Specialization Hierarchy

- Flow
  - In
    - **Above minimum**
      - This constrained flow is such that the amount of flow in is above a minimum amount.
        - **Inventory ordering**
          - Purchasing \{one or more something plus one or more goal gaps\}
            - Capacity ordering
        - **Between minimum and maximum**
          - This constrained flow is such that the amount of flow in is above a minimum and below a maximum amount.
  - Below maximum
    - This constrained flow is such that the amount of flow in is below a maximum amount.
      - First order control
      - **Between minimum and maximum**
        - This constrained flow is such that the amount of flow in is above a minimum and below a maximum amount.
  - Out
    - **Above minimum**
      - This constrained flow is such that the amount of flow out is above a minimum amount.
        - **Inventory backlog shipping**
          - Inventory backlog shipping protected by level
          - Inventory backlog shipping protected by flow
        - **Between minimum and maximum**
          - This constrained flow is such that the amount of flow out is above a minimum and below a maximum amount.
  - Below maximum
    - This constrained flow is such that the amount of flow out is below a maximum amount.
— First order control
— Between minimum and maximum

This constrained flow is such that the amount of flow out is above a minimum and below a maximum amount.

• Sink or Source
  o Level {any number of ins and outs}
    ▪ [how many ins/outs?]
      — Bathtub {one in, one out}
        □ Material delay {arbitrary in; specific out}
          • Cascaded Material delay or aging chain
            o Aging chain with productivity
          • Capacity ordering
        □ [What type of bathtub?] 
          • Inventory (Physical)
            o Cascaded Level {multiple buckets}
              ▪ Conversion {one stock goes into another stock}
                — Diffusion {potential customers become customers}
              ▪ Cascaded Material delay or aging chain
              ▪ Cascaded Smooth
                — Cascaded coflow
                — Cascaded Hines coflow
                — Cascaded Traditional coflow
            ▪ Ideas (Abstract)
              — Accumulator {one in, zero out}
              — Drain {zero in, one out}
        □ Decay
          ▪ [how is level protected/limited?]
            — Protected Level {stock can not go negative}
              □ Level protected by flow
                • Inventory backlog shipping protected by flow
              □ Level protected by level
                • Inventory protected by stockouts
                • Inventory backlog shipping protected by level
— Limited level {stock can not exceed limit}
  □ Limited level protected by level
    • Toilet tank
  □ Limited level protected by flow

▪ Smooth
  — Coflow
    □ [coflow – views]
      • Hines coflow
        o Hines coflow experience
      • Traditional coflow
        o Traditional coflow experience
    □ Cascaded Coflow
      • Cascaded Hines coflow
      • Cascaded Traditional coflow

— Cascaded Smooth
  □ Cascaded coflow
    • Cascaded Hines coflow
    • Cascaded Traditional coflow

— [Smooth what?]
  □ Reusable resource
    • Workforce
  □ Fatigue
  □ Point in Time
    • Scheduled completion date

▪ Present value
  • Auxiliary {mathematical expression}
    o Unary Function
      ▪ Exponential function
    o Binary Function
      ▪ Arithmetic operators
      ▪ Table function {lookup function}

▪ Constant
  o Initial value
  o Lookup values {constant used in lookup function}
• Action or judgment
  o Goal gap {inventory correction}
  o Anchoring and Adjustment
    ▪ Producing
      — Split flow
      □ Workforce Accomplishment structure
    ▪ Sea Anchor and Adjustment
      — [Pricing – views]
      □ Sea Anchor pricing
      • Protected sea anchor pricing
      □ Smooth pricing
      — Protected sea anchor and adjustment
      □ Protected sea anchor pricing
    ▪ Product attractiveness
    ▪ Productivity
    ▪ Overtime
  o Combiner
    ▪ Soft if then
    ▪ Ceiling (soft min)
    ▪ Floor (soft max)
  o Allocation
    ▪ Resource Split
      — Market Share
  o Dimensionless input to table function
  o Expectation
    ▪ Smooth
      — Sea anchor and adjustment
    ▪ Extrapolation
  o Estimate
    ▪ Point in time
      — Estimated completion date
    ▪ Resource
      — Desired workers
    ▪ Duration
      — Residence time
    ▪ Trend