Reasoning About the Unreasonable

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Abstract

This document shows how to use the hgbarticle class, which combines the standard LaTeX article class with the `hgb.sty` (Hagenberg) thesis styles. This may be useful, for example, in the case that you wish to publish part of your thesis as a journal article without major changes.

1 Introduction

If you wish to write this report in German you should replace the specification

```
\documentclass[english,
                twocolumn]{hgbarticle}
```

at the top of this document by

```
\documentclass[german,
                twocolumn]{hgbarticle}
```

Remove the `twocolumn` option for a single-column layout. For simplified quotations use the `smartquotes` document option.

Also note that the top sectioning command available in the `article` class is `\section{}`, i.e., there are **no chapters**! When converting a thesis you thus need to *demote* all chapter commands to sections, sections to subsections etc.

1.1 Mathematical elements

This document is typeset in the typical two-column format required by many scientific journals. Unfortunately, the narrow text width often creates problems with mathematical structures [1]. While smaller equations like

$$\bar{\mathbf{M}} = \begin{pmatrix} A * H_\sigma^G & C * H_\sigma^G \\ C * H_\sigma^G & B * H_\sigma^G \end{pmatrix} = \begin{pmatrix} \bar{A} & \bar{C} \\ \bar{C} & \bar{B} \end{pmatrix} \tag{1}$$

may fit without any modification, larger structures like the one shown in Equation 2 need special treatment. In this case, the equation was wrapped into a `\begin{figure*}` ...`\end{figure*}` environment, which produces an unnumbered float object that extends across the full page width. Additional details can be found in the source text.

1.2 Graphics and images

Similarly, the horizontal space available for graphical elements is the width of a single column. Thus elements inserted with `\includegraphics{..}` should use the length `\columnwidth` for scaling. An example is shown in Fig. 1 (see the source text for details).

An by the way, the `lipsum` package was used to create the following dummy texts.

$$\begin{aligned}\lambda_{1,2} &= \frac{\mathrm{tr}(\bar{\mathbf{M}})}{2} \pm \sqrt{\left(\frac{\mathrm{tr}(\bar{\mathbf{M}})}{2}\right)^2 - \det(\bar{\mathbf{M}})} \\ &= \frac{1}{2} \cdot \left(\bar{A} + \bar{B} \pm \sqrt{\bar{A}^2 - 2 \cdot \bar{A} \cdot \bar{B} + \bar{B}^2 + 4 \cdot \bar{C}^2}\right),\end{aligned} \tag{2}$$

Figure 1: Coca-Cola advertisement photographed in 1940 [2].

1.3 Bibliography

The use of citations and the compilation of the bibliography works much the same as in the thesis template. The only difference is that `\printbibliography` is used directly at the end of the document.

2 Existing techniques

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3 Our radically new approach

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4 Summary and conclusion

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References

[1] Herbert Voß. *Math mode.* Version 2.47. Jan. 2014. URL: http://mirrors.ctan.org/obsolete/info/math/voss/mathmode/Mathmode.pdf (cit. on p. 1).

[2] Marion Post Wolcott. *Natchez, Miss.* Library of Congress Prints and Photographs Division Washington, Farm Security Administration/Office of War Information Color Photographs. Aug. 1940. URL: https://www.loc.gov/pictures/item/2017877479/ (cit. on p. 2).