

Mutable agents

EEL 5937 Multi Agent Systems
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Self-modifying programs

- **Every programmer learns at his first assembly language class that program code can be changed by simply writing to it.**
- **But then he also learns that self-modifying programs are a big no-no.**
- **Still...**
- **As early as 1975, the Microsoft Basic interpreter for Altair contained self-modifying code, introduced to overcome resource limitations (only 4K of space available for the interpreter).**
- **And many other unknown instances from early systems.**

Self-modifying programs today

- Current programming techniques frequently rely on self modifying applications, without making too much fuss about it.
- Just-in-time compilers (Java, SQL etc.) compile and optimize system independent code to the particularities of the system.
- Persistency systems: some of them rely on modifying source code or object code.
- Aspect oriented programming. Code weavers
 - AspectJ
- Debuggers and profilers. Code instrumentation for obtaining better quality traces, find memory leaks.
- Code obfuscators: rewrite the code without changing its execution characteristics such that they prevent reverse engineering of the code.