Avaliação (inicial) do **NCL Composer** a partir dos conceitos de ISM e *algumas* dimensões

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NCL Composer

- NCL Composer é uma ferramenta de autoria multimídia e multiplataforma para criação de aplicações para TV Digital Interativa (TVDI) em NCL (Nested Context Language).

- Extensível por meio de plug-ins
  - Visões
  - Outros

- http://composer.telemidia.puc-rio.br/

```xml
<?xml version="1.0" encoding="ISO-8859-1"?>
<ncl id="example" xmlns="http://www.ncl.org.br/NCL3.0/EDTVProfile">
    <head>
        <regionBase>
            <region id="rVideo" top="0%" left="0%"
                                width="100%" height="100%">
                <region id="rIcon" top="5%" left="5%"
                                width="8%" height="8%"/>
            </region>
        </regionBase>

        <descriptorBase>
            <descriptor id="dVideo" region="rVideo"/>
            <descriptor id="dIcon" region="rIcon">
                <descriptorParam name="transparency" value="10%"/>
            </descriptor>
        </descriptorBase>

        <connectorBase>
            <causalConnector id="onBeingStart">
                <simpleCondition role="onBegin" />
                <simpleAction role="start" />
            </causalConnector>

            <causalConnector id="onEndStop">
                <simpleCondition role="onEnd" />
                <simpleAction role="stop" />
            </causalConnector>
        </connectorBase>
    </head>

    <body>
        <port id="pVideo" component="video"/>

        <media id="video" src="media/video.mp4" descriptor="dVideo"/>
        <media id="icon" src="media/icon.png" descriptor="dIcon"/>

        <link xconnector="onBeingStart">
            <bind role="onBegin" component="video"/>
            <bind role="start" component="icon"/>
        </link>

        <link xconnector="onEndStop">
            <bind role="onEnd" component="video"/>
            <bind role="stop" component="icon"/>
        </link>
    </body>
</ncl>
```

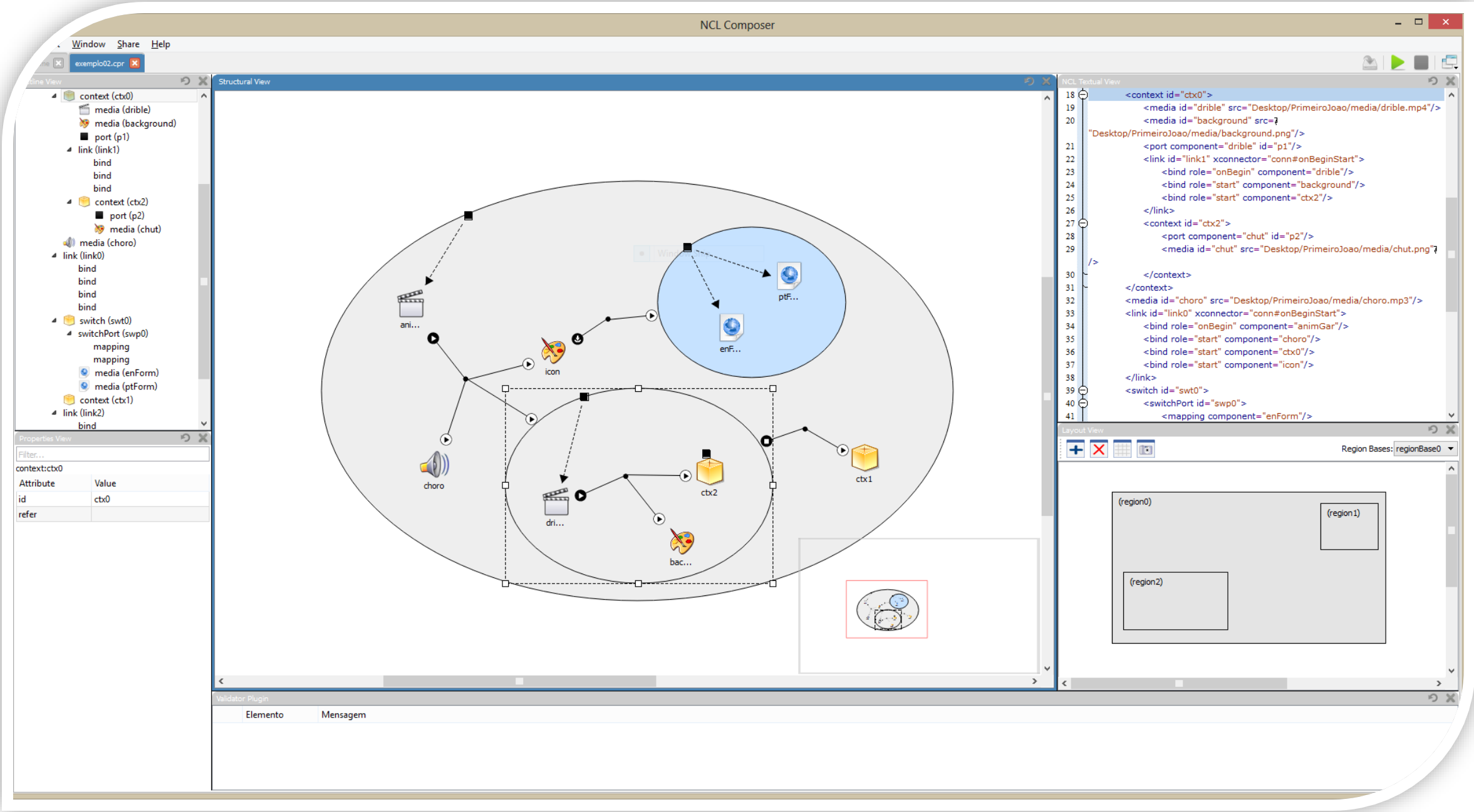
Onde?

Como?

Quando?

O que?

Quando?


NCL Composer
Window
Share
Help
exemplo02.cpr
context (ctx0)
media (drible)
media (background)
port (p1)
link (link1)
bind
bind
bind
context (ctx2)
port (p2)
media (chut)
media (choro)
link (link0)
bind
bind
bind
bind
switch (swt0)
switchPort (swp0)
mapping
mapping
media (enForm)
media (ptForm)
context (ctx1)
link (link2)
bind
Structural View
ani...
icon
ptF...
enF...
choro
dri...
ctx2
ctx1
bac...
NCL Textual View
<context id="ctx0">
<media id="drible" src="Desktop/PrimeiroJoao/media/drible.mp4"/>
<media id="background" src="Desktop/PrimeiroJoao/media/background.png"/>
<port component="drible" id="p1"/>
<link id="link1" xconnector="conn#onBeginStart">
<bind role="onBegin" component="drible"/>
<bind role="start" component="background"/>
<bind role="start" component="ctx2"/>
</link>
<context id="ctx2">
<port component="chut" id="p2"/>
<media id="chut" src="Desktop/PrimeiroJoao/media/chut.png"/>
</context>
</context>
<media id="choro" src="Desktop/PrimeiroJoao/media/choro.mp3"/>
<link id="link0" xconnector="conn#onBeginStart">
<bind role="onBegin" component="animGar"/>
<bind role="start" component="choro"/>
<bind role="start" component="ctx0"/>
<bind role="start" component="icon"/>
</link>
<switch id="swt0">
<switchPort id="swp0">
<mapping component="enForm"/>
Properties View
Filter...
context:ctx0
Attribute
Value
id
ctx0
refer
Layout View
Region Bases:
regionBase0
(region0)
(region1)
(region2)
Validator Plugin
Elemento
Mensagem

Dimensões: Aspectos da computação ensinados x Idade

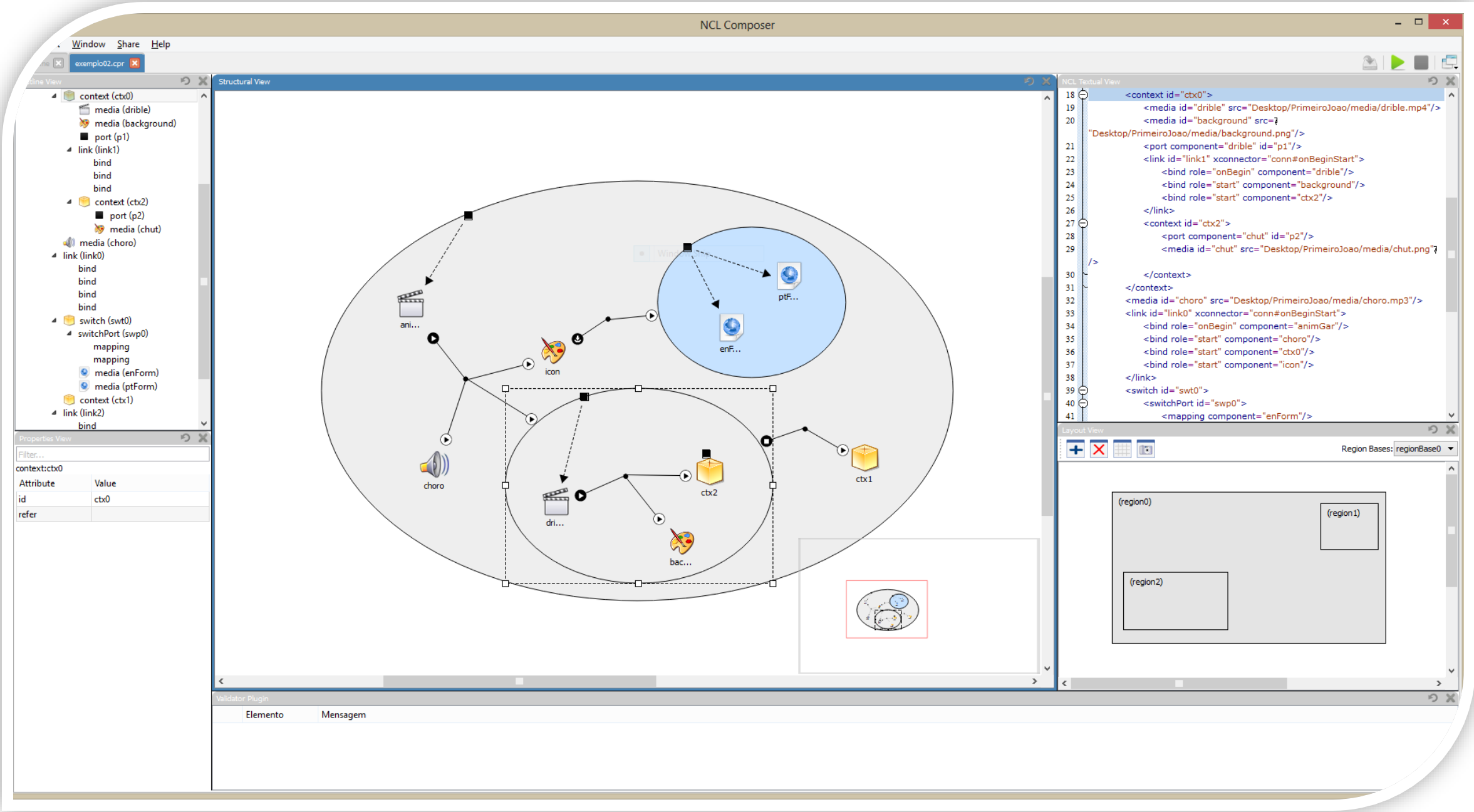
- Meerbaum-Salant *et al*, 2010 [1]
  - computação sequencial; coordenadas e direção; inicialização espacial; concorrência (múltiplos “sprites”); concorrência (scripts); loop infinitos; condições simples; comunicação e sincronização; espera (waiting); loop condicionais e finitos; salvar e utilizar valores salvos nas variáveis; execução condicional; aleatoriedade; eventos; computação numérica; acumuladores e contadores; listas. (14-15)

- Gibson, 2012 [2]
  - subgraph problem (5-6); shortest path (14-15)

Dimensões: Aspectos da computação ensinados x Idade

- Zendler *et al*, 2011 [3]
  - algorithm; computer; data; problem; information; system; language; program; test; communication; software; process; model; computation; structure

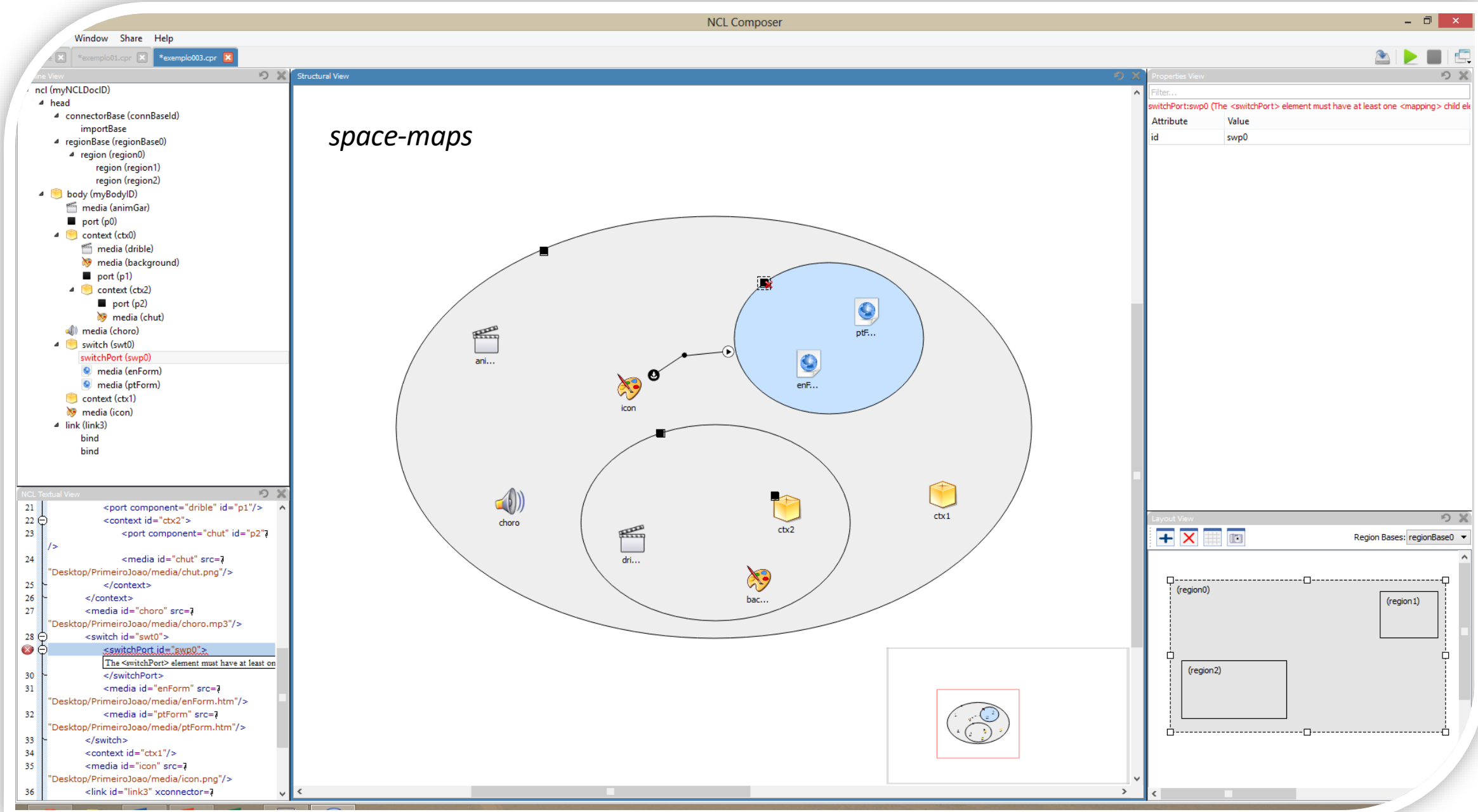
- NCL Composer
  - coordenadas e direção; inicialização espacial; concorrência; loop infinitos; condições simples; sincronização; loop condicionais e finitos; salvar e utilizar valores salvos em variáveis; execução condicional (adaptação); eventos; recursão; reúso; encapsulamento; interface; (14-15 ???)

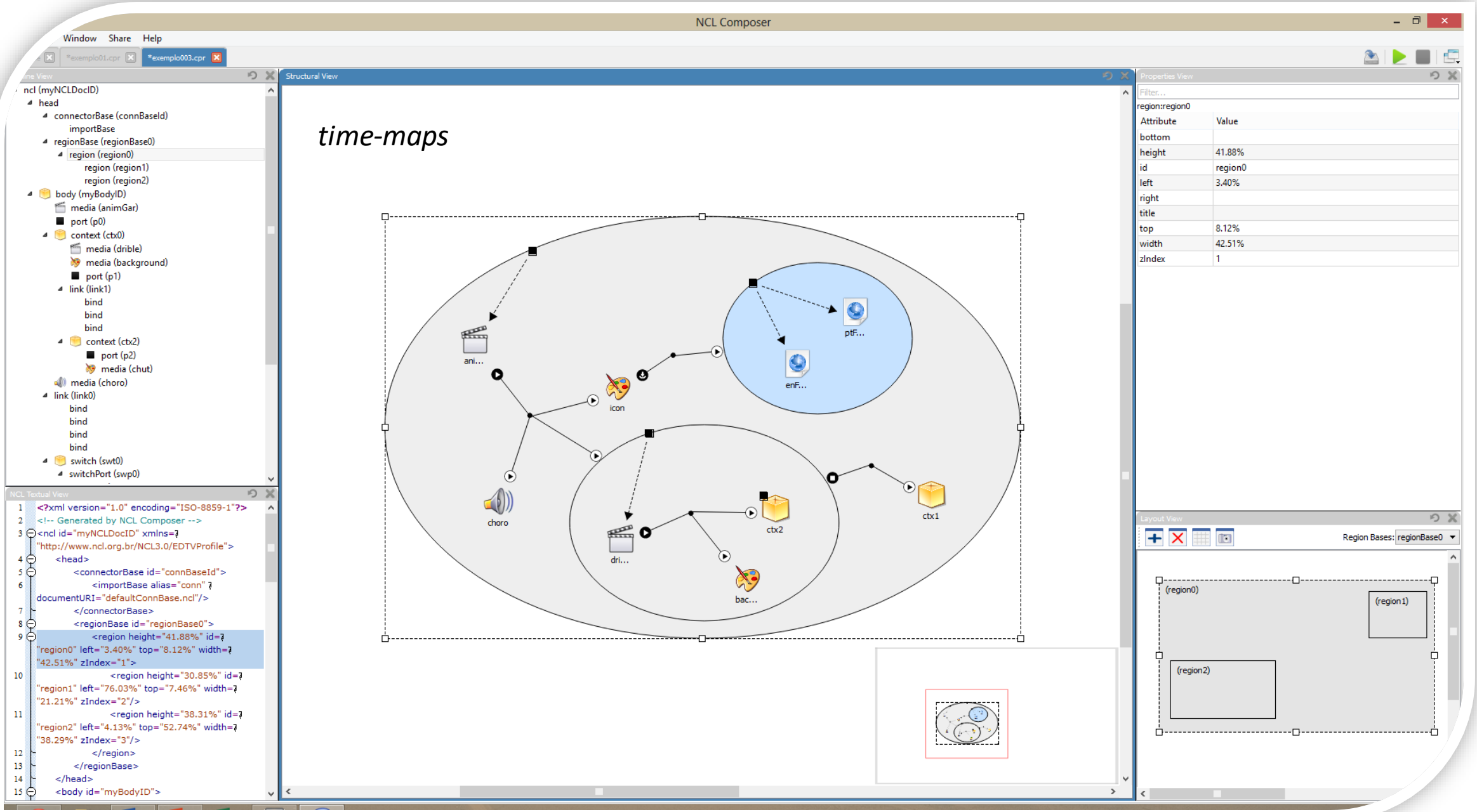

NCL Composer
Window
Share
Help
exemplo02.cpr
context (ctx0)
media (drible)
media (background)
port (p1)
link (link1)
bind
bind
bind
context (ctx2)
port (p2)
media (chut)
media (choro)
link (link0)
bind
bind
bind
bind
switch (swt0)
switchPort (swp0)
mapping
mapping
media (enForm)
media (ptForm)
context (ctx1)
link (link2)
bind
Structural View
ani...
icon
ptF...
enF...
choro
dri...
ctx2
ctx1
bac...
NCL Textual View
<context id="ctx0">
<media id="drible" src="Desktop/PrimeiroJoao/media/drible.mp4"/>
<media id="background" src="Desktop/PrimeiroJoao/media/background.png"/>
<port component="drible" id="p1"/>
<link id="link1" xconnector="conn#onBeginStart">
<bind role="onBegin" component="drible"/>
<bind role="start" component="background"/>
<bind role="start" component="ctx2"/>
</link>
<context id="ctx2">
<port component="chut" id="p2"/>
<media id="chut" src="Desktop/PrimeiroJoao/media/chut.png"/>
</context>
</context>
<media id="choro" src="Desktop/PrimeiroJoao/media/choro.mp3"/>
<link id="link0" xconnector="conn#onBeginStart">
<bind role="onBegin" component="animGar"/>
<bind role="start" component="choro"/>
<bind role="start" component="ctx0"/>
<bind role="start" component="icon"/>
</link>
<switch id="swt0">
<switchPort id="swp0">
<mapping component="enForm"/>
Properties View
Filter...
context:ctx0
Attribute
Value
id
ctx0
refer
Layout View
Region Bases:
regionBase0
(region0)
(region1)
(region2)
Validator Plugin
Elemento
Mensagem

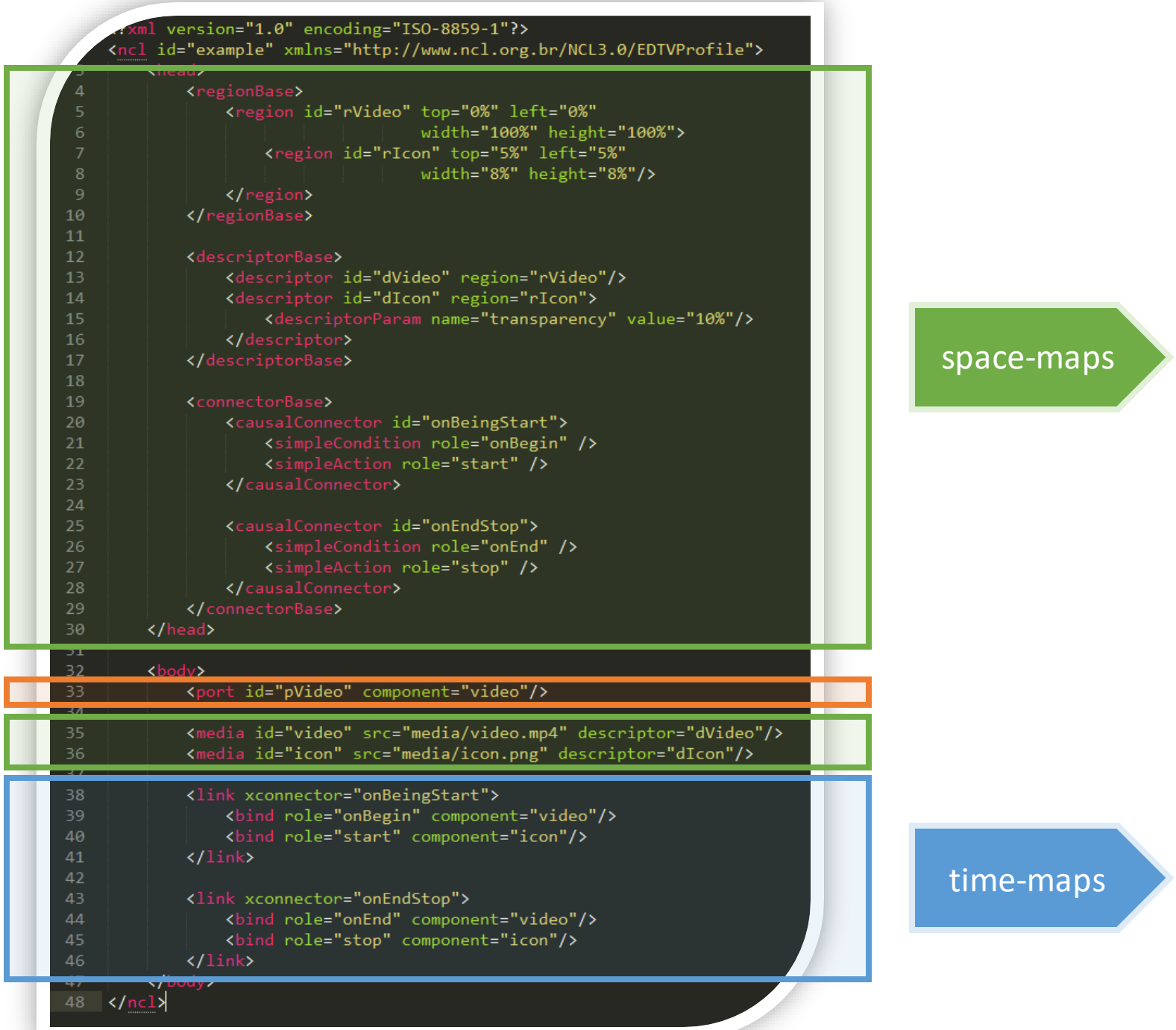
Ideal Software Machine

- *time-maps*
  - relacionamentos

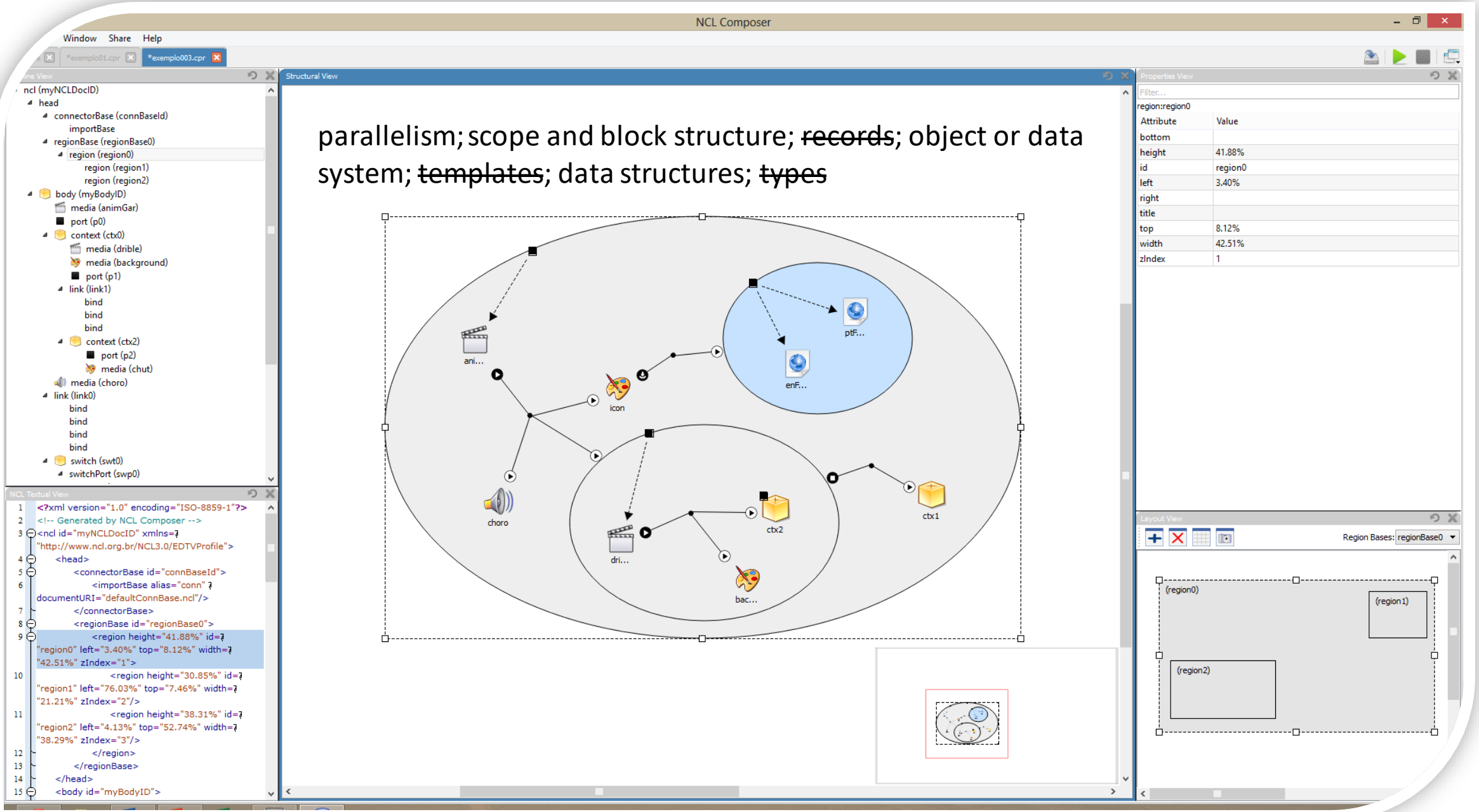
- *space-maps*
  - outras entidades


NCL Composer
Window
Share
Help
*exemplo01.cpr
*exemplo003.cpr
ncl (myNCLDocID)
head
connectorBase (connBaseId)
importBase
regionBase (regionBase0)
region (region0)
region (region1)
region (region2)
body (myBodyID)
media (animGar)
port (p0)
context (ctx0)
media (drible)
media (background)
port (p1)
context (ctx2)
port (p2)
media (chut)
media (choro)
switch (swt0)
switchPort (swp0)
media (enForm)
media (ptForm)
context (ctx1)
media (icon)
link (link3)
bind
bind
NCL Textual View
<port component="drible" id="p1"/>
<context id="ctx2">
<port component="chut" id="p2"/>
<media id="chut" src="Desktop/PrimeiroJoao/media/chut.png"/>
</context>
</context>
<media id="choro" src="Desktop/PrimeiroJoao/media/choro.mp3"/>
<switch id="swt0">
<switchPort id="swp0">
The <switchPort> element must have at least on
</switchPort>
<media id="enForm" src="Desktop/PrimeiroJoao/media/enForm.htm"/>
<media id="ptForm" src="Desktop/PrimeiroJoao/media/ptForm.htm"/>
</switch>
<context id="ctx1"/>
<media id="icon" src="Desktop/PrimeiroJoao/media/icon.png"/>
<link id="link3" xconnector=
Structural View
space-maps
ani...
ptF...
enF...
icon
choro
ctx2
ctx1
dri...
bac...
Properties View
Filter...
switchPort:swp0 (The <switchPort> element must have at least one <mapping> child ele
Attribute
Value
id
swp0
Layout View
Region Bases:
regionBase0
(region0)
(region1)
(region2)


NCL Composer
Window
Share
Help
*exemplo01.cpr
*exemplo003.cpr
ncl (myNCLDocID)
head
connectorBase (connBaseId)
importBase
regionBase (regionBase0)
region (region0)
region (region1)
region (region2)
body (myBodyID)
media (animGar)
port (p0)
context (ctx0)
media (drible)
media (background)
port (p1)
link (link1)
bind
bind
bind
context (ctx2)
port (p2)
media (chut)
media (choro)
link (link0)
bind
bind
bind
bind
switch (swt0)
switchPort (swp0)
NCL Textual View
<?xml version="1.0" encoding="ISO-8859-1"?>
<!-- Generated by NCL Composer -->
<ncl id="myNCLDocID" xmlns="
"http://www.ncl.org.br/NCL3.0/EDTVProfile">
<head>
<connectorBase id="connBaseId">
<importBase alias="conn" "
documentURI="defaultConnBase.ncl"/>
</connectorBase>
<regionBase id="regionBase0">
<region height="41.88%" id="
"region0" left="3.40%" top="8.12%" width="
"42.51%" zIndex="1">
<region height="30.85%" id="
"region1" left="76.03%" top="7.46%" width="
"21.21%" zIndex="2"/>
<region height="38.31%" id="
"region2" left="4.13%" top="52.74%" width="
"38.29%" zIndex="3"/>
</region>
</regionBase>
</head>
<body id="myBodyID">
Structural View
time-maps
ani...
icon
ptF...
enF...
choro
dri...
ctx2
ctx1
bac...
Properties View
Filter...
region:region0
Attribute
Value
bottom
height
41.88%
id
region0
left
3.40%
right
title
top
8.12%
width
42.51%
zIndex
1
Layout View
Region Bases:
regionBase0
(region0)
(region1)
(region2)




```xml
<?xml version="1.0" encoding="ISO-8859-1"?>
<ncl id="example" xmlns="http://www.ncl.org.br/NCL3.0/EDTVProfile">
    <head>
        <regionBase>
            <region id="rVideo" top="0%" left="0%"
                                width="100%" height="100%">
                <region id="rIcon" top="5%" left="5%"
                                width="8%" height="8%"/>
            </region>
        </regionBase>

        <descriptorBase>
            <descriptor id="dVideo" region="rVideo"/>
            <descriptor id="dIcon" region="rIcon">
                <descriptorParam name="transparency" value="10%"/>
            </descriptor>
        </descriptorBase>

        <connectorBase>
            <causalConnector id="onBeingStart">
                <simpleCondition role="onBegin" />
                <simpleAction role="start" />
            </causalConnector>

            <causalConnector id="onEndStop">
                <simpleCondition role="onEnd" />
                <simpleAction role="stop" />
            </causalConnector>
        </connectorBase>
    </head>

    <body>
        <port id="pVideo" component="video"/>

        <media id="video" src="media/video.mp4" descriptor="dVideo"/>
        <media id="icon" src="media/icon.png" descriptor="dIcon"/>

        <link xconnector="onBeingStart">
            <bind role="onBegin" component="video"/>
            <bind role="start" component="icon"/>
        </link>

        <link xconnector="onEndStop">
            <bind role="onEnd" component="video"/>
            <bind role="stop" component="icon"/>
        </link>
    </body>
</ncl>
```


NCL Composer
Window Share Help
*exemplo003.cpr
ncl (myNCLDocID)
head
connectorBase (connBaseId)
importBase
regionBase (regionBase0)
region (region0)
region (region1)
region (region2)
body (myBodyID)
media (animGar)
port (p0)
context (ctx0)
media (drible)
media (background)
port (p1)
link (link1)
bind
bind
bind
context (ctx2)
port (p2)
media (chut)
media (choro)
link (link0)
bind
bind
bind
bind
switch (swt0)
switchPort (swp0)
NCL Textual View
<?xml version="1.0" encoding="ISO-8859-1"?>
<!-- Generated by NCL Composer -->
<ncl id="myNCLDocID" xmlns=
"http://www.ncl.org.br/NCL3.0/EDTVProfile">
<head>
<connectorBase id="connBaseId">
<importBase alias="conn"
documentURI="defaultConnBase.ncl"/>
</connectorBase>
<regionBase id="regionBase0">
<region height="41.88%" id=
"region0" left="3.40%" top="8.12%" width=
"42.51%" zIndex="1">
<region height="30.85%" id=
"region1" left="76.03%" top="7.46%" width=
"21.21%" zIndex="2"/>
<region height="38.31%" id=
"region2" left="4.13%" top="52.74%" width=
"38.29%" zIndex="3"/>
</region>
</regionBase>
</head>
<body id="myBodyID">
Structural View
parallelism; scope and block structure; records; object or data system; templates; data structures; types
ani...
icon
ptF...
enF...
choro
dri...
ctx2
ctx1
bac...
Properties View
Filter...
region:region0
Attribute
Value
bottom
height
41.88%
id
region0
left
3.40%
right
title
top
8.12%
width
42.51%
zIndex
1
Layout View
Region Bases:
regionBase0
(region0)
(region1)
(region2)

Ideal Software Machine

- NCL Composer
  - A integração entre o *player* e a ferramenta é mais limitada (em comparação com as outras ferramentas).
    - Não posso nomear um estado da execução/autoria (por exemplo, o conjunto de ovelhas da última aula)

Referências

[1] Orni Meerbaum-Salant, Michal Armoni, Mordechai (Moti) Ben-Ari (2010). **Learning computer science concepts with scratch**. *Proceedings of the Sixth international workshop on Computing education research - ICER '10*. pp. 69. ACM Press. New York, New York, USA

[2] J. Paul Gibson (2012). **Teaching graph algorithms to children of all ages**. *Proceedings of the 17th ACM annual conference on Innovation and technology in computer science education - ITiCSE '12*. pp. 34. ACM Press. New York, New York, USA.

[3] Andreas Zendler, Christian Spannagel, Dieter Klaudt (aug. 2011). **Marrying Content and Process in Computer Science Education**. *IEEE Transactions on Education*. 54 (3) pp. 387–397.