





"expect families of routines to be constructed on *rational principles* so that families fit together as **building blocks**"

uit: McIlroy, *Mass Produced Software Components*, 1968 NATO Conference on Software Engineering, Garmisch, Germany.

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- Theorem 3: "Action entities that are called by other action entities, need to exhibit version transparency."
- Separation of States
 - Theorem 4: "The calling of an action entity by another action entity needs to exhibit state keeping."













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- Implementations:
 - XML / Web Services at run-time
 - OO / JavaBeans at compile-time
 - Tag-Value pairs in legacy systems





- Implementations:
 - OO facade patterns
 - Procedural wrapper functions















- McIlroy: "families fit together as building blocks"
- One cannot reasonably expect that modules can be systematically reused, when there are no generally-accepted principles for dealing with coupling and hundreds of developers are concurrently working on the same information system...

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- True Black Box controls Lehman
 - Any degradation does not affect other elements





- No stateless sync pipelines are allowed
- An action can only contain a single task
- Come in, do your work, and get out
- Deal with large number of small things

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= High-quality IT

- advanced modular structures of proven evolvability that realize McIlroy and withstand Lehman !
- New levels of reuse
- **Independent** of programming language, packages, ... !

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