

```

<component name="PendulumUpperSegment">
<variable name="a" units="radian" public_interface="out" cmeta:id="a_angle" initial_value="1"/>
<variable name="a_angular_velocity" units="rad_per_s" public_interface="out" initial_value="0"/>
<variable name="time" units="second" public_interface="in"/>
<math xmlns="http://www.w3.org/1998/Math/MathML">
<apply><eq/>
<apply><diff/>
<bvar><ci>time</ci></bvar>
<ci>a</ci>
</apply>
<ci>a_angular_velocity</ci>
</apply>
</math>
</component>

```

```

<component name="PendulumLowerSegment">
<variable name="b" initial_value="1" units="radian" public_interface="out" cmeta:id="b_angle" />
<variable name="b_angular_velocity" initial_value="0" units="rad_per_s" public_interface="out"/>
<variable name="time" units="second" public_interface="in"/>
<math xmlns="http://www.w3.org/1998/Math/MathML">
<apply><eq/>
<apply><diff/>
<bvar><ci>time</ci></bvar>
<ci>b</ci>
</apply>
<ci>b_angular_velocity</ci>
</apply>
</math>
</component>

```

```

<component name="Pendulum">
<variable name="a" private_interface="in" public_interface="out" units="radian"/>
<variable name="b" private_interface="in" public_interface="out" units="radian" initial_value="1"/>
<variable name="a_angular_velocity" private_interface="in" units="rad_per_s"/>
<variable name="b_angular_velocity" private_interface="in" units="rad_per_s"/>
<variable name="time" public_interface="in" private_interface="out" units="second"/>
<math xmlns="http://www.w3.org/1998/Math/MathML">
<apply><eq/>
<apply><diff/>
<bvar><ci>time</ci></bvar>
<ci>a_angular_velocity</ci>
</apply>
<apply>
<apply>
</apply>
</apply>
<apply><eq/>
<apply><diff/>
<bvar><ci>time</ci></bvar>
<ci>b_angular_velocity</ci>
</apply>
<apply>
<apply>
</apply>
</apply>
</math>
</component>

```

```

<group>
<relationship_ref relationship="encapsulation"/>
<component_ref component="Pendulum">
<component_ref component="PendulumUpperSegment"/>
<component_ref component="PendulumLowerSegment"/>
</component_ref>
</group>

```

Fig.1

<component name="Pendulum">

<variable name="a">

private\_interface="in"  
public\_interface="out"

<variable name="a\_angular\_velocity">

private\_interface="in"  
<math>d(a\\_ang\\_vel)/dt = \text{-----}</math>

<variable name="b">

private\_interface="in"  
public\_interface="out"  
initial\_value="1"

<variable name="b\_angular\_velocity">

private\_interface="in"  
<math>d(b\\_ang\\_vel)/dt = \text{-----}</math>

<variable name="time">

public\_interface="in"  
private\_interface="out"

<component name="PendulumUpperSegment">

<variable name="a">

public\_interface="out"  
initial\_value="1"  
<math>da/dt = a\\_angular\\_velocity</math>

<variable name="a\_angular\_velocity">

public\_interface="out"  
initial\_value="0"

<variable name="time">

public\_interface="in"

<component name="PendulumLowerSegment">

<variable name="b">

public\_interface="out"  
initial\_value="1"  
<math>db/dt = b\\_angular\\_velocity</math>

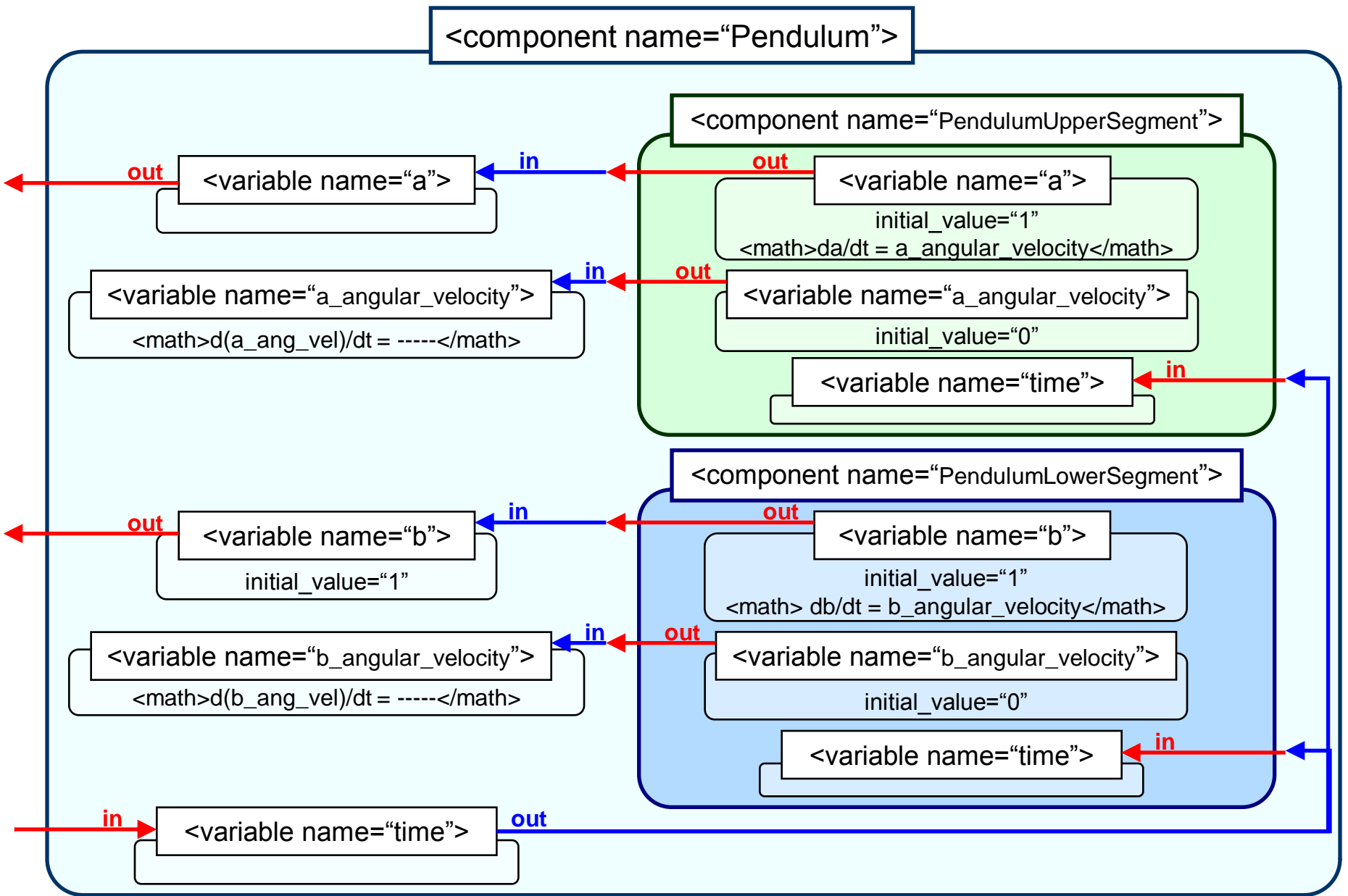
<variable name="b\_angular\_velocity">

public\_interface="out"  
initial\_value="0"

<variable name="time">

public\_interface="in"

Fig.2





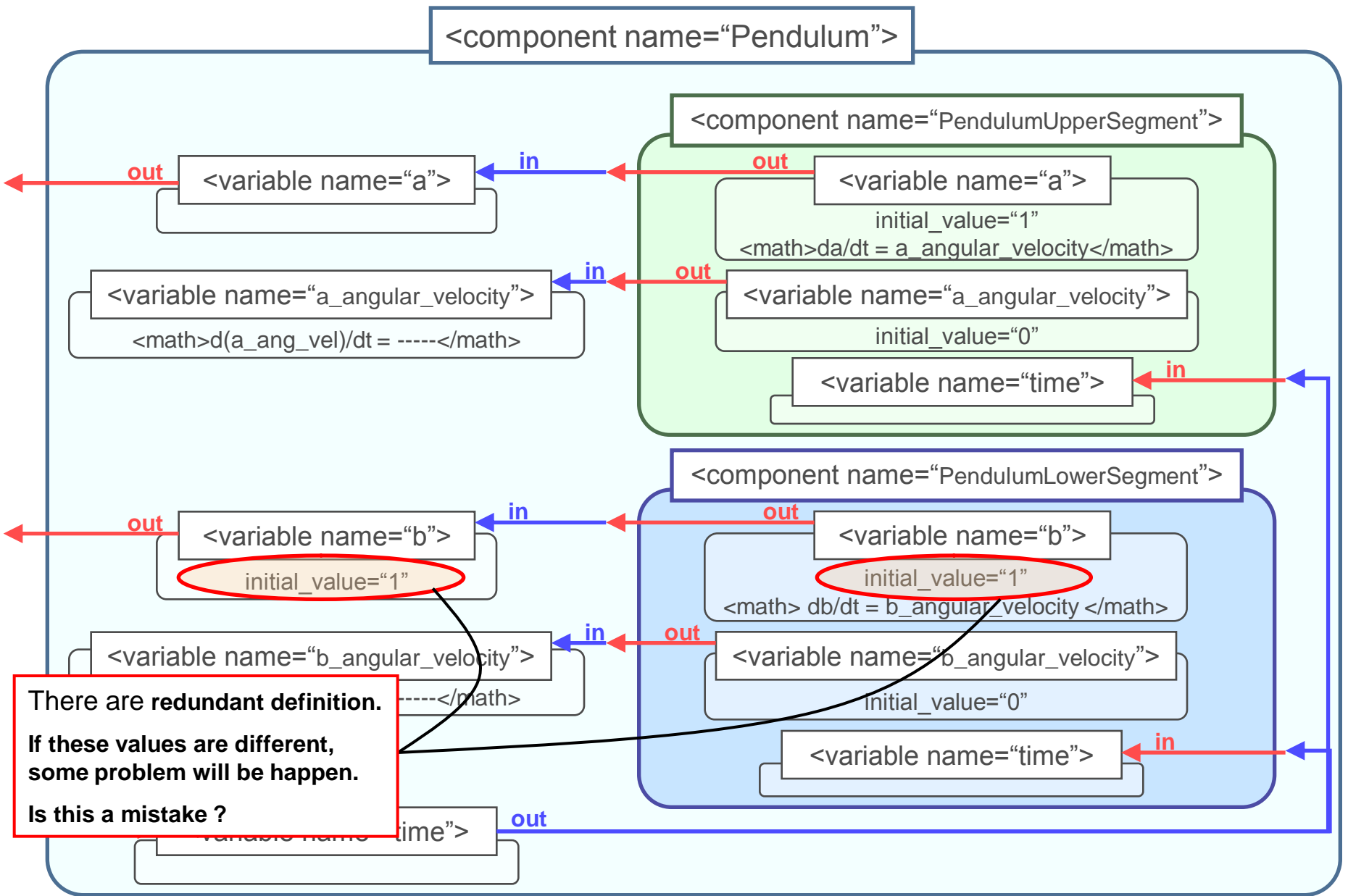
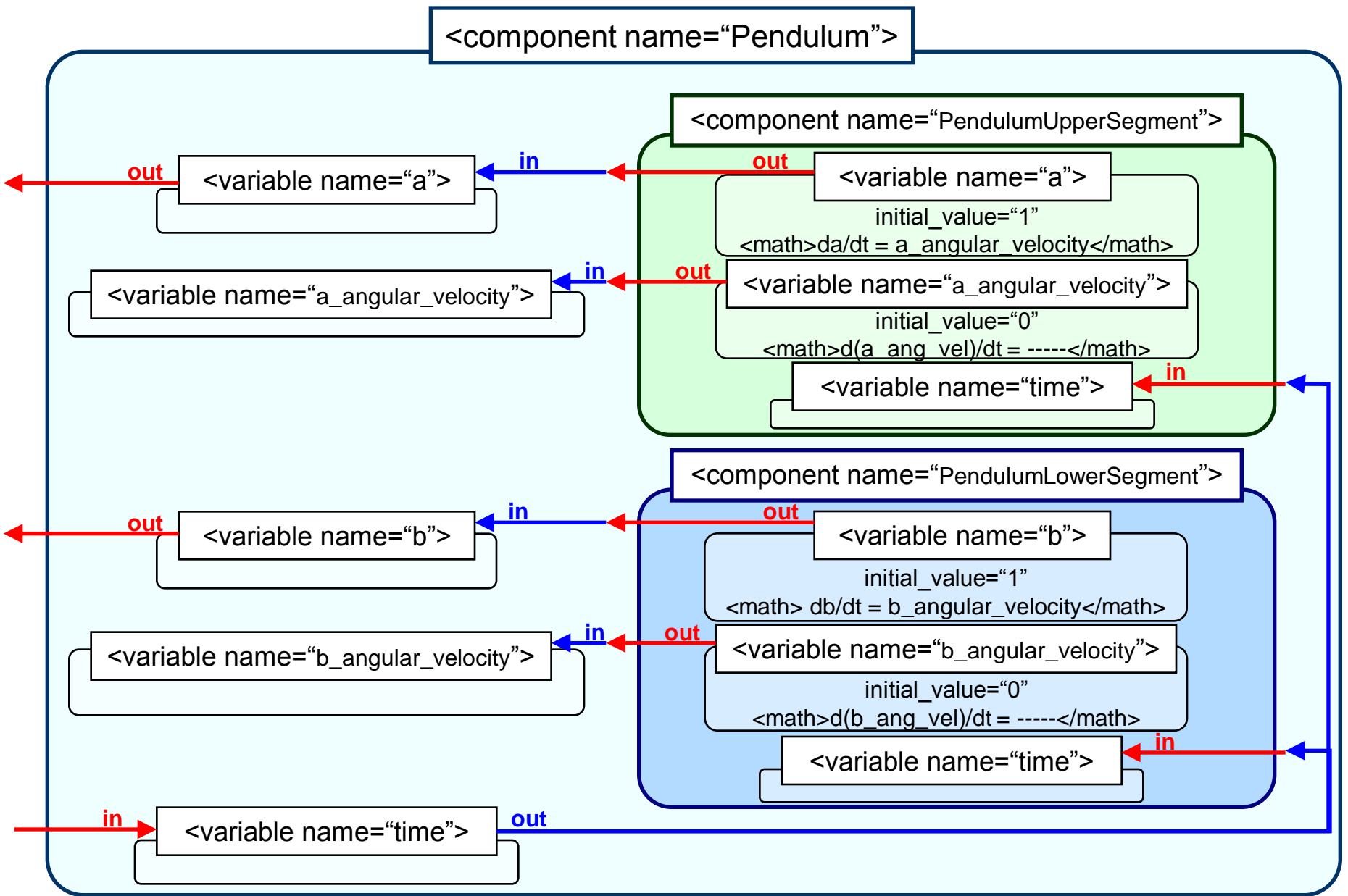
 public\_interface  
 private\_interface

Fig.3



 public\_interface  
 private\_interface

Fig.4




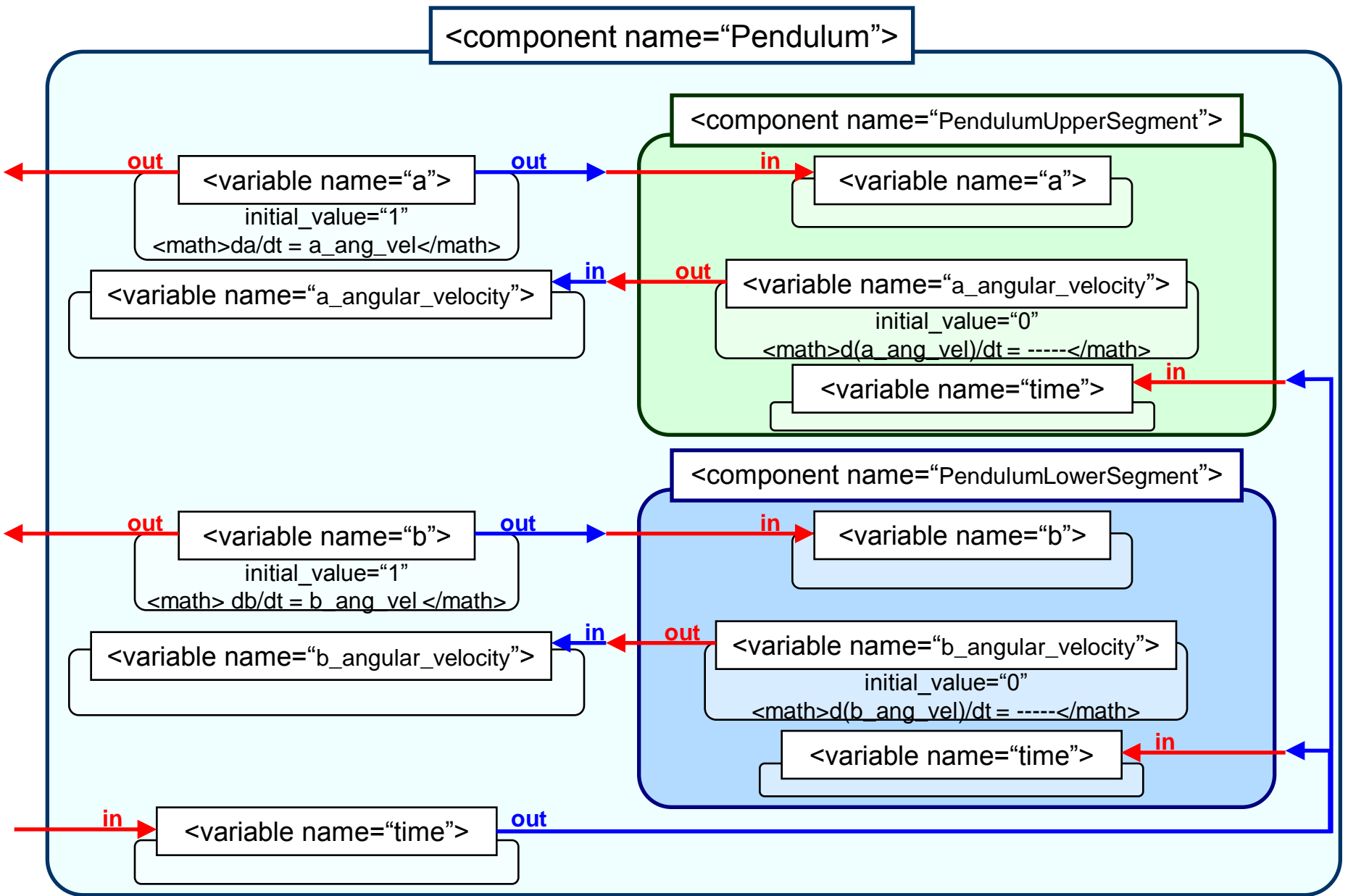
 **public\_interface**  
 **private\_interface**

Fig.5





 **public\_interface**  
 **private\_interface**

Fig.6