Appraisal for a Character-based Story-World

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A necessary foundation for situated software agents

- Situated agents just run!

- Simulated Environment
  - The predicament of being in a world
    “Where are you when you do what you do matters”
  - A situated agent employs an executive, whose responsibility is coordination of behaviours
  - Operations on lower levels of an agent run in parallel and are reactive to the environment
  - Resource allocation and scheduling of these parallel processes is the challenge posed by dynamic environments
  - Simulated processes in complex scenarios have several timescales
    Story-world scenarios include the timescales of simulation substrate, story (significant character moves), and plot

- Dramatic Story-World
  - Simulation inhabited by software agents for enacting dramatically interesting (minimal) structures
  - Based on a rich simulation substrate that allows for situatedness
  - Populated with characters whose interactions create plot-links

- Emotional processes drive an agent, mediating between
  - Subjective concerns and preferences
  - Current state of activity
  - Status and offerings of its environment

Motivational effects of appraisal relevant to plot generation

1. Coping
   - Range from problem-oriented to emotion-oriented and support-seeking strategies, may motivate new behaviours
2. Affective expression
   - Unconditionally perceived by others (social imperative)
3. Information-processing effects
   - Adaptation of preferences & mood

Architectural terminology for the implementation of appraisal

- An Operation is the basic unit of interaction of the agent’s Executive, always part of a Behaviour, i.e., a compound operation that can run in parallel with others and unsupervised
- ActAffAct’s behaviours are split into three phases, of which the first and last are harder to interrupt, simulating commitment
- Activity
  - Context of an agent’s current behaviours, defines semantics to lead a conversation, to shop, to idle...
- Perception
  - Translation of outside information to inside information, fills situational meaning structures
- Situational Meaning Structure
  - A subjective model of appearance of a situation
  - Object Affected obj pos -> ObjectReachable obj
  - Agent has flower Agent wants to give it to me

- Relational Action Tendencies
  - States of readiness to achieve or maintain a given kind of relationship with the environment
  - Situation-driven, not goal-oriented (e.g., Plans)
  - Approaching, avoiding, rejecting, dominating, being-with...

Situated Appraisal-based Agent Architecture

- Appraisal
  - Appraisals are the basis for an agent’s decision making and action planning
  - Appraisal-based Agent

- Executing a Character-based Story-World
  - What scenarios warrant what kind of architecture?
  - What is the relation to emotion theory?

- ActAffAct
  - Acting Affectionately affecting Acting, a prototype story-world
  - An environment prone to conflict with four archetypal characters

- Role of Emotions
  - Emotions are crucial for dealing with dynamic environments
  - Modal Emotions: frequent episodes in a given lifeworld (cf. structuralist plot functions)
  - Operationalisation?
  - Appraisal criteria
    - Reference: standard compliance, intrinsic pleasantness, novelty, who is responsible, coping potential
    - Action tendencies
      - Conditional devices for coherent action
      - Coping including expressive actions
    - Regulation
  - Implementation in ActAffAct via behaviour categories
  - Represent social commitments
  - Provide current situational meaning structure frames

- Situated Appraisal-based Agent Architecture