

Access Control and Trust Negotiation CS 6463 Lecture 4

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Business

- We will discuss HRU76 for two periods
- I will post the next readings (for Wednesday 2/7) by the end of the week
- I will also post lecture notes

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Harrison, Ruzzo and Ullman, 1976

- An abstract model of protection is presented
- A notion of safety is introduced
- It is shown that
 - In general it is undecidable whether a specific right will be added to the system
 - In restricted cases the problem is decidable

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Comparison with Ambiguity of CFGs

- A context-free grammar is ambiguous if there are two parse trees for the same sentence in the language
- Deciding whether a context-free grammar is ambiguous is undecidable in general
- All LR(k) grammars are unambiguous and it can be decided efficiently whether a grammar is LR(k)
- Most interesting programming languages have LR(k) grammars

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The Paper Does not Present an Analog of LR(k)

- 'Mono-operational' systems are "not terribly realistic"

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Definition: Protection System

- Refer to section 3 of HRU76

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Example 1

- Very simple system, p.463

Semantics of Primitive Operations

- See p.463

Semantics of Commands

- P464
- Examples 2-4

Leaking and Safety

- Defs p467

Theorem

- There is an algorithm that decides whether any mono-operational system is unsafe for any given generic right r

Undecidability in the General Case

- We'll discuss this next time