Parser da ferramenta Mercury

Aluno: Luis Victor Ferreira de Carvalho

Orientador: Eduardo Antônio Guimarães Tavares

Agenda

- Introdução
- Gramática
- Exemplos de expressões
- Visualizações

Introdução

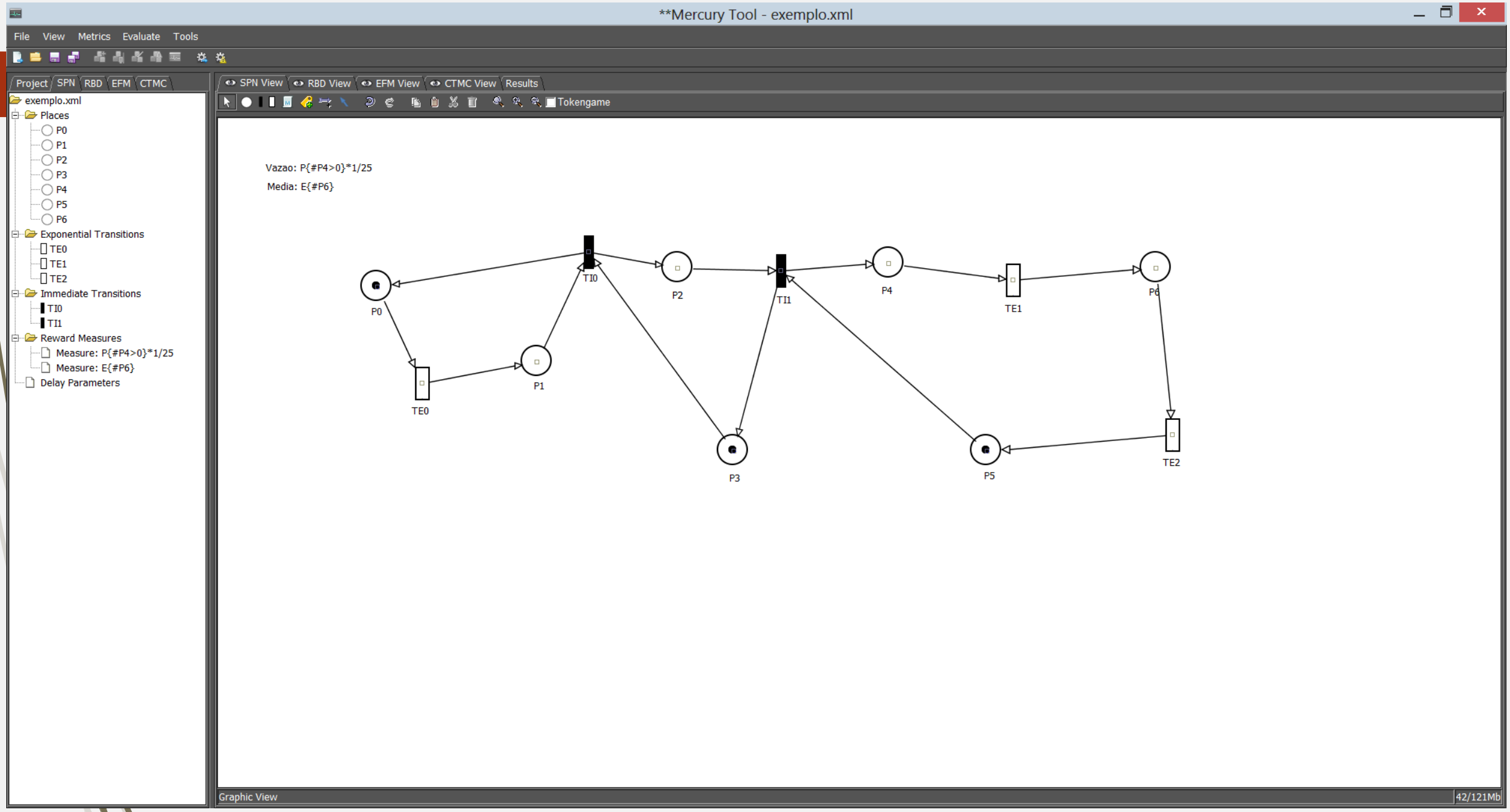
- Definir uma linguagem formal
- A partir da linguagem formal, é possível definir métricas em nível maior de abstração
- Desenvolver um parser que permita interpretar parâmetros de avaliação dentro do ambiente de desenvolvimento do Mercury

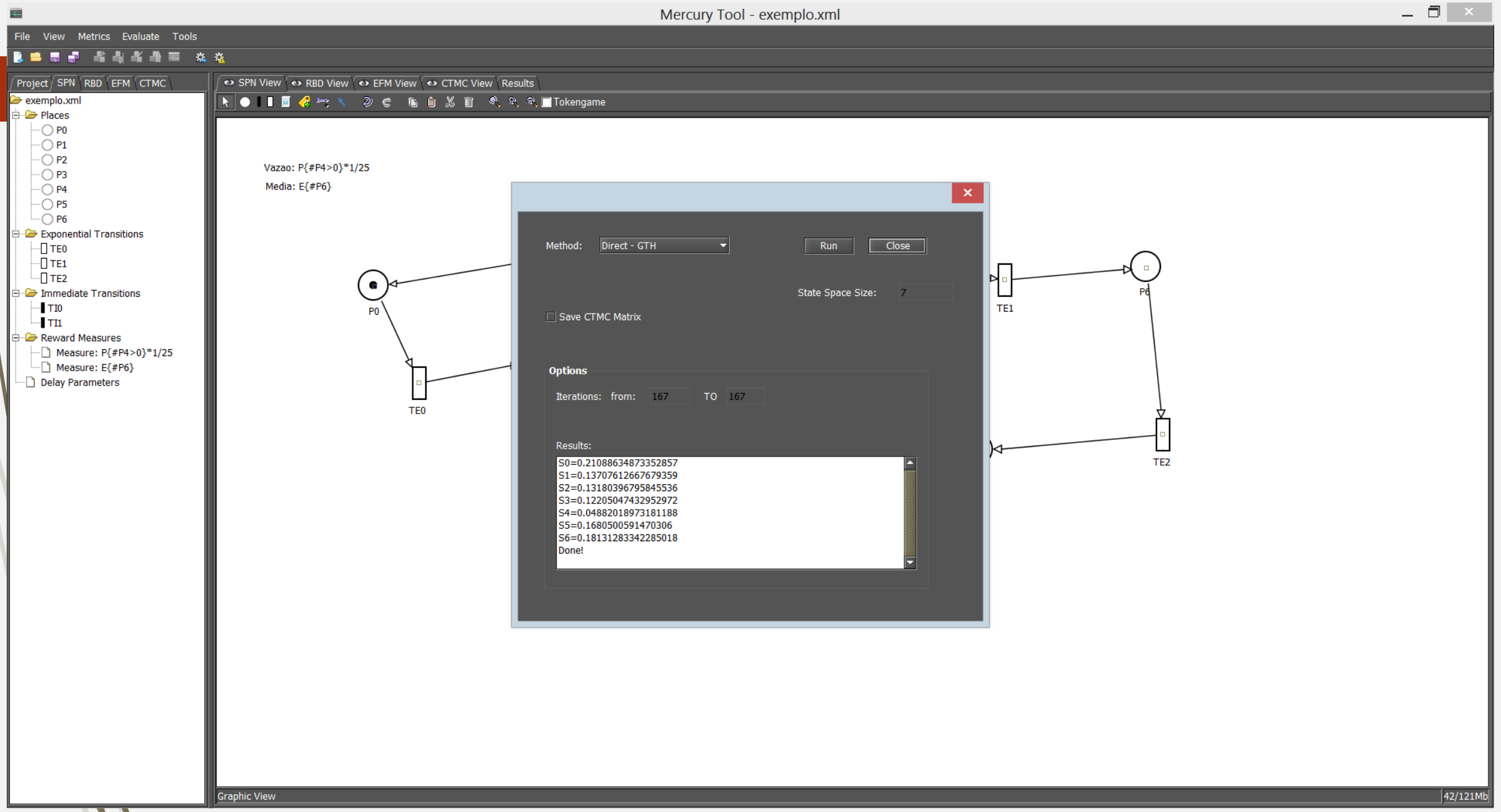
Gramática

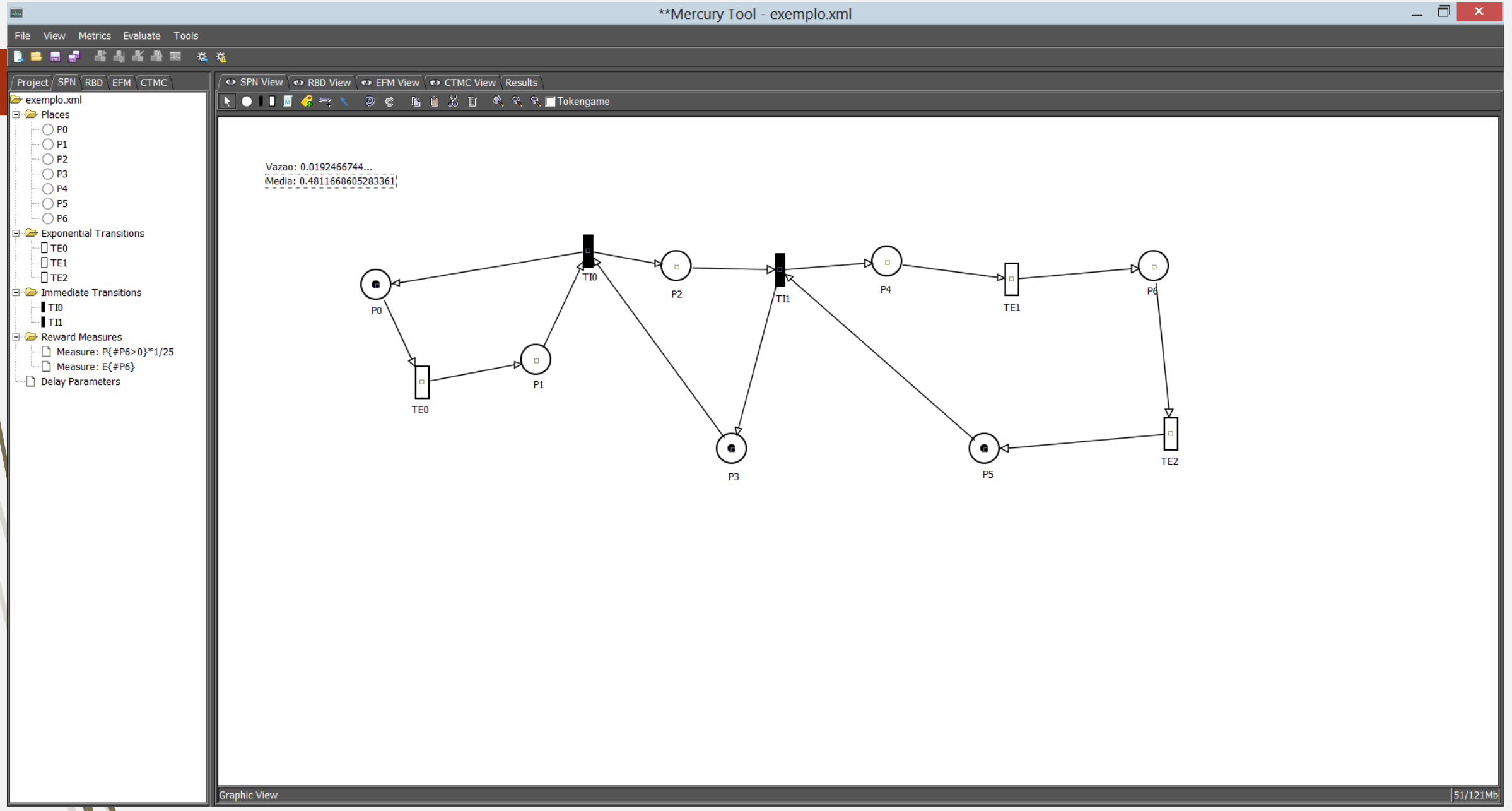
```
Expression -> SimpleMetric
         | BinaryExpression

BinaryExpression -> UnaryExpression
        | UnaryExpression ('+' | '-' | '*' | '/' ) UnaryExpression

SimpleMetric -> "P{" LogicalExpression "}"
         | "E{" UnaryExpression "}"

LogicalExpression -> ComparisonExpression
            | ComparisonExpression ( 'or' | 'and' ) ComparisonExpression
            | 'not' ComparisonExpression

ComparisonExpression -> UnaryExpression
              | UnaryExpression ( '>' | '<' | '=' | '<=' | '>=' | '<>' ) UnaryExpression

UnaryExpression -> Value
            | "(" Expression ")"

Value -> IntegerValue
    | RealValue
    | StringValue

IntegerValue -> <DIGITO>

StringValue -> <MARCACAO> | <IDENT>

RealValue -> <DIGITO>.(<DIGITO)*

<MARCACAO> -> "#" <IDENT>

<IDENT> -> <LETRA> (<DIGITO>)*

<DIGITO> -> "0" - "9"

<LETRA> -> "a" - "z" | "A" - "Z"
```

Exemplos de expressões

- P{#place1 > 0}
- E{#place2}
- P{#place3=1}*P{#place1>1 and #place2 < 3}
- P{#place1 = 0 or #place2 = 0} *0.1


**Mercury Tool - exemplo.xml
File
View
Metrics
Evaluate
Tools
Project
SPN
RBD
EFM
CTMC
exemplo.xml
Places
P0
P1
P2
P3
P4
P5
P6
Exponential Transitions
TE0
TE1
TE2
Immediate Transitions
TI0
TI1
Reward Measures
Measure: P{#P4>0}*1/25
Measure: E{#P6}
Delay Parameters
SPN View
RBD View
EFM View
CTMC View
Results
Tokengame
Vazao: P{#P4>0}*1/25
Media: E{#P6}
P0
TI0
P2
TI1
P4
TE1
P6
TE0
P1
P3
P5
TE2
Graphic View
42/121Mb


Mercury Tool - exemplo.xml
File View Metrics Evaluate Tools
Project SPN RBD EFM CTMC
exemplo.xml
Places
P0
P1
P2
P3
P4
P5
P6
Exponential Transitions
TE0
TE1
TE2
Immediate Transitions
TI0
TI1
Reward Measures
Measure: P{#P4>0}*1/25
Measure: E{#P6}
Delay Parameters
SPN View RBD View EFM View CTMC View Results
Tokengame
Vazao: P{#P4>0}*1/25
Media: E{#P6}
Method: Direct - GTH
Run
Close
State Space Size: 7
Save CTMC Matrix
Options
Iterations: from: 167 TO 167
Results:
S0=0.21088634873352857
S1=0.13707612667679359
S2=0.13180396795845536
S3=0.12205047432952972
S4=0.04882018973181188
S5=0.1680500591470306
S6=0.18131283342285018
Done!
P0
TE0
TE1
P6
TE2
Graphic View
42/121Mb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P0
P1
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P3
P4
P5
P6
Exponential Transitions
TE0
TE1
TE2
Immediate Transitions
TI0
TI1
Reward Measures
Measure: P{#P6>0}*1/25
Measure: E{#P6}
Delay Parameters
SPN View
RBD View
EFM View
CTMC View
Results
Tokengame
Vazao: 0.0192466744...
Media: 0.4811668605283361
P0
TI0
P2
TI1
P4
TE1
P6
TE0
P1
P3
P5
TE2
Graphic View
51/121Mb

Duvidas?