' which initially spans to \mathbf{x} , or $\mathbf{x}' = \mathbf{x}$; and
 - iv. there is a sequence of islands I_1, \dots, I_n connected by bridges for which \mathbf{x}' is in I_1 and \mathbf{y}' is in I_n .