The MUG System
A Development Environment for Multimodal Functional Unification Grammars

http://www.media.mit.edu/~dreitter/mug/

The grammar system provides
- Generation of multiple output variants for a semantic input specification
- Scoring of outputs with a fitness function (soft constraints, optimization, adaptivity)
- Discourse-level processing (referring expressions)
- Hierarchical ontology for inference and optional type-checking
- API for integration into dialogue systems (Java examples)
- Runtime system with compiler, best-first, branch & bound optimization
- MUG Workbench to help develop, learn and maintain grammars
- Demonstration mode including text-to-speech and PDA/Phone simulation
- Example grammar and tutorial
- Platforms: Mac OS X, Linux and Windows.

MUG Formalism
Multimodal Functional Unification Grammar (MUG) has a simple, well-defined syntax based on Prolog. Its origins are in Functional Unification Grammar (FUG) / Formalism (F). Each constituent is unified with one component for each mode, so that the mode-specific realizations for a given semantic entity (or other constituent) are synchronized. Components may be defined for specific output modes (screen, voice, possibly avatar gestures) or for the general case. Upper-level components deal with output planning and dialogue acts, while mid-level components with syntax and low-level components generate output markup such as HTML or VoiceXML.

MUG Workbench
MUG Workbench http://localhost:4242/

VARIANT VIEW
The MUG System allows grammar designers to inspect the results of a particular generation process.

LOG VIEW
A procedural account of the generation process shows problem, such as missing components (e.g. due to typos).

DEMO
Life-size simulation on screen with simultaneous TTS output lets grammar designers judge the appropriateness of an output.

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