VODRE: Visualisation of Drools Rules Execution

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Introduction to Domain Area

The derivation of element sequence to result in the specific optical characteristic is referred to as structural synthesis.
Starting Point Choice

Time
Outcome

Successful result
Starting point choice
Wasteful work

Successful result
Starting point choice
Wasteful work
Logger Class Diagram
Diagnosis Elements

Rules are represented by parallelograms (a); facts are represented by rectangles (b), operations on facts are displayed by horizontal arrows directed to left side (c), right side (d) and both directions (e); vertical bent arrows (g) are used between rules and facts, operated by the rule. A timeline (f) is represented by a vertical line.
Validation Process: Before

1. An alpha-tester provides system with input data.
2. A request is sent to server.
3. Schemas are synthesized on the server.
4. Optical formulas of synthesized schemas are returned from the server.
5. Schemas are drawn in web-browser client of OSYST;
6. A time-consuming manual comparation of synthesized schema with expected schema, which are calculated in advance, is done.
Validation Process: After

1. An alpha-tester provides system with input data.
2. Request is sent to server.
3. Schemas are synthesized on the server, logs of rules’ invocation are collected in parallel.
4. Optical formulas of synthesized schemas and logs are returned from the server.
5. Schemas are drawn in web-browser client of OSYST.
6. Synthesis process visualization diagram is built based on rule invocation logs.
7. Rules and rule execution order is analyzed with a help of visualization chart.
Data Input

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>aperture speed</td>
<td>1.8</td>
</tr>
<tr>
<td>angular field</td>
<td>84°</td>
</tr>
<tr>
<td>focal length</td>
<td>4.5 mm.</td>
</tr>
<tr>
<td>back focal distance</td>
<td>1 mm.</td>
</tr>
<tr>
<td>image quality</td>
<td>GEOMETRICALLY</td>
</tr>
<tr>
<td>entrance pupil pos.</td>
<td>FORWARD</td>
</tr>
<tr>
<td>spectral range</td>
<td>450 nm.</td>
</tr>
</tbody>
</table>

Synthesize
OSYST Interface
Generated Optical Schemes

Y3V4P + C2P2P + B4A4P + T4F4P

Y3V3P + C2P2P + B3A4P + T4V4P

Y3V3P + C2P2P + B3A4P + T4F4P
Visualization Chart
Future work

1. Scaling mechanism
2. More informative elements
3. More functions
4. General improvement of the component
5. General improvement of the system

Repository: https://github.com/ailabitmo/OSYST
THANK YOU FOR ATTENTION
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