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# SAIBA

## Some Previous Discussions

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# Topics

- Terminology
- Levels of Detail
- Real-time / Co-ordination
- Sync-Points
- Gaze
- FML



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# Terminology

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# The Terms BML and FML

- Behavior Markup Language (**BML**)
- Function Markup Language (**FML**)
- Previously existed internally at ISI to refer to the corresponding interfaces
- Terms had never been used externally until Reykjavik and therefore there should be little confusion with anything that existed before
- Top-level elements: **<bml>** and **<fml>**

# What is “Communicative Behavior”?

- **Any perceived action** is communication
- Perhaps BML can ultimately encompass all such behavior
  - even non-communicative
- But for now we are focusing more on **face-to-face dialogue** communication
- We also want to stick to **declarative definitions** and not go too much into a **procedural description of a script** to execute in the world

- As we start to extend BML elements with new attributes, we should try to use **existing attribute naming conventions**
- For example:
  - **:amount** (not :amt or :how\_much)
  - **:angle** (not :ang or :degrees)
- The same for interpretations:
  - **:angle** is always in degrees
  - **:duration** is always in seconds



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# Levels of Detail

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# Varying levels of detail in BML

- BML is the language to formulate behaviors during **high-level behavior planning** or in a **behavior repository**
- Lowest level of detail
  - a broad reference to an **animation source**
- Highest level of detail
  - full-blown description of the **behavior itself**

- Token behaviors
  - Nod, Shake, Wave, Smile
  - Problem: Lacks variety
  - Possibility: Up to the realizer / add attributes
- Animation names
  - Nod1, CH1A49
  - Problem: Animation source specific
  - Possibility: Also include token behavior

# Highest-Level of Detail

- Is it BML “**all the way**”?
- But other languages already exist for some kinds of behavior
- **Embedding** those other languages vs. **adding** them to the BML specification
  - For example prosody (ToBI, SABLE)
- We seem to favour the embedded route for now to focus on **core BML**

# The Gesticon and GRL!

- A whole chapter by itself...



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# Real-Time / Co-ordination

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# Real-time vs. Batch Considerations

- The **connection** between the behavior planner and the behavior realizer has to be **two-way**
- Ample feedback about **behavior progress** allows planner to **react** – supply new behaviors or re-plan

# Reacting to World Events

- The generality of the `<wait>` / `<event>` mechanism
  - Co-ordinating between characters
  - Receiving events from the world

# Special BML Scheduling Commands

- When we send a new **<bml>** block to the realizer, should the realizer assume it is to be cued after the previous block?
- Possibility to add attributes to the **<bml>** block that indicate:
  - Interrupt
  - Interrupt and continue
  - Integrate
  - Add to queue



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# Sync-Points

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- Should be able to express whatever time constraints/synchronization you require
- Par / Seq and other hierarchical approaches like BEAT have certain limitations
- How many **sync-points** are there in a behavior and what do we call them?
  - We want a core sync-point semantics
  - Also want to be able to cover all behaviors

# Enforce Acyclinc Timing Dependency

- Behaviors can only refer to previously declared sync-points

# Unconstrained Time Values

- Should be “NULL” rather than a number such as “-1”
- Or whatever you get when you ask for the value of an attribute that doesn't exist!



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# Gaze

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# What's in a <gaze>?

- Can the <gaze> element control the entire body, including the legs?
- A really “smart” realizer will do whatever is needed to fulfil the request, even if it involves “stepping gaze”
- But we should be able to achieve the same effect in a “simpler” realizer by sending a <gaze>, <torso>, <legs>



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FML

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# FML → BML an Iterative Process

- It is quite possible that another pass of FML to BML mapping will occur after the first pass
  - For example when generating the text of an utterance

# FML Is Pretty Open

- “An utterance can have a range of socio-emotive goals, there are a range of theories that characterize these goals and FML is currently being very open in what it includes” - Stacy