

The association-matrix Package

An easy and clear association matrix generator

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Version 1.1

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1 Introduction

The association-matrix package allows the convenient creation of association matrices. The package aims to automate the generation, without the user having to manually write the table's code and have to deal with the inefficiency of copy-pasting information. The package's interface is simple, the user needs to define the table's contents (Section 2.1) and then can generate the table (Section 2.3).

Note that it is important to have *every* necessary row entries and column headings defined **before** the first call to a table generation, otherwise, only a partial table will be generated.

1.1 Association matrix

At the author's University, it is customary for Ph.D. students to write their doctoral dissertation organised into individual *theses* (corresponding to chapters), and to provide a breakdown on which of their publications are “proof” behind the thesis (chapter). Originally, the package `THESES-VS-PUBLICATIONS` had been devised, but then we turned it to a more generic solution.

Commonly, the dissertation's “*Introduction*” and “*Summary*” chapters will provide the full table. In addition, at the end of each individual thesis chapters will provide a table with the current thesis's row in the table *highlighted*.

An example usage and association matrix is provided in Section 1.3.

1.2 Licence

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1.3 Example

The definitions (Section 2.1) should be done early in the document, but at least before the first table render (Section 2.3) call.

```
\amxrow{association-matrix}{Association Matrices}
\amxrow{latex}{\LaTeX}
```

```
% Using the bibliography at the end of document!
```

```
\amxcol{amxdoc}{\cite{associationmatrix}}
\amxcol{latexdoc}{\cite{latex}}
\amxcol{etoolboxdoc}{\cite{etoolbox}}
```

```
\amxassociate{amxdoc}{association-matrix}
\amxassociate{etoolboxdoc}{association-matrix}
\amxassociate{latexdoc}{latex}
\amxassociate{etoolboxdoc}{latex}
```

```
\amxgenerate
```

Associations	[1]	[2]	[3]
1. Association Matrices	•		•
2. L ^A T _E X		•	•

¹<http://www.latex-project.org/lppl>

2 Commands

2.1 Registering entries

amxrow `\amxrow{<key>}{<text>}`

Registers the row entry named `<key>` with the given `<text>`. The *title* of the entry is printed in the first cell of the row, **in the order of** `\amxrow` calls.

amxcol `\amxcol{<key>}{<text>}`

Registers the column named `<key>` with the given `<text>`. The contents of *body* is printed as the column headings of the table, **in the order of** `\amxcol` calls.

amxassociate `\amxassociate{<col-key>}{<row-key>}`

Registers the association between `<col-key>` and `<row-key>`. The cells at the intersection of the row and the column will have a **•**, indicating the relevancy.

2.2 Queries

amxrows `\amxrows`

Returns the number of rows defined.

amxcols `\amxcols`

Returns the number of columns defined.

amxrowtext `\amxrowtext{<key>}`

Returns the registered *text* for the **row** registered with `<key>`.

amxcoltext `\amxcoltext{<key>}`

Returns the registered *text* for the **column** registered with `<key>`.

2.3 Table generator: amxgenerate

amxgenerate `\amxgenerate[<row>]`

Generates the full table incorporating the previously registered data. Internally, a `tabular` environment is created with the table's data generated by the package. It is the user's responsibility to wrap this into a floating `table`, if they so wish.

If [`<row>`] is given a row's *key*, the row for that key will be **highlighted**. Highlighting is done by typesetting the row's *text* in **bold face**, and changing every **•** in the *other* rows to `◦`.

Associations	[1]	[2]	[3]
1. Association Matrices	◦		◦
2. L^AT_EX		•	•

2.4 Customisation

All aspects on how the individual elements in the table are rendered can be customised by setting *renderer* control sequences.

amxsetTopCorner `\amxsetTopCorner{<new-heading>}`

Sets the rendered table's top left cell value (by default, “*Associations*”) to the given <new-heading> value.

`\amxsetTopCorner{Correlations}`

Correlations	x	y
1. Sample	•	
2. Simple		•

amxsetColumnHeading `\amxsetColumnHeading{<render-command>}`

Sets the rendered table's top row's cells to be rendered via passing the column heading's text (see Section 2.2) to the given <render-command>. This command must be a command that takes **1** argument, defined by the user earlier.

`\newcommand{\ttColHead}[1]{\texttt{#1}}`
`\amxsetColumnHeading{\ttColHead}`

Associations	x	y
1. Sample	•	
2. Simple		•

amxsetRowFormat `\amxsetRowFormat(Highlighted){<render-command>}`

Sets the rendered table's left cells' to be rendered via passing the row's index and text (see Section 2.2) to the given <render-command>. This command must be a command that takes **2** arguments, defined by the user earlier. The *Highlighted* version sets the renderer for the highlighted row, if highlighted rendering (see Section 2.3) is done.

`\newcommand{\parenRow}[2]{(#1) \emph{#2}}`
`\newcommand{\parenRowBl}[2]{!#1! \texttt{#2}}`
`\amxsetRowFormat{\parenRow}`
`\amxsetRowFormatHighlighted{\parenRowBl}`

Associations	x	y
(1) <i>Sample</i>	◦	
!2! Simple		•

amxsetIndicator `\amxsetIndicator{<indicator>}`

Sets the indicators of association in the matrix in *non-highlighting* mode to the result of the <indicator>. The default indicator is: ●.

`\amxsetIndicator{a}`

Associations	x	y
1. Sample	a	
2. Simple		a

amxsetIndicatorHighlighted

`\amxsetIndicatorHighlighted{<hl-indicator>}{<ot-indicator>}`

Sets the indicators of association in the matrix in *highlighting* mode to the result of the <hl-indicator> for the **highlighted row** and <ot-indicator> for every other row. The default indicators are: ● and ○, respectively.

`\amxsetIndicatorHighlighted{c}{o}`

Associations	x	y
1. Sample	o	
2. Simple		c

2.5 Multiple distinct tables: amxReset

amxReset `\amxReset`

Clears **all** internal data structures and customisations for the package, allowing the user to later typeset a different, independent matrix. The previously defined entries are lost, and in case the “previous” matrix is needed, it must be set up again with a sequence of definition commands (see Section 2.1).

For example, putting the code in Section 1.3 and the one below into the same source file will create the smaller matrix at the second invocation of `\amxgenerate`.

```
\amxReset
\amxrow{sample}{Sample}
\amxcol{x}{x}
\amxassociate{x}{sample}
\amxgenerate
```

Associations	x
1. Sample	●

3 Interaction & compatibility with other packages

There are several packages that interact with commands in a way that interferes with the behaviour of `association-matrix`. When using such packages, `association-matrix` **must be loaded after** them. During the initialisation of `association-matrix`, compatibility is ensured by rewiring some of the logic.

1. `array`: Replaced the `tabular` environment’s logic (used by `\amxgenerate`) by eagerly attempting to consume the number of columns to create, which was previously created by a macro locally. The issue was fixed in release 1.1 by making sure that in presence of the `array` package, our package does the right thing.

4 Development

The development of `association-matrix` is done on GitHub: <http://github.com/whisperity/association-matrix>. Please report issues and submit patches here.

Note that this document acts as a **test file** to the package, not only a user-facing documentation. Any new command or change should be supplemented with appropriate documentation, and the check of the rendered examples. If there is a discrepancy or regression in the looks of *this document* that is not explained by the changes, it should be investigated!

5 Changelog

5.1 2022/10/29: v1.1 - Compatibility with array

- Fixed error message “Illegal pream-token: ‘c’ used” emitted by the `array` package by injecting a compatibility shim. (See item 1 in Section 3.)

5.2 2020/10/25: v1.0 - Initial release

- Basic functionality of defining entries, rendering tables, and customising the renderers are implemented.

References

- [1] Whisperity. *The association-matrix Package – An easy and clear association matrix generator*. Online, <http://ctan.org/pkg/association-matrix> (accessed 2020/10/25), 2020.
- [2] Leslie B. Lamport, Donald E. Knuth et al. *L^AT_EX – A document preparation system*. Online, <http://latex-project.org/> (accessed 2020/10/25), 1984.

- [3] Philipp Lehman, Joseph Wright. *The etoolbox Package – An e-TeX Toolbox for Class and Package Authors* Online, <http://ctan.org/pkg/etoolbox> (accessed 2020/10/25), 2007.