

Stat 19, Probability and Poker. Rick Paik Schoenberg

Outline for the day:

1. Discuss Addiction.
2. *R*.
3. Affleck Duhamel.
4. Counting and combinations.
5. $P(A\spadesuit \text{ after first ace})$.

Read harrington1.pdf for next time.

Think of 1-2 questions or comments for next time.

The course website is <http://www.stat.ucla.edu/~frederic/19/S20> .

R. To download and install R, start at www.r-project.org, click on “download R”, scroll down and click on one of the mirrors closest to you.

From there, click on “download R for ...”, and then get the latest version.

The R Project for Statistical Computing

http://www.r-project.org/

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The R Project for Statistical Computing

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PCA 5 vars
princomp(x = data, cor = cor)

Fertility
Catholic
Examination
Education
Agriculture
(1-3) 60%

Clustering 4 groups

Groups
28
16
1
2

Factor 1 [41%]

Factor 3 [19%]

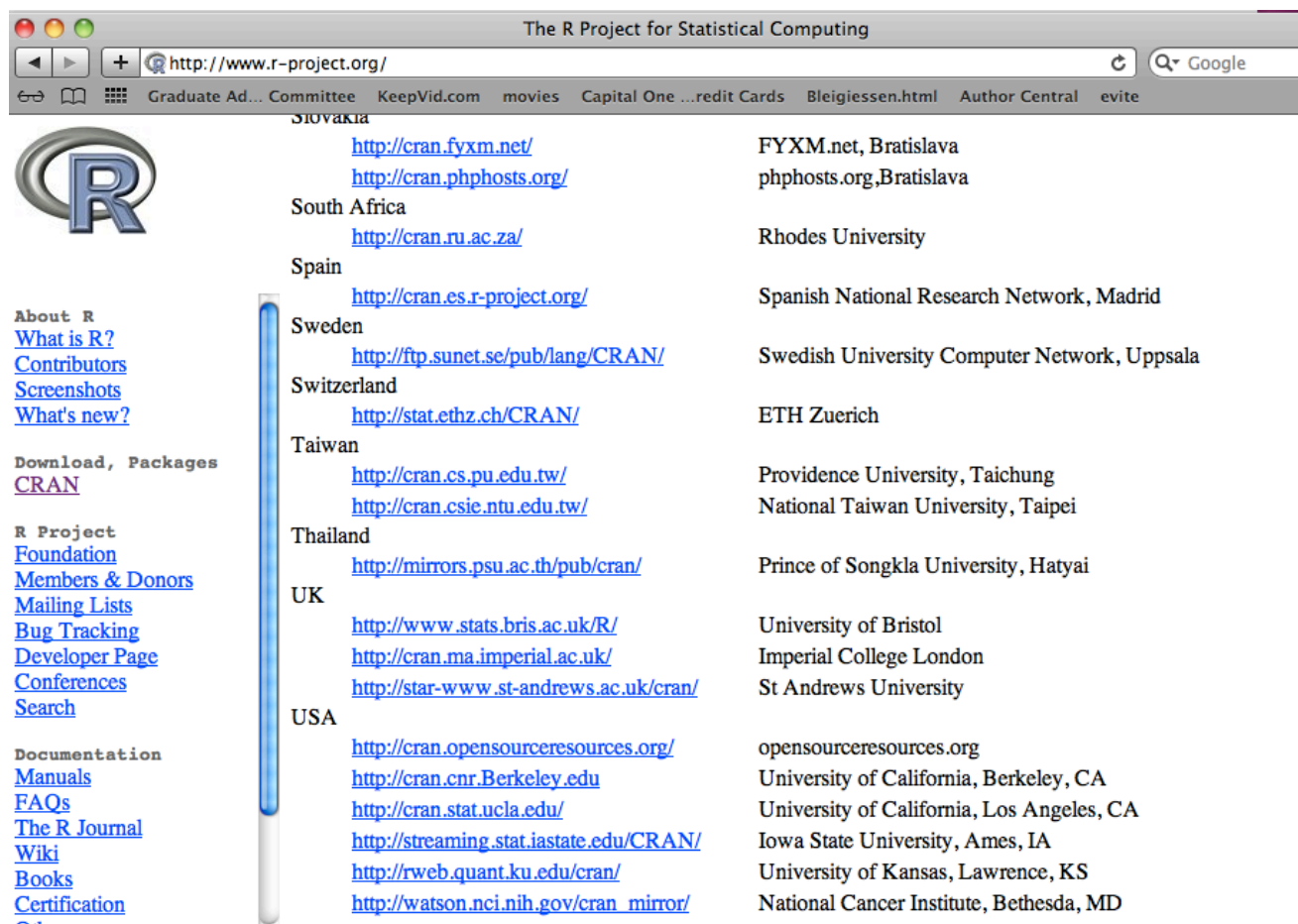
V. De Geneve

Getting Started:

- R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To **download R**, please choose your preferred [CRAN mirror](#).
- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

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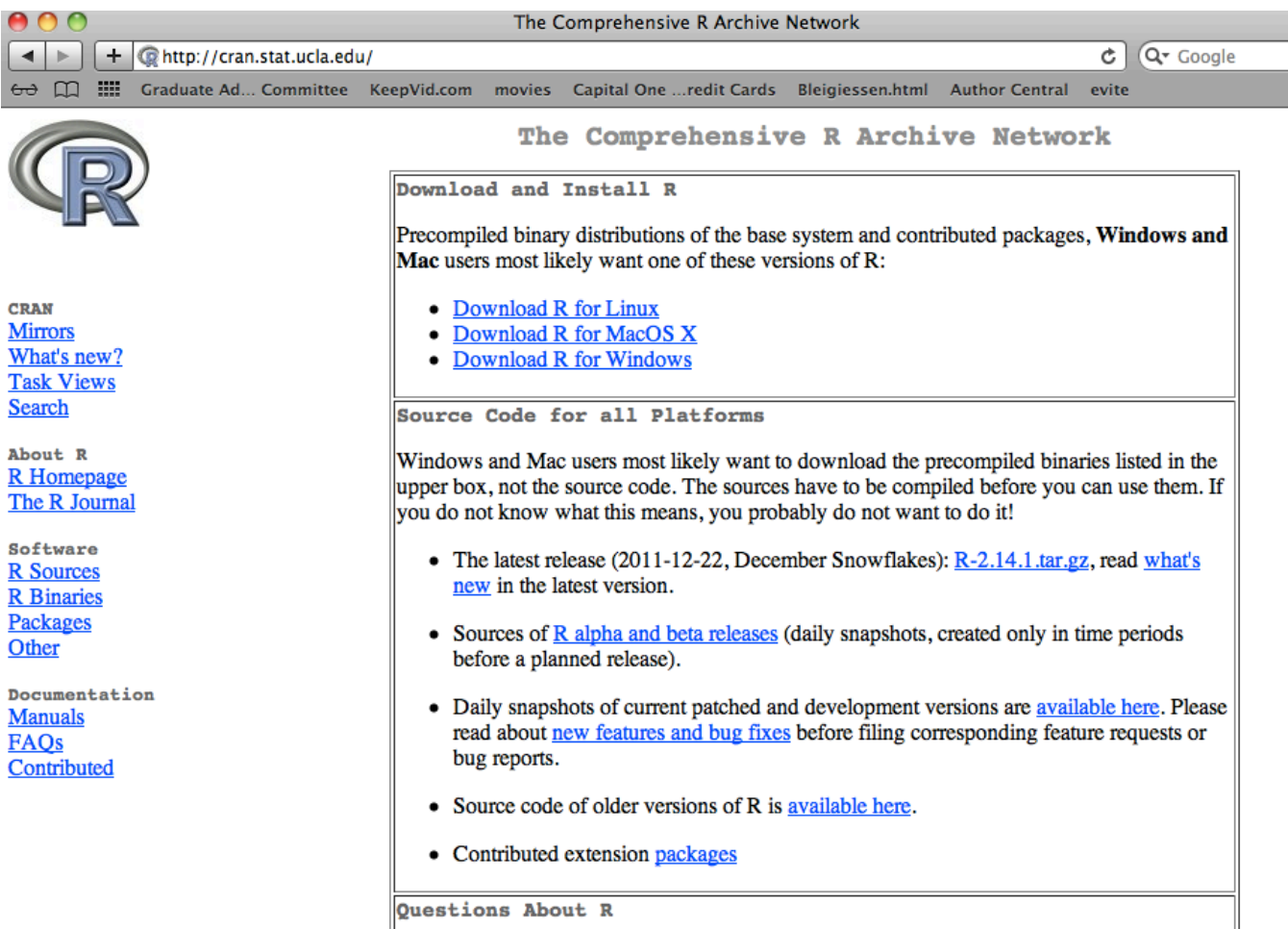


The screenshot shows a web browser window titled "The R Project for Statistical Computing" with the URL <http://www.r-project.org/>. The page features the R logo and a navigation menu on the left. The main content is a list of mirrors for downloading R, organized by country. The mirrors listed are:

Country	Mirror URL	Mirror Name
Slovakia	http://cran.fyxm.net/	FYXM.net, Bratislava
	http://cran.phphosts.org/	phphosts.org, Bratislava
South Africa	http://cran.ru.ac.za/	Rhodes University
Spain	http://cran.es.r-project.org/	Spanish National Research Network, Madrid
Sweden	http://ftp.sunet.se/pub/lang/CRAN/	Swedish University Computer Network, Uppsala
Switzerland	http://stat.ethz.ch/CRAN/	ETH Zuerich
Taiwan	http://cran.cs.pu.edu.tw/	Providence University, Taichung
	http://cran.csie.ntu.edu.tw/	National Taiwan University, Taipei
Thailand	http://mirrors.psu.ac.th/pub/cran/	Prince of Songkla University, Hatyai
UK	http://www.stats.bris.ac.uk/R/	University of Bristol
	http://cran.ma.imperial.ac.uk/	Imperial College London
	http://star-www.st-andrews.ac.uk/cran/	St Andrews University
USA	http://cran.opensourceresources.org/	opensourceresources.org
	http://cran.cnr.Berkeley.edu	University of California, Berkeley, CA
	http://cran.stat.ucla.edu/	University of California, Los Angeles, CA
	http://streaming.stat.iastate.edu/CRAN/	Iowa State University, Ames, IA
	http://rweb.quant.ku.edu/cran/	University of Kansas, Lawrence, KS
	http://watson.nci.nih.gov/cran_mirror/	National Cancer Institute, Bethesda, MD

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The screenshot shows a web browser window titled "The Comprehensive R Archive Network" with the address bar displaying "http://cran.stat.ucla.edu/". The browser's address bar also shows a search engine (Google) and several tabs. The main content area is titled "The Comprehensive R Archive Network" and is divided into several sections:

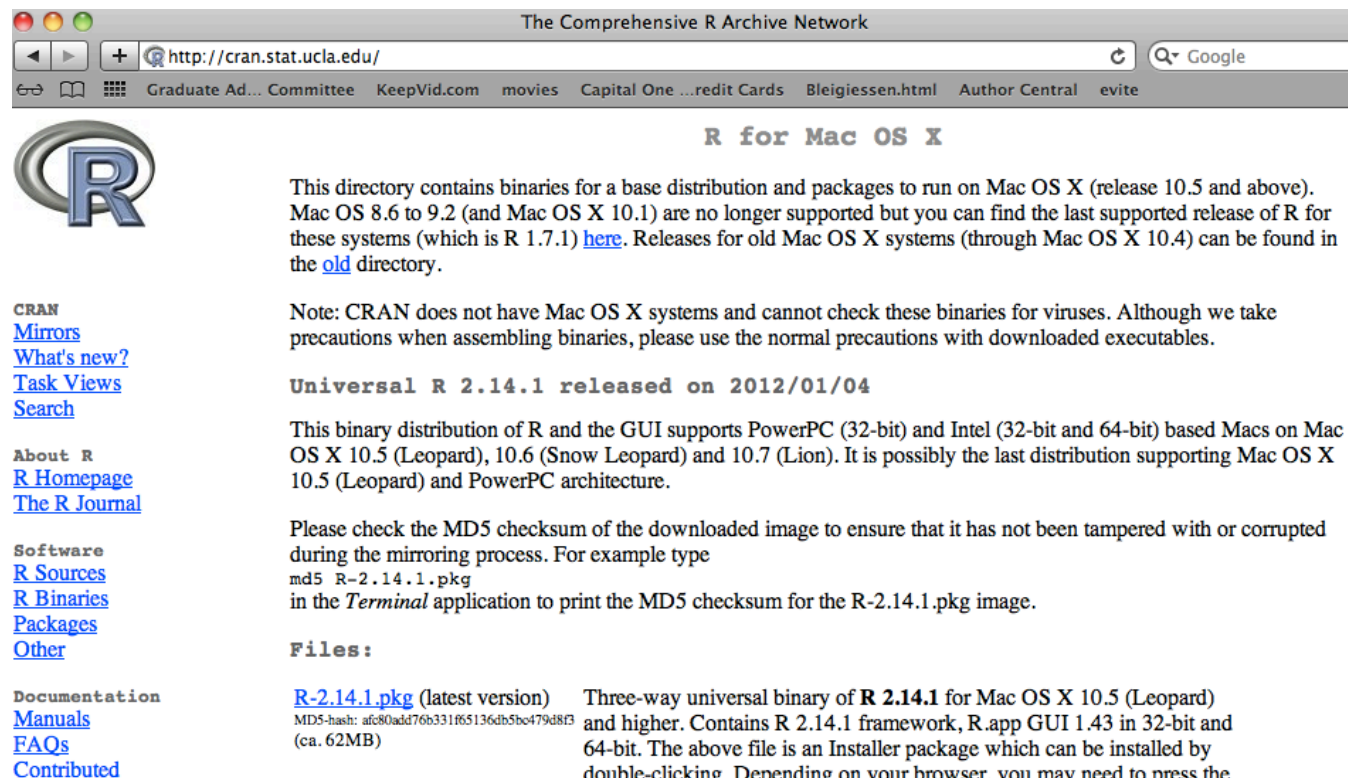
- Download and Install R**: This section provides precompiled binary distributions for Windows and Mac users. It lists three download links:
 - [Download R for Linux](#)
 - [Download R for MacOS X](#)
 - [Download R for Windows](#)
- Source Code for all Platforms**: This section explains that Windows and Mac users should download precompiled binaries instead of source code. It lists several options:
 - The latest release (2011-12-22, December Snowflakes): [R-2.14.1.tar.gz](#), read [what's new](#) in the latest version.
 - Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
 - Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
 - Source code of older versions of R is [available here](#).
 - Contributed extension [packages](#)
- Questions About R**: This section is partially visible at the bottom of the page.

On the left side of the page, there is a navigation menu with the following links:

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R for Mac OS X

This directory contains binaries for a base distribution and packages to run on Mac OS X (release 10.5 and above). Mac OS 8.6 to 9.2 (and Mac OS X 10.1) are no longer supported but you can find the last supported release of R for these systems (which is R 1.7.1) [here](#). Releases for old Mac OS X systems (through Mac OS X 10.4) can be found in the [old](#) directory.

Note: CRAN does not have Mac OS X systems and cannot check these binaries for viruses. Although we take precautions when assembling binaries, please use the normal precautions with downloaded executables.

Universal R 2.14.1 released on 2012/01/04

This binary distribution of R and the GUI supports PowerPC (32-bit) and Intel (32-bit and 64-bit) based Macs on Mac OS X 10.5 (Leopard), 10.6 (Snow Leopard) and 10.7 (Lion). It is possibly the last distribution supporting Mac OS X 10.5 (Leopard) and PowerPC architecture.

Please check the MD5 checksum of the downloaded image to ensure that it has not been tampered with or corrupted during the mirroring process. For example type

```
md5 R-2.14.1.pkg
```

in the *Terminal* application to print the MD5 checksum for the R-2.14.1.pkg image.

Files:

R-2.14.1.pkg (latest version) MD5-hash: afc80add76b331f65136db5bc479d8f3 (ca. 62MB)	Three-way universal binary of R 2.14.1 for Mac OS X 10.5 (Leopard) and higher. Contains R 2.14.1 framework, R.app GUI 1.43 in 32-bit and 64-bit. The above file is an Installer package which can be installed by double-clicking. Depending on your browser, you may need to press the control key and click on this link to download the file.
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This package **only** contains the R framework, 32-bit GUI (R.app) and 64-bit GUI (R64.app). **For Tcl/Tk libraries (needed if you want to use tcltk) and GNU Fortran (needed if you want to compile packages from sources that contain FORTRAN code) please see [the tools](#)**

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Deal til first ace appears. Let X = the *next* card after the ace.

$P(X = A\spadesuit)$? $P(X = 2\clubsuit)$?