The tikz-eventB package*

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Abstract

This class provides facilities for typesetting diagrams for Event-B models. It was developed at the University of Southampton, U.K.

Contents

1 Introduction

This package was developed in order to ease the typesetting of diagrams for Event-B models in LaTeX using TikZ.

2 Usage

See `sample-tikz-eventB.tex` for an example of how to use the package.

3 Implementation

3.1 Package Loading

We begin by loading the required package `tikz` and `eventB`.

```
1 \RequirePackage{tikz}
2 \RequirePackage{eventB}
```

*This document corresponds to tikz-eventB v0.0.1, dated 2014/06/12.

3.2 Commands for Creating Diagrams of Event-B Models

`Bdiagram` The `Bdiagram` environment for creating diagrams for Event-B models which is the same as the `tikzpicture` environment. The environment has an optional argument which will be passed to the `tikzpicture` environment.

```
\newenvironment{Bdiagram}[1][]
{\begin{tikzpicture}[#1]}
{\end{tikzpicture}}
```

Drawing Event-B Components

`\tikzMch` The Event-B components, i.e., machines and contexts are drawed using `\tikzMch` and `\tikzCtx` commands.

```
\newcommand{\tikzMch}[4][]{
  \draw(#2,#3)
  node[draw, inner sep = 2ex, minimum width = 4em](#1){\Bmch{#4}};
}
```

`\tikzCtx`

```
\newcommand{\tikzCtx}[4][]{
  \draw(#2,#3)
  node[draw, rounded corners, inner sep = 2ex, minimum width = 4em](#1){\Bctx{#4}};
}
```

Drawing Relationships between Event-B Components The relationship between Event-B components are drawn using the coordinates of the components. Note that the coordinate of the system can be specified relatively to the optional label given to components as in commands `\tikzMch` or `\tikzCtx`.

`\tikzSees` The `\tikzSees` command draws the sees relationship between a machine and a context.

```
\newcommand{\tikzSees}[3][]{
  \draw[->, #1] (#2) --node[fill=white]{\Bsees} (#3);
}
```

`\tikzRefines` The `\tikzRefines` command draws the refines relationship between a (concrete) machine and an (abstract) machine

```
\newcommand{\tikzRefines}[3][]{
  \draw[->, #1] (#2) --node[fill=white]{\Brefines} (#3);
}
```

`\tikzRefinesTransitive` The `\tikzRefinesTransitive` command draws the transtive refines relationship between a (concrete) machine and an (abstract) machine

```
\newcommand{\tikzRefinesTransitive}[3][]{
  \draw[->, dashed,#1] (#2) --node[fill=white]{\Brefines} (#3);
}
```

`\tikzExtends` The `\tikzExtends` command draws the extends relationship between a (concrete) context and an (abstract) context.

```
\newcommand{\tikzExtends}[3][]{
  \draw[->,#1] (#2) --node[fill=white]{\Bextends} (#3);
}
```

\tikzExtendsTranstive The \tikzExtends command draws the transtive extends relationship between a (concrete) context and an (abstract) context

```
\newcommand{\tikzExtendsTransitive}[3][]{
  \draw[->, dashed,#1] (#2) --node[fill=white]{\Bextends} (#3);
}
```

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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Change History

v0.0.1