Typesetting Graph Theory Under LaTeX

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Abstract

The `AlbGraphTheory` package provides a single `alb-graph-theory` LaTeX package provide markup for graph theory. It is designed to make the LaTeX input more readable, to allow the actual symbols to be adjusted from a single file, to enable the typesetting of graph theoretic constructions to be designed in the context of the entire suite of required markup commands, and to place the extended markup in the `alb` namespace. The package is supported by an emacs lisp file customising AUCTeX, which provides command name completion and argument prompting.

Version Information

`Revision: 1.5`

`Date: 2006-06-23 06:33:00`

1   Introduction

The `alb-graph-theory` LaTeX package is designed to typeset graph theory. In practice, this means that it supplies a large collection of simple math commands. The main benefit is consistency, and the ability to easily change a decision about typesetting for all documents.

2   Using the Commands and Environments

The commands and environments of the `alb-order-theory` LaTeX package are all used within math mode. They accept arguments and generate graph theory mathematical constructions.

`\albHead{e}`	$\mathrm{head}(e)$
`\albTail{e}`	$\mathrm{tail}(e)$
`\albDistance{u}{v}`	$\mathrm{distance}(u, v)$
`\albDistanceIn{G}{u}{v}`	$\mathrm{distance}_G(u, v)$

3   AUCTeX Customisations

Under AUCTeX the file `alb-graph-theory.el` is automatically loaded whenever the `alb-graph-theory` package is used. The customisation adds the math commands to AUCTeX. This provides the simple prompting for all the supplied math commands.

It may be worthwhile also loading the `alb-order-theory` package because `alb-order-theory.el` causes a special equation number counter to be stored as a local variable. `alb-LaTeX-equation-counter` counts numbers assigned to labels for equations. This ensures dirty numbers are not reissued, as reissuing a number could make stale references hard to detect.