

Modern e-Learning Techniques for Statistics

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Introduction

- Common opinion: 'Statistics is evil'
- Bachelor classes: failure rates of 30-50%
- \Rightarrow students avoid statistics
- How to improve understanding?



e-Learning

- web- and computerbased training applications
- authoring applications
- simulations
- videoconferencing/teleteaching systems
- learning (content) management systems
- content-catalogues
- digital learning games

**e-Learning = everything which teaches something
by digital media.**



Overview

- Introduction ✓
- Teaching statistics with wikis
- Quantnet – Managing scientific code online
- Podcasting – teaching on a fingerslide



Technical Limits of MM*Stat

- Browser incompatibilities
- Difficult to extend
- No support for non-Latin languages
- No collaboration features
- Long-term support?



Wiki software

- 1995: Ward Cunningham
- collection of webpages which can be read and edited by users
- special syntax simpler than HTML
- technical requirements: webserver and database
- common packages: TWiki, MediaWiki
- aims
 - ▶ collect knowledge in collaborative way
 - ▶ publish online in a convenient way



Verteilungsmodelle - Binomialverteilung - MMStatDe - Mozilla Firefox

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Verteilungsmodelle: [Gleichverteilung](#) - **[Binomialverteilung](#)** - [Hypergeometrische Verteilung](#) - [Poisson-Verteilung](#) - [Exponentialverteilung](#) - [Normalverteilung](#) - [Zentraler Grenzwertsatz](#) - [Approximation von Verteilungen](#) - [Chi-Quadrat-Verteilung](#) - [t-Verteilung](#) - [F-Verteilung](#) - [Multiple Choice](#)

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- Binomialverteilung
 - 1.1 Info zur Binomialverteilung
- Erklärtes Beispiel
- Erweitertes Beispiel 1 zur Binomialverteilung
- Erweitertes Beispiel II
- Interaktives Beispiel Binomialverteilung

[bearbeiten]

Binomialverteilung

Der Binomialverteilung liegt ein Bernoulli-Zufallsexperiment zugrunde, bei dem entweder ein Ereignis A mit konstanter **Wahrscheinlichkeit** p oder das zu A komplementäre Ereignis \bar{A} mit der **Wahrscheinlichkeit** $1 - p$ eintreten kann. Dieses Zufallsexperiment wird n -mal wiederholt.

Die diskrete **Zufallsvariable**, die die Anzahl des Eintretens von A bei n -maliger Durchführung des Zufallsexperimentes beinhaltet, heißt binomialverteilt mit den Parametern n und p , wenn ihre **Wahrscheinlichkeitsfunktion** durch

$$f_B(x; n, p) = \begin{cases} \binom{n}{x} \cdot p^x \cdot (1 - p)^{n-x} & \text{für } x = 0, 1, \dots, n \\ 0 & \text{sonst} \end{cases}$$

gegeben ist. In Kurzform schreibt man $X \sim B(n; p)$

Für die Verteilungsfunktion folgt

الصفحة الرئيسية | تاريخ الصفحة | مرض الصدر الطفلة | نقل هذه الصفحة

تم فتح قلب كوكب الأرض و ذلك لإنجازات معلم الزيادة المعلمين وويكيبيديا فروعهم
 سيتم إطلاق باب القرضح يوم الاثنين 20 أغسطس 2006 في تمام الساعة 23:59 بتوقيت غرينتش

الصفحة الرئيسية



ويكيبيديا
 الموسوعة الحرة
 البريوسية

- الصفحة الرئيسة
- الأدوات المساعدة
- لمتد للبريد
- لمتد للبريد الإنشائية

الآن
14 أغسطس
 2006
 20 رخصه
 1427

"ويكيبيديا" مشروع متعدد اللغات في كثر من مئة لغة أصبح مشروع لغة ويكيبيديا ويكيبيديا ويكيبيديا ويكيبيديا
 في تشرينا وقت السنة العريضة في يوليو 2003 ويوجد الآن **16,137** مقالة
 إذا كانت هذه زيارتك الأولى، نرجو أن تبدأ مساهمة ويكيبيديا على صفحة الأستة المتكررة. من الممكن أن تجد ما تفرد
 بصفحة صفحات المساعدة. الرجاء التوجه إلى مدون ويكيبيديا للمساعدة

إنشائيات | تاريخ | مشاركتها | لغة | جغرافيا | حياة يومية | رياضيات | علوم | مجتمع
 أصبح هذا الموسوع - أصبح اللغات - أصبح اللغات - أصبح اللغات - أصبح اللغات - أصبح اللغات - أصبح اللغات - أصبح اللغات

- | | | |
|---|---|---|
| علم الفلك | علم الفلك | علم الفلك |
| أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى | أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى | أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى |
| علم طباعة وورق | علم طباعة وورق | علم طباعة وورق |
| أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى | أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى | أب - مصطلحات - رسم - بيما - معاداة - لغات - صحاح - موسيقى |
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مفردات وعلوم الأرض

- المجموع
- المجموع
 - أبدي
 - مفردات
 - مفردات
 - مفردات
- المشاركات والمساعدة
- مفردات
 - مفردات
 - مفردات
 - مفردات

بحث

بحث

StatWiki

StatWiki Index

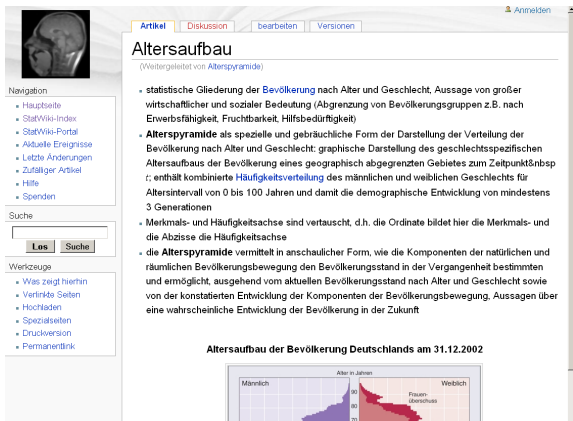
A — [Alle Artikel](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Z](#) [Ü](#)

A	Altenquotient	Arbeitskräfteerhebung
—posteriori	Alter	Arbeitskräftekonzept
Wahrscheinlichkeit	Erwerbsquote nach – und	Arbeitskräftepotenzialkonzept
—priori Wahrscheinlichkeit	Bildungsniveau	Arbeitskräftestichprobe
AKE	Alternativhypothese	– der EU
Abgekürzte	Altersaufbau	Arbeitslose
– Sterbetafel	Altersgliederungszahlen	Arbeitslosenquote
Abhängige	Alterslastquote	Amtliche nationale –
– Variable	Alterspyramide	Arbeitslosenquoten
Abkürzungen	Altersspezifische	Erwerbslosen- und –
Ablehnungsbereich	– Geburtenziffer	Arbeitsmarktstatistik
Absolutskala	– Sexualproportionen	Arbeitsortkonzept
Abweichung	– Sterbeziffer	Arealtätsziffer
Mittlere absolute –	Amtliche	Arithmetisches
Mittlere quadratische –	– Statistik	– Mittel
Additivitätstest	– nationale Arbeitslosenquote	Art
– von Tukey	Andrews	Fehler erster –
Adäquation	– Plot	Fehler zweiter –
Agrarische	Andrews'	Asymptotische
– Bevölkerungsdichte	– Wave	– Effizienz
Allen	Annahmebereich	– Erwartungstreue
– Wallis	Annahmefehler	– Wirklichkeit

Figure: StatWiki Screenshot



StatWiki




The screenshot shows a web browser window displaying a StatWiki article titled "Altersaufbau". The page layout includes a navigation sidebar on the left with links for "Hauptseite", "StatWiki-Index", "StatWiki-Portal", "Aktuelle Ereignisse", "Letzte Änderungen", "Zufälliger Artikel", "Hilfe", and "Spenden". Below this is a search box with "Los" and "Suche" buttons, and a "Werkzeuge" section with links for "Was zeigt hierhin", "Verlinkte Seiten", "Hochladen", "Spezialseiten", "Druckversion", and "Permanentlink". The main content area features a sub-header "Altersaufbau" with a note "(Weitergeleitet von Alterspyramide)". The article text contains several bullet points:

- statistische Gliederung der **Bevölkerung** nach Alter und Geschlecht, Aussage von großer wirtschaftlicher und sozialer Bedeutung (Abgrenzung von Bevölkerungsgruppen z.B. nach Erwerbsfähigkeit, Fruchtbarkeit, Hilfsbedürftigkeit)
- **Alterspyramide** als spezielle und gebräuchliche Form der Darstellung der Verteilung der Bevölkerung nach Alter und Geschlecht: graphische Darstellung des geschlechtsspezifischen Altersaufbaus der Bevölkerung eines geographisch abgegrenzten Gebietes zum Zeitpunkt : enthält kombinierte **Häufigkeitsverteilung** des männlichen und weiblichen Geschlechts für Altersintervall von 0 bis 100 Jahren und damit die demographische Entwicklung von mindestens 3 Generationen
- Merkmals- und Häufigkeitsachse sind vertauscht, d.h. die Ordinate bildet hier die Merkmals- und die Abszisse die Häufigkeitsachse
- die **Alterspyramide** vermittelt in anschaulicher Form, wie die Komponenten der natürlichen und räumlichen Bevölkerungsbewegung den Bevölkerungsstand in der Vergangenheit bestimmten und ermöglicht, ausgehend vom aktuellen Bevölkerungsstand nach Alter und Geschlecht sowie von der konstatierten Entwicklung der Komponenten der Bevölkerungsbewegung, Aussagen über eine wahrscheinliche Entwicklung der Bevölkerung in der Zukunft

Below the text is a caption: "Altersaufbau der Bevölkerung Deutschlands am 31.12.2002". The figure is a population pyramid with "Alter in Jahren" on the vertical axis (70, 80, 90) and "Männlich" on the left and "Weiblich" on the right. The male side is shaded purple and the female side is shaded red. A horizontal line at the top of the female side is labeled "Frauen überdurchschnittlich".



TeachWiki



The screenshot shows a web browser displaying a TeachWiki article. At the top right, there are links for 'Log in / create account'. Below this, there are tabs for 'article', 'discussion', 'view source', and 'history'. The main title of the article is 'What drives Market Value: Analysis of the Forbes 500 US companies'. To the left of the article content is a sidebar with a navigation menu, a search box, and a toolbox. The navigation menu includes links for 'Main Page', 'Community portal', 'Current events', 'Recent changes', 'Random page', 'Help', and 'Donations'. The search box has a 'Go' button and a 'Search' button. The toolbox includes links for 'What links here', 'Related changes', 'Upload file', 'Special pages', 'Printable version', and 'Permanent link'. The article content includes a 'Contents' table of contents with 11 items: 1 Introduction, 2 Data description, 3 Descriptive Statistics, 4 Principal Components Analysis, 5 Cluster Analysis, 6 Distribution Analysis, 7 Regression Analysis, 8 Sector Analysis, 9 Conclusion, 10 References, and 11 Comments. The 'Introduction' section begins with the text: 'This paper analyzes the data of 79 companies included in the Forbes 500 list of the largest U.S. companies. We focus mainly on the following questions:'. It then lists three questions: 1) 'What are potential criteria for being considered "the largest"? Which factors did Forbes analysts consider the most important in selection of the largest USA companies from the particular sector? (PCA)', 2) 'How "good" are the existing criteria of Forbes 500? To put it differently, how homogenous is our sample? (Cluster analysis)', and 3) 'What drives the market value of the Forbes 500 companies (Regression analysis)'. The text concludes with: 'We intentionally use different statistical tools and methods to show different approaches to answer the questions indicated above.'

article discussion view source history

Log in / create account

What drives Market Value: Analysis of the Forbes 500 US companies

Contents [hide]

- 1 Introduction
- 2 Data description
- 3 Descriptive Statistics
- 4 Principal Components Analysis
- 5 Cluster Analysis
- 6 Distribution Analysis
- 7 Regression Analysis
- 8 Sector Analysis
- 9 Conclusion
- 10 References
- 11 Comments

Introduction

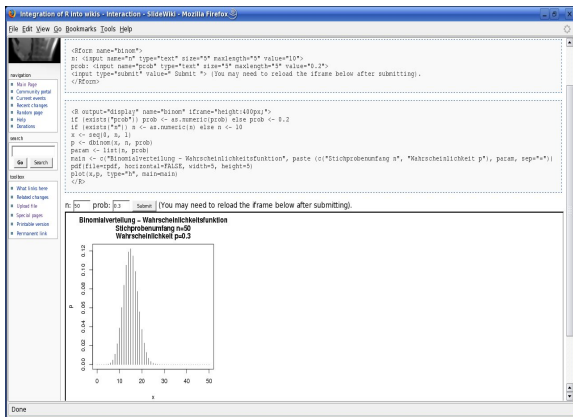
This paper analyzes the data of 79 companies included in the Forbes 500 list of the largest U.S. companies. We focus mainly on the following questions:

- What are potential criteria for being considered "the largest"? Which factors did Forbes analysts consider the most important in selection of the largest USA companies from the particular sector? (PCA)
- How "good" are the existing criteria of Forbes 500? To put it differently, how homogenous is our sample? (Cluster analysis)
- What drives the market value of the Forbes 500 companies (Regression analysis)

We intentionally use different statistical tools and methods to show different approaches to answer the questions indicated above.



Extending wikis with R



The screenshot shows a Mozilla Firefox browser window titled "Integration of R into wikis - Interaction - SideWiki". The page contains an interactive form for generating a binomial distribution plot. The form has two input fields: "n" (set to 50) and "prob" (set to 0.3). Below the inputs is a "Submit" button. The form is surrounded by HTML code for styling and JavaScript for validation. The R code uses the `dbinom` function to generate the distribution and the `plot` function to create a bar chart. The plot is titled "Binomialverteilung - Wahrscheinlichkeitsfunktion Stichprobenumfang n=50 Wahrscheinlichkeit p=0.3". The x-axis is labeled "x" and ranges from 0 to 50. The y-axis is labeled "p" and ranges from 0.00 to 0.12. The plot shows a bell-shaped distribution centered around x=17.5.

```
<form name="binom">
  n: <input name="n" type="text" size="3" maxlength="3" value="10">
  prob: <input name="prob" type="text" size="3" maxlength="3" value="0.2">
  <input type="submit" value=" Submit " /> (You may need to reload the iframe below after submitting).
</form>

<R output="display" name="binom" iframe="height:400px">
  if (exists("prob")) prob <- as.numeric(prob) else prob <- 0.2
  if (exists("n")) n <- as.numeric(n) else n <- 10
  x <- seq(0, n, 1)
  p <- dbinom(x, n, prob)
  param <- list(n, prob)
  main <- c("Binomialverteilung - Wahrscheinlichkeitsfunktion", paste(c("Stichprobenumfang n", "Wahrscheinlichkeit p"), param, sep=" "))
  pdf(file="pdf", horizontal=FALSE, width=5, height=5)
  plot(x,p, type="b", main=main)
</R>
```

R: n: 50 prob: 0.3 Submit [You may need to reload the frame below after submitting].

Binomialverteilung - Wahrscheinlichkeitsfunktion
Stichprobenumfang n=50
Wahrscheinlichkeit p=0.3

0.12
0.10
0.08
0.06
0.04
0.02
0.00

0 10 20 30 40 50

x

Figure: Interactive form for a figure R



Extending wikis with R

The screenshot shows a MediaWiki page titled "Integration of R into wikis - HTML - StatWiki - MediaWiki - Outlook". The page content includes an R script and its output:

```
<R output="html" iframe="width:100%;height:250px;">
prob=0.15; nmin=1; nmax=15; x=6
m <- pbinom(rep(0:x, each = nmax-nmin+1), rep(nmin:nmax,x), prob)
dim(m) <- c(nmax-nmin+1,x+1)
n <- t(m)
colnames(m) <- format(nmin:nmax)
rownames(m) <- format(0:x)
outHTML(rhtml, m, title="x\n", format="f", digits=4)
</R>
```

The output is a table with 15 columns (x=0 to 15) and 6 rows (n=1 to 6). The table shows the probability distribution for a binomial distribution with n trials and a probability of success of 0.15.

x\n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.8500	0.7225	0.6141	0.5220	0.4437	0.3771	0.3206	0.2725	0.2316	0.1969	0.1673	0.1422	0.1209	0.1028	0.0874
1	1.0000	0.9775	0.9392	0.8905	0.8352	0.7765	0.7166	0.6572	0.5995	0.5443	0.4922	0.4435	0.3983	0.3567	0.3186
2	1.0000	1.0000	0.9966	0.9880	0.9734	0.9527	0.9262	0.8946	0.8591	0.8202	0.7788	0.7358	0.6920	0.6479	0.6042
3	1.0000	1.0000	1.0000	0.9995	0.9978	0.9941	0.9879	0.9786	0.9661	0.9500	0.9306	0.9078	0.8820	0.8535	0.8227
4	1.0000	1.0000	1.0000	1.0000	0.9999	0.9996	0.9988	0.9971	0.9944	0.9901	0.9841	0.9761	0.9658	0.9533	0.9383
5	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998	0.9994	0.9986	0.9973	0.9954	0.9925	0.9885	0.9832
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993	0.9987	0.9978	0.9964

At the bottom of the page, it states: "This page was last modified 11:32, 19 May 2006. This page has been accessed 10 times. Privacy policy About StatWiki Disclaimers".

Figure: HTML distribution table



Wiki conclusion

- + easy way of putting materials online
- + allows convenient collaboration
- + functionality for managing pages
 - some useful teaching components missing (Moodle)
 - security (spam, vandalism)



Quantnet – managing scientific code

- Desirable for research: reproducible and reusable
- Code & data for papers, theses, books
- MD*Base: a data storage platform
 - ▶ plain-text datasets
 - ▶ XML description
- QuantNet project: a platform to manage data and source code



Quantnet :: Start - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

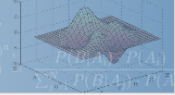
[←](#)
[→](#)
[↻](#)
[✕](#)
[🏠](#)
[📄](#)
<http://fedc.wiwi.hu-berlin.de/quantnet/>
[▶](#)
[🔍](#) Google

Quantnet :: Start







$$f(x | \mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x - \mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2) \quad \sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n!} (x - a)^n$$

$$\Pr(X_{n+1} = x | X_n = x_n, \dots, X_1 = x_1) = \Pr(X_{n+1} = x | X_n = x_n) P(A_i | B)$$



Fertig



 Jetzt: Wolkenlos, 19° C  Di: 26° C  Mi: 31° C 

Quantnet :: Start - Mozilla Firefox

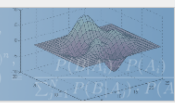
Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://fedc.wiwi.hu-berlin.de/quantnet/ Google

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- Start
- my Quantlets
- my Datafiles
- Add new quantlet
- Upload
- Logout

Fertig

Jetzt: Wolkenlos, 19° C Di: 26° C Mi: 31° C

Quantnet :: Start - Mozilla Firefox

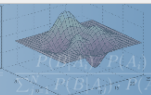
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$$P(X_1 = x_1, \dots, X_n = x_n) = \Pr(X_{n+1} = x | X_n = x_n) P(A_i|B)$$


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Keywords

ANOVA, Clayton, Fibonacci, Frank, Fréchet, GARCH, Gumbel, POT, PP, Pareto, QQ, Student, VaR, Weibull, backtesting, boxplot, copula, financial, gaussian, normal, portfolio, qq-plot, random, return, returns, scatterplot

Fertig

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Quantnet :: Start - Mozilla Firefox


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- Start
- my Quantlets
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Search: **Quantlet** Find

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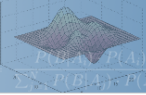
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$$P(X_{t+1} = x | X_t = x_t) = \Pr(X_{t+1} = x | X_t = x_t) \quad P(A|B) = \frac{P(A \cap B)}{P(B)}$$


- Start
- my Quantlets
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Search: **Quantlet** **Find**

Keywords

ANOVA, Clayton, Fibonacci, Frank, Fréchet, GARCH, Gumbel, POT, PP, Pareto, QQ, Student, VaR, Weibull, backtesting, boxplot, copula, financial, gaussian, normal, portfolio, qq-plot, random, return, returns, scatterplot

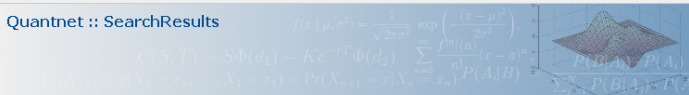
Random Quantlets

MSRbmw_log_returns, MSRclose, MSR_Frechet_bounds, MSRrev2, MSRasca_bmw_vw, MSRlog_returns, MSRgpdist, MSRportfolio, MSRrev1, MSRasca_log_returns, MSRstdlogret, MSRfibonacci, MSRrev3, MSRsiemens_log_returns, MSRBayer_log_returns

Fertig

Jetzt: Wolkenlos, 19° C Di: 26° C Mi: 31° C

Quantnet :: SearchResults



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- my Quantlets
- my Datafiles
- Add new quantlet
- Upload
- Logout

Search Results for Keyword: copula

Quantlets:

Name	Platforms
MSR_Frechet_bounds	▲
MSR_TDC_tStudent	▲
MSRpdf_cop_Clayton	▲
MSRpdf_cop_Frank	▲
MSRpdf_cop_Gauss	▲
MSRpdf_cop_Gumbel	▲
MSRpdf_cop_tStudent	▲
MSRtcopulaparam	▲
MSRvar_clayton	▲
MSRvar_clayton_GARCHn	▲
MSRvar_copGauss	▲
MSRvar_cop_GARCH_backtesting	▲
MSRvar_cop_backtesting	▲
MSRvar_coptStudent	▲
MSRvar_frank	▲
MSRvar_gumbel	▲

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http://fedc.wiwi.hu-berlin.de/quantnet/index.php?p=show&id=288

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MSR_Frechet_bounds (MatLab 7)

[Edit Quantlet](#) [Delete Quantlet](#)

MSR_Frechet_bounds plots the tree copula functions: maximum, minimum and product.

[Download File](#)

Author: Barbara Choros

Published in: MSR project

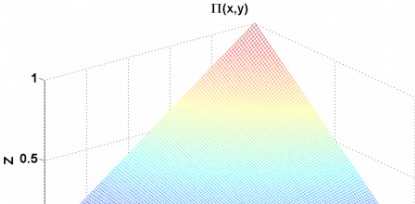
Keywords: Frechet, copula

Submitted: Mon, June 30 2008 by Vladimir Georgescu

Usage: MSRpdf_cop_tStudent

Input: - Plot of the Frechet copulae and product Copula.

Example:
Description: Copula function: product.



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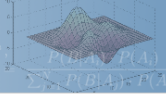
Google

Quantnet :: SearchResults

$$f(x|\mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2)$$

$$\Pr(X_{n+1} = x_1 | X_n = x_0) = \sum_{a=0}^{\infty} \frac{P^{(n)}(a)}{n!} P(A_1|B)$$



$$P(A|A) = P(A)$$

$$\sum_{i=1}^n P(B|A_i) = P(A)$$

- Start
- my Quantlets
- my Datafiles
- Add new quantlet
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- Logout

Author

Name: Barbara Choros

Contact: not set

Quantlets:

Name	Platforms
MSR_Frechet_bounds	
MSRanova	
MSRbayer_log_returns	
MSRbmw_log_returns	
MSRclose	
MSRevt3	
MSRgpdist	
MSRlambda_smoothing_utd	
MSRlog_returns	
MSRnonp_utd	
MSRpdf_cop_Clayton	
MSRpdf_cop_Frank	
MSRpdf_cop_Gauss	
MSRpdf_cop_Gumbel	
MSRpdf_cop_tStudent	
MSRportfolio_est	
MSRportfolio_log_returns	
MSRsca_bay_sie	
MSRsca_bmw_vw	

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http://fedc.wiwi.hu-berlin.de/quantnet/index.php?p=searchResults&w=b

Google

Quantnet :: SearchResults

$$f(x|\mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2)$$

$$\Pr(X_{n+1} = x | X_n = x_n) = \sum_{a=0}^{\infty} \frac{P^{(n)}(a)}{n!} P(A_n|B)$$

- Start
- my Quantlets
- my Datafiles
- Add new quantlet
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- Logout

Publication

Title: MSR project

Subtitle: not set

Author: [Wolfgang K. Härdle](#)

Edition: not set

ISBN10: not set

ISBN13: not set

Year: not set

Quantlets:

Name	Platforms
MSR_Frechet_bounds	
MSR_TDC_tStudent	
MSRanova	
MSRbayer_log_returns	
MSRbmw_log_returns	
MSRclose	
MSRrevt1	
MSRrevt2	
MSRrevt3	
MSRfibonacci	
MSRgpdist	
MSRlambda_smoothing_utd	
MSRlog_returns	

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Quantnet :: My Quantnet - Mozilla Firefox

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http://fedc.wiwi.hu-berlin.de/quantnet/index.php?p=my_quantnet

Google

Quantnet :: My Quantnet

$f(x|\mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$

$(S, T) = \text{NPh}(d_1) - K e^{-rT} \Phi(d_2)$

$\Pr(X_{n+1} = x | X_n = x_n) = \sum_{i=0}^{\infty} \frac{P^{(n)}(a)}{n!} (x - a)^n$

$\Pr(A|B) = \frac{\Pr(A \cap B)}{\Pr(B)}$

$P(A|B) = \frac{P(A \cap B)}{P(B)}$

$\Pr(B|A) = \frac{P(A \cap B)}{P(A)}$

- Start
- my Quantlets
- my Datafiles
- Add new quantlet
- Upload
- Logout

My Quantlets

Name	Software	Submitted	Actions
MSR_Frechet_bounds	MatLab	06-30-2008	edit - delete
MSR_TDC_tStudent	MatLab	06-26-2008	edit - delete
MSRanova	MatLab	06-27-2008	edit - delete
MSRbayer_log_returns	MatLab	06-30-2008	edit - delete
MSRclose	MatLab	05-30-2008	edit - delete
MSRrevt1	MatLab	05-29-2008	edit - delete
MSRrevt2	MatLab	05-29-2008	edit - delete
MSRrevt3	MatLab	05-29-2008	edit - delete
MSRfibonacci	MatLab	05-30-2008	edit - delete
MSRgpdist	MatLab	05-30-2008	edit - delete
MSRlambda_smoothing_utd	MatLab	06-27-2008	edit - delete
MSRlog_returns	MatLab	05-30-2008	edit - delete
MSRnonp_utd	MatLab	05-30-2008	edit - delete
MSRpdf_cop_Clayton	MatLab	06-26-2008	edit - delete
MSRpdf_cop_Frank	MatLab	06-30-2008	edit - delete
MSRpdf_cop_Gauss	MatLab	06-27-2008	edit - delete
MSRpdf_cop_Gumbel	MatLab	06-27-2008	edit - delete
MSRpdf_cop_tStudent	MatLab	06-27-2008	edit - delete
MSRportfolio	MatLab	05-30-2008	edit - delete
MSRportfolio_est	MatLab	06-04-2008	edit - delete
MSRportfolio_log_returns	MatLab	06-30-2008	edit - delete
MSRscs_bay_sie	MatLab	06-27-2008	edit - delete
MSRscs_bmw_wv	MatLab	05-30-2008	edit - delete

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Quantnet :: My Datafiles - Mozilla Firefox

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http://fedc.wiwi.hu-berlin.de/quantnet/index.php?p=my_datafiles

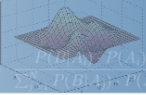
Google

Quantnet :: My Datafiles

$$f(x | \mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2)$$

$$\Pr(X_{n+1} = x | X_n = x_n) = \Pr(X_{n+1} = x | X_n = x_n) = \sum_{i=0}^{\infty} \frac{f^{(n)}(a)}{n!} (x-a)^n P(A_i|B)$$



- Start
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- my Datafiles
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- Logout

My Datafiles

Name	Quantlets using datfile	Actions
Portf9206_logRet.dat	MSRpdf_cop_Frank	edit - delete
portfolio_log_returns.dat	MSRportfolio_log_returns, MSRsiemens_log_returns	edit - delete
fx.dat	MSRpdf_cop_Frank	edit - delete

http://fedc.wiwi.hu-berlin.de/quantnet/index.php?show&id=311

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Quantnet :: Add New - Mozilla Firefox

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http://fedc.wiwi.hu-berlin.de/quantnet/index.php?p=add_new

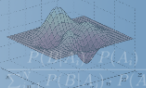
Google

Quantnet :: Add New

$$f(x|\mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2)$$

$$\Pr(X_{n+1} = x | X_n = x_n) = \sum_{a=0}^{\infty} \frac{P^{(n)}(a)}{n!} P(A_n|B)$$

$$\sum_{j=1}^n P(B|A_j) = P(A)$$


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Add new Quantlet

Software: Xplore Gauss MatLab R Stata

Version:

Name:

Description:

Usage:

see also:

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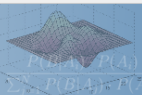
Quantnet :: Input

$$f(x | \mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$

$$C(S, T) = S\Phi(d_1) - Ke^{-rT}\Phi(d_2) \quad \sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n!} (x-a)^n$$

$$\Pr(X_1 = x_1, \dots, X_n = x_n) = \Pr(X_{n+1} = x | X_n = x_n) P(A_i|B)$$

$$\sum_{i=1}^n P(B_i|A_i) P(A_i)$$



- Start
- my Quantlets
- my Datafiles
- Add new quantlet
- Upload
- Logout

Upload quantlet

 File:

Upload data-file

 File:

Quantnet conclusion

- + collect all materials in one place
- + convenient integration of new materials
- + easy generation of download packages
 - large initial programming work
 - each supported language requires adjustments



From past to present

video creation in the past:

- analog recording & editing
- high costs (hardware, personnel)

video creation today:

- digital camcorders (DV-tape, HD, DVD)
- editing software 'for free'
- efficient formats available (MP3, MP4)
- equipment starting with few hundred Euro

Useful for teaching?



Content distribution by podcast

- 'podcast' = iPod & broadcasting
- video/audiofiles stored on a webserver
- managed by RSS file, contains information on episodes stored in XML



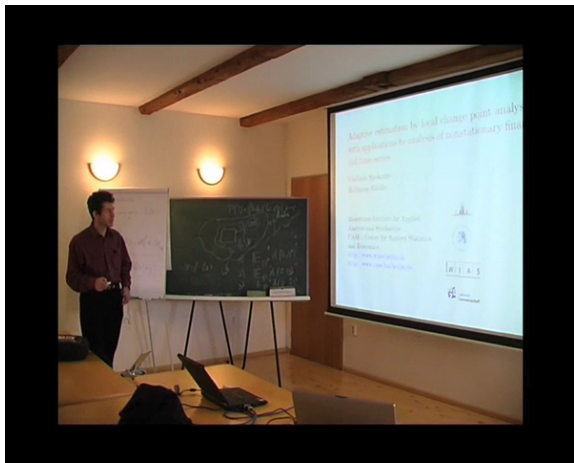
Creating digital content

- taping 'ordinary' lectures & events
- taping exclusively for video
- screencaptures and animations



Podcasting Examples

Modern Non-Parametric Statistics 2007



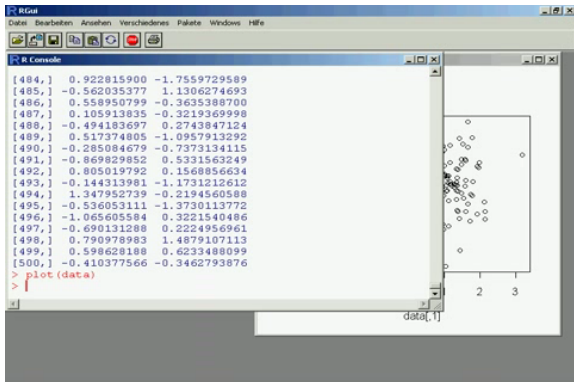
Podcasting Examples

Econ Bootcamp 2008



Podcasting Examples

R Introductory Course



Trapdoors

- ▣ high organizational requirements for excellent contents
- ▣ taping speaker insufficient
- ▣ matching video and slides highly time-consuming
- ▣ time for post-production underestimated
- ▣ ...



Conclusion podcasting

- + allows learning everywhere (train, plane)
- + may generate bigger audiences for lectures and conferences
- + simple way of distributing digital content
- equipment is rel. cheap, however quality takes time and money



Summary

- e-Learning has many facets today
- three different applications using modern information technology
- may encourage students and help them with understanding statistics
- but good contents = high costs

Thank you for listening!

