

|                 | GS1 | GS2 | GS3 | Grammar and Syntax |
|-----------------|-----|-----|-----|--------------------|
| <b>Language</b> |     |     |     |                    |
| IVML            | 1   | 1   | 0   | 0,667              |
| Montiarc        | 1   | 1   | 1   | 1,000              |
| IEC 61499       | 0,5 | 1   | 0,5 | 0,667              |
| SysML v1.6      | 1   | 1   | 0   | 0,667              |
| PPR-DSL         | 1   | 1   | 0   | 0,667              |

|                 | Sem1 | denotational | Sem2 | operational | Sem3 | Semantics |
|-----------------|------|--------------|------|-------------|------|-----------|
| <b>Language</b> |      |              |      |             |      |           |
| IVML            | 1    | 1            | 1    | 1           | 1    | 1,000     |
| Montiarc        | 1    | 1            | 1    | 1           | 1    | 1,000     |
| IEC 61499       | 1    | 0,5          | 1    | 0,5         | 1    | 1,000     |
| SysML v1.6      | 0    | 0            | 0    | 0           | 1    | 0,333     |
| PPR-DSL         | 1    | 0            | 1    | 0           | 1    | 1,000     |

**Legend**

- GS1** concrete syntax
- GS2** abstract syntax
- GS3** well-formedness rules
- Sem1** semantic domain
- Sem2** mapping
- Sem3** informal definition

|                 | Nam1 | Nam2 | Naming Conventions |
|-----------------|------|------|--------------------|
| <b>Language</b> |      |      |                    |
| IVML            | 0    | 0    | 0,000              |
| Montiarc        | 1    | 1    | 1,000              |
| IEC 61499       | 0    | 0,5  | 0,250              |
| SysML v1.6      | 1    | 0    | 0,500              |
| PPR-DSL         | 0,5  | 0    | 0,250              |

|                 | Sty1 | Sty2 | Style Guides |
|-----------------|------|------|--------------|
| <b>Language</b> |      |      |              |
| IVML            | 0    | 0    | 0,000        |
| Montiarc        | 0,5  | 0,5  | 0,500        |
| IEC 61499       | 0    | 0    | 0,000        |
| SysML v1.6      | 0,5  | 0    | 0,250        |
| PPR-DSL         | 0    | 0    | 0,000        |

- Nam1** documented by developers
- Nam2** application in additional material
- Sty1** documented by developers
- Sty2** application in additional material

|                 | Pat1 | Pat2 | Pat3 | Patterns |
|-----------------|------|------|------|----------|
| <b>Language</b> |      |      |      |          |
| IVML            | 0    | 1    | 0    | 0,333    |
| Montiarc        | 0    | 0,5  | 0    | 0,167    |
| IEC 61499       | 1    | 1    | 1    | 1,000    |
| SysML v1.6      | 1    | 0    | 0    | 0,333    |
| PPR-DSL         | 0    | 0    | 0    | 0,000    |

|                 | Lib1 | existing | Lib2 | available | up-to-date | Lib3 | Libraries |
|-----------------|------|----------|------|-----------|------------|------|-----------|
| <b>Language</b> |      |          |      |           |            |      |           |
| IVML            | 1    | 0        | 0    | 0         | 0          | 0    | 0,333     |
| Montiarc        | 1    | 1        | 1    | 1         | 0,5        | 1    | 0,944     |
| IEC 61499       | 0,5  | 1        | 0,5  | 0         | 0          | 0    | 0,333     |
| SysML v1.6      | 1    | 1        | 1    | 1         | 1          | 0,5  | 0,833     |
| PPR-DSL         | 1    | 0,5      | 0    | 0         | 0          | 0    | 0,389     |

- Pat1** documented design patterns
- Pat2** syntactic constructs for pattern (e.g., interface)
- Pat3** documented implementation pattern
- Lib1** syntactic construct for import
- Lib2** library implementations
- Lib3** dependency management

|                 | A1  | A2  | A3 | A4.1              | A4.2        | A4.3           | A4.4    | Analyses |
|-----------------|-----|-----|----|-------------------|-------------|----------------|---------|----------|
| <b>Language</b> |     |     |    | naming convention | style guide | design pattern | library |          |
| IVML            | 1   | 0   | 1  | 0                 | 0           | 0              | 0       | 0,500    |
| Montiarc        | 0,5 | 1   | 1  | 1                 | 0           | 0              | 0       | 0,688    |
| IEC 61499       | 1   | 0,5 | 1  | 0                 | 0           | 0              | 0       | 0,625    |
| SysML v1.6      | 0   | 0   | 0  | 0                 | 0           | 0              | 0       | 0,000    |
| PPR-DSL         | 0   | 1   | 0  | 0                 | 0           | 0              | 0       | 0,250    |

- A1** metrics for syntax
- A2** violations of well-formedness rules
- A3** metrics for semantics
- A4** code quality for measuring
- A4.1** adherence to naming conventions
- A4.2** adherence to style guides
- A4.3** design patterns where appropriate
- A4.4** libraries where appropriate

|                 | T1 | T2 | T3  | T4 | T5.1         | T5.2                  | T5.3      | T5.4         | T6.1         | T6.2               | Tools |
|-----------------|----|----|-----|----|--------------|-----------------------|-----------|--------------|--------------|--------------------|-------|
| <b>Language</b> |    |    |     |    | syntax (LOC) | well-formedness rules | semantics | code quality | style guides | naming conventions |       |
| IVML            | 1  | 1  | 0,5 | 1  | 1            | 0                     | 1         | 1            | 0            | 0                  | 0,708 |
| Montiarc        | 1  | 1  | 0   | 1  | 0            | 1                     | 1         | 0            | 1            | 0                  | 0,667 |
| IEC 61499       | 1  | 1  | 0   | 1  | 1            | 0,5                   | 0         | 0,5          | 0,5          | 0                  | 0,625 |
| SysML v1.6      | 1  | 1  | 0,5 | 1  | 1            | 1                     | 0         | 0            | 0            | 1                  | 0,750 |
| PPR-DSL         | 1  | 0  | 0   | 1  | 0            | 0                     | 0         | 0            | 0            | 0                  | 0,333 |

- T1** parser for complete syntax definition
- T2** compiler or interpreter
- T3** error management, quick fixes
- T4** editor with at least syntax highlighting
- T5** analyses and report of supported metrics
- T6** automatic formatting

|                 | D1 | D2.1       | D2.2                 | D3  | D4  | D5  | Documentation |
|-----------------|----|------------|----------------------|-----|-----|-----|---------------|
| <b>Language</b> |    | up-to-date | platform-independent |     |     |     |               |
| IVML            | 1  | 1          | 1                    | 0   | 1   | 0,5 | 0,700         |
| Montiarc        | 1  | 1          | 1                    | 1   | 1   | 0   | 0,800         |
| IEC 61499       | 1  | 0,5        | 1                    | 0,5 | 0,5 | 1   | 0,750         |
| SysML v1.6      | 1  | 1          | 1                    | 1   | 1   | 1   | 1,000         |
| PPR-DSL         | 1  | 0,5        | 0,5                  | 0   | 1   | 0   | 0,500         |

- D1** published standard or language definition
- D2** installation guide
- D3** video tutorial or screen cast
- D4** published source code of examples
- D5** active forums for exchange