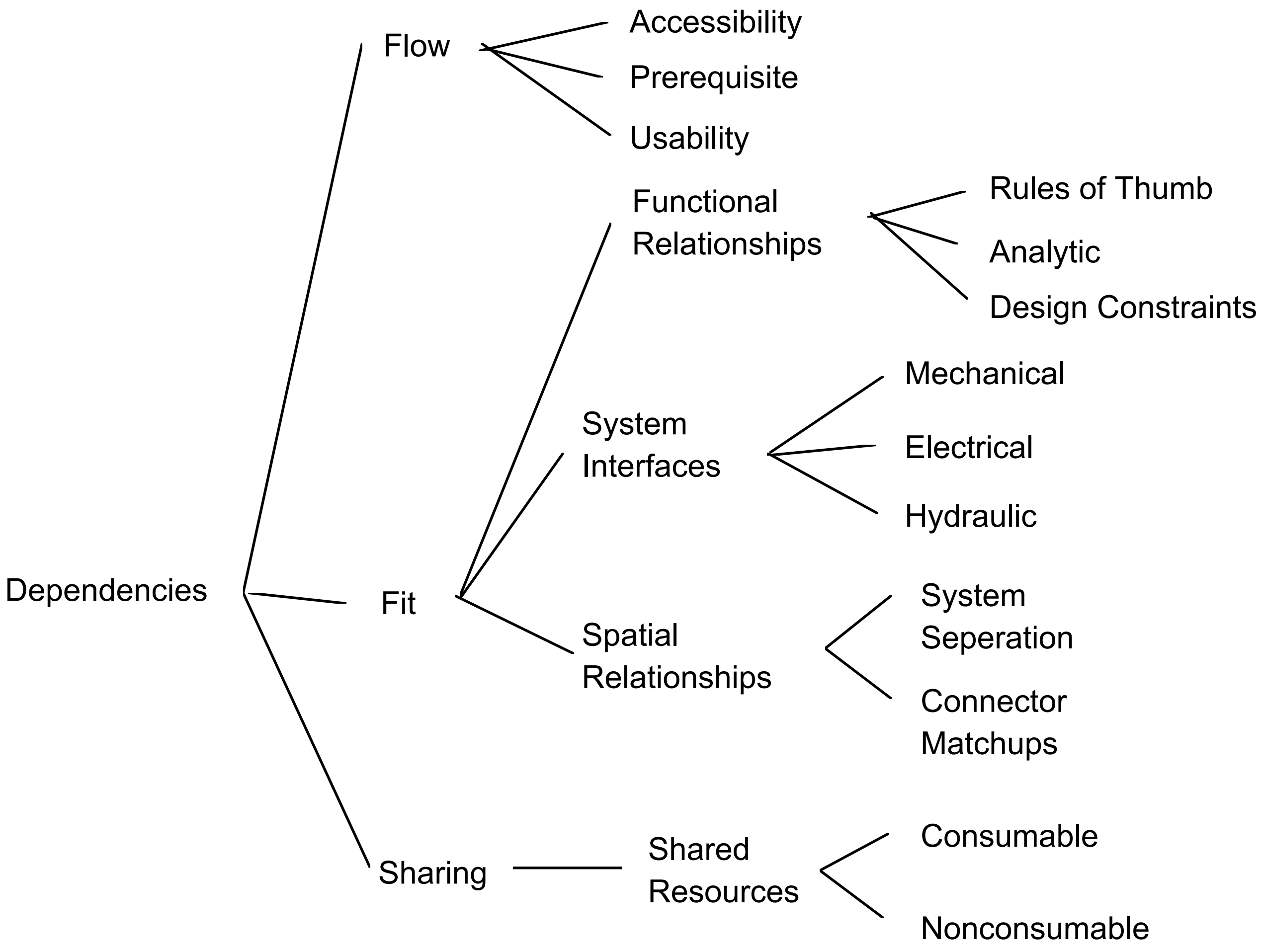
Dependency Capture

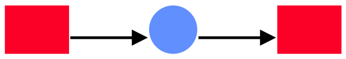
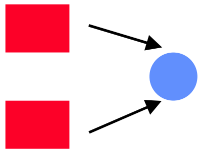
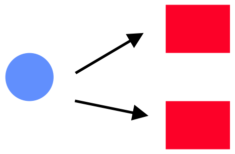
Types of Dependency Languages

- prescriptive
  - captures task/decision *inter-dependencies*
  - constrains choice of coordination mechanisms
  - e.g. formal logic & constraint languages
- descriptive
  - captures decision *rationale* (post hoc)
  - enables exception handling, documentation ...
  - e.g. theme/goal/plan/action models, argumentation. QFD ...

Prescriptive Dependency Types



Dependencies -> Coordination

	Dependency	**Coordination Options**
	• Flow: – Prerequisite: Right time	Make to Order Make to Inventory Make to forecast
	Accessibility: Right Place	Transport vs. Make at Point of Use
	Usability: Right Thing	Ask Customer vs. Use Standard
	Fit	Manage at Design Manage at Build
	Sharing	First Come, First Served Priority Order Managerial Decision: - performance - relationship - volume/$ Market Like Bidding

🟥 Activity ● Resource

Key Challenges

- *major barrier is cost/benefit tradeoff*
  - dependency capture is time-consuming
  - benefits are organizational, not personal

Dependency Inference

- Gruber: shows by simulation that design satisfies requirements; “weak” explanation
- Garcia: uses parametric model to generate explanations; requests dependencies only when it can’t predict decisions (only 4% of the time!)
- Lesser: infers task dependencies based on task sequencing and interactions