Appendix A

Abbreviations, Notations, Symbols

A.1 Abbreviations

αFORTH.	Agent Forth (AFL)
AI.	Artificial Intelligence
AoC.	Agent-on-Chip (Agent Platform Architecture)
AAPL.	Activity-Transition Graph based Agent Programming Language
AFL.	Agent Forth Programming Language
AI.	Artificial Intelligence
AML.	Agent Forth Machine Language
ANN.	Artificial Neural Network
APP.	Agent Processing Platform
ALAP.	As Late As Possible
ASAP.	As Soon As Possible
AST.	Abstract Syntax Tree
ATG.	Activity Transition Graph
BDI.	Belief Desire Intention (Agent Model)
CF.	Code Frame (Agent Forth Machine)
CPS.	Cyber Physical System
CS.	Code Segment (Processor)
CSP.	Communication Sequential Processes
DB.	Database
DOS.	Distributed Operating System

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DSN.	Distributed Sensor Network
DT.	Decision Tree
DTL.	Decision Tree Learner
FEM.	Finite Element Model (Mechanics)
FIFO.	First-In First-Out (Data processing order)
FSM.	Finite-State Machine
GUI.	Graphical User Interface
HLS.	High-Level Synthesis
JAM.	JavaScript Agent Machine (platform)
JS.	JavaScript
LIFO.	Last-In First-Out (Data processing order)
LM.	(Structural/Mechanical) Load Monitoring
LUT.	Look-up Table
MAS.	Multi-Agent System
ML.	Machine Learning (AI)
PAVM.	Pipelined Agent Forth Virtual Machine (PAFVM)
PCSP.	Pipelined Communicating Sequential Processes
PID.	Proportional-Integral-Derivative Controller
PN.	Petri Net
PRS.	Procedural-Reasoning-System
PU.	Processing Unit
QoS.	Quality of Service
ROI.	Region Of Interest
RPCSP.	Reconfigurable Pipelined Communicating Processes
RT.	Real Time
RTL.	Register Transfer (Logic) Level
SEM.	Smart Energy Management (with AI)
SHM.	Strutural Health Monitoring
SoC.	System-on-Chip (Hardware Architecture)
SoPC.	System-on-Programmable Chip (Hardware Architecture)
SoMas.	Self-organizing Multi-Agent System
SoS.	Self-organizing System
SQL.	Standard Query Language (Database)
TS.	Tactile Sensing (Application)
TS.	Tuple Space (Communication)
μC.	Microcontroller
VM.	Virtual Machine

A.2 Symbols

$\mathcal{A}$.	Set of activities of an ATG

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$\mathcal{T}$	Set of transitions of an ATG

A.3 Notation

A.3.1 AAPL Short Notation

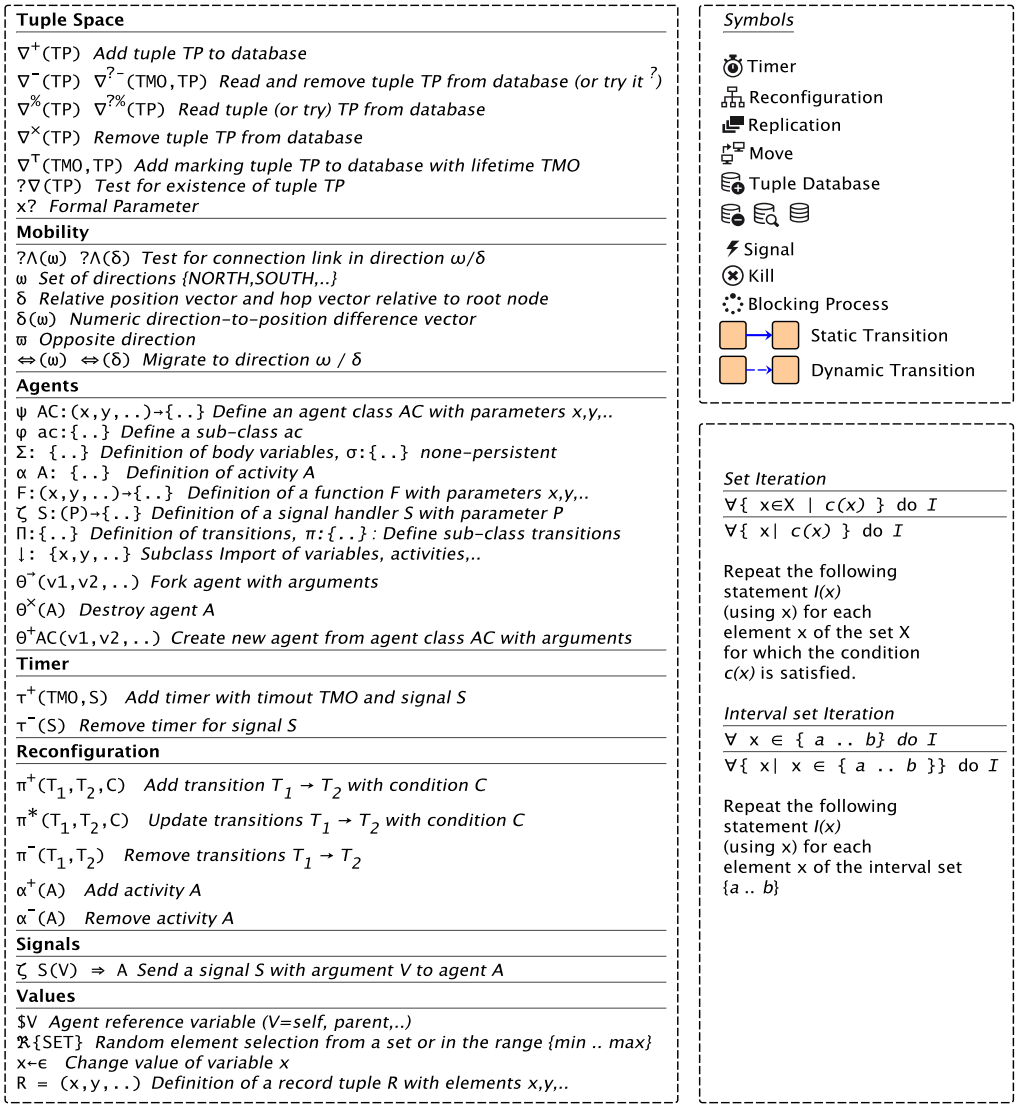

Fig. A.1 *AAPL Short Notation and symbols related to the dynamic ATG and Agent Interaction model*

A.3.2 Rules

Synthesis Transformation Rule

A pattern A (the prefix) is transformed in pattern B (the transformation outcome).

$$\frac{\overline{)\ \text{Pattern } A}}{\text{Pattern } B}$$

Reduction Rule

A rule A (the prefix) enables a transition to rule b (the transition outcome).

$$\frac{\text{Rule } A}{\text{Rule } B}$$

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