Raw Text to Camera-Ready

Mark Ups and Downs

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WYSIWYG vs Markup

"What You See Is What You'll Get"

Workflow

- write
- select parts of text and apply format
- visually check layout and structure

Examples

- LibreOffice / OpenOffice
- Microsoft Word
- Google Docs
- Adobe Indesign (mostly)

Annotated text

Workflow

- write text with annotations
- check syntax
- check visual

Examples

- HTML
- LaTeX
- Markdown

1960's GML

Developed in 1960's to describe content of text documents for IBM's SCRIPT text formatter.

```
:h1.Generalized Markup Language (GML)
:p.Text can be marked as
:ol.
:li.headings,
:li.paragraphs, and
:li.lists.
:eol.
```

GML is a procedural markup, not particularly easy to read.

1980's LaTeX

LaTeX (and ConTeXt) are content structuring markup languages which use TeX for type setting

```
\section{LaTeX: Describe the document structure}

In LaTeX content can be structured, but also
directly formatted:

\begin{itemize}
  \item Markup elements for headings such
    as \chapter{} and \subsubsection{}
  \item inline-markup, eg to \emph{emphasize}
    certain parts
  \item direct font manipulations
    such as \Large\textit{asd}
\end{itemize}
```

1980's SGML

Standardized markup language. Subsets were used in HTML and XML.

```
<section1>
  <h1>Standard Generalized Markup Language</h1>
  <p>Any kind of tags, with and without parameters,
  can be defined, including</p>
  <ol>
    <li>sections,</li>
    <li>text block definitions, and</li>
    <li>inline text definitions.</li>
  </ol>
</section1>
```

2000's Lightweight Markup Languages

- ML are "expensive to write"
- ML difficult to learn
- Lightweight ML:
  - easy to learn
  - intuitive to read
  - history in forum, wiki, chat, sourcecode documentation
- examples:
  - BBCode "`[url=http://bbcode.org]Website[/url]`"
  - reStructuredText "`.. _rst: docutils[...]`"
  - AsciiDoc "`asciidoc.org/[website]`"
  - Markdown "`[website](daringfireball.net/[...])`"

Markdown

The goal of *lighweight Markup Languages* is to have text that is still **easy to read**, but that can be transformed to different outputs, for example:

- PDF
- HTML
- WYSIWYG documents:
  - Word
  - LibreOffice

It can be written in any text editor!

Markdown syntax

See `examples/BasicMDSyntax.md` and relative outputs in `.pdf` and `.docx`.

- headers
- emphasis (**bold**, *italics*)
- lists
- links
- images
- tables

Workflow

1. you:
   - edit Markdown file in text editor
   - save file
   - tell pandoc to generate a pdf
2. computer:
   - Markdown –{pandoc(filter)}–> LaTeX
   - LaTeX –{pdflatex}–> pdf
3. you:
   - look at pdf file

Pandoc

- written by John MacFarlane (philosopher)
- *general markup converter*
- download from http://pandoc.org
- part of RStudio
- converts document structure, not layout
- also converts to output only formats (pdf, docx. . .)

Pandoc

- eg
  - from rST to LaTeX
  - from Markdown to pdf
  - from html to markdown
- usage (try it inside `./examples/` directory[1])
  - `pandoc Input.md --output Output.pdf`
  - `pandoc --from html --to markdown Input.html --output Output.md`
  - `pandoc --from markdown --to latex Input.md --output Output.pdf`
  - `pandoc --from markdown --to docx Input.md --output Output.docx`

[1] open terminal, change directory to `./examples/`, run commands in terminal

Pandoc - additional features

- extendable by *filters*
- settings in YAML[2] header
  - title, author, date
  - template
  - bibliography formatting

```
---
title: Mark ups and downs
author:
- Ilaria Torre
- Frank Loesche
tags: markup, markdown, talk
bibliography: examples/MyBibliography.bib
---
```

[2] Yet Another Markup Language (really!)

Bibliography

- BibTeX
  - references from all big publishers (Springer, Elsevier, Science. . .) + Scholar
  - export from Mendeley
  - easy management in JabRef

References in MD file

See `examples/References.md`

Bibliography setup in text file

- bibliography in same path
  - `examples/MyBibliography.bib`
- add YAML header
  - see examples at `examples/ReferenceTest.Rmd`

```
---
...
bibliography: MyBibliography.bib
---
```

References

Torre, Ilaria, and Frank Loesche. 2016. "Overcoming Impasses in Conversations: A Creative Business." *Creativity. Theories – Research - Applications* 3 (2): 244–60. doi:10.1515/ctra-2016-0016.

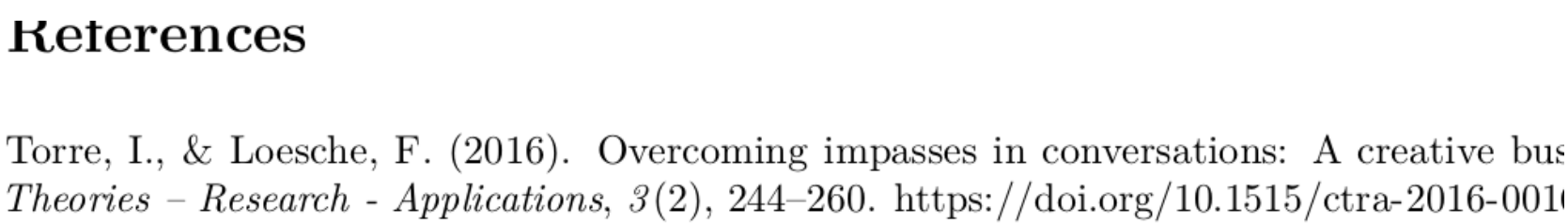
Figure 1: citation

Change Reference style

- download required style in Citation Style Language (CSL)
- more than 8000 at http://citationstyles.org + https://github.com/citation-style-language. . .

APA

```
...
bibliography: MyBibliography.bib
csl: apa.csl
---
```


References

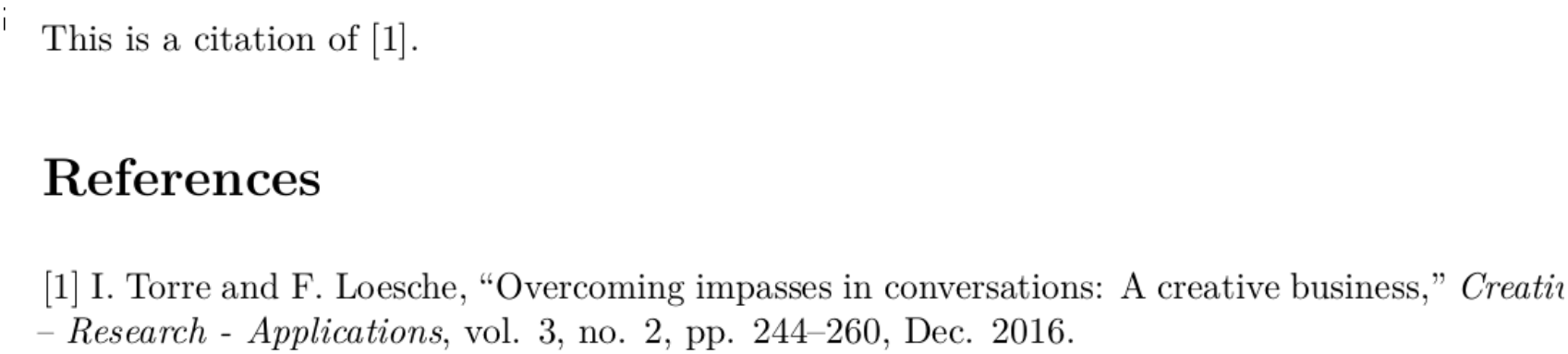
Torre, I., & Loesche, F. (2016). Overcoming impasses in conversations: A creative bus
Theories – Research - Applications, *3*(2), 244–260. https://doi.org/10.1515/ctra-2016-001

Figure 2: citation

- internal: filter pandoc-citeproc
- `bibliography` and `csl` are configured through YAML

IEEE

```
...
bibliography: MyBibliography.bib
csl: ieee.csl
---
```



This is a citation of [1].

References

[1] I. Torre and F. Loesche, "Overcoming impasses in conversations: A creative business," *Creati*
– *Research - Applications*, vol. 3, no. 2, pp. 244–260, Dec. 2016.

Figure 3: citation

RMarkdown

Markdown vs. RMarkdown

- another layer to the flow: knitr
- Rmd –{R(knitr)}–> Markdown –{pandoc}–> ...

See `examples/BasicRMD.rmd`

RMarkdown Notebook

- Literate Programming
- mix code and text
- compiler creates output format
- code blocks can run separately (fast turnaround)

````
```{r}
p <- ggplot(df) +
    xlim(0,60000) +
    geom_rect(
        aes(xmin = t.min,
            xmax = t.max,
            ymin = Game.Round-0.5,
            ymax = Game.Round+0.5,
            fill=HTML.ID), na.rm=TRUE) +
    labs(
        title=sprintf("Participant %s", l.participants[m]),
        x="round time",
        y="round") +
    scale_colour_manual(
        values=c("TRUE"="#00CC00", "FALSE"="#CCCCCC", "Intended"="#FFFFFF",
"Selected"="#000000")) +
    theme_bw()
print(p)
```
````

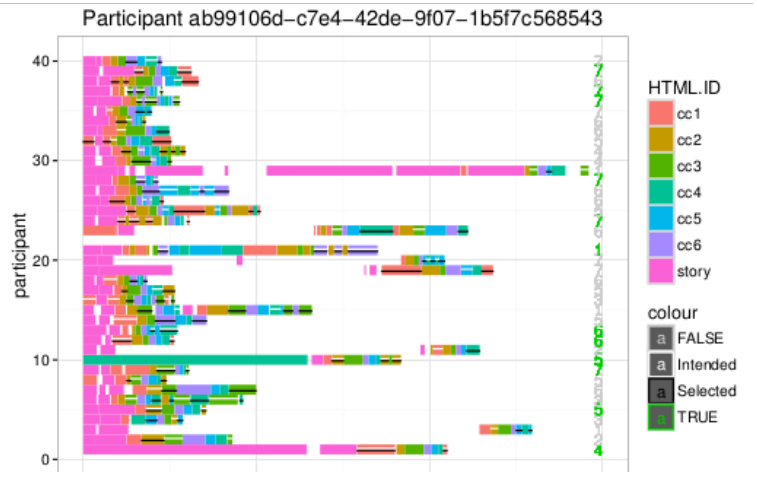


Figure 4: R code chunk and it's replacement

From “raw” text to beautiful pdf

The “quick’n’dirty” way:

1. Download LaTex template from journal
2. Export text to .tex
3. Copy all .tex document and paste into template[3]
4. Compile pdf document in perfect format

See: FinalMD.rmd

[3] Note: you will probably need to change some of the parameters in the journal template before it works out. Here Google will be your best friend!

“Hack” template

1. download template from publisher (eg APA)
2. modify everything above `\begin{document}` according to your needs
3. replace document content with `$body$`
4. add template to YAML of Rmd:

```
...
output:
  pdf_document:
    template: "apa-simple.template"
---
```

see `examples/apa-simple.template` and `examples/exampleArticle.Rmd`

Slightly advanced hack

1. follow previous steps 1 to 4
2. modify other elements in template with YAML variables:

```
\keywords{APA style, demonstration}
```

with

```
$if(keywords)$
\keywords{$for(keywords)$$keywords$$sep$, $endfor$}
$endif$
```

see `examples/apa.template` and
`examples/exampleArticle.Rmd`

Sweave

- Literate Programming for LaTeX
- Workflow:
  - Rnw –{R(knitr)}–> LaTeX
  - LaTeX –{pdflatex}–> pdf

```
\section{Nomal LaTex document}

<<plot, echo=FALSE, warning=FALSE>>=
print( ggplot(df, aes(x=RT)) + geom_density() )
@

Here comes more LaTeX
```

Why bother?

- best possible layout for every medium
  - use screen fonts (sans serif) for editor
  - eye friendly contrast
  - print optimized fonts (serif) for print outs
  - different format for different audiences (docx, pdf, epub)
- accessibility
  - only text files
  - no clash between Word 2016, Word 2003, OpenOffice...
- literate programming
  - reproducible research (replicability crisis)
  - (quantitative) data analysis and description in one document
  - figures in same document
  - no copy&paste errors

Links

The most recent links are in the README.md.

Backup

1970's TeX

Developed in the late 1970's to typeset books.

```
\font\xmplbx = cmbx10 scaled \magstephalf
\leftline{\xmplbx \TeX: typesetting system}
\vglue .5\baselineskip
Programming language that is
specialised in digital typesets.
\item{1.} Particular good for mathematical formulas,
\item{2.} allows macro definition
\bye
```

- `troff` / `groff` are other examples for Markup Languages

BTW: WYSIWYG

While 1990's WYSIWYG word processors thought it would be a good idea to use hidden binary (=non-readable) markup inside document formats such as `.doc`, they now internally use readable markup. Just rename a `.docx` file to `.zip`, open the archive and look at the file `./word/document.xml`:

```
<w:r>
  <w:t xml:space="preserve">This is </w:t>
</w:r>
<w:r>
  <w:rPr><w:i/><w:iCs/></w:rPr><w:t>italic</w:t>
</w:r>
```

Not meant to be read by humans, but in the worst case you can.