<u>Specialization Hierarchy</u>

- **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**
  - *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**
            - Aging chain with productivity
          - **Capacity ordering**
        - ☐ *[What type of bathtub?]*
          - **Inventory (Physical)**
            - 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**
    - ☐ *<u>Cascaded coflow</u>*
      - • **Cascaded Hines coflow**
      - • **Cascaded Traditional coflow**
  - — **[Smooth what?]**
    - ☐ *Reusable resource*
      - • **<u>Workforce</u>**
    - ☐ *<u>Fatigue</u>*
    - ☐ *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**
  - *Goal gap {inventory correction}*
  - *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**
  - *Combiner*
    - **Soft if then**
    - **Ceiling (soft min)**
    - **Floor (soft max)**
  - *Allocation*
    - **Resource Split**
      - **— Market Share**
  - *Dimensionless input to table function*
  - *Expectation*
    - **Smooth**
      - **— Sea anchor and adjustment**
    - **Extrapolation**
  - *Estimate*
    - **Point in time**
      - **— Estimated completion date**
    - **Resource**
      - **— Desired workers**
    - **Duration**
      - **— Residence time**
    - **Trend**