

# TITLE FIXME

Mitch Richling

YYYY-MM-DD FIXME

##+OPTIONS: tex:dvipng

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## 1 Math

Here is some math  $5 + 3^4$ .

Reminder: toggle inline preview of an expression with C-c C-x C-l

Here is some display math

$$\sum 4$$

## 2 Markup

### 2.1 Inline stuff

Some **bold** text.

Some *italics* text.

Some underlined text.

Some `verbatim` text.

Some `code` text.

Some ~~strike-through~~ text.

### 2.2 Structural stuff

#### 2.2.1 Special Paragraphs

Here we have a quote:

A human being is a part of a whole, called by us universe, a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest... a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty. – Albert Einstein

We can also keep newlines intact in an indented paragraph:

Whales Weep Not!

They say the sea is cold, but the sea contains  
the hottest blood of all, and the wildest, the most urgent.

...

– D.H. Lawrence

We can have a "verbatim" section with an "EXAMPLE" block.

Here is some text.

Note that

everything is just as typed.

### 2.2.2 Tables

With formatting

col 1	col 2	col 3	Col 4
another	bit	1	2
a	b	2	1

Tables used to hold data Notes:

- We have no "top line" on the table – otherwise the row of titles is not recognized!!
- Spaces in column titles are transformed into periods for data.frame column names.
- Empty data cells will be NA in the data.frame
- Non-numeric columns will be "characters" not "factors"

factor 1	factor 2	value 1	value 2
a	z	1	5
a	x	2	6
a	y	3	7
b	x	4	

### 2.2.3 Lists

Here is itemized list:

- first
- second
- third

Here is enumerated list:

1. First
2. Second
3. Third

A bit of both:

1. First
2. Second
  - first
  - second
  - third
3. Third

## 2.3 Todo/action items

**2.3.1 TODO:NEW** This is a todo

**2.3.2 ACTION:DONE** This is an action item – work speak. ;)

**CLOSED:** *[2015-11-01 Sun 22:36]* **DEADLINE:** *<2015-11-01 Sun>*

**2.3.3 ACTION:NEW** This is an item with sub-items [1/2]

**ACTION:DONE** A subitem **CLOSED:** [2015-11-01 Sun 22:39]

**ACTION:NEW** Another subitem

**2.3.4 ACTION:NEW** Here is an action item with list compoents [2/3]

**DEADLINE:** <2015-11-03 Tue> **SCHEDULED:** <2015-11-01 Sun>

☐ Step 1

☒ Step 2

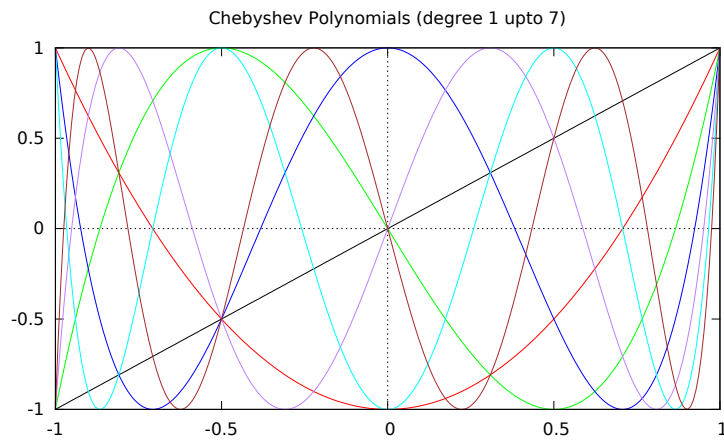
☒ Step 3

### 3 Images

#### 3.1 PDFs in $\text{\LaTeX}$ and Raster Image in HTML

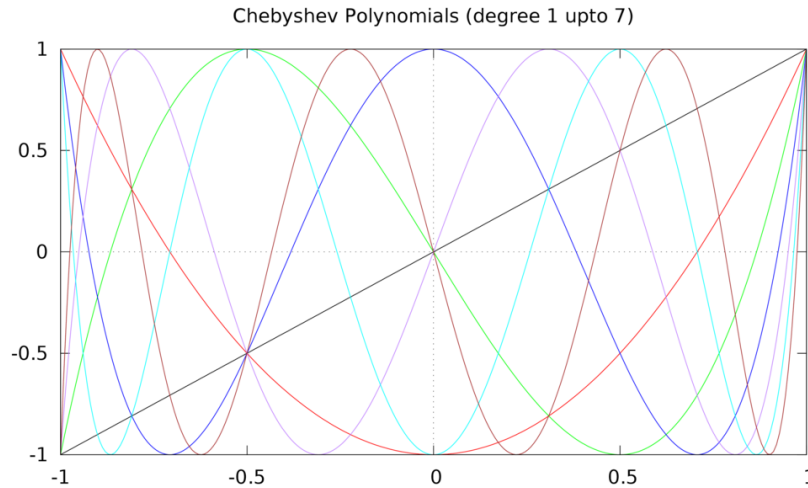
In this Section you will see one image. A PNG for HTML, and a PDF for  $\text{\LaTeX}$ !

```
<div class="figure"> <p>  </p> </div>
```



### 3.2 Links to images and converting PDFs to high quality raster images

Here we have a pretty graph (in a PNG file):



The above file was generated from a high quality PDF file: [example.pdf](#). Note that the link in the previous sentence is a link in both HTML and  $\text{\LaTeX}$  because the link has a 'display text' component.

The conversion was done like so:

```
convert -density 600 -resize 1024 -background white -flatten example.pdf example.png
```

## 4 Including external code

Some Ruby code is the file `example.rb`. It's contents are listed below:

```
#!/usr/local/bin/ruby

##
# @file      hello.rb
# @author    Mitch Richling <http://www.mitchr.me/>
# @Copyright Copyright 2006 by Mitch Richling. All rights reserved.
# @brief     The classic hello world program the Ruby way.␣EOL
# @Keywords  ruby example hello world
# @Std      Ruby 1.8
```

```

#
#           The methods puts, print, printf & putc are all in the IO
#           class as well so that they can be used to write to
#           different IO streams. As used here, they write to
#           STDOUT.

puts("Hello, World!")

print("Hello, World!\n")

printf("Hello, World!\n")

STDOUT << "Hello, World!\n"

STDOUT.write("Hello, World!\n")

"Hello, World!\n".each_byte {|b| putc(b) }

```

## 5 Inline Code

Here is a number, `(* 2 3) 6`, that comes from a bit of elisp code.

## 6 Code Blocks

### 6.1 Text code blocks

Text code blocks can be used as a kind of verbatim environment instead of `BEGIN_EXAMPLE`.

```

> Some Mail
>> Some More
>>> Even More
>>>> Even more

```

### 6.2 Email code blocks

This is nice because we get some highlighting for quoted e-mails and threads.

```

> Some Mail
>> Some More

```



```
>>> Even More
>>>> Even more
```

### 6.3 Emacs Lisp

While you can use "value" instead of "output" for code blocks, it really is **very** usefull for Emacs Lisp.

```
(+ 1 2 3 5)
```

```
11
```

### 6.4 Emacs Calc

For more complex mathematical computations done with just Emacs (no outside tools) we can use calc.

```
deriv(3*x^2+log(x), x)
```

```
6 x + 1 / x
```

### 6.5 Maxima

For super complex math, we can use maxima.

Here we see a pretty printed result

```
programmode:false;
d:diff(3*x^2+log(x), x);
print(d);
```

```
      1
6 x + -
      x
```

Same answer, but 2D printed

```
programmode:false;
display2d:false;
d:diff(3*x^2+log(x), x);
print(d);
```

```
6*x+1/x
```

Lastly note we can also output things in L<sup>A</sup>T<sub>E</sub>X, and get them rendered on export!

```
programmode:false;  
d:diff(3*x^2+log(x), x);  
tex(d);
```

$$6x + \frac{1}{x}$$

Another cool application is to use the `fortran` function to have maxima spit out results in fortran syntax.

## 6.6 Shells

```
date "+%Y-%m-%d %H:%M:%S"
```

```
2020-07-21 16:27:29
```

## 6.7 Ruby

```
puts("HI MOM")
```

```
HI MOM
```

## 6.8 Perl

```
print "HI MOM\n";
```

```
HI MOM
```

# 7 Fancy Code Block Stuff

## 7.1 Generateing code

```
(cl-loop for f in '("foo" "bar")  
  do (princ (message "mv %s %s.bak\n" f f)))
```

```
mv foo foo.bak  
mv bar bar.bak
```

## 7.2 Code links

You can link to a target inside a code block: Visible Link Text

```
(cl-loop for f in '("foo" "bar")                ;;      (foo)
      do (princ (message "mv %s %s.bak\n" f f)))
```

You can remove the visible references from the source listings with the `-r` option in the babel header. Otherwise they will appear in the listing – fontlocked white.

## 7.3 Line Numbers

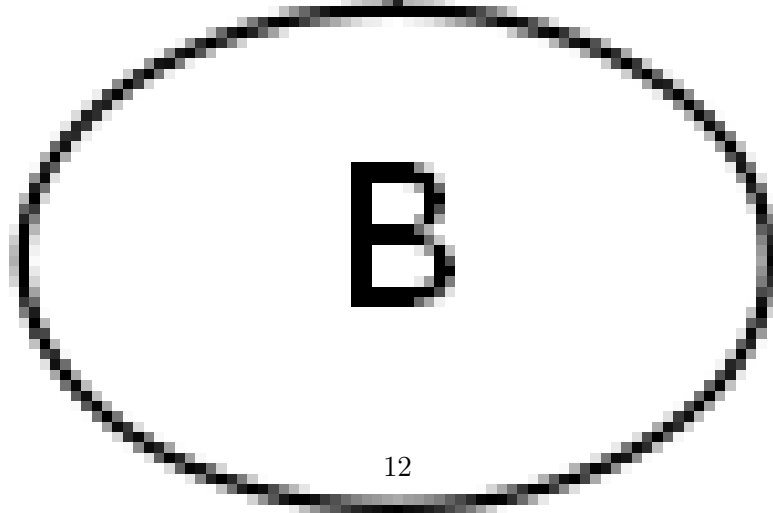
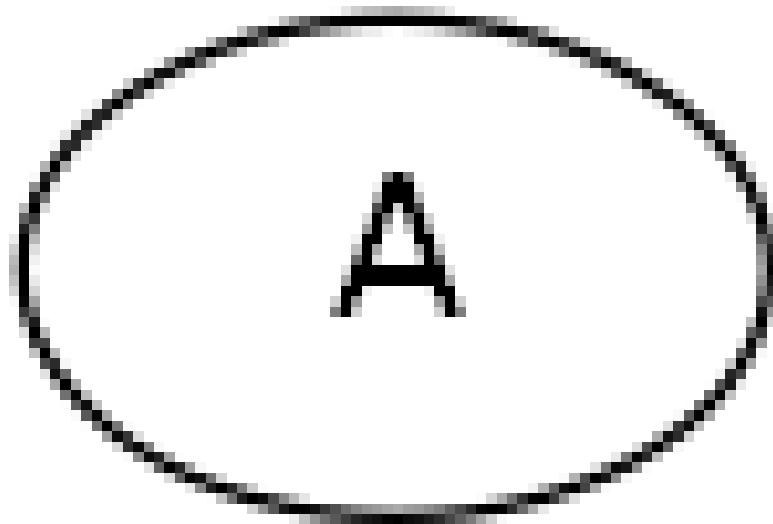
This will include line numbers in the block when exported

```
(cl-loop for f in '("foo" "bar")
      do (princ (message "mv %s %s.bak\n" f f)))
```

## 8 dot

Here we do not export the code, just the results – as an image. This results in a nice rendering.

```
graph {
  A -- B;
}
```



## 9 R

### 9.1 Just run some R code in a new session

```
print("HI MOM")  
[1] "HI MOM"
```

### 9.2 Access a table in this document as a data.frame

```
someData  
  
  factor.1 factor.2 value.1 value.2  
1      a      z      1      5  
2      a      x      2      6  
3      a      y      3      7  
4      b      x      4     NA
```

### 9.3 Output from R as a org-mode table

```
someData  
  
      a  z  1  5  
      a  x  2  6  
      a  y  3  7  
      b  x  4 nil
```

### 9.4 Run some code in a R persistent session (the someData variable is available for later blocks)

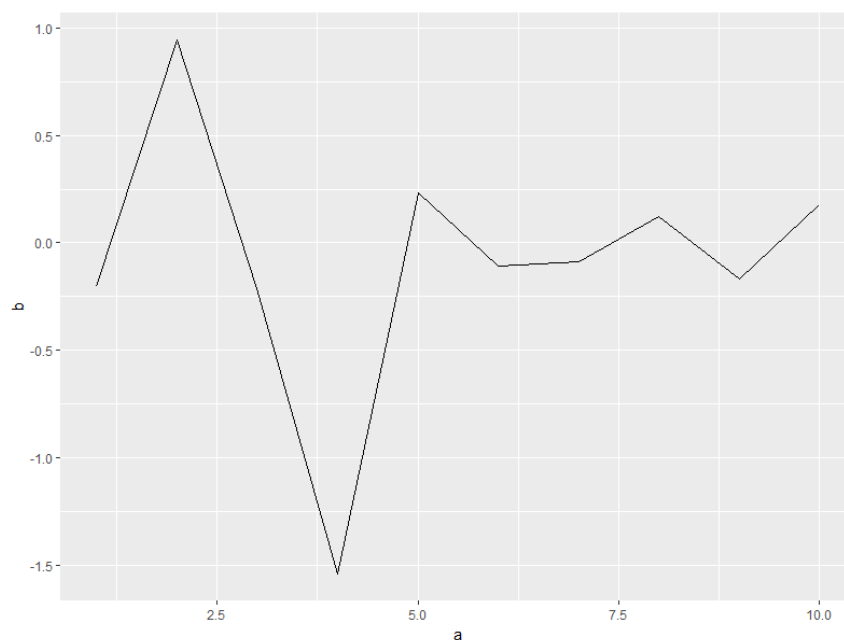
```
someData <- data.frame(a=1:10, b=rnorm(10))  
print(someData)  
  
      a      b  
1  1  1.2417875  
2  2  0.8637138  
3  3 -1.9440137  
4  4 -0.3236072  
5  5 -1.3049771  
6  6 -1.3039629  
7  7 -0.5288673  
8  8  0.7139287  
9  9  1.1919474  
10 10  0.6513476
```

## 9.5 Use the someData variable in the session, and draw a graph.

No special org-mode stuff for graphics. Just saved the output in files via R.  
Add link text later.

```
g <- ggplot(someData, aes(x=a, y=b)) + geom_line()
ggsave("rOut1.png", width=8, height=6, dpi=100, units='in', plot=g);
ggsave("rOut1.pdf", width=8, height=6, dpi=600, units='in', plot=g);
```

The graph:

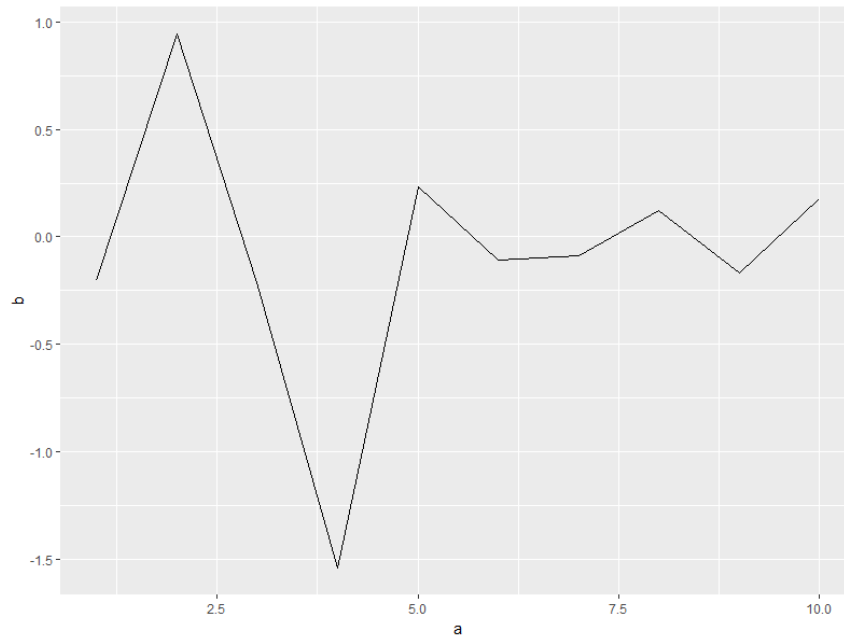


A high quality PDF version is [here](#) – note the "here" is a link for both  $\LaTeX$  and HTML.

## 9.6 We can use org-mode to make the file too.

Note: :session is required for this to work – otherwise we must "print" the graphic.

```
ggplot(someData, aes(x=a, y=b)) + geom_line()
```



## 9.7 And plotly works too

Note the silent output – we don't need the result, so we just don't print it.

```
library(plotly)
library(htmlwidgets)
data(diamonds, package = "ggplot2")
ggp <- ggplot(diamonds, aes(x = log(carat), y = log(price))) + geom_hex(bins = 100)
plp <- ggplotly(ggp)
saveWidget(plp, "examplePlotly.html", selfcontained=FALSE, libdir="examplePlotlyLib")
```

## 10 Reproducibility

This section is here to help anyone wishing to reproduce the results above, or to understand the mechanics of how the results were obtained..

Reminder: All blocks in the entire tree can be evaluated with C-C C-V C-S

### 10.1 FILES

Documented in this section are (for each file in this archive):

- SHA1
- Output from an 'ls -l' command
- Output from the 'wc' command – byte, word, and line counts

The use cases are two fold:

- Insure that the input data files being used are the same
- Check if reproduced results match

Replace the 'find ./ -type f' with a list of files and/or wildcards to explicitly select the desired files.

```
date
for c in wc 'openssl sha1' 'ls -l' ; do
    echo $c; $c 'find ./ -type f'
done
```

Wed, Jan 22, 2020 11:08:31 PM

```
wc
  0      1      30 ./.#genericOrgTemplate.org
 73     81    1268 ./auto/genericOrgTemplate.el
 23     79    3063 ./dotResult.png
186    683   16335 ./example.pdf
1316   7419  347721 ./example.png
 26     96     695 ./example.rb
 10     10     149 ./files_to_publish
 11     11     157 ./files_to_publish_before
1366   5177   54165 ./genericOrgTemplate.html
1371   5185   54236 ./genericOrgTemplate.html~
 636   2886   21429 ./genericOrgTemplate.org
 615   2736   20681 ./genericOrgTemplate.org~
5312  13987  457794 ./genericOrgTemplate.pdf
 623   2019   17088 ./genericOrgTemplate.tex
 80     274    4458 ./rOut1.pdf
 45     328    7486 ./rOut1.png
 21     229    7185 ./rOut2.png
11714  41201 1013940 total
openssl sha1
SHA1(./.#genericOrgTemplate.org)= 62941e0a5896f2b4efe7e63e97b054a866ec3f02
```



```

SHA1(/auto/genericOrgTemplate.el)= 1792aa6f454e97af4f40b729b55cba5f175fe622
SHA1(/dotResult.png)= 0aee67ef545690ac2edfacca997a2830bf52e5bd
SHA1(/example.pdf)= 32331c8ba2289b7b3c44b494c738ef0ad9973980
SHA1(/example.png)= d193ac9077e6616ee3d849184453195c414c49c9
SHA1(/example.rb)= ee55cdae5e8017b96fe18ab376356ff6d610ab78
SHA1(/files_to_publish)= f8b013770c45ea8efdf4eeb135e53023f756233d
SHA1(/files_to_publish_before)= f912ac87b274c3575fe7617f4d582abb75118784
SHA1(/genericOrgTemplate.html)= 5f171f9bb3c3b0cca8b45bfe3badb53c1b310c60
SHA1(/genericOrgTemplate.html~)= 1639270987f332dd9419256c9078385257bf3f52
SHA1(/genericOrgTemplate.org)= 98295573751daf0a7f77084b8d3c502fc7cb4f91
SHA1(/genericOrgTemplate.org~)= 7d1a924a6300d622abcf42fcad1660952b7b442e
SHA1(/genericOrgTemplate.pdf)= c1cb58664f48963eccab99496debd518f92a1a5d
SHA1(/genericOrgTemplate.tex)= d4982cfaeb44e15954aff17ac0977b2743c6a4ab
SHA1(/rOut1.pdf)= f165e5c93e05c20ec4264e7418dd620b120e77e5
SHA1(/rOut1.png)= 285f7b2b81e15fd96e4cc1d3fc7f6a0f0042baca
SHA1(/rOut2.png)= d6e8fd09c7a3bbbc7fbd1adab8325243e8d23fad
ls -l
-rw-r--r-- 1 richmit None      30 Jan 22 23:08 ./.#genericOrgTemplate.org
-rw-r--r-- 1 richmit None    1268 May 29  2016 ./auto/genericOrgTemplate.el
-rw-r--r-- 1 richmit None    3063 Jan 22 14:47 ./dotResult.png
-rw-r--r-- 1 richmit None   16335 May 30  2015 ./example.pdf
-rw-r--r-- 1 richmit None  347721 May 30  2015 ./example.png
-rwxr-xr-x 1 richmit None    695 May 30  2015 ./example.rb
-rw-r--r-- 1 richmit None    149 Jan 22 14:47 ./files_to_publish
-rw-r--r-- 1 richmit None    157 Jan 22 14:47 ./files_to_publish_before
-rw-r--r-- 1 richmit None   54165 Jan 22 23:08 ./genericOrgTemplate.html
-rw-r--r-- 1 richmit None   54236 Jan 22 23:05 ./genericOrgTemplate.html~
-rw-r--r-- 1 richmit None   21429 Jan 22 23:08 ./genericOrgTemplate.org
-rw-r--r-- 1 richmit None   20681 Jan 22 14:53 ./genericOrgTemplate.org~
-rw-r--r-- 1 richmit None  457794 May 29  2016 ./genericOrgTemplate.pdf
-rw-r--r-- 1 richmit None   17088 May 29  2016 ./genericOrgTemplate.tex
-rw-r--r-- 1 richmit None    4458 Jan 22 23:07 ./rOut1.pdf
-rw-r--r-- 1 richmit None    7486 Jan 22 23:07 ./rOut1.png
-rw-r--r-- 1 richmit None    7185 Jan 22 23:07 ./rOut2.png

```

## 10.2 ENVIRONMENT

The input files are only part of the reproducibility equation. It is also important to understand the tools and computational environment used for the original analysis. This section contains various bits of meta-data about the

tools and system I used for this analysis.

### 10.2.1 Embedded Ruby Version

```
puts(RUBY_VERSION)
```

2.6.3

### 10.2.2 Embedded Perl Version

```
print $]
```

5.030000

### 10.2.3 Embedded R Information

**R version**

R.version

```
platform      -  
arch          x86_64-w64-mingw32  
arch          x86_64  
os            mingw32  
system        x86_64, mingw32  
status  
major         3  
minor         5.3  
year          2019  
month         03  
day           11  
svn rev       76217  
language      R  
version.string R version 3.5.3 (2019-03-11)  
nickname      Great Truth
```

### Session Information

```
sessionInfo()
```

```
R version 3.5.3 (2019-03-11)
Platform: x86_64-w64-mingw32/x64 (64-bit)
Running under: Windows 10 x64 (build 18363)
```

```
Matrix products: default
```

```
locale:
```

```
[1] LC_COLLATE=English_United States.1252 LC_CTYPE=English_United States.1252 LC_M
```

```
attached base packages:
```

```
[1] graphics grDevices datasets utils grid stats methods base
```

```
other attached packages:
```

```
[1] RevoUtils_11.0.3 RColorBrewer_1.1-2 reshape2_1.4.3 scales_1.0.0
[10] jsonlite_1.5 knitr_1.22 lattice_0.20-38 RevoUtilsMath_11.0
```

```
loaded via a namespace (and not attached):
```

```
[1] Rcpp_1.0.1 magrittr_1.5 tidyselect_0.2.5 munsell_0.5.0 colorspace_1.4
[12] xfun_0.6 withr_2.1.2 lazyeval_0.2.2 assertthat_0.2.1 tibble_2.1.1
[23] pkgconfig_2.0.2
```

## Loaded Package Versions

```
installed.packages()[c('Version', 'LibPath')]
```

	Version	LibPath
Rcpp	"1.0.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
knitr	"1.22"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
magrittr	"1.5"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
grDevices	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
tidyselect	"0.2.5"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
munsell	"0.5.0"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
colorspace	"1.4-1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
lattice	"0.20-38"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
R6	"2.3.0"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
rlang	"0.3.4"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
RevoUtilsMath	"11.0.0"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
stringr	"1.4.0"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
plyr	"1.8.4"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
dplyr	"0.8.0.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"

tools	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
utils	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
grid	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
data.table	"1.12.2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
gtable	"0.3.0"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
xfun	"0.6"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
withr	"2.1.2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
datasets	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
stats	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
lazyeval	"0.2.2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
assertthat	"0.2.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
tibble	"2.1.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
base	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
crayon	"1.3.4"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
gridExtra	"2.3"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
RColorBrewer	"1.1-2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
reshape2	"1.4.3"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
purrr	"0.3.2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
ggplot2	"3.1.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
tidyr	"0.8.3"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
graphics	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
glue	"1.3.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
stringi	"1.4.3"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
compiler	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
pillar	"1.3.1"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
methods	"3.5.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
RevoUtils	"11.0.3"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
scales	"1.0.0"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"
jsonlite	"1.5"	"C:/Program Files/Microsoft/R Open/R-3.5.3/library"
pkgconfig	"2.0.2"	"c:/Users/richmit/Documents/R/win-library/x86_64-w64-mingw32-3"

## 10.2.4 Emacs Information

### Emacs Version

(emacs-version)

"GNU Emacs 26.2 (build 1, x86\_64-w64-mingw32)  
of 2019-06-03"

## org-mode Version

org-version

"9.1.14"

## ESS Version

(ess-version)

"ess-version: 18.10.3snapshot [elpa: 20200103.915] (loaded from c:/msys64/home/richmit/

## Process Environment

process-environment

("tmp=C:\\Users\\richmit\\AppData\\Local\\Temp" "temp=C:\\Users\\richmit\\AppData\\Loc

## System Type

system-type

windows-nt

## System Configuration

system-configuration

"x86\_64-w64-mingw32"

### 10.2.5 System Information

```
for e in date whoami groups id hostname domainname dnsdomainname 'ifconfig -a' 'uname -c'; do
  c='echo $e | awk '{print $1}'';
  if hash $c 1>/dev/null 2>/dev/null; then
    ruby -e 'puts(="*90)'
    echo $e
    sh -c "$e"
  fi
done
```

```

=====
date
Wed, Jan 22, 2020 11:08:43 PM
=====
whoami
richmit
=====
groups
None Users Performance Log Users INTERACTIVE CONSOLE LOGON Authenticated Users This Org
=====
id
uid=197609(richmit) gid=197121(None) groups=197121(None),545(Users),559(Performance Log
=====
hostname
hofud
=====
dnsdomainname
=====
uname -a
MINGW64_NT-10.0-18363 hofud 3.0.7-338.x86_64 2019-07-11 10:58 UTC x86_64 Msys
=====
openssl version
OpenSSL 1.1.1c 28 May 2019
=====
locale
LANG=en_US.UTF-8
LC_CTYPE="en_US.UTF-8"
LC_NUMERIC="en_US.UTF-8"
LC_TIME="en_US.UTF-8"
LC_COLLATE="en_US.UTF-8"
LC_MONETARY="en_US.UTF-8"
LC_MESSAGES="en_US.UTF-8"
LC_ALL=

```

## 10.2.6 Command Line Tool Information

```

for e in gcc g++ gfortran          \
      wc ls grep sed awk cut sort uniq \
      bash ksh tcsh dash csh sh zsh  \
      vi vim emacs em               \

```

```

        ruby ruby1.8 ruby2 python3 python2 perl          \
        gnuplot maxima octave M2 gap julia R             \
        qtiplot ggobi                                     \
        povray                                             \
        openscad xcircuit                                 \
        convert pqiv import display                      \
        gs pdftex pdflatex tex latex dvips               \
        sbcl clisp ecl ccl                                \
        diff diff3 patch merge                           \
        sqlite3 mysqld                                    \
        paraview visit                                    \
        grass                                              \
        tar gzip bzip2 ; do
ruby -e 'puts("=*90)'\
echo "Tool: $e"
if hash $e 1>/dev/null 2>/dev/null; then
    CPH='which $e'
    if [ -n "$CPH" -a -e "$CPH" ] ; then
        echo $CPH | sed 's/^/ Path: /'
        ls -ld $CPH | sed 's/^/ ls-l: /'
        $e --version | sed 's/^/ Ver: /'
    else
        echo " Unable to locate (which): $e"
    fi
else
    echo " Unable to locate (hash): $e"
fi
done
ruby -e 'puts("=*90)'\

```

```

=====
Tool: gcc
Path: /mingw64/bin/gcc
ls-l: -rwxr-xr-x 1 richmit None 2137193 Aug 12 05:14 /mingw64/bin/gcc
Ver: gcc.exe (Rev1, Built by MSYS2 project) 9.2.0
Ver: Copyright (C) 2019 Free Software Foundation, Inc.
Ver: This is free software; see the source for copying conditions. There is NO
Ver: warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
Ver:
=====

```

Tool: g++  
Path: /mingw64/bin/g++  
ls-l: -rwxr-xr-x 1 richmit None 2139753 Aug 12 05:14 /mingw64/bin/g++  
Ver: g++.exe (Rev1, Built by MSYS2 project) 9.2.0  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: This is free software; see the source for copying conditions. There is NO  
Ver: warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  
Ver:

=====

Tool: gfortran  
Path: /mingw64/bin/gfortran  
ls-l: -rwxr-xr-x 1 richmit None 2139753 Aug 12 05:14 /mingw64/bin/gfortran  
Ver: GNU Fortran (Rev1, Built by MSYS2 project) 9.2.0  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: This is free software; see the source for copying conditions. There is NO  
Ver: warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  
Ver:

=====

Tool: wc  
Path: /usr/bin/wc  
ls-l: -rwxr-xr-x 1 richmit None 42594 Apr 25 2019 /usr/bin/wc  
Ver: wc (GNU coreutils) 8.31  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.  
Ver:  
Ver: Written by Paul Rubin and David MacKenzie.

=====

Tool: ls  
Path: /usr/bin/ls  
ls-l: -rwxr-xr-x 1 richmit None 139682 Apr 25 2019 /usr/bin/ls  
Ver: ls (GNU coreutils) 8.31  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.  
Ver:  
Ver: Written by Richard M. Stallman and David MacKenzie.

=====



```

Tool: grep
  Path: /usr/bin/grep
  ls-l: -rwxr-xr-x 1 richmit None 210195 Dec  5 2018 /usr/bin/grep
  Ver:  grep (GNU grep) 3.0
  Ver:  Copyright (C) 2017 Free Software Foundation, Inc.
  Ver:  License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
  Ver:  This is free software: you are free to change and redistribute it.
  Ver:  There is NO WARRANTY, to the extent permitted by law.
  Ver:
  Ver:  Written by Mike Haertel and others, see <http://git.sv.gnu.org/cgit/grep.git/t>
=====
Tool: sed
  Path: /usr/bin/sed
  ls-l: -rwxr-xr-x 1 richmit None 172307 Dec 26 2018 /usr/bin/sed
  Ver:  sed (GNU sed) 4.7
  Ver:  Copyright (C) 2018 Free Software Foundation, Inc.
  Ver:  License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
  Ver:  This is free software: you are free to change and redistribute it.
  Ver:  There is NO WARRANTY, to the extent permitted by law.
  Ver:
  Ver:  Written by Jay Fenlason, Tom Lord, Ken Pizzini,
  Ver:  Paolo Bonzini, Jim Meyering, and Assaf Gordon.
  Ver:  GNU sed home page: <https://www.gnu.org/software/sed/>.
  Ver:  General help using GNU software: <https://www.gnu.org/gethelp/>.
  Ver:  E-mail bug reports to: <bug-sed@gnu.org>.
=====
Tool: awk
  Path: /usr/bin/awk
  ls-l: -rwxr-xr-x 1 richmit None 626954 Jun 24 2019 /usr/bin/awk
  Ver:  GNU Awk 5.0.1, API: 2.0 (GNU MPFR 4.0.2, GNU MP 6.1.2)
  Ver:  Copyright (C) 1989, 1991-2019 Free Software Foundation.
  Ver:
  Ver:  This program is free software; you can redistribute it and/or modify
  Ver:  it under the terms of the GNU General Public License as published by
  Ver:  the Free Software Foundation; either version 3 of the License, or
  Ver:  (at your option) any later version.
  Ver:
  Ver:  This program is distributed in the hope that it will be useful,
  Ver:  but WITHOUT ANY WARRANTY; without even the implied warranty of
  Ver:  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the

```

Ver: GNU General Public License for more details.  
Ver:  
Ver: You should have received a copy of the GNU General Public License  
Ver: along with this program. If not, see <http://www.gnu.org/licenses/>.

=====

Tool: cut

Path: /usr/bin/cut  
ls-l: -rwxr-xr-x 1 richmit None 42378 Apr 25 2019 /usr/bin/cut  
Ver: cut (GNU coreutils) 8.31  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.  
Ver:  
Ver: Written by David M. Ihnat, David MacKenzie, and Jim Meyering.

=====

Tool: sort

Path: /usr/bin/sort  
ls-l: -rwxr-xr-x 1 richmit None 106313 Apr 25 2019 /usr/bin/sort  
Ver: sort (GNU coreutils) 8.31  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.  
Ver:  
Ver: Written by Mike Haertel and Paul Eggert.

=====

Tool: uniq

Path: /usr/bin/uniq  
ls-l: -rwxr-xr-x 1 richmit None 42325 Apr 25 2019 /usr/bin/uniq  
Ver: uniq (GNU coreutils) 8.31  
Ver: Copyright (C) 2019 Free Software Foundation, Inc.  
Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.  
Ver:  
Ver: Written by Richard M. Stallman and David MacKenzie.

=====

Tool: bash

Path: /usr/local/bin/bash

```
ls-l: lrwxrwxrwx 1 richmit None 17 Dec 28 2018 /usr/local/bin/bash -> /usr/bin/bash
Ver: GNU bash, version 4.4.23(1)-release (x86_64-pc-msys)
Ver: Copyright (C) 2016 Free Software Foundation, Inc.
Ver: License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
Ver:
Ver: This is free software; you are free to change and redistribute it.
Ver: There is NO WARRANTY, to the extent permitted by law.
```

=====

Tool: ksh

Unable to locate (hash): ksh

=====

Tool: tcsh

Unable to locate (hash): tcsh

=====

Tool: dash

Path: /usr/bin/dash

ls-l: -rwxr-xr-x 1 richmit None 104553 Jun 21 2018 /usr/bin/dash

=====

Tool: csh

Unable to locate (hash): csh

=====

Tool: sh

Path: /usr/bin/sh

ls-l: -rwxr-xr-x 1 richmit None 1971272 Oct 30 2018 /usr/bin/sh

Ver: GNU bash, version 4.4.23(1)-release (x86\_64-pc-msys)

Ver: Copyright (C) 2016 Free Software Foundation, Inc.

Ver: License GPLv3+: GNU GPL version 3 or later <<http://gnu.org/licenses/gpl.html>>

Ver:

Ver: This is free software; you are free to change and redistribute it.

Ver: There is NO WARRANTY, to the extent permitted by law.

=====

Tool: vi

Unable to locate (hash): vi

=====

Tool: vim

Path: /usr/bin/vim

ls-l: -rwxr-xr-x 1 richmit None 2704119 Jul 30 06:28 /usr/bin/vim

Ver: VIM - Vi IMproved 8.1 (2018 May 18, compiled Jul 30 2019 11:28:50)

Ver: Included patches: 1-1777

Ver: Compiled by <[alexpux@gmail.com](mailto:alexpux@gmail.com)>

```

Ver: Huge version without GUI. Features included (+) or not (-):
Ver: +acl -farsi -mouse_sysmouse -tag_any_white
Ver: +arabic +file_in_path +mouse_urxvt -tcl
Ver: +autocmd +find_in_path +mouse_xterm +termguicolors
Ver: +autochdir +float +multi_byte +terminal
Ver: -autoservername +folding +multi_lang +terminfo
Ver: -balloon_eval -footer -mzscheme +termresponse
Ver: +balloon_eval_term +fork() +netbeans_intg +textobjects
Ver: -browse +gettext +num64 +textprop
Ver: ++builtin_terms -hangul_input +packages +timers
Ver: +byte_offset +iconv +path_extra +title
Ver: +channel +insert_expand +perl/dyn -toolbar
Ver: +cindent +job +persistent_undo +user_commands
Ver: -clientserver +jumplist +postscript +vartabs
Ver: +clipboard +keymap +printer +vertsplitt
Ver: +cmdline_compl +lambda +profile +virtualedit
Ver: +cmdline_hist +langmap +python/dyn +visual
Ver: +cmdline_info +libcall +python3/dyn +visualextra
Ver: +comments +linebreak +quickfix +viminfo
Ver: +conceal +lispindent +reltime +vreplace
Ver: +cryptv +listcmds +rightleft +wildignore
Ver: +cscope +localmap +ruby/dyn +wildmenu
Ver: +cursorbind -lua +scrollbind +windows
Ver: +cursorshape +menu +signs +writebackup
Ver: +dialog_con +mksession +smartindent -X11
Ver: +diff +modify_fname -sound -xfontset
Ver: +digraphs +mouse +spell -xim
Ver: -dnd -mouseshape +startuptime -xpm
Ver: -ebcdic +mouse_dec +statusline -xsmp
Ver: +emacs_tags -mouse_gpm -sun_workshop -xterm_clipboard
Ver: +eval -mouse_jsbterm +syntax -xterm_save
Ver: +ex_extra +mouse_netterm +tag_binary
Ver: +extra_search +mouse_sgr -tag_old_static
Ver: system vimrc file: "/etc/vimrc"
Ver: user vimrc file: "$HOME/.vimrc"
Ver: 2nd user vimrc file: "~/.vim/vimrc"
Ver: user exrc file: "$HOME/.exrc"
Ver: defaults file: "$VIMRUNTIME/defaults.vim"
Ver: fall-back for $VIM: "/etc"
Ver: f-b for $VIMRUNTIME: "/usr/share/vim/vim81"

```

Ver: Compilation: gcc -c -I. -Iproto -DHAVE\_CONFIG\_H -I/usr/include/ncursesw -ma

Ver: Linking: gcc -L. -pipe -fstack-protector-strong -pipe -Wl,--as-needed -o vim

=====  
Tool: emacs

Path: /home/richmit/bin/emacs

ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/emacs

Ver: GNU Emacs 26.2

Ver: Copyright (C) 2019 Free Software Foundation, Inc.

Ver: GNU Emacs comes with ABSOLUTELY NO WARRANTY.

Ver: You may redistribute copies of GNU Emacs

Ver: under the terms of the GNU General Public License.

Ver: For more information about these matters, see the file named COPYING.

=====  
Tool: em

Path: /home/richmit/bin/em

ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/em

Ver: GNU Emacs 26.2

Ver: Copyright (C) 2019 Free Software Foundation, Inc.

Ver: GNU Emacs comes with ABSOLUTELY NO WARRANTY.

Ver: You may redistribute copies of GNU Emacs

Ver: under the terms of the GNU General Public License.

Ver: For more information about these matters, see the file named COPYING.

=====  
Tool: ruby

Path: /home/richmit/bin/ruby

ls-l: -rwxr-xr-x 1 richmit None 8175 Jan 8 2019 /home/richmit/bin/ruby

Ver: ruby 2.6.3p62 (2019-04-16 revision 67580) [x64-mingw32]

=====  
Tool: ruby1.8

Unable to locate (hash): ruby1.8

=====  
Tool: ruby2

Unable to locate (hash): ruby2

=====  
Tool: python3

Path: /home/richmit/bin/python3

ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/python3

Ver: Python 3.7.4

=====  
Tool: python2

```
Path: /home/richmit/bin/python2
ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/python2
```

=====

```
Tool: perl
```

```
Path: /home/richmit/bin/perl
ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/perl
Ver:
Ver: This is perl 5, version 30, subversion 0 (v5.30.0) built for x86_64-msys-thread
Ver:
Ver: Copyright 1987-2019, Larry Wall
Ver:
Ver: Perl may be copied only under the terms of either the Artistic License or the
Ver: GNU General Public License, which may be found in the Perl 5 source kit.
Ver:
Ver: Complete documentation for Perl, including FAQ lists, should be found on
Ver: this system using "man perl" or "perldoc perl". If you have access to the
Ver: Internet, point your browser at http://www.perl.org/, the Perl Home Page.
Ver:
```

=====

```
Tool: gnuplot
```

```
Path: /mingw64/bin/gnuplot
ls-l: -rwxr-xr-x 1 richmit None 1942622 Jul 23 2019 /mingw64/bin/gnuplot
Ver: gnuplot 5.2 patchlevel 7
```

=====

```
Tool: maxima
```

```
Path: /home/richmit/bin/maxima
ls-l: -rwxr-xr-x 1 richmit None 8175 Dec 28 2018 /home/richmit/bin/maxima
Ver: ERROR: Application not found: maxima
```

=====

```
Tool: octave
```

```
Unable to locate (hash): octave
```

=====

```
Tool: M2
```

```
Unable to locate (hash): M2
```

=====

```
Tool: gap
```

```
Unable to locate (hash): gap
```

=====

```
Tool: julia
```

```
Unable to locate (hash): julia
```

=====  
Tool: R

Unable to locate (hash): R  
=====

Tool: qtiplot

Unable to locate (hash): qtiplot  
=====

Tool: ggobi

Unable to locate (hash): ggobi  
=====

Tool: povray

Unable to locate (hash): povray  
=====

Tool: openscad

Unable to locate (hash): openscad  
=====

Tool: xcircuit

Unable to locate (hash): xcircuit  
=====

Tool: convert

Path: /mingw64/bin/convert

ls-l: -rwxr-xr-x 1 richmit None 24367 Jul 12 2019 /mingw64/bin/convert

Ver: Version: ImageMagick 7.0.8-53 Q16 x86\_64 2019-07-12 <https://imagemagick.org>

Ver: Copyright: © 1999-2019 ImageMagick Studio LLC

Ver: License: <https://imagemagick.org/script/license.php>

Ver: Features: Cipher DPC HDRI Modules OpenCL OpenMP(4.5)

Ver: Delegates (built-in): bzlib cairo djvu fftw flif fontconfig freetype gslib gvc  
=====

Tool: pqiv

Unable to locate (hash): pqiv  
=====

Tool: import

Path: /mingw64/bin/import

ls-l: -rwxr-xr-x 1 richmit None 24367 Jul 12 2019 /mingw64/bin/import

Ver: Version: ImageMagick 7.0.8-53 Q16 x86\_64 2019-07-12 <https://imagemagick.org>

Ver: Copyright: © 1999-2019 ImageMagick Studio LLC

Ver: License: <https://imagemagick.org/script/license.php>

Ver: Features: Cipher DPC HDRI Modules OpenCL OpenMP(4.5)

Ver: Delegates (built-in): bzlib cairo djvu fftw flif fontconfig freetype gslib gvc

Ver: Usage: import.exe [options ...] [ file ]

Ver:

Ver: Image Settings:

Ver:    -adjoin                   join images into a single multi-image file

Ver:    -border                 include window border in the output image

Ver:    -channel type            apply option to select image channels

Ver:    -colorspace type         alternate image colorspace

Ver:    -comment string         annotate image with comment

Ver:    -compress type          type of pixel compression when writing the image

Ver:    -define format:option   define one or more image format options

Ver:    -density geometry       horizontal and vertical density of the image

Ver:    -depth value            image depth

Ver:    -descend                obtain image by descending window hierarchy

Ver:    -display server         X server to contact

Ver:    -dispose method         layer disposal method

Ver:    -dither method         apply error diffusion to image

Ver:    -delay value            display the next image after pausing

Ver:    -encipher filename      convert plain pixels to cipher pixels

Ver:    -endian type            endianness (MSB or LSB) of the image

Ver:    -encoding type          text encoding type

Ver:    -filter type            use this filter when resizing an image

Ver:    -format "string"        output formatted image characteristics

Ver:    -frame                  include window manager frame

Ver:    -gravity direction      which direction to gravitate towards

Ver:    -identify               identify the format and characteristics of the image

Ver:    -interlace type         None, Line, Plane, or Partition

Ver:    -interpolate method     pixel color interpolation method

Ver:    -label string           assign a label to an image

Ver:    -limit type value       Area, Disk, Map, or Memory resource limit

Ver:    -monitor                monitor progress

Ver:    -page geometry          size and location of an image canvas

Ver:    -pause seconds          seconds delay between snapshots

Ver:    -pointsize value        font point size

Ver:    -quality value          JPEG/MIFF/PNG compression level

Ver:    -quiet                  suppress all warning messages

Ver:    -regard-warnings        pay attention to warning messages

Ver:    -repage geometry        size and location of an image canvas

Ver:    -respect-parentheses    settings remain in effect until parenthesis boundary

Ver:    -sampling-factor geometry   horizontal and vertical sampling factor

Ver:



Ver:    -scene value           image scene number  
 Ver:    -screen               select image from root window  
 Ver:    -seed value           seed a new sequence of pseudo-random numbers  
 Ver:    -set property value   set an image property  
 Ver:    -silent               operate silently, i.e. don't ring any bells  
 Ver:    -snaps value          number of screen snapshots  
 Ver:    -support factor       resize support: > 1.0 is blurry, < 1.0 is sharp  
 Ver:    -synchronize         synchronize image to storage device  
 Ver:    -taint                declare the image as modified  
 Ver:    -transparent-color color  
 Ver:                           transparent color  
 Ver:    -treedepth value      color tree depth  
 Ver:    -verbose             print detailed information about the image  
 Ver:    -virtual-pixel method  
 Ver:                           Constant, Edge, Mirror, or Tile  
 Ver:    -window id            select window with this id or name  
 Ver:                           root selects whole screen  
 Ver:    Image Operators:  
 Ver:    -annotate geometry text  
 Ver:                           annotate the image with text  
 Ver:    -colors value         preferred number of colors in the image  
 Ver:    -crop geometry       preferred size and location of the cropped image  
 Ver:    -encipher filename   convert plain pixels to cipher pixels  
 Ver:    -geometry geometry   preferred size or location of the image  
 Ver:    -help                 print program options  
 Ver:    -monochrome          transform image to black and white  
 Ver:    -negate               replace every pixel with its complementary color  
 Ver:    -quantize colorspace   reduce colors in this colorspace  
 Ver:    -resize geometry      resize the image  
 Ver:    -rotate degrees      apply Paeth rotation to the image  
 Ver:    -strip                strip image of all profiles and comments  
 Ver:    -thumbnail geometry   create a thumbnail of the image  
 Ver:    -transparent color    make this color transparent within the image  
 Ver:    -trim                 trim image edges  
 Ver:    -type type            image type  
 Ver:    Miscellaneous Options:  
 Ver:    -debug events         display copious debugging information  
 Ver:    -help                 print program options

Ver: -list type print a list of supported option arguments  
 Ver: -log format format of debugging information  
 Ver: -version print version information  
 Ver:  
 Ver: By default, 'file' is written in the MIFF image format. To  
 Ver: specify a particular image format, precede the filename with an image  
 Ver: format name and a colon (i.e. ps:image) or specify the image type as  
 Ver: the filename suffix (i.e. image.ps). Specify 'file' as '-' for  
 Ver: standard input or output.

=====

Tool: display

Path: /mingw64/bin/display  
 ls-l: -rwxr-xr-x 1 richmit None 24367 Jul 12 2019 /mingw64/bin/display  
 Ver: Version: ImageMagick 7.0.8-53 Q16 x86\_64 2019-07-12 <https://imagemagick.org>  
 Ver: Copyright: © 1999-2019 ImageMagick Studio LLC  
 Ver: License: <https://imagemagick.org/script/license.php>  
 Ver: Features: Cipher DPC HDRI Modules OpenCL OpenMP(4.5)  
 Ver: Delegates (built-in): bzlib cairo djvu fftw flif fontconfig freetype gslib gvc  
 Ver: Usage: display.exe [options ...] file [ [options ...] file ...]  
 Ver:  
 Ver: Image Settings:  
 Ver: -alpha option on, activate, off, deactivate, set, opaque, copy  
 Ver: transparent, extract, background, or shape  
 Ver: -antialias remove pixel-aliasing  
 Ver: -authenticate password  
 Ver: decipher image with this password  
 Ver: -backdrop display image centered on a backdrop  
 Ver: -channel type apply option to select image channels  
 Ver: -colormap type Shared or Private  
 Ver: -colorspace type alternate image colorspace  
 Ver: -comment string annotate image with comment  
 Ver: -compress type type of pixel compression when writing the image  
 Ver: -define format:option  
 Ver: define one or more image format options  
 Ver: -delay value display the next image after pausing  
 Ver: -density geometry horizontal and vertical density of the image  
 Ver: -depth value image depth  
 Ver: -display server display image to this X server  
 Ver: -dispose method layer disposal method  
 Ver: -dither method apply error diffusion to image

Ver:	-endian type	endianness (MSB or LSB) of the image
Ver:	-filter type	use this filter when resizing an image
Ver:	-format string	output formatted image characteristics
Ver:	-geometry geometry	preferred size and location of the Image window
Ver:	-gravity type	horizontal and vertical backdrop placement
Ver:	-identify	identify the format and characteristics of the image
Ver:	-immutable	displayed image cannot be modified
Ver:	-interlace type	type of image interlacing scheme
Ver:	-interpolate method	pixel color interpolation method
Ver:	-label string	assign a label to an image
Ver:	-limit type value	pixel cache resource limit
Ver:	-loop iterations	loop images then exit
Ver:	-map type	display image using this Standard Colormap
Ver:	-matte	store matte channel if the image has one
Ver:	-monitor	monitor progress
Ver:	-nostdin	do not try to open stdin
Ver:	-page geometry	size and location of an image canvas
Ver:	-profile filename	add, delete, or apply an image profile
Ver:	-quality value	JPEG/MIFF/PNG compression level
Ver:	-quantize colorspace	reduce colors in this colorspace
Ver:	-quiet	suppress all warning messages
Ver:	-regard-warnings	pay attention to warning messages
Ver:	-remote command	execute a command in an remote display process
Ver:	-repage geometry	size and location of an image canvas (operator)
Ver:	-respect-parentheses	settings remain in effect until parenthesis boundary
Ver:	-sampling-factor geometry	
Ver:		horizontal and vertical sampling factor
Ver:	-scenes range	image scene range
Ver:	-seed value	seed a new sequence of pseudo-random numbers
Ver:	-set property value	set an image property
Ver:	-size geometry	width and height of image
Ver:	-support factor	resize support: > 1.0 is blurry, < 1.0 is sharp
Ver:	-texture filename	name of texture to tile onto the image background
Ver:	-transparent-color color	
Ver:		transparent color
Ver:	-treedepth value	color tree depth
Ver:	-update seconds	detect when image file is modified and redisplay
Ver:	-verbose	print detailed information about the image
Ver:	-visual type	display image using this visual type
Ver:	-virtual-pixel method	

Ver:		virtual pixel access method
Ver:	-window id	display image to background of this window
Ver:	-window-group id	exit program when this window id is destroyed
Ver:	-write filename	write image to a file
Ver:		
Ver:	Image Operators:	
Ver:	-auto-orient	automagically orient image
Ver:	-border geometry	surround image with a border of color
Ver:	-clip	clip along the first path from the 8BIM profile
Ver:	-clip-path id	clip along a named path from the 8BIM profile
Ver:	-colors value	preferred number of colors in the image
Ver:	-contrast	enhance or reduce the image contrast
Ver:	-crop geometry	preferred size and location of the cropped image
Ver:	-decipher filename	convert cipher pixels to plain pixels
Ver:	-deskew threshold	straighten an image
Ver:	-despeckle	reduce the speckles within an image
Ver:	-edge factor	apply a filter to detect edges in the image
Ver:	-enhance	apply a digital filter to enhance a noisy image
Ver:	-equalize	perform histogram equalization to an image
Ver:	-extract geometry	extract area from image
Ver:	-flip	flip image in the vertical direction
Ver:	-flop	flop image in the horizontal direction
Ver:	-frame geometry	surround image with an ornamental border
Ver:	-fuzz distance	colors within this distance are considered equal
Ver:	-gamma value	level of gamma correction
Ver:	-monochrome	transform image to black and white
Ver:	-negate	replace every pixel with its complementary color
Ver:	-normalize	transform image to span the full range of colors
Ver:	-raise value	lighten/darken image edges to create a 3-D effect
Ver:	-resample geometry	change the resolution of an image
Ver:	-resize geometry	resize the image
Ver:	-roll geometry	roll an image vertically or horizontally
Ver:	-rotate degrees	apply Paeth rotation to the image
Ver:	-sample geometry	scale image with pixel sampling
Ver:	-segment value	segment an image
Ver:	-sharpen geometry	sharpen the image
Ver:	-strip	strip image of all profiles and comments
Ver:	-threshold value	threshold the image
Ver:	-thumbnail geometry	create a thumbnail of the image
Ver:	-trim	trim image edges

```

Ver:
Ver: Image Sequence Operators:
Ver:   -coalesce           merge a sequence of images
Ver:   -flatten           flatten a sequence of images
Ver:
Ver: Miscellaneous Options:
Ver:   -debug events       display copious debugging information
Ver:   -help               print program options
Ver:   -list type          print a list of supported option arguments
Ver:   -log format         format of debugging information
Ver:   -version            print version information
Ver:
Ver: In addition to those listed above, you can specify these standard X
Ver: resources as command line options: -background, -bordercolor,
Ver: -mattecolor, -borderwidth, -font, -foreground, -iconGeometry,
Ver: -iconic, -name, -shared-memory, -usePixmap, or -title.
Ver:
Ver: By default, the image format of 'file' is determined by its magic
Ver: number. To specify a particular image format, precede the filename
Ver: with an image format name and a colon (i.e. ps:image) or specify the
Ver: image type as the filename suffix (i.e. image.ps). Specify 'file' as
Ver: '-' for standard input or output.
Ver:
Ver: Buttons:
Ver:   1   press to map or unmap the Command widget
Ver:   2   press and drag to magnify a region of an image
Ver:   3   press to load an image from a visual image directory

```

=====

Tool: gs

```

Path: /mingw64/bin/gs
ls-l: -rwxr-xr-x 1 richmit None 22447 Jun 10 2019 /mingw64/bin/gs
Ver: 9.27

```

=====

Tool: pdftex

```

Path: /c/texlive/2018/bin/win32/pdftex
ls-l: -rwxr-xr-x 1 richmit None 1536 Dec 28 2018 /c/texlive/2018/bin/win32/pdftex
Ver: pdfTeX 3.14159265-2.6-1.40.19 (TeX Live 2018/W32TeX)
Ver: kpathsea version 6.3.0
Ver: Copyright 2018 Han The Thanh (pdfTeX) et al.
Ver: There is NO warranty. Redistribution of this software is

```

Ver: covered by the terms of both the pdfTeX copyright and  
Ver: the Lesser GNU General Public License.  
Ver: For more information about these matters, see the file  
Ver: named COPYING and the pdfTeX source.  
Ver: Primary author of pdfTeX: Han The Thanh (pdfTeX) et al.  
Ver: Compiled with libpng 1.6.34; using libpng 1.6.34  
Ver: Compiled with zlib 1.2.11; using zlib 1.2.11  
Ver: Compiled with xpdf version 4.00

=====

Tool: pdflatex

Path: /c/texlive/2018/bin/win32/pdflatex  
ls-l: -rwxr-xr-x 1 richmit None 1536 Dec 28 2018 /c/texlive/2018/bin/win32/pdflatex  
Ver: pdfTeX 3.14159265-2.6-1.40.19 (TeX Live 2018/W32TeX)  
Ver: kpathsea version 6.3.0  
Ver: Copyright 2018 Han The Thanh (pdfTeX) et al.  
Ver: There is NO warranty. Redistribution of this software is  
Ver: covered by the terms of both the pdfTeX copyright and  
Ver: the Lesser GNU General Public License.  
Ver: For more information about these matters, see the file  
Ver: named COPYING and the pdfTeX source.  
Ver: Primary author of pdfTeX: Han The Thanh (pdfTeX) et al.  
Ver: Compiled with libpng 1.6.34; using libpng 1.6.34  
Ver: Compiled with zlib 1.2.11; using zlib 1.2.11  
Ver: Compiled with xpdf version 4.00

=====

Tool: tex

Path: /c/texlive/2018/bin/win32/tex  
ls-l: -rwxr-xr-x 1 richmit None 1536 Dec 28 2018 /c/texlive/2018/bin/win32/tex  
Ver: TeX 3.14159265 (TeX Live 2018/W32TeX)  
Ver: kpathsea version 6.3.0  
Ver: Copyright 2018 D.E. Knuth.  
Ver: There is NO warranty. Redistribution of this software is  
Ver: covered by the terms of both the TeX copyright and  
Ver: the Lesser GNU General Public License.  
Ver: For more information about these matters, see the file  
Ver: named COPYING and the TeX source.  
Ver: Primary author of TeX: D.E. Knuth.

=====

Tool: latex

Path: /c/texlive/2018/bin/win32/latex

```

ls-l: -rwxr-xr-x 1 richmit None 1536 Dec 28 2018 /c/texlive/2018/bin/win32/latex
Ver: pdfTeX 3.14159265-2.6-1.40.19 (TeX Live 2018/W32TeX)
Ver: kpathsea version 6.3.0
Ver: Copyright 2018 Han The Thanh (pdfTeX) et al.
Ver: There is NO warranty. Redistribution of this software is
Ver: covered by the terms of both the pdfTeX copyright and
Ver: the Lesser GNU General Public License.
Ver: For more information about these matters, see the file
Ver: named COPYING and the pdfTeX source.
Ver: Primary author of pdfTeX: Han The Thanh (pdfTeX) et al.
Ver: Compiled with libpng 1.6.34; using libpng 1.6.34
Ver: Compiled with zlib 1.2.11; using zlib 1.2.11
Ver: Compiled with xpdf version 4.00

```

=====  
Tool: dvips

```

Path: /c/texlive/2018/bin/win32/dvips
ls-l: -rwxr-xr-x 1 richmit None 161280 Dec 28 2018 /c/texlive/2018/bin/win32/dvips
Ver: This is dvips(k) 5.998 Copyright 2018 Radical Eye Software
Ver: kpathsea version 6.3.0
Ver: Copyright 2018 Radical Eye Software.
Ver: There is NO warranty. You may redistribute this software
Ver: under the terms of the GNU General Public License
Ver: and the Dvips copyright.
Ver: For more information about these matters, see the files
Ver: named COPYING and dvips.h.
Ver: Primary author of Dvips: T. Rokicki.

```

=====  
Tool: sbcl

```

Path: /usr/local/bin/sbcl
ls-l: lrwxrwxrwx 1 richmit None 55 Dec 28 2018 /usr/local/bin/sbcl -> /c/Program Fi
Ver: SBCL 1.4.14

```

=====  
Tool: clisp

```

Unable to locate (hash): clisp

```

=====  
Tool: ecl

```

Unable to locate (hash): ecl

```

=====  
Tool: ccl

```

Unable to locate (hash): ccl

```

=====

Tool: diff

Path: /usr/bin/diff

ls-l: -rwxr-xr-x 1 richmit None 205303 Jan 15 2019 /usr/bin/diff

Ver: diff (GNU diffutils) 3.7

Ver: Copyright (C) 2018 Free Software Foundation, Inc.

Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>

Ver: This is free software: you are free to change and redistribute it.

Ver: There is NO WARRANTY, to the extent permitted by law.

Ver:

Ver: Written by Paul Eggert, Mike Haertel, David Hayes,

Ver: Richard Stallman, and Len Tower.

=====

Tool: diff3

Path: /usr/bin/diff3

ls-l: -rwxr-xr-x 1 richmit None 59809 Jan 15 2019 /usr/bin/diff3

Ver: diff3 (GNU diffutils) 3.7

Ver: Copyright (C) 2018 Free Software Foundation, Inc.

Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>

Ver: This is free software: you are free to change and redistribute it.

Ver: There is NO WARRANTY, to the extent permitted by law.

Ver:

Ver: Written by Randy Smith.

=====

Tool: patch

Path: /usr/bin/patch

ls-l: -rwxr-xr-x 1 richmit None 174011 Feb 9 2018 /usr/bin/patch

Ver: GNU patch 2.7.6

Ver: Copyright (C) 2003, 2009-2012 Free Software Foundation, Inc.

Ver: Copyright (C) 1988 Larry Wall

Ver:

Ver: License GPLv3+: GNU GPL version 3 or later <<http://gnu.org/licenses/gpl.html>>.

Ver: This is free software: you are free to change and redistribute it.

Ver: There is NO WARRANTY, to the extent permitted by law.

Ver:

Ver: Written by Larry Wall and Paul Eggert

=====

Tool: merge

Path: /usr/bin/merge

ls-l: -rwxr-xr-x 1 richmit None 118470 Jun 1 2017 /usr/bin/merge



Ver: merge (GNU RCS) 5.9.4  
Ver: Copyright (C) 2010-2017 Thien-Thi Nguyen  
Ver: Copyright (C) 1990-1995 Paul Eggert  
Ver: Copyright (C) 1982,1988,1989 Walter F. Tichy, Purdue CS  
Ver: License GPLv3+: GNU GPL version 3 or later <<http://gnu.org/licenses/gpl.html>>  
Ver: This is free software: you are free to change and redistribute it.  
Ver: There is NO WARRANTY, to the extent permitted by law.

=====

Tool: sqlite3

Path: /mingw64/bin/sqlite3

ls-l: -rwxr-xr-x 1 richmit None 2070323 Jul 12 2019 /mingw64/bin/sqlite3

Ver: 3.29.0 2019-07-10 17:32:03 fc82b73eaac8b36950e527f12c4b5dc1e147e6f4ad2217ae43a

=====

Tool: mysqld

Unable to locate (hash): mysqld

=====

Tool: paraview

Unable to locate (hash): paraview

=====

Tool: visit

Unable to locate (hash): visit

=====

Tool: grass

Unable to locate (hash): grass

=====

Tool: tar

Path: /usr/bin/tar

ls-l: -rwxr-xr-x 1 richmit None 470130 Feb 28 2019 /usr/bin/tar

Ver: tar (GNU tar) 1.32

Ver: Copyright (C) 2019 Free Software Foundation, Inc.

Ver: License GPLv3+: GNU GPL version 3 or later <<https://gnu.org/licenses/gpl.html>>

Ver: This is free software: you are free to change and redistribute it.

Ver: There is NO WARRANTY, to the extent permitted by law.

Ver:

Ver: Written by John Gilmore and Jay Fenlason.

=====

Tool: gzip

Path: /c/texlive/2018/bin/win32/gzip

ls-l: -rwxr-xr-x 1 richmit None 154112 Dec 28 2018 /c/texlive/2018/bin/win32/gzip

Ver: gzip 1.9

```

Ver: Copyright (C) 2017 Free Software Foundation, Inc.
Ver: Copyright (C) 1993 Jean-loup Gailly.
Ver: This is free software. You may redistribute copies of it under the terms of
Ver: the GNU General Public License <https://www.gnu.org/licenses/gpl.html>.
Ver: There is NO WARRANTY, to the extent permitted by law.
Ver:
Ver: Written by Jean-loup Gailly.

```

```

=====
Tool: bzip2
Path: /mingw64/bin/bzip2
ls-l: -rwxr-xr-x 1 richmit None 45901 Jul 15 2019 /mingw64/bin/bzip2

```

## 11 Publishing

By "publishing" I mean simply copying stuff from the current directory tree to a new location – usually one shared by a web/file server or to a staging area to be later uploaded to a web server.

To control very precicely what gets published, put the files in the file `files_to_publish`. One way to do that is like so:

```

EXT2PUB='.org .html .png .gif .jpeg .pdf .ps .sh .rb .R .c .cpp .h .hpp .csv .csv.gz'
if test -e files_to_publish; then cp files_to_publish files_to_publish_before; wc -l f
for e in $EXT2PUB; do
    find ./ -name "$e"
done | sed 's/^\.\.\.\.' | egrep -v '^(#|\.)' > files_to_publish
sort files_to_publish | uniq > files_to_publish~
mv files_to_publish~ files_to_publish
wc -l files_to_publish

11 files_to_publish_before
10 files_to_publish

PUB_DIR=/tmp/foo
HTML_NAME=
PUB_MODES=a+rX
VERBOSE=-ii
if test -z "$HTML_NAME" -o 0 -eq `find ./ -cnewer "$HTML_NAME" -a -type f 2>/dev/null
    RSYNC_OPTS='--delete -a'
    if test -n "$VERBOSE";          then RSYNC_OPTS="$RSYNC_OPTS $VERBOSE"; fi
    if test -e '.rsync-filter';    then RSYNC_OPTS="$RSYNC_OPTS -F"; fi

```

```

        if test -e 'files_to_publish'; then RSYNC_OPTS="$RSYNC_OPTS --files-from=files_to_publish"
        date
        rsync $RSYNC_OPTS ./ "$PUB_DIR"
        date
    else
        echo "ERROR: $HTML_NAME is not the newest file here. Please regenerate it (C-c C-e)"
    fi

```

ERROR: genericOrgTemplate.html is not the newest file here. Please regenerate it (C-c C-e)

**12 EOF**