

# Grammar (BNF) of the Specification Language

*specification* → *spec-list*

*spec-list* → *spec* . *spec-list* | *spec* .

*spec* → *model-decl* | *system-decl* | *problem-decl*

*model-decl* → *comp-model-decl* | *net-model-decl*

*comp-model-decl* → **component model id is**

*event-decl*

*input-decl*

*output-decl*

*state-decl*

*transition-decl*

**end id**

*event-decl* → **event** *id-list* ;

*id-list* → **id** , *id-list* | **id**

*input-decl* → **input** *id-list* ; | **ε**

*output-decl* → **output** *id-list* ; | **ε**

*state-decl* → **state** *id-list* ;

*transition-decl* → **transition** *trans-decl-list* ;

*trans-decl-list* → *trans-decl* , *trans-decl-list* | *trans-decl*

*trans-decl* → **id** = *event* , **id** -> **id** , { *opt-ref-list* }

*event* → *ref* | ( )

*ref* → **id** ( **id** )

*opt-ref-list* → *ref-list* | **ε**

*ref-list* → *ref* , *ref-list* | *ref*

*net-model-decl* → **network model id is**

*component-section*

*link-section*

*pattern-section*

*initial-section*

*viewer-section*

*ruler-section*

**end id**

*component-section* → **component** *decl-list* ;

*decl-list* → *decl* , *decl-list* | *decl*

*decl* → *id-list* : **id**

*link-section* → **link** *link-list* ; | **ε**

*link-list* → *link-decl* , *link-list* | *link-decl*

*link-decl* → *ref* -> *ref*

*pattern-section* → **pattern** *pattern-list* ; | **ε**

*pattern-list* → *pattern-decl* , *pattern-list* | *pattern-decl*

*pattern-decl* → **id** = *expr*

*expr* → *expr* " | " *term* | *term*

*term* → *term* *factor* | *term* & *factor* | *factor*

*factor* → *factor* \* | *factor* + | *factor* ? | ( *factor* ) | ~ *ref* | *ref*

*initial-section* → **initial** *ref-list* ; | **ε**

*viewer-section* → **viewer** *map-list* ; | **ε**

*map-list* → *map-decl* , *map-list* | *map-decl*

*map-decl* → *ref* -> **id**

*ruler-section* → **ruler** *map-list* ; | **ε**

*system-decl* → **system id is** *system-node-list* *root-section* *emergence-section* **end id**

*system-node-list* → *system-node*, *system-node-list* | *system-node*

*system-node* → **node id is** *initial-section* *viewer-section* *ruler-section* **end id**

*root-section* → **root id ;** | **ε**

*emergence-section* → **emergence** *map-list* ; | **ε**

*problem-decl* → **problem id is** *problem-node-list* **end id**

*problem-node-list* → *problem-node*, *problem-node-list* | *problem-node*

*problem-node* → **node id is** *initial-section* *viewer-section* *obs-section* *ruler-section* **end id**

*obs-section* → **obs** [ *opt-ref-list* ] ;

Note: A specification file may contain several **#include** directives (not involved in the grammar of the specification language), to be managed by a preprocessor. The (single) file generated by the preprocessor is a phrase of the specification language.