The title of the talk can even be much longer than this

Uwe Ziegenhagen
Sigbert Klinke

Institut für Statistik and Ökonometrie
Humboldt-Universität zu Berlin
http://ise.wiwi.hu-berlin.de
http://ise.wiwi.hu-berlin.de/~sigbert

How to print. . .

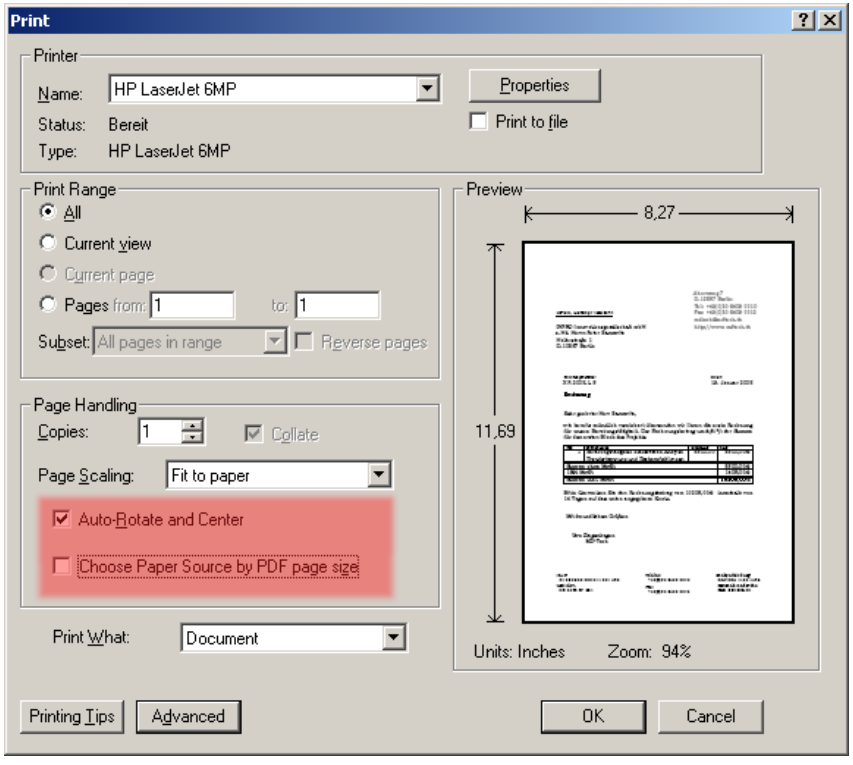
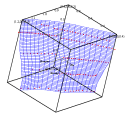


Figure 1: Hallo

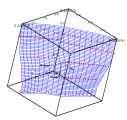


Basics

Statistics is understanding data by modeling it.
Data $Y^{(n)} = (Y_1, \ldots, Y_n)$ usually *random*.
$\boldsymbol{P} = \mathscr{L}(Y^{(n)})$, the *unknown* joint distribution.
Statistical problem: to infer on $\boldsymbol{P}$ from the data $Y^{(n)}$.
Parametric modeling:

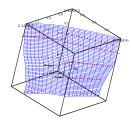
$$\boldsymbol{P} = \boldsymbol{P}_{\boldsymbol{\theta}} \in (\boldsymbol{P}_{\boldsymbol{\theta}}, \boldsymbol{\theta} \in \Theta \subset \boldsymbol{R}^p).$$

Nonparametric modeling: the parametric assumption is not fulfilled, or, equivalently, $p = \infty$.



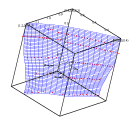
Outline

1. attract the audience ✓
2. the scientific message
3. explain the method
4. simulations & discussion of your results
5. applications and examples
6. almost EOT = end of talk
7. provoke few questions
8. audience: enjoy what you have learnt



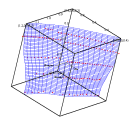
The Beamer-Package

- Beamer is the latest package to create slides with LaTeX
- slides need to be compiled to PDF, not DVI/Postscript
- Remember: PDFLaTeX accepts PNG, JPEG and PDF not EPS/PS
- if you *need* Postscript, RTFM
- some adjustments for ISE were made, use \Section instead of \section



Rules to write nice slides I

- use \Section and \subsection to structure your presentation
- the name of the current section is given in the headline
- use \pointprog to link to quantlets  `normal.xpl`, this creates a APSS link automatically
- Remember
  - 6-8 lines per slide
  - 6 words per line



Rules to write nice slides II

- use `^{\top}` to write the symbol of transpose, it produces

$$x^\top y$$

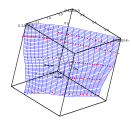
- use `\ldots` to write the symbol for three dots, it produces

$$x \in \{1, \ldots, n\}$$

- write multiple braces in the following order: [{ (...) }]

$$[X \cdot \{Y \ \cdot (a - b)\}]$$

- Use the bracket sequence [{(a + b = c)}] and \left and \right to adjust the size of nested brackets



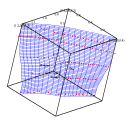
Rules to write nice slides III

- make tables as simple as possible and follow the Cambridge University Press Style:

Title	Title
2.13	1.45
3.14	6.85

- There should be shown not more than 2 decimal digits in a table.
- use `\stackrel{\cal{L}}{\to}` to write the symbol for convergence in distribution and `\textrm{N}` for normal distribution, it produces

$$X \xrightarrow{\mathcal{L}} \mathrm{N}(0, \sigma^2)$$



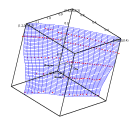
Rules to write nice slides III

- use `\textrm{P}` to write the symbol for probability, it produces

$$\mathrm{P}(X = x) = \frac{\exp(-\lambda)\lambda^x}{x!}$$

- use the predefined 'isegreen' color for **Examples**
- use `\stackrel{\mathrm{as.}}{\sim}` to write the symbol for asymptotic distribution, it produces

$$X \overset{\mathrm{as.}}{\sim} \chi^2$$



Rules to write nice slides IV

- use command `\stackrel{\mathrm{def}}{=}` to write the symbol for definition, it produces

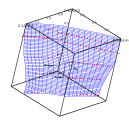
$$X \stackrel{\mathrm{def}}{=} \frac{a}{b}$$

- use commands `\Re` or `\Im` to write the symbols for the real or imaginary part, it produces

$$X = \Re\{Y\}, Y = \Im\{Z\}$$

- use `\mathop{\rm arg\,min}\limits` to write the symbols for argument of minimum, it produces

$$a = \arg\min_{x}\{f(x)\}$$



Rules to write nice slides V

- use `\mathop{\rm arg\,max}\limits` to write the symbols for argument of maximum, it produces

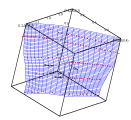
$$b = \arg\max_{x}\{f(x)\}$$

- use `\ln` or `\log` to write the symbols for natural logarithm or decimal logarithm, it produces

$$1 = \ln e, \quad 1 = \log(10)$$

- use `\mathop{\mbox{E}}` to write the symbol for expectation, it produces

$$\mathrm{E}[X] = \mu$$



Rules to write nice slides VI

To create an example, use the `example` environment

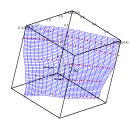
```
\begin{example}[
  Test]

$$a^2+b^2=c^2$$

\end{example}
```

Example (Test)

$$a^2 + b^2 = c^2$$



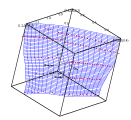
Things you can do with Beamer I

You can easily put two (or more) columns on one slide.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Integer pede. Pellentesque viverra ligula vitae wisi.

Cras euismod, arcu vitae sagittis sollicitudin, nibh sapien auctor velit, nec tincidunt elit quam in quam.

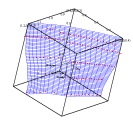
Phasellus felis. Morbi id mauris nec eros condimentum gravida. Curabitur faucibus, ligula a varius tincidunt, tellus metus elementum dolor.



Things you can do with Beamer II

This text is replaced by the text after the second onslide command.
You can also use overlay, for details see the manual.

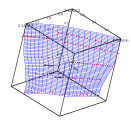
Sed mollis purus nec quam. Praesent laoreet. Donec pellentesque commodo leo. Etiam leo wisi, sodales vel, suscipit at, rhoncus vel, ligula.



Things you can do with Beamer II

Ut nulla. Maecenas tincidunt augue eget leo. Suspendisse potenti. Nullam dignissim lacus ut mi. Maecenas scelerisque turpis ut augue. Cras et justo nec nulla gravida lobortis. Phasellus urna. Fusce adipiscing. Ut pharetra sem eu ipsum. Praesent lacinia.

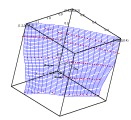
Sed mollis purus nec quam. Praesent laoreet. Donec pellentesque commodo leo. Etiam leo wisi, sodales vel, suscipit at, rhoncus vel, ligula.



Slide Transitions I

There are several commands for slide transitions, here for \transdissolve together with an example for \only:

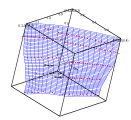
- Ut placerat metus id risus.
- Curabitur ut tortor ullamcorper metus pretium aliquet.
- Sed ut elit.



Slide Transitions I

There are several commands for slide transitions, here for \transdissolve together with an example for \only:

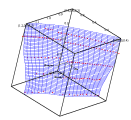
- Nulla risus risus, dignissim eu, luctus ut.
- Integer diam velit, viverra sit amet, dictum vel.
- Vestibulum at mi.



Slide Transitions II

or here the \transwipe, also with \only:

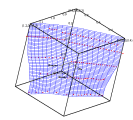
- Suspendisse pulvinar wisi eu nisl.
- Vestibulum at mi.
- Morbi tincidunt dapibus lacus.



Slide Transitions II

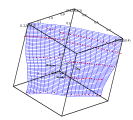
or here the \transwipe, also with \only:

- Morbi sed est ut leo ultricies ornare.
- Fusce at erat ac eros bibendum tempor.
- Nullam vestibulum vulputate quam.



Assigning labels to Frames

You can assign labels to slides and then repeat these frames later.
Give [label=*NameOfLabel*] as option to the frame.
With \againframeNameOfLabel the frame is repeated.

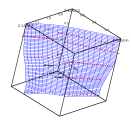


Piecewise Uncovering I

The following example uses $< 1 - 2 >$ commands to piecewise hide and uncover text. $< 1 - 2 >$ makes the first item appear only on slides 1 and 2, $< 2- >$ has the second item visible from slide 2 onwards.

- Itemize environments

(i) First Roman point.



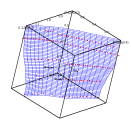
Piecewise Uncovering I

The following example uses $< 1 - 2 >$ commands to piecewise hide and uncover text. $< 1 - 2 >$ makes the first item appear only on slides 1 and 2, $< 2- >$ has the second item visible from slide 2 onwards.

- Itemize environments
- can be uncovered or hidden

(i) First Roman point.

(ii) Second Roman point, uncovered on second slide.

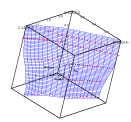


Piecewise Uncovering I

The following example uses $< 1 - 2 >$ commands to piecewise hide and uncover text. $< 1 - 2 >$ makes the first item appear only on slides 1 and 2, $< 2- >$ has the second item visible from slide 2 onwards.

- can be uncovered or hidden
- piecewise

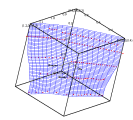
(i) First Roman point.
(ii) Second Roman point, uncovered on second slide.
(iii) Last Roman point.



Piecewise Uncovering II

There is an easier way using \item <+->

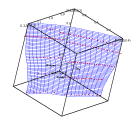
- Itemize environments



Piecewise Uncovering II

There is an easier way using \item <+->

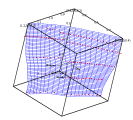
- Itemize environments
- can be uncovered or hidden



Piecewise Uncovering II

There is an easier way using \item <+->

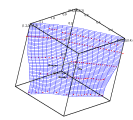
- Itemize environments
- can be uncovered or hidden
- piecewise



Piecewise Uncovering III

We can also slightly modify this to highlight the current items:

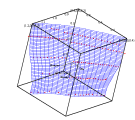
- Beamer features



Piecewise Uncovering III

We can also slightly modify this to highlight the current items:

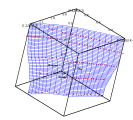
- Beamer features
- a set of commands



Piecewise Uncovering III

We can also slightly modify this to highlight the current items:

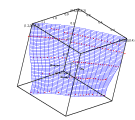
- Beamer features
- a set of commands
- to control the layout



Piecewise Uncovering IV

We make this even easier by handing the alert to the itemize option:

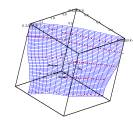
- Items for itemize environments



Piecewise Uncovering IV

We make this even easier by handing the alert to the itemize option:

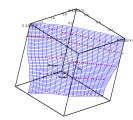
- Items for itemize environments
- can be highlighted



Piecewise Uncovering IV

We make this even easier by handing the alert to the itemize option:

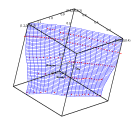
- Items for itemize environments
- can be highlighted
- when they are active



You can do this even for full frames.

Theorem

$$A = B$$



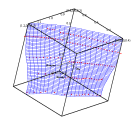
You can do this even for full frames.

Theorem

$$A = B$$

Proof.

□



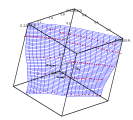
You can do this even for full frames.

Theorem

$$A = B$$

Proof.

- Clearly, $A = C$.



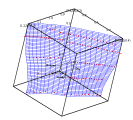
You can do this even for full frames.

Theorem

$$A = B$$

Proof.

- Clearly, $A = C$.
- As shown earlier, $C = B$.



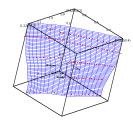
You can do this even for full frames.

Theorem

$$A = B$$

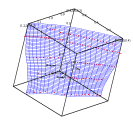
Proof.

- Clearly, $A = C$.
- As shown earlier, $C = B$.
- Thus $A = B$.



Further options

- 'allowframebreaks' automatically splits text to several frame if it does not fit on one slide.



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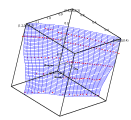
- 'shrink=*number*' shrinks the content of the slide by *number* percent. Don't use this...



Further options

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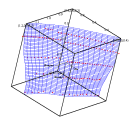
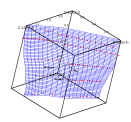
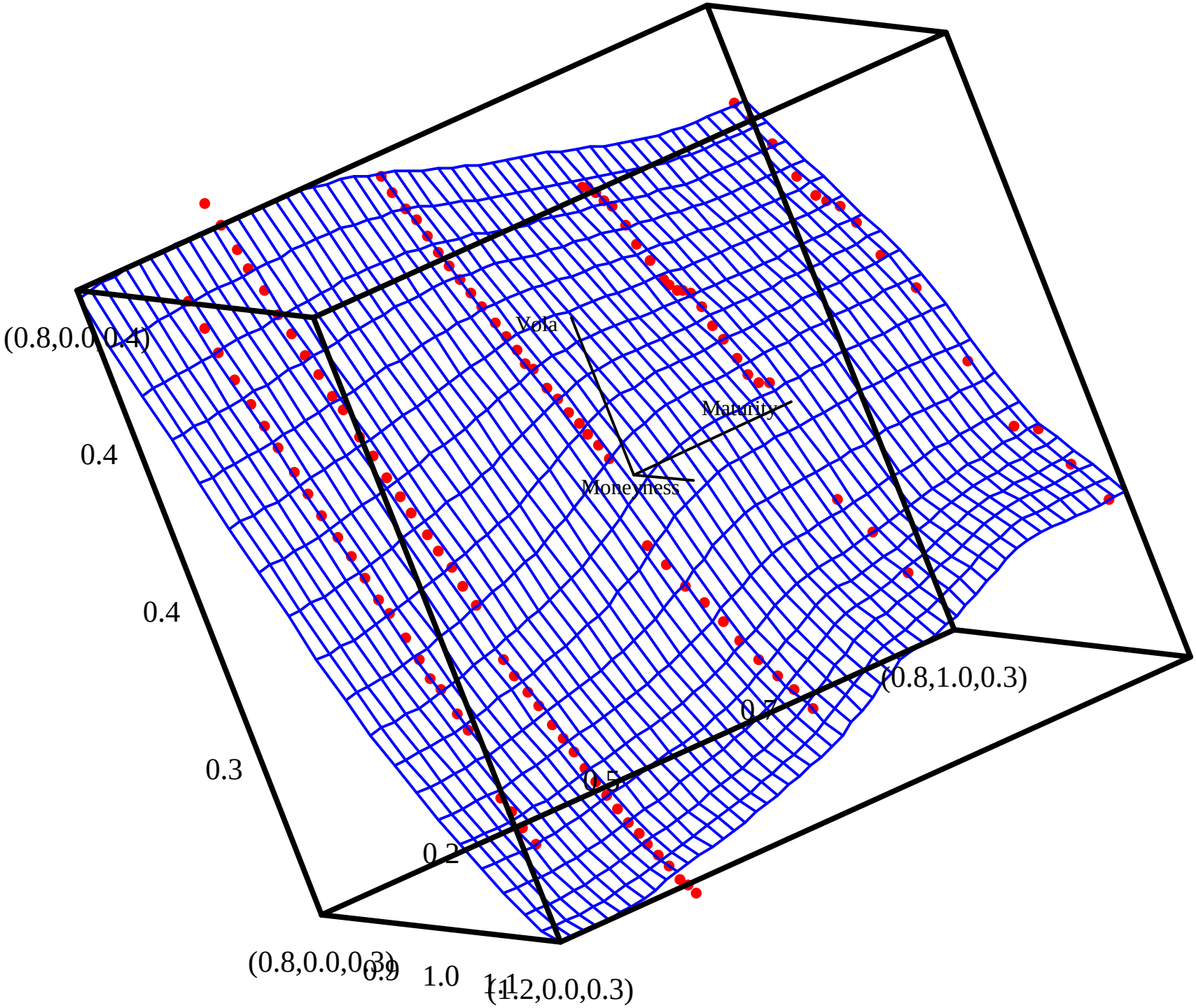
- 'shrink=*number*' shrinks the content of the slide by *number* percent. Don't use this...
- 'plain' to create empty slides, useful to include fullpage pictures.



Further options

- 'allowframebreaks' automatically splits text to several frame if it does not fit on one slide.
- 'shrink=*number*' shrinks the content of the slide by *number* percent. Don't use this...
- 'plain' to create empty slides, useful to include fullpage pictures.
- 'containsverbatim' if frame contains *verbatim* or *listings*

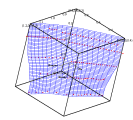



(0.8,0.0,0.4)
0.4
0.4
0.3
(0.8,0.0,0.3)
0.9
1.0
1.1
(1.2,0.0,0.3)
Vola
Maturity
Moneyness
0.2
0.5
0.7
(0.8,1.0,0.3)

Using `listings` for source

Slides containing a listing also need [containsverbatim] as option.
For 'highlighting' of XploRe keywords see `listing.tex`.

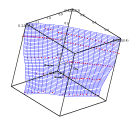
```
1 library("metrics")
2 randomize(10178)
3 z=(uniform(n).>0.5)~(normal(n).<0.5)
```

Hiding text. . .

Text on the first slide.

Shown on all slides.

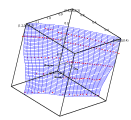


Hiding text. . .

Text on the first slide.
Shown on second and third slide.

- Still shown on 2nd and 3rd slide.

Shown on all slides.



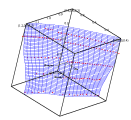
Hiding text. . .

Text on the first slide.
Shown on second and third slide.

- Still shown on 2nd and 3rd slide.

- Shown on slides 3 and 5.

Shown on all slides.

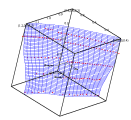


Hiding text. . .

Text on the first slide.

- Shown from slide 4 on.

Shown on all slides.

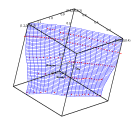


Hiding text. . .

Text on the first slide.

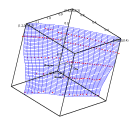
- Shown from slide 4 on.
- Shown on slides 3 and 5.

Shown on all slides.



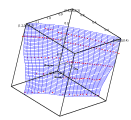
Assigning labels to Frames

You can assign labels to slides and then repeat these frames later.
Give [label=*NameOfLabel*] as option to the frame.
With \againframeNameOfLabel the frame is repeated.



More Things to do with Beamer

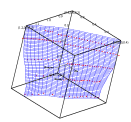
- create animations between slides
- create labels and buttons
- use one sourcefile for presentations and articles



Connection with XploRe

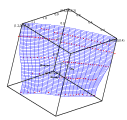
To use the 'Goldene Lösung' with own quantlets do the following

- Create a folder with a 3-8 lettercode in the directory /home/mdstat/xplore4/talks, examples: GHICA or ISI2005 or MDK
- Make sure that all quantlets have a structure like the example on the next slide
- Copy all your quantlets to this directory, data files must be copied to `/usr/local/quantletserver/stranger/mdservJava1.3/` + `Solaris/data/''lettercode''` on Apus
- Change only the macro name, description and quantlet code, leave the rest untouched
- Have someone run the `/home/mdstat/bin/createGoldentalks` script on Pluto (as user mdstat)
- the generated HTML files can be found (some minutes later) in /home/mdstat/www/codes/talks/'lettercode'



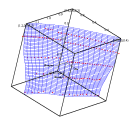
Connection with XploRe - Example

```
1  ; ------------------------------------------------
2  ;    EBook           talks
3  ; ------------------------------------------------
4  ;    See_also
5  ; ------------------------------------------------
6  ;    Macro      nameOfQuantlet
7  ; ------------------------------------------------
8  ;    Description    a one line description here
9  ; ------------------------------------------------
10 ;    Usage
11 ; ------------------------------------------------
12 ;    Author          uz 20060205
13 ; ------------------------------------------------
14 ; XploRe code
15    1+1+1
```

Connection with XploRe

- This folder needs to be copied manually to the Apache htdocs directory on Apus, ask an admin to do this /usr/local/apache2/htdocs/www/www.quantlet.org/ + mdstat/codes/talks/'lettercode'
- Visit http://www.quantlet.org/mdstat/codes/talks/'lettercode'/ + talks.html and check the quantlets

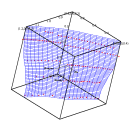


For Further Reading


W. Härdle and L. Simar
Applied Multivariate Statistical Analysis
Springer, 2003


E. Dijkstra.
Smoothsort, an alternative for sorting in situ.
Science of Computer Programming, 1(3):223–233, 1982.


Frank Mittelbach and Michel Goossens
The LaTeX Companion – 2nd ed.
Addison-Wesley, 2004



For Further Reading


Alexander, C.
Principles of the Skew
RISK, 2001, 14(1):S29–S32.


Avellaneda, M. and Y. Zhu
An E-ARCH Model for the Term-Structure of Implied Volatility of FX Options
Applied Mathematical Finance, 4:81–100, 1997.


Baksi, G., C. Cao, and Z.Chen
Do call and underlying prices always move in the same direction?
Review of Financial Studies, 13(3):549–584, 2000.