

CLAIMS

1. A method for animating an Embodied Agent, including the steps of:
receiving a Communicative Utterance;
processing the Communicative Utterance to generate an Elegant Variation of the Communicative Utterance;
processing the Elegant Variation to identify one or more Rules applicable to at least one Target in the Elegant Variation;
applying Markup to the representation of the Elegant Variation of the Communicative Utterance according to the one or more Rules, wherein the Markup defines one or more Behaviour Modifiers configured to modify how the Communicative Utterance is expressed;
processing the Markup to apply Behaviour Modifiers as the Embodied Agent expresses the Communicative Utterance.
2. The method of claim 1 wherein the representation of the Elegant Variation is generated using the method of claim 10.
3. The method of claim 1 wherein the one or more Rules are associated with a priority, the method including the steps of resolving conflict between rules by only applying the Rule having the highest priority where two or more Rules conflict.
4. The method of claim 1 wherein Behaviour Modifiers include: facial expressions, body language and/or voice intonation.
5. The method of claim 1 wherein Communicative Utterance include verbal utterances and gestural utterances.
6. The method of claim 1 wherein one or more Rules refer to a dictionary of Targets to which the Rules apply.
7. The method of claim 1 wherein Markup defining the one or more Behaviour Modifier is translated to a lower-level representation for controlling the Embodied Agent.
8. A method for animating a Embodied Agent including the steps of:
receiving a Communicative Utterance;
processing the Communicative Utterance to identify one or more Rules applicable to at least

one Target in the Communicative Utterance;

wherein the effect of the rule is to modulate an internal state of the Embodied Agent.

9. The method of claim 8 wherein the degree of modulation of the internal state of the Embodied Agent depends on an autonomy variable, wherein a higher value of the autonomy variable decreases the modulation of the internal state.
10. A method for generating an Elegant Variation of a Communicative Utterance for communication by a Embodied Agent, including the steps of:
defining a grammar for the Communicative Utterance by embedding the definition of the grammar as an annotated representation of the Communicative Utterance;
the annotated representation including:
at least one sub-expression nesting a plurality of Alternative Variants; at least one of the Alternative Variants nesting a plurality of Alternative Variants; generating an Elegant Variation from the context-free grammar.
11. The method of claim 10 wherein one of the alternatives from at least one of the plurality of alternatives is an absence of expression.
12. The method of claim 10 wherein one or more of the sub-expressions represent verbal communication.
13. The method of claim 10 wherein one or more of the sub-expressions represent gestural communication.
14. The method of claim 13 wherein gestural communications are represented by Markup Tags.
15. The method of claim 10 wherein the annotated representation is a text-based representation with nesting represented parenthetically.
16. The method of claim 10 wherein the Alternative Variants are associated with weights, wherein the weights represent a probability of selection relative to the other Alternative Variants.
17. A method for controlling an expression of a Communicative Utterance by a Embodied Agent, including the steps of:
receiving a representation of the Communicative Utterance;
receiving a plurality of Rules including:
Targets to which the rules are to be applied;
Conditions which limit application of the rules;

18

Results which define Markup for a modification of the Communicative Utterance and/or a manner of delivery of the Communicative Utterance;
applying one or more of the plurality of Rules to generated a Marked-Up communicative utterance; and
processing the Marked-Up communicative utterance to control the behaviour of the Embodied Agent as the Embodied Agent expresses the Communicative Utterance.