$[DECLARATION, EXPRESSION, LINES, DEFINITION]$

$[VARS]$

ZcgaState

$declarations : VARS \leftrightarrow EXPRESSION$

$expressions : \mathbb{P}\, LINES$

$definitions : \mathbb{P}\, LINES$

$definedConstants : \mathbb{P}\, VARS$

$TermDeclaration : VARS \leftrightarrow EXPRESSION$

$SetDeclaration : VARS \leftrightarrow EXPRESSION$

$terms : \mathbb{P}\, VARS$

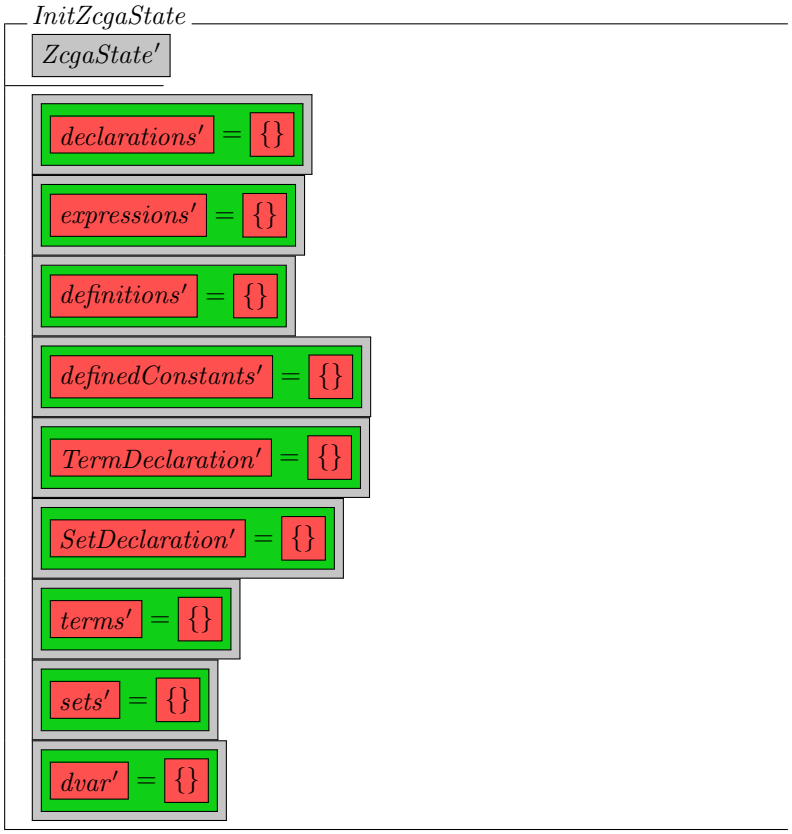
$sets : \mathbb{P}\, VARS$

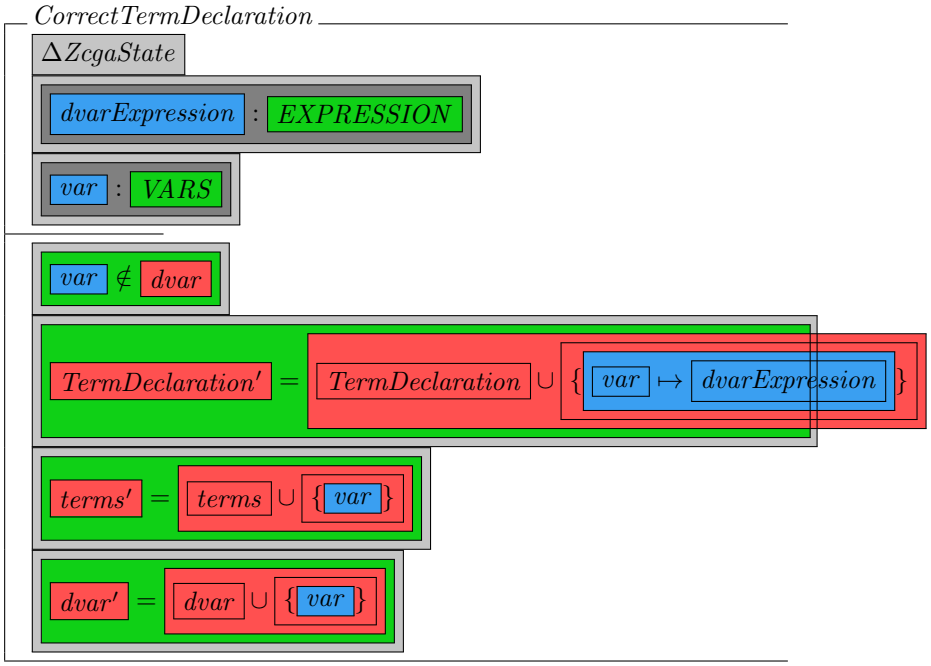
$dvar : \mathbb{P}\, VARS$

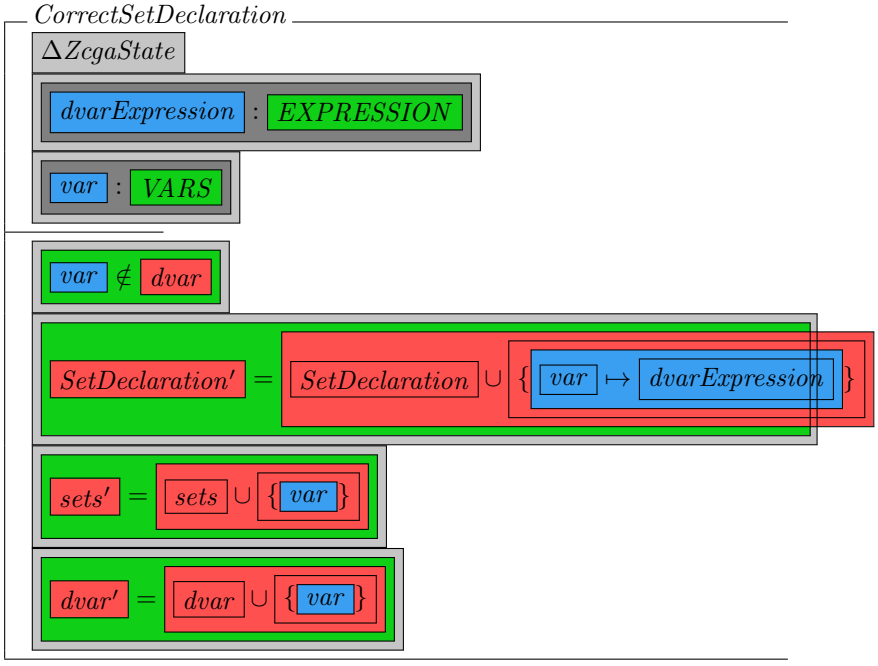
$TermDeclaration \subseteq declarations$

$SetDeclaration \subseteq declarations$

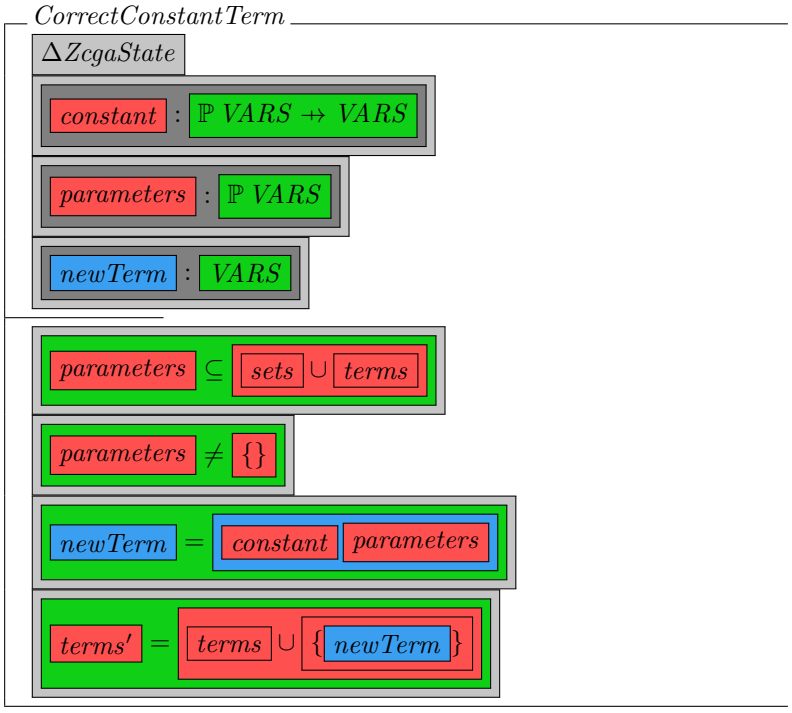
$dvar \subset sets \cup terms$


InitZcgaState
ZcgaState′
declarations′ = {}
expressions′ = {}
definitions′ = {}
definedConstants′ = {}
TermDeclaration′ = {}
SetDeclaration′ = {}
terms′ = {}
sets′ = {}
dvar′ = {}





This schema desribe constants giving terms for example $\#S$ takes set S and gives the cardinality of S which is a term.



This schema describes constants giving sets, for example $S \cup T$ gives a set with elements from S and elements of T.

CorrectConstantSet

$\Delta ZcgaState$

$constant : \mathbb{P}\ VARS \pfun VARS$

$parameters : \mathbb{P}\ VARS$

$newset : VARS$

$setparameters \subseteq sets \cup terms$

$setparameters \neq \{\}$

$newset = constant\ parameters$

$sets' = sets \cup \{newset\}$

CorrectExpression

$\Delta ZcgaState$

$expressConstant : \mathbb{P}\ VARS \pfun EXPRESSION$

$expressParameters : \mathbb{P}\ VARS$

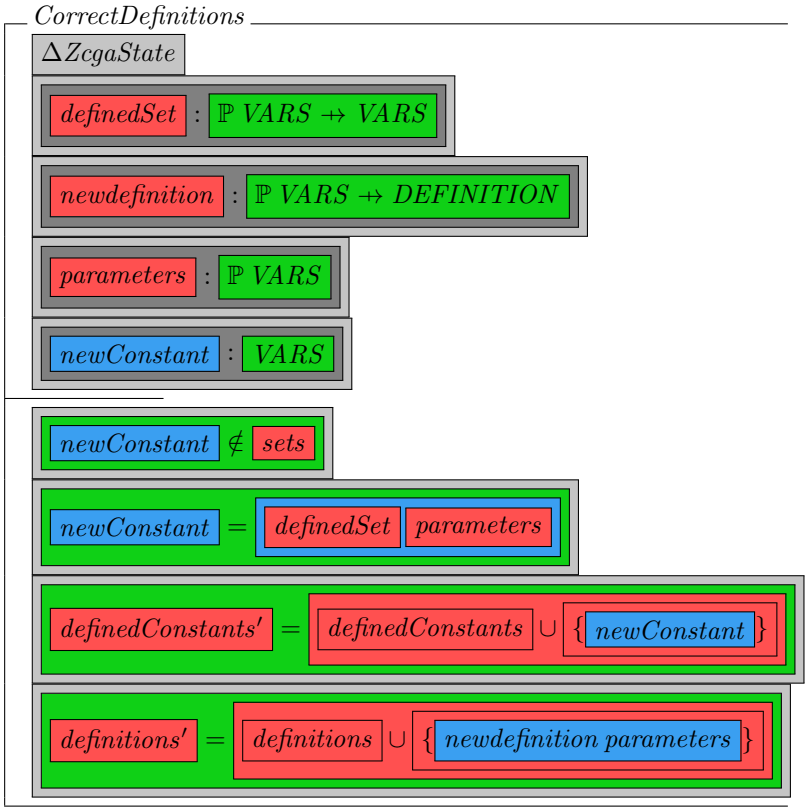
$newExpression : EXPRESSION$

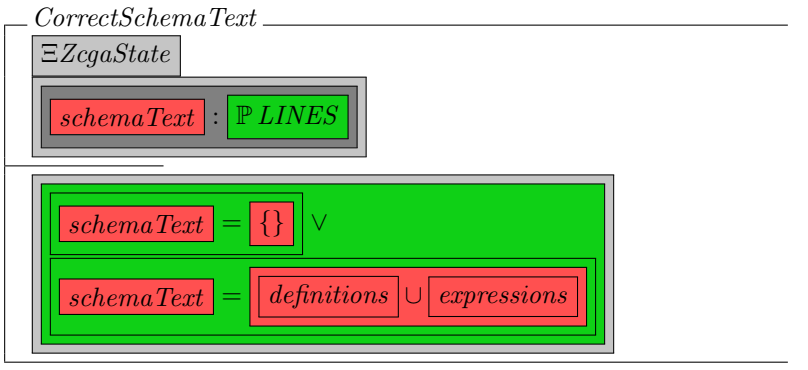
$expressParameters \subseteq sets \cup terms$

$expressParameters \neq \{\}$

$newExpression = expressConstant\ expressParameters$

$expressions' = expressions \cup \{newExpression\}$


CorrectDefinitions
ΔZcgaState
definedSet : ℙ VARS ⇸ VARS
newdefinition : ℙ VARS ⇸ DEFINITION
parameters : ℙ VARS
newConstant : VARS
newConstant ∉ sets
newConstant = definedSet parameters
definedConstants′ = definedConstants ∪ { newConstant }
definitions′ = definitions ∪ { newdefinition parameters }


CorrectSchemaText
ΞZcgaState
schemaText : ℙ LINES
schemaText = {} ∨
schemaText = definitions ∪ expressions