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Recruiting with CommGen

By Maggie Plauche, Business Analyst, Student Admin. Business Analyst Team (AIS)

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Read more BOOKMARK

UNT System Business Service Center Implementation Project Update (February 1, 2011)

By René Arcand, IT Programmer Analyst, Finance and Administration Business Analyst Team, CITC

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Gartner Research meeting and presentation for Faculty and Students this Friday (February 18)

By Claudia Lynch, *Benchmarks Online* Editor

The Computing and Information Technology Center (CITC) has invited Gartner Research to present an overview of services available through the University's subscription. The free presentation will be from **1:30 to 3:30 p.m. Friday, February 18.**

By the Numbers

Communication Generation (CommGen)

CommGen is an EIS System process for communication with International GRAD, UGRD and IELI prospects. It went Live on December 4, 2010 and since that time:

- Groupings of up to 200+ emails in a single run have been sent.
- Initial contact emails have been sent to over 3,000 prospects.
- Over 6,000 follow-up emails were sent to prospects who have not already applied to UNT.

For more about CommGen, see this month's *Computing News* article.

Read more

Collaboration and Learning Commons in the Science and Technology Library is now open

By Nancy Crabb, Director of Marketing & Communications, University of North Texas Libraries

Featuring moveable walls and furniture, Smartboards, group study rooms and both Mac and PC workstations, the Collaboration and Learning Commons was created to provide group study and collaboration space for the University community.

Read more

Computer Lab Services for Graduate Students

By Dr. Elizabeth Hinkle-Turner, Assistant Director - Academic Computing and User Services

This month's discussion focuses on computer lab services that are of particular use and interest to **graduate students**.

Read more

Data Management Services Update

By Claudia Lynch, *Benchmarks Online* Editor

UNT's Data Management department will now offer a new exam grading service: The Dell Printer Station.

Read more

EDUCAUSE in 2011: Time's Running Out!

By Claudia Lynch, *Benchmarks Online* Editor

There's still time to register for the EDUCAUSE West/Southwest Regional Conference. It will be held in Austin, Texas (February 22–24, 2011...or online). The EDUCAUSE 2011 annual conference is being held in Philadelphia, Pennsylvania next year (October 18–21; Online: October 19–21).

Read more

Today's Cartoon

Click on the link above for an information age laugh.

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Campus Computing News

Recruiting with CommGen

By Maggie Plauche, Business Analyst, Student Admin. Business Analyst Team (AIS)

The International Recruiting Center of the University of North Texas identified a need for utilizing a new delivered process in the EIS system called Communication Generation (CommGen). Maggie Plauche and Jenny Brooks (Student Admin Business Analysts) worked with Dickie Hargrave (International Recruiting Manager) and her team, to establish requirements for implementing this new process. CommGen is a new communication feature that allows International users to generate letters or emails to help recruit prospects that exist in EIS.

In the spring of 2010, this same team implemented the online prospect entry process in EIS. The communication choice for these new prospects was determined to be email generation using CommGen. Maggie completed an intense setup procedure with over 20 email templates to service International GRAD, UGRD and IELI prospects. Testing began in early November of 2010. CommGen went Live on December 4, 2010. The recruiting team has been able to send groupings of up to 200+ emails in a single run. To date, they have sent initial contact emails to over 3,000 prospects. The system is also configured to send follow-up emails to those prospects who have not already applied to UNT, totaling over 6,000 emails to date. Dickie and her team have reported immediate success in email responses from prospective international students through the use of CommGen.

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UNT System Business Service Center Implementation Project Update (February 1, 2011)

By René Arcand, IT Programmer Analyst, Finance and Administration Business Analyst Team, CITC

The first phase of the Business Service Center (BSC) implementation included a comprehensive review of the services and functions in the focus areas of human resources, payroll, purchasing and payments. The phase ended with the recommendation of services that could be provided through shared delivery by the BSC.

During November and December, the BSC Implementation Team met with departmental representatives who are responsible for delivering those services and functions on each campus. The focus of these meetings was to gain insight on the type of services provided and the estimated effort required per service. The Implementation Team met with over 80 individuals in the focus areas to gather the data and to evaluate the services. The catalog built from the discussions contains 216 discreet services from the focus areas.

The team developed a set of criteria to assist in determining the possible shared delivery options. Finalization of the criteria and the discussions involved were quite extensive. These criteria were applied to each service and function to assist in the forming the final recommendations.

Presentations were made to various stakeholders of the Business Service Center Implementation in January to obtain feedback on the recommendations. The final report was presented to Terry Pankratz, Vice Chancellor for Finance, on February 1, 2011.

The Implementation Team begins Lean Six Sigma methodologies training in February. Lean Six Sigma focuses on improving the quality of process outputs by identifying and removing causes of errors and by minimizing variability in processes. This training will assist the Implementation Team with the analysis of the services that will be provided by the BSC.

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Gartner Research meeting and presentation for Faculty and Students this Friday (February 18)

By Claudia Lynch, *Benchmarks Online* Editor

The Computing and Information Technology Center (CITC) has invited Gartner Research to present an overview of services available through the University's subscription. The free presentation will be from **1:30 to 3:30 p.m. Friday, February 18.** The presentation will be at the **Discovery Park**, Room B185.

Jani Rundall, Gartner account executive, will explore the company's web site and discuss published research and services available to faculty, staff and students.

Gartner, Inc. is a leading information technology research and advisory company with 60,000 clients in 11,000 distinct organizations. Gartner Research, Gartner Executive Programs, Gartner Consulting and Gartner Events work with every client to research, analyze and interpret the business of IT within the context of their individual role. Founded in 1979, Gartner is headquartered in Stamford, Conn., and has 4,400 associates, including 1,200 research analysts and consultants, and clients in 85 countries. Learn more at the Gartner UNT portal.

Friday's interactive presentation will include use of Gartner resources, webinars, new research reports and a review of Gartner campus portal.

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Network Connection

By Dr. Philip Baczewski, Director of Academic Computing and User Services

To Kill an Internet

Bad ideas just don't seem to go away. The idea of an Internet kill switch resurfaced recently in the form of legislation proposed by Senator Susan Collins of Maine. The purpose apparently is to protect the U.S. from significant "Cyber Threats" by providing the U.S. government with the authority to turn off access to "critical infrastructure."

Questions, questions

The first question to ask is if an Internet kill switch is even possible. There is no central control of the Internet backbone, but rather a number of interconnections and agreements which keep the Internet operating. There are also often multiple paths to the same information sources. So, where do you throw the switch? There are probably too many access points to control the Internet at that end. If you turn off my Internet access at home, I'll pick up my cellphone or head to the local coffee shop. If you take down the core physical connections over which the Internet information is sent (assuming that's possible), then you'll probably take down the U.S. telephone network as well. The Internet is a collection of many individual networks, and the lack of central control is one of its strengths, allowing it to operate even if part of the infrastructure is damaged or unavailable.

The next question is, from what do we need protecting? There are many threats on the internet, but they tend to target individual computers. The solution is to be sure those individual systems are protected and secured by antivirus software, firewalls, and strong passwords. Internet services, such as web or e-mail servers, are susceptible to denial of service attacks that may slow down or prevent access to some Internet resources. In such cases, an Internet kill switch would simply be an exercise in irony. There are definitely Internet activities from which we could use some protection, but not at the expense of loss of our Internet connectivity.

How can an Internet kill switch be used? In recent news, Internet connectivity in Egypt was shut down, apparently to stifle the organization of street protests that eventually lead to the downfall of that country's sitting president. The Egyptian government did not have an Internet kill switch per se, but they did exert control over the country's Internet service providers and pressured them to shut of their services. As we've seen, the Egyptian government's strategy was ultimately unsuccessful. China has its own version of the Internet kill switch, but it's more like a big filter keeping out what the government deems to be unacceptable information.

The age irony

Since we live in the irony age, it can't escape notice that while the U.S. government contemplates ways to shut down our Internet, they are likely working on ways to enable the Internet in countries (as happened in Egypt) where it has been shut down. And they are still interested in controlling what top-level domains are created via the presumably independent Internet Corporation for Assigned Names and Numbers (ICANN.) You'd think we invented the Internet (then again, I guess we did.)

Somehow, I don't feel much safer with the possibility that the U.S. government can shut down portions of the Internet on our behalf. That's best left to organization like the MPAA. For true Internet security, one must look to the thought leaders of our society. You know -- the intellectuals, artists, and philosophers that can keep us focussed on the true issues surrounding Internet security. I am of course referring to Snoop Dogg. Thanks to sponsorship by Norton Symantec, the virus protection and computer security folks, we have the message from Mr. Dogg that "hack is wack and a rap contest to illustrate the point. Now, does anyone know how to say "hack is wack" in Mandarin?

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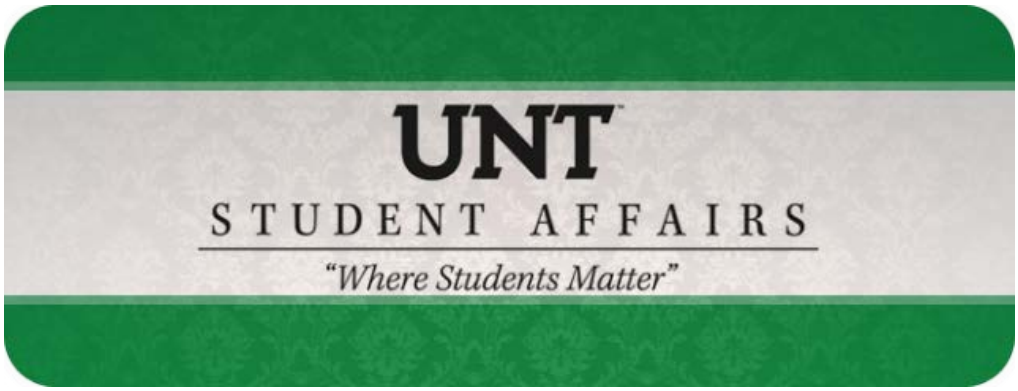
UNT Division of Student Affairs

As was noted in *InHouse* last fall, "the **Division of Student Affairs** is changing its organizational structure – reorganizing its human resources and the specialized knowledge of its staff members – to better position the division to more effectively serve students and the university community."

The changes went into effect last month. Click on the graphic below and check out their updated website:



CSA at Discovery Park:

Facebook and the Center for Student Affairs, together at last!

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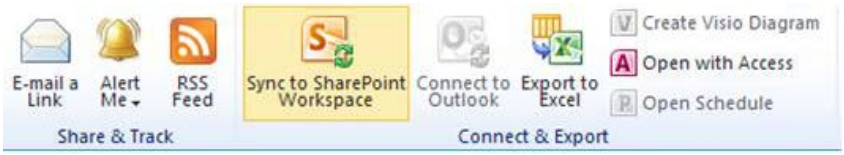
Helpdesk FYI

By Larry Talley, guest columnist, CITC Sharepoint Services

Using Microsoft SharePoint Workspace 2010

There are a lot of new and exciting features to look forward to in SharePoint 2010! We'd like to show you how to use SharePoint Content on your local PC. How? Using Microsoft SharePoint Workspace 2010, formerly known to many of you as Groove. SharePoint Workspace comes installed with Microsoft Office 2010 Enterprise and Professional and is part of the new Office Collaboration suite of programs that embrace SharePoint technology.As more and more people use SharePoint, there are more questions about using SharePoint content on their local PC. "What if I need to work offline?" Is a frequent question posed to our team.



(ribbon bar showcasing Sync to SharePoint Workspace option)

Easy, just click on the appropriate ribbon bar option to "Synchronize to SharePoint Workspace". You will be presented with the option to choose what specifically within a site one would like to synchronize. Once configuration is complete, SharePoint Workspace places all of the configured items on the your computer. You can surf and edit the content locally without being connected to the server. The changes are stored locally until you reconnect to the Internet and then your data is synchronized back to the host site automatically. Once synchronized, any changes to the items will be immediately available on the site.

Another amazing benefit is the ability to leverage forms with the offline client. If one needs to fill out a large and complicated form, they can take the form offline and fill it out at their convenience, synching the form with the host when they are ready.

There are a lot of new and exciting features of SharePoint 2010. Please stop by our blog and read about other things that we're doing and maybe you'll get some useful ideas for your workspace. https://untranet.unt.edu/blog

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IRC News

Minutes provided by Christine Valenzuela Recording Secretary*

The IRC -- unofficially now known as the INFORMATION TECHNOLOGY COUNCIL (ITC) -- is currently undergoing a reorganization, see the May 20, 2008 minutes for more information.>**

No IRC/ITC minutes were available for publication this month.

*For a list of IRC Regular and Ex-officio Members click here (last updated 12/12/08). Warren Burggren is now the Chair.

**DCSMT Minutes can be found here.

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RSS Matters

Research and Statistical Support
University of North Texas

Sharpening Occam's Razor: Using Bayesian Model Averaging in **R** to Separate the Wheat from the Chaff

Link to the last RSS article here: Bayesian Generalized Linear Models in R -- Ed.

By Dr. Jon Starkweather, Research and Statistical Support Consultant

Bayesian Model Averaging (BMA) is a method of variable selection which quantifies the value of multiple models so that the analyst can select the most appropriate model for a given outcome variable. The metrics used for comparison of competing models are the Bayesian Information Criterion (BIC; Schwarz, 1978) and the posterior probability (of a particular model being the *correct* model). The best model, displays the lowest BIC (e.g. a BIC of -121.00 is preferred over a BIC of 21.00) and the highest posterior probability. In the simplest situation (linear regression), each model is characterized by a group of predictors for the outcome variable. When BMA is applied to all available predictors, and given an outcome variable of interest, it produces a posterior distribution of the outcome variable which is a weighted average of the posterior distributions of the outcome for each likely model (Raftery, Painter, & Volinsky, 2005). Essentially, BMA is used to determine which predictors should be included in a regression model or general linear model (GLM), or extensions of the GLM (e.g. generalized linear models and survival or event history analysis). BMA is particularly useful when a large number of proposed predictors have been measured (e.g. 20, 30, or 40).

BMA is accomplished in the R programming language environment using the BMA package (Raftery, Hoeting, Volinsky, Painter, & Yeung, 2010). The function bicreg is used in the regression situation while the bic.glm function is used in the GLM and generalized linear modeling situations. The bic.surv function is used for survival or event history analysis; which will not be covered in this article. These functions "do an exhaustive search over the model space using the fast leaps and bounds algorithm" (Raftery, et al., 2005, p. 2). The leaps and bounds algorithm (Furnival & Wilson, 1974) allows these functions to return a set of the best models rather than all possible models.

Regression Example

The first example involves a fictional data set which contains the outcome variable extroversion (extro) and 12 possible predictors; openness (open), agreeableness (agree), social engagement (social), cognitive engagement (cognitive), physical engagement (physical), cultural engagement (cultural), vocabulary (vocab), abstruse analogies (abstruse), block design (block), common analogies (common), letter sets (sets), and letter series (series). All 13 variables are assumed to be interval scaled. There are 750 cases in the data set, with no missing values.

First, import the data from the web using the foreign package, because the data file is in SPSS format. Then get a summary of the data, if desired, using the summary function.

```
R Console
File Edit Misc Packages Windows Help

R version 2.12.1 (2010-12-16)
Copyright (C) 2010 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

  Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' for how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> library(foreign)
> data.1 <- read.spss("http://www.unt.edu/rss/class/Jon/R_SC/Module9/SAS_Ex/SEMData.sav",
+   use.value.labels=TRUE, max.value.labels=Inf, to.data.frame=TRUE)
Warning message:
In read.spss("http://www.unt.edu/rss/class/Jon/R_SC/Module9/SAS_Ex/SEMData.sav",  :
  C:\DOCUME~1\jds0282\LOCALS~1\Temp\Rtmp2aquBy\file68d713b9: Unrecognized record type 7, subtype 18 encountered ir
> summary(data.1)
     extro            open           agree           social          cognitive       physical        cultural
 Min.   :33.26   Min.   :19.28   Min.   :20.14   Min.   : 54.02   Min.   :29.33   Min.   :14.96   Min.   : 39.14
 1st Qu.:53.89   1st Qu.:35.78   1st Qu.:31.25   1st Qu.: 89.95   1st Qu.:44.93   1st Qu.:22.42   1st Qu.: 67.64
 Median :60.04   Median :39.90   Median :34.98   Median :100.62   Median :49.92   Median :24.90   Median : 74.62
 Mean   :60.00   Mean   :40.00   Mean   :35.00   Mean   :100.00   Mean   :50.00   Mean   :25.00   Mean   : 75.00
 3rd Qu.:66.11   3rd Qu.:44.20   3rd Qu.:38.56   3rd Qu.:109.96   3rd Qu.:54.85   3rd Qu.:27.61   3rd Qu.: 82.00
 Max.   :91.21   Max.   :60.70   Max.   :51.90   Max.   :145.90   Max.   :75.04   Max.   :36.64   Max.   :112.56
     vocab           abstruse          block           common            sets            series
 Min.   :31.01   Min.   :10.22   Min.   : 7.993   Min.   :24.02   Min.   : 42.60   Min.   :24.84
 1st Qu.:49.75   1st Qu.:18.01   1st Qu.:18.092   1st Qu.:40.48   1st Qu.: 71.93   1st Qu.:44.92
 Median :54.66   Median :19.88   Median :20.186   Median :45.15   Median : 80.31   Median :50.12
 Mean   :55.00   Mean   :20.00   Mean   :20.000   Mean   :45.00   Mean   : 80.00   Mean   :50.00
 3rd Qu.:60.30   3rd Qu.:22.10   3rd Qu.:21.958   3rd Qu.:49.80   3rd Qu.: 87.91   3rd Qu.:55.02
 Max.   :79.80   Max.   :29.59   Max.   :28.029   Max.   :71.00   Max.   :118.67   Max.   :69.89
>
```

Next, load the BMA package which contains the functions necessary for Bayesian Model Averaging. Note that there are three dependencies.

```
> library(BMA)
Loading required package: survival
Loading required package: splines
Loading required package: leaps
>
```

The bicreg function is used in the linear regression situation. However, the function requires a matrix of the possible predictor variables, so we must first create such a matrix. Using the attach function allows us to reference the variables by name directly (as opposed to using the tedious $ operator, e.g. data.1$open). The head function simply lists the first 6 elements of an object.

```
R Console
File Edit Misc Packages Windows Help

> attach(data.1)
> predictors <- as.matrix(cbind(open, agree, social, cognitive, physical, cultural, vocab, abstruse,
+                               block, common, sets, series))
> detach(data.1)
> head(predictors)
        open  agree  social cognitive physical cultural  vocab abstruse  block common   sets series
[1,] 36.815 33.427 115.256    50.069   27.878   66.378 65.891   19.979 20.095 34.428 77.797 33.614
[2,] 37.888 41.627 131.831    37.026   22.555   70.691 50.655   20.416 22.117 42.485 82.092 48.746
[3,] 45.112 36.803 102.198    53.582   27.036   80.484 67.855   21.480 21.821 42.329 70.697 48.833
[4,] 44.371 32.699  86.584    51.327   18.473   74.482 58.050   22.196 16.520 55.954 66.662 59.838
[5,] 34.718 30.608  90.806    49.700   27.666   96.882 59.269   20.584 23.555 47.069 96.164 53.973
[6,] 39.189 32.762 102.514    58.546   28.249   73.264 58.794   19.540 17.459 42.871 73.331 43.602
>
```

Now we can submit the bma function by simply assigning it to a named object (here: bma1) and supplying it with the matrix of predictors and the outcome variable (data.1$extro). We can use the common summary function to summarize the results of the bicreg function.

```
R Console
File  Edit  Misc  Packages  Windows  Help

> bma1 <- bicreg(predictors, data.1$extro)
> summary(bma1)

Call:
bicreg(x = predictors, y = data.1$extro)


  25  models were selected
 Best  5  models (cumulative posterior probability =  0.5944 ):

           p!=0    EV         SD       model 1     model 2     model 3     model 4     model 5
Intercept  100.0  21.744775  3.62896    24.78348    21.55318    21.91722    21.80687    22.37146
open       100.0   0.350962  0.05507     0.37028     0.35215     0.35096     0.34867     0.35770
agree      100.0   0.328878  0.06183     0.34289     0.32803     0.32355     0.33078     0.33758
social       0.0   0.000000  0.00000           .           .           .           .           .
cognitive   30.9   0.030233  0.05092           .     0.10441           .           .           .
physical     1.1   0.001099  0.01353           .           .           .           .           .
cultural    25.2   0.015625  0.03049           .           .           .     0.06701           .
vocab        0.0   0.000000  0.00000           .           .           .           .           .
abstruse     1.0   0.001206  0.01592           .           .           .           .           .
block       36.1   0.090842  0.13676           .           .     0.26534           .           .
common      27.2   0.030590  0.05686           .           .           .           .     0.10641
sets         3.4   0.001206  0.00810           .           .           .           .           .
series      91.1   0.133620  0.05935     0.16809     0.15318     0.14827     0.15286     0.13433

nVar                                          3           4           4           4           4
r2                                        0.175       0.182       0.182       0.181       0.180
BIC                                  -124.07332  -123.87774  -123.86858  -123.32805  -122.34876
post prob                                 0.152       0.137       0.137       0.104       0.064
>
```

The column “p!=0” indicates the probability that the coefficient for a given predictor is NOT zero, among the 25 models returned. The column “EV” displays the BMA posterior distribution mean for each coefficient and the column “SD” displays the BMA posterior distribution standard deviation for each coefficient. Only the five best models are displayed. We can see that the first model “model 1” (which includes only open, agree, & series) is the best because it has the lowest BIC and the largest posterior probability (of being the *correct* model). Notice, at the bottom of each model column, the number of predictors and R^2 value is displayed. Generally, the first model (Model 1) is the best model; however, it may be the case that theory dictates the inclusion of some variables which were excluded by the first model. For each variable included in a given model, the coefficient (or parameter value) for that variable is given (e.g. Model 1, open coefficient = 0.37028). Remember that the substantive interpretation of each coefficient is, for instance: for a one unit change in open (predictor), there would be a corresponding change of 0.37028 in extro (outcome), based on Model 1.

The Ordinary Least Squares (OLS) part of the output (not printed by default) gives a matrix, with each model as a row and each predictor as a column; listing the estimated (OLS) coefficient for each variable in a given model (of all 25 models returned). The OLS output can be accessed using the $ naming convention (e.g. bma1$ols). The output below has been cut off at the right edge to save space in this article.

```
R Console
File  Edit  Misc  Packages  Windows  Help

> bma1$ols
          Int      open     agree social  cognitive  physical   cultural vocab  abstruse     block      common        se
 [1,] 24.78348 0.3702778 0.3428869      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
 [2,] 21.55318 0.3521489 0.3280274      0 0.10441364 0.0000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
 [3,] 21.91722 0.3509556 0.3235459      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.2653369 0.00000000 0.000000
 [4,] 21.80687 0.3486714 0.3307764      0 0.00000000 0.0000000 0.06701130     0 0.0000000 0.0000000 0.00000000 0.000000
 [5,] 22.37146 0.3576982 0.3375796      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.0000000 0.10641364 0.000000
 [6,] 19.37852 0.3370756 0.3125669      0 0.09258001 0.0000000 0.00000000     0 0.0000000 0.2352047 0.00000000 0.000000
 [7,] 19.68302 0.3345595 0.3153809      0 0.00000000 0.0000000 0.05807000     0 0.0000000 0.2333771 0.00000000 0.000000
 [8,] 19.95026 0.3410159 0.3201676      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.2460047 0.09599173 0.000000
 [9,] 19.65668 0.3423598 0.3244702      0 0.09611869 0.0000000 0.00000000     0 0.0000000 0.0000000 0.09499189 0.000000
[10,] 19.80716 0.3384805 0.3212446      0 0.08489152 0.0000000 0.05290444     0 0.0000000 0.0000000 0.00000000 0.000000
[11,] 19.86933 0.3390535 0.3269584      0 0.00000000 0.0000000 0.06164403     0 0.0000000 0.0000000 0.09599900 0.000000
[12,] 22.36333 0.3497266 0.3312907      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.2881681 0.13975661 0.000000
[13,] 22.30417 0.3526712 0.3377302      0 0.10792544 0.0000000 0.00000000     0 0.0000000 0.0000000 0.14160294 0.000000
[14,] 23.00027 0.3653516 0.3407405      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.038280
[15,] 25.62717 0.3710178 0.3538204      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.0000000 0.15885299 0.000000
[16,] 22.47530 0.3485262 0.3402212      0 0.00000000 0.0000000 0.07035929     0 0.0000000 0.0000000 0.14219863 0.000000
[17,] 19.81275 0.3360036 0.3196786      0 0.09446924 0.0000000 0.00000000     0 0.0000000 0.2565509 0.12675253 0.000000
[18,] 17.78475 0.3290992 0.3103171      0 0.08576006 0.0000000 0.00000000     0 0.0000000 0.2199221 0.08690588 0.000000
[19,] 23.23667 0.3609978 0.3339856      0 0.00000000 0.0980681 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
[20,] 23.48868 0.3620512 0.3368082      0 0.00000000 0.0000000 0.00000000     0 0.1168054 0.0000000 0.00000000 0.000000
[21,] 20.55823 0.3477319 0.3226493      0 0.00000000 0.0000000 0.00000000     0 0.0000000 0.2529948 0.00000000 0.032035
[22,] 20.05711 0.3330312 0.3223470      0 0.00000000 0.0000000 0.06016601     0 0.0000000 0.2538211 0.12779117 0.000000
[23,] 18.04466 0.3266617 0.3128901      0 0.00000000 0.0000000 0.05373272     0 0.0000000 0.2180215 0.08809920 0.000000
[24,] 20.38230 0.3452994 0.3294206      0 0.00000000 0.0000000 0.06419038     0 0.0000000 0.0000000 0.00000000 0.033271
[25,] 18.04519 0.3264709 0.3079877      0 0.07660347 0.0000000 0.04604201     0 0.0000000 0.2150647 0.00000000 0.000000
```

Notice, both open and agree display fairly stable estimated coefficient values across all 25 models, this is why they both have a “p!=0” value of 100% (indicating that their coefficient is NOT zero 100% of the time among these models).

The standard errors for the above estimated coefficients can be retrieved using the se argument (e.g. bma1$se). Again, the output below has been cut off at the right edge to save space in this article.

```
> bma1$se
          Int       open      agree social  cognitive   physical   cultural vocab  abstruse      block      common       s
 [1,] 2.899443 0.05345853 0.06095589      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
 [2,] 3.158245 0.05374503 0.06101909      0 0.04124540 0.00000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
 [3,] 3.103319 0.05381122 0.06121605      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.1049057 0.00000000 0.000000
 [4,] 3.140871 0.05402805 0.06096412      0 0.00000000 0.00000000 0.02768857     0 0.0000000 0.0000000 0.00000000 0.000000
 [5,] 3.091123 0.05362312 0.06084535      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.0000000 0.04816329 0.000000
 [6,] 3.297421 0.05402703 0.06125091      0 0.04147692 0.00000000 0.00000000     0 0.0000000 0.1054938 0.00000000 0.000000
 [7,] 3.277358 0.05426677 0.06120573      0 0.00000000 0.00000000 0.02791285     0 0.0000000 0.1057935 0.00000000 0.000000
 [8,] 3.250994 0.05393623 0.06111829      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.1051473 0.04822549 0.000000
 [9,] 3.296217 0.05387190 0.06092863      0 0.04138138 0.00000000 0.00000000     0 0.0000000 0.0000000 0.04827295 0.000000
[10,] 3.290592 0.05416083 0.06102904      0 0.04250172 0.00000000 0.02852148     0 0.0000000 0.0000000 0.00000000 0.000000
[11,] 3.282533 0.05413756 0.06087380      0 0.00000000 0.00000000 0.02776524     0 0.0000000 0.0000000 0.04826527 0.000000
[12,] 3.141575 0.05407323 0.06124440      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.1044508 0.04566934 0.000000
[13,] 3.178309 0.05400825 0.06104247      0 0.04137157 0.00000000 0.00000000     0 0.0000000 0.0000000 0.04564744 0.000000
[14,] 3.151776 0.05353018 0.06093067      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.0000000 0.00000000 0.026635
[15,] 2.923185 0.05375633 0.06096589      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.0000000 0.04534135 0.000000
[16,] 3.166339 0.05428971 0.06098072      0 0.00000000 0.00000000 0.02772517     0 0.0000000 0.0000000 0.04565110 0.000000
[17,] 3.328108 0.05426059 0.06128796      0 0.04160130 0.00000000 0.00000000     0 0.0000000 0.1050871 0.04590109 0.000000
[18,] 3.409652 0.05412808 0.06117193      0 0.04158801 0.00000000 0.00000000     0 0.0000000 0.1056779 0.04832172 0.000000
[19,] 3.178605 0.05401385 0.06139983      0 0.00000000 0.08269638 0.00000000     0 0.0000000 0.0000000 0.00000000 0.000000
[20,] 3.124363 0.05396032 0.06119127      0 0.00000000 0.00000000 0.00000000     0 0.1051081 0.0000000 0.00000000 0.000000
[21,] 3.302297 0.05386216 0.06120243      0 0.00000000 0.00000000 0.00000000     0 0.0000000 0.1053769 0.00000000 0.026673
[22,] 3.312118 0.05449700 0.06123689      0 0.00000000 0.00000000 0.02795867     0 0.0000000 0.1054125 0.04589650 0.000000
[23,] 3.393357 0.05435501 0.06112558      0 0.00000000 0.00000000 0.02797066     0 0.0000000 0.1059638 0.04831354 0.000000
[24,] 3.340491 0.05407522 0.06095090      0 0.00000000 0.00000000 0.02777019     0 0.0000000 0.0000000 0.00000000 0.026641
[25,] 3.396898 0.05437203 0.06125234      0 0.04260999 0.00000000 0.02866286     0 0.0000000 0.1061252 0.00000000 0.000000
```

The postmean part of the output (printed with summary in the “EV” column) contains the average posterior coefficient for each predictor and the postsd provides the standard deviation of each average posterior coefficient.

```
R Console
File  Edit  Misc  Packages  Windows  Help
> bma1$postmean
 [1] 21.744774873  0.350962063  0.328877566  0.000000000  0.030233067
 [6]  0.001098541  0.015625318  0.000000000  0.001205513  0.090841922
[11]  0.030589625  0.001206205  0.133620241
> bma1$postsd
 [1] 3.628958005 0.055065431 0.061833238 0.000000000 0.050921540 0.013532584
 [7] 0.030491687 0.000000000 0.015917825 0.136760379 0.056863598 0.008099832
[13] 0.059350197
>
```

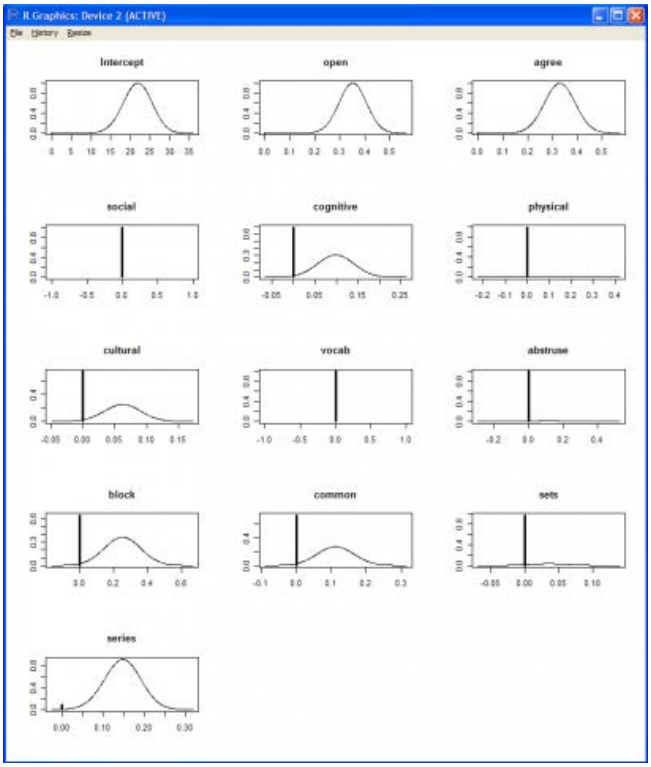
The which part of the output (not provided with the summary) contains a matrix, with each model as a row and each predictor variable as a column; listing (TRUE or FALSE) whether a variable was included in each model.

```
R Console
File  Edit  Misc  Packages  Windows  Help
> bma1$which
      open agree social cognitive physical cultural vocab abstruse block common  sets series
 [1,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE FALSE  FALSE FALSE   TRUE
 [2,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE FALSE  FALSE FALSE   TRUE
 [3,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE  TRUE  FALSE FALSE   TRUE
 [4,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE FALSE  FALSE FALSE   TRUE
 [5,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE FALSE   TRUE FALSE   TRUE
 [6,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE  TRUE  FALSE FALSE   TRUE
 [7,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE  TRUE  FALSE FALSE   TRUE
 [8,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE  TRUE   TRUE FALSE   TRUE
 [9,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE FALSE   TRUE FALSE   TRUE
[10,] TRUE  TRUE  FALSE      TRUE    FALSE     TRUE FALSE    FALSE FALSE  FALSE FALSE   TRUE
[11,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE FALSE   TRUE FALSE   TRUE
[12,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE  TRUE   TRUE FALSE  FALSE
[13,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE FALSE   TRUE FALSE  FALSE
[14,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE FALSE  FALSE  TRUE   TRUE
[15,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE FALSE   TRUE FALSE  FALSE
[16,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE FALSE   TRUE FALSE  FALSE
[17,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE  TRUE   TRUE FALSE  FALSE
[18,] TRUE  TRUE  FALSE      TRUE    FALSE    FALSE FALSE    FALSE  TRUE   TRUE FALSE   TRUE
[19,] TRUE  TRUE  FALSE     FALSE     TRUE    FALSE FALSE    FALSE FALSE  FALSE FALSE   TRUE
[20,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE     TRUE FALSE  FALSE FALSE   TRUE
[21,] TRUE  TRUE  FALSE     FALSE    FALSE    FALSE FALSE    FALSE  TRUE  FALSE  TRUE   TRUE
[22,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE  TRUE   TRUE FALSE  FALSE
[23,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE  TRUE   TRUE FALSE   TRUE
[24,] TRUE  TRUE  FALSE     FALSE    FALSE     TRUE FALSE    FALSE FALSE  FALSE  TRUE   TRUE
[25,] TRUE  TRUE  FALSE      TRUE    FALSE     TRUE FALSE    FALSE  TRUE  FALSE FALSE   TRUE
>
```

The BMA package also contains a plot function for displaying the posterior distributions of each coefficient; in this example the density plots are displayed in 5 rows and 3 columns.

```
R Console
File  Edit  Misc  Packages  Windows  Help
> plot(bma1, mfrow=c(5,3))
>
```

Notice, among the density plots, each variable which is of little importance contains a spike at 0.0. These are the variables which are least influential to the outcome variable (e.g. social); their coefficients are centered on, and most likely are, zero.



For a complete description of the bicreg function simply type help(bicreg) in the R console once the BMA package is loaded.

GLM Example

We can use the same data and predictors from above to illustrate the application of BMA to a GLM situation using the bic.glm function. The bic.glm function can accept a matrix of predictors and the outcome variable (as above with the bicreg function), or the formula can be specified directly (e.g. extro ~ open + agree + social + cognitive … series). The bic.glm function also accepts the glm.family argument to specify non-Gaussian models (e.g. Poisson, binomial, etc.).

```
R Console
File  Edit  Misc  Packages  Windows  Help

> bma2 <- bic.glm(predictors, data.1$extro, glm.family = "gaussian")
> summary(bma2)

Call:
bic.glm.matrix(x = predictors, y = data.1$extro, glm.family = "gaussian")


  27  models were selected
 Best  5  models (cumulative posterior probability =  0.5857 ):

           p!=0    EV        SD        model 1     model 2     model 3     model 4     model 5
Intercept  100    21.722839  3.615784   2.478e+01   2.155e+01   2.192e+01   2.181e+01   2.237e+01
open       100.0   0.350899  0.054866   3.703e-01   3.521e-01   3.510e-01   3.487e-01   3.577e-01
agree      100.0   0.328811  0.061616   3.429e-01   3.280e-01   3.235e-01   3.308e-01   3.376e-01
social       0.0   0.000000  0.000000         .           .           .           .           .
cognitive   32.1   0.031378  0.051532         .       1.044e-01       .           .           .
physical     1.1   0.001082  0.013393         .           .           .           .           .
cultural    24.8   0.015386  0.030308         .           .           .       6.701e-02       .
vocab        0.0   0.000000  0.000000         .           .           .           .           .
abstruse     1.8   0.002019  0.020481         .           .           .           .           .
block       35.5   0.089368  0.136100         .           .       2.653e-01       .           .
common      26.8   0.030059  0.056465         .           .           .           .       1.064e-01
sets         4.2   0.001413  0.008717         .           .           .           .           .
series      91.3   0.133788  0.059011   1.681e-01   1.532e-01   1.483e-01   1.529e-01   1.343e-01

nVar                                        3           4           4           4           4
BIC                                    -4.183e+03  -4.182e+03  -4.182e+03  -4.182e+03  -4.181e+03
post prob                               0.148       0.136       0.135       0.103       0.063
>
```

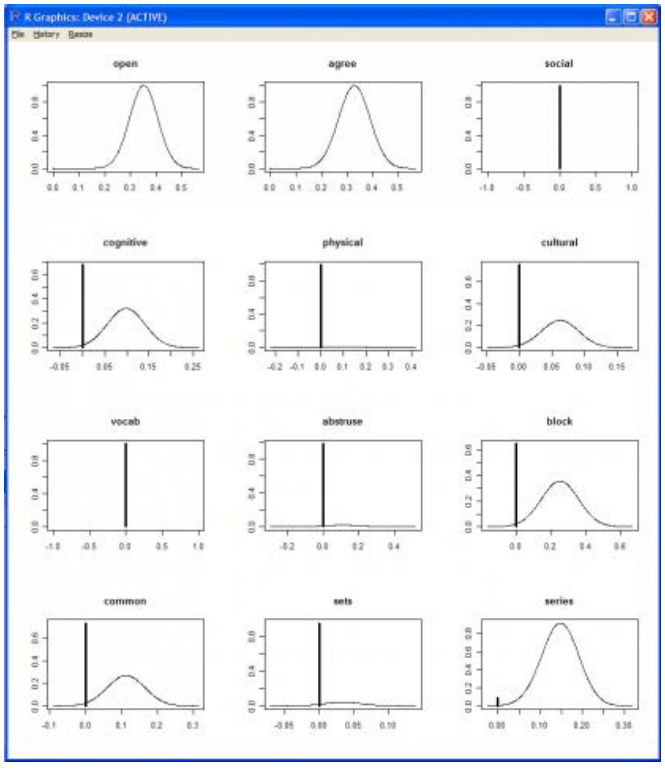
Notice when using bic.glm and specifying “Gaussian” the estimation of the posterior means and standard deviations are slightly different from what was observed with the bicreg function. Below the means and standard deviations from the bicreg and bic.glm functions are displayed; bma1 and bma2 respectively.

```
R Console
File  Edit  Misc  Packages  Windows  Help
> bma1$postmean
 [1] 21.744774873  0.350962063  0.328877566  0.000000000  0.030233067
 [6]  0.001098541  0.015625318  0.000000000  0.001205513  0.090841922
[11]  0.030589625  0.001206205  0.133620241
> bma2$postmean
 [1] 21.722838937  0.350898681  0.328810972  0.000000000  0.031377816
 [6]  0.001081515  0.015386482  0.000000000  0.002019300  0.089368321
[11]  0.030059142  0.001413382  0.133788175
>
> bma1$postsd
 [1] 3.628958005 0.055065431 0.061833238 0.000000000 0.050921540 0.013532584
 [7] 0.030491687 0.000000000 0.015917825 0.136760379 0.056863598 0.008099832
[13] 0.059350197
> bma2$postsd
 [1] 3.615783733 0.054866450 0.061616092 0.000000000 0.051532184 0.013392648
 [7] 0.030308143 0.000000000 0.020481080 0.136099936 0.056465321 0.008716879
[13] 0.059011367
>
```

The plot function also works with bic.glm objects; here displaying the density plots in 4 rows and 3 columns.

```
R Console
File  Edit  Misc  Packages  Windows  Help
> plot(bma2, mfrow=c(4,3))
>
```

Notice again, the variables which do not contribute to the outcome variable are shown with spikes at zero in their density plots; indicating that their coefficients are most likely zero.



For a complete description of the bic.glm function simply type help(bic.glm) in the R console once the BMA package is loaded.

Binomial Generalized Linear Model Example

The binomial generalized linear model is the logistic (logit) model. The bic.glm function is used, simply specifying the binomial glm.family argument as would be done with the standard glm function.

This example uses a simulated data set which contains one binary outcome variable (y = 0 or 1) and four interval predictor variables (x1, x2, x3, x4). There are 400 cases of data with no missing values. The data also contains a

code variable which simply identifies each case. The data file is a space delimited text (.txt) file, so the foreign package is not necessary for importing it into R.

```
R Console
File Edit Misc Packages Windows Help
> data.2 <- read.table("http://www.unt.edu/rss/class/Jon/R_SC/Module9/logreg1.txt",
+           header=TRUE, sep="", na.strings="NA", dec=".", strip.white=TRUE)
> summary(data.2)
      code             y               x1                x2              x3              x4
 Min.   :  1.0   Min.   :0.0   Min.   :-0.02921   Min.   :0.5000   Min.   :0.1590   Min.   :0.5000
 1st Qu.:100.8   1st Qu.:0.0   1st Qu.: 2.34900   1st Qu.:0.5523   1st Qu.:0.5000   1st Qu.:0.6746
 Median :200.5   Median :0.5   Median : 2.97260   Median :2.5402   Median :1.0000   Median :1.0000
 Mean   :200.5   Mean   :0.5   Mean   : 2.96276   Mean   :2.3514   Mean   :1.8551   Mean   :1.4831
 3rd Qu.:300.2   3rd Qu.:1.0   3rd Qu.: 3.61822   3rd Qu.:3.3644   3rd Qu.:2.9585   3rd Qu.:1.5000
 Max.   :400.0   Max.   :1.0   Max.   : 5.55478   Max.   :5.5479   Max.   :5.5584   Max.   :5.8059
> |
```

As mentioned above, when using the bic.glm function, one can either create a matrix of predictor variables or simply specify the formula directly. Above we used the matrix approach; here we will specify the formula directly. Of course, here we also specify the glm.family as binomial.

```
R Console
File Edit Misc Packages Windows Help
> bma2 <- bic.glm(y ~ x1 + x2 + x3 + x4, data = data.2, glm.family = "binomial")
> summary(bma2)

Call:
bic.glm.formula(f = y ~ x1 + x2 + x3 + x4, data = data.2, glm.family = "binomial")


  3  models were selected
 Best  3  models (cumulative posterior probability =  1 ):

           p!=0    EV         SD       model 1     model 2     model 3
Intercept  100    -1.388e+01  3.32880  -1.599e+01  -1.156e+01  -1.600e+01
x1           2.5   2.176e-05  0.06404         .           .    8.727e-04
x2         100.0   1.380e+00  0.35031   1.553e+00   1.189e+00   1.553e+00
x3         100.0   8.288e+00  1.81053   8.922e+00   7.593e+00   8.922e+00
x4          52.4   1.026e+00  1.11520   1.959e+00         .     1.960e+00

nVar                                          3           2           4
BIC                                     -2.315e+03  -2.315e+03  -2.309e+03
post prob                                0.499       0.476       0.025
> |
```

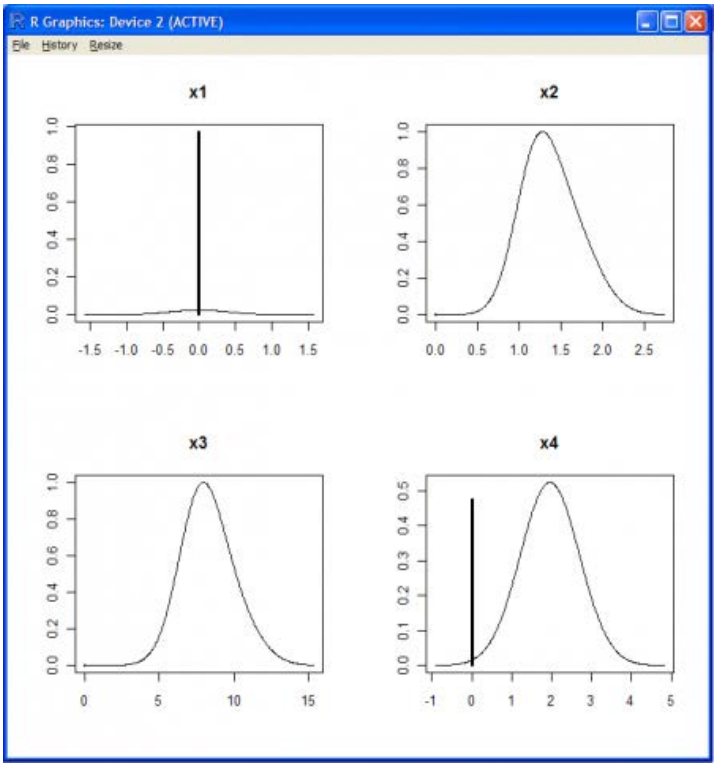
Although the summary of the bic.glm object here is interpreted the same way as the previous two examples (in terms of model/variable importance using BIC and posterior probability), it is important to remember that the coefficients for each predictor here (binomial setting) are NOT interpreted in the same way as they would be in the Gaussian setting(s).

Remember, when interpreting coefficients in a logistic (binomial) setting, the values are interpreted as changes in the logit. The logistic coefficient is the expected amount of change in the logit for each one unit change in the predictor. The logit is what is being predicted; it is the odds of membership in the category of the outcome variable with the numerically higher value (here a 1, rather than 0). The closer a logistic coefficient is to zero, the less influence it has in predicting the logit.

The plot function works the same with way with binomial models as it did with the above models.

```
R Console
File Edit Misc Packages Windows Help
> plot(bma2, mfrow=c(2,2))
> |
```

The plots simply confirm what was expressed in the summary function, x1 has virtually nothing to contribute to y and x4 has a moderate influence on y.



For a complete description of the different families available to the glm function (and the bic.glm function), type help("family") in the R console.

Keep in mind, there are other packages available for conducting BMA in R. Perhaps most notable, is the mlogitBMA package which offers extensions to the bic.glm function so that BMA can be applied in the multinomial logistic situation. Other packages which incorporate BMA include: BAS, BMS, and ensembleBMA.

An Adobe.pdf version of this article can be found here.

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Until next time, *It ain't me, it ain't me; I ain't no Senator's son…*

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EIS training is available. Questions or comments relating to EIS training should be sent to EISTCA@unt.edu.

Microsoft E-Learning

Microsoft E-Learning courses are now available for ***faculty and staff*** via our UNT-Microsoft Campus Agreement. Please contact Claudia Lynch at lynch@unt.edu for instructions on accessing this training. If you haven't accessed the training since last year you will need to get a new access code.

Microsoft Outlook Tutorials and much more

The Enterprise Messaging and Directory Services Group has all sorts of useful information on their website, including tutorials and FAQs. The home page displays a list of their newest tutorials with tutorial topic pages displaying the most accessed pages. You can search the site for whatever you're interested via a Search Box on the left-hand side of the page.

Central Web Support

Consult Central Web Support for assistance in acquiring “Internet services and support.” As described on their website:

CWS provides Internet services and support to UNT faculty, staff and students. Services include allocating and assisting departments, campus organizations and faculty with web space and associated applications. Additionally, CWS assists web developers with databases and associated web applications, troubleshooting problems, support and service.

CLEAR (was Center for Distributed Learning)

CLEAR offers courses especially for Faculty Members. A list of topics and further information can be found here.

The center also offers a "Brown Bag" series which meets for lunch one **Wednesday** a month (recently changed from the first Thursday of each month) at Noon in Chilton 245. The purpose of this group is to bring faculty members together to share their experiences with distributed learning. One demonstration will be made at each meeting by a faculty member with experience in distributed learning. More information on these activities can be found at the CLEAR Website. Scheduled meeting dates for the rest of the school year are:

- February 23
- March 23
- April 20

UNT Mini-Courses

There are a variety of courses offered, for a fee, to UNT faculty, staff and students as well as the general public. For additional information surf over to http://www.unt.edu/minicourses/

Information Security Awareness

The UNT Information Security team has been offering Information Security Awareness courses to all UNT faculty and staff. Topics to be covered will include workstation security, sensitive data handling, copyright infringement issues, identity theft, email security, and more.

For more information, or if you would like to request a customized course to be taught for your department, contact Gabe Marshall at x4062, or at security@unt.edu.

Also, Information Security Training is now available through Blackboard Vista (formerly known as WebCT).

Alternate Forms of Training

Many of the General Access Labs around campus have tutorials installed on their computers. See http://www.gal.unt.edu/ for a list of labs and their locations. The Willis Library, for example, has a list of Tutorials and Software Support. The Library Instructional Unit also offers workshops and training, including "tech skills" training. Visit their websites for more information: http://www.library.unt.edu/library-instruction

The Training Website has all sorts of information about alternate forms of training. Computer Based Training (CBT) and Web-based training are some of the alternatives offered, although due to the rising costs of training, shrinking budgets and changing technology, computer-based training at UNT is in a state of transition. For up-to-date information on CBT at UNT, see the CBT website.

Gartner Research Services

Way back in 2006 we announced *Gartner Core Research Services Now Available to the UNT Community*. Our subscription for Gartner services has always included ***all*** UNT faculty, students, and staff. All you need to do to access the subscription is to **log into the UNT Gartner portal page** at https://gartner.unt.edu/. Once you have logged in, you can view upcoming webinars: http://www.gartner.com/webinars/ and listen to Gartner podcasts here: http://www.gartner.com/it/products/podcasting/asset_137461_2616.jsp.

State of Texas Department of Information Resources

Another possible source of training for staff and, perhaps, faculty members is the Texas Department of Information Resources. A look at their Education and Training website reveals some interesting possibilities.

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Staff Activities

Transitions

New Employees:

- **Sadee Morgan**, CSS Tech, Classroom Support Services (part-time).
- **Guillermo Pujol**, CSS Tech, Classroom Support Services (part-time).
- **Rickey D. Thomas**, IT Programmer Analyst, Student Records Team (AIS).
- **Rachel Burlage**, Assistant Director for IT Compliance and Planning.
- **Karin Harbour**, IT Programmer Analyst, Finance & Admin. Systems (AIS).
- **Sebastian Spaink**, Information Security Intern (part-time).
- **Sina Bastami**, ACS GAL Consultant (part-time).
- **Sarah Martin**, ACS GAL Consultant (part-time).
- **Shelby Bellah**, ACS GAL Consultant (part-time).

No longer working in the Computing and Information Technology Center:

- **Elliott Eitzmann**, CSS Tech, Classroom Support Services (part-time).
- **Elise Bruns**, CSS Tech, Classroom Support Services (part-time).
- **Tim Farmer**, CSS Tech, Classroom Support Services (part-time).
- **Christopher Blackmon**, CSS Tech, Classroom Support Services (part-time).
- **Jeremy Dunn**, CSS Tech, Classroom Support Services (part-time).
- **Michael McAuliffe**, IT Specialist, Disibuted Learning Support group.
- **Kevin Icharia**, Student Assistant, Data Communications (part-time).
- **Alex Bahlburg**, CSS Tech, Classroom Support Services (part-time).
- **Akshara Anugula**, ACS GAL Consultant (part-time).
- **Amruta Duggiralla**, ACS GAL Consultant (part-time).
- **Aravind Vadde**, ACS GAL Consultant (part-time).
- **David Swingle**, CSS Tech, Classroom Support Services (part-time).

Changes, Awards, Recognition, Publications, etc.

New Babies!

Congratulations to **Mikal Henserling**, ACS/Adaptive Lab Manager, and his wife Shera on the birth of their son, **Tyson Parker Hensarling**, on January 17, 2011 (4:31 pm. 8 lbs 5 oz & 19" long). Congratulations are also in order for **Jonathan "Mac" Edwards**, CITC Helpdesk Manager, and his wife Kristin, on the birth of their son **Gideon Mack Edwards**, on January 30, 2011 (8:21 am. 8lbs 5 oz & 19" long). Can you tell Mac is a proud pappa?

Service to UNT

Congratulations to **Tammy Sprabary**, Administrative Specialist, Telecommunications, Communications Services, who was recently recognized by *InHouse* for her **20 years** of service to UNT.

Budding Author

She's **Maggie Plauche**, Business Analyst on the Student Admin. Business Analyst Team (AIS) by day, but in her free time she tends a vineyard, a greenhouse, guinea hens, a pond full of fish, and writes books. She has written and self-published two children's books (so far) that depict her grandchildren as well as grand-nieces and grand-nephews as baby guineas. The name of the book series is 'Guinea Run Vineyard', The Adventures of Eli and His Friends. They're not for sale to the general public, yet, but Maggie has been approached to market them on a children's book website. A third book is in the works and should be completed in July. You can say you knew her when!

You don't want to mess with her!

Dr. Elizabeth Hinkle-Turner, Assistant Director - Academic Computing and User Services, won first place in creative empty-hand kata, first place in traditional weapons kata, and third place in sparring in her competition age/rank divisions at the 2011 Lone Star Open (North American Sport Karate Association) on February 11.

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- UNT Dallas
- UNT Health Science Center

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Collaboration and Learning Commons in the Science and Technology Library is now open

By Nancy Crabb, Director of Marketing & Communications, University of North Texas Libraries

Featuring moveable walls and furniture, Smartboards, group study rooms and both Mac and PC workstations, the Collaboration and Learning Commons was created to provide group study and collaboration space for the University community. This redesigned space in the Science and Technology Library is outfitted with technology that supports the creation of multimedia presentations and projects.

Key features of the renovated library include: commons area with moveable walls and furniture, allowing patrons to form group study areas; whiteboards and Smartboards for writing and projection; and hardware and software to create and project multimedia presentations. Two group study rooms are still under renovation—check with the circulation desk for availability.

Workstations provide access to both MAC and PC computers and are equipped with software that includes Adobe Photoshop CS5, Microsoft Office, Visio Professional 2010, Google Earth, Google Sketch Up, Handbrake and Audacity.

Access to work spaces with Smartboards and TV monitors is first come, first served and the equipment checkout is valid for 2 hour increments. The group study rooms (upon completion) will be available through a reservation system.

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Computer Lab Services for Graduate Students

By Dr. Elizabeth Hinkle-Turner, Assistant Director - Academic Computing and User Services

This month's discussion focuses on computer lab services that are of particular use and interest to **graduate students**. Most schools, areas, and departments offer computer lab services that are available only to graduate students in specific fields of study or are restricted to certain majors. The labs covered in this article are facilities that are open to *all* graduate students regardless of their major field of study or research focus.

These include our General Access Computer Labs (GACLs) and our Research And Visualization Environment (RAVE). The following piece details useful items in these general labs that will help graduate students achieve that coveted masters or doctoral degree or certification with technical ease!

Useful Item 1: Highly Specialized Software - All of the labs mentioned above feature software that is often priced far out of the budget of the average 'eat Ramen every day' graduate student. This is software that many graduate students need to complete their research. Most popular are the various statistical software packages utilized in a wide spectrum of majors from political science and education to psychology and environmental studies. These include **SPSS/PASW**, **SAS** and **Stata** to name a few. Statistics software is found in virtually all the labs (including the RAVE) listed above with the exception of the art and music general access computer labs. Additionally, the GACL located in Chilton features **Atlas.ti**, a powerful data analysis application that would be prohibitively costly for the average graduate student to purchase. Mathematical packages are also in use in areas as diverse as engineering, chemistry and music! Some of the math applications found at UNT are **Matlab**, **Mathematica** and **Maple**. The greatest selection of math applications is found in the four College of Arts and Sciences (CAS) GACLs. Matlab has a more widespread distribution including most of the other GACLs and the RAVE.

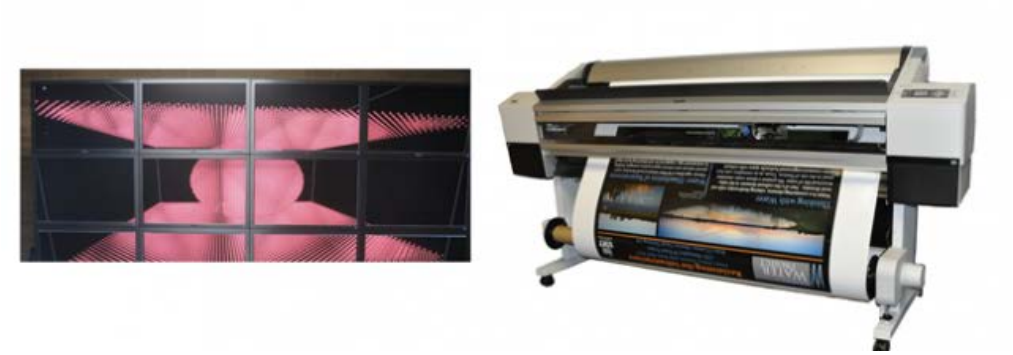
GIS (geographic information system) application usage and research is definitely on the rise at UNT and elsewhere and graduate students can find this software in many facilities. GIS applications have become an integral part of many research disciplines and our broad distribution of this type of software reflects this. **ArcGIS** is available in the RAVE. The Chilton GACL has **Map Info Pro**,**Google Earth** and **Google Sketchup**. The CAS labs have **Map Info Pro**, **Google Earth** as well and also have **ArcGIS** and various topographic and analytic map tools.

The ACUS GACL has adaptive applications for special needs on every workstation

Other research-focused software is generally found in the college and school GACLs that directly serve specific majors (though usage is available to students in all disciplines if needed). **Spartan** and **Gaussian**, molecular modeling tools popular with chemists, are found in the CAS labs as well as additional software of highly specialized use for life sciences, mathematics, and other majors included in this large college. The music GACL includes theory, music

composition, audio engineering and notation software and naturally, the GACL in the College of Visual Art and Design (CVAD) has extensive holdings of Adobe products and other multi-media and graphic art and design products including **AutoCAD**. Programming packages like **Visual Studio** are found in the majority of the GACLs. The College of Business (COB) GACL features finance and tax accounting software. Every lab has at least one adaptive technology station featuring **JAWS** and **MAGic** software for graduate students with sight issues. The most thorough inventory of adaptive software (and hardware) is found in the ACUS GACL and is a specialty of this lab. Finally, graduate students and their faculty advisors should remember that the RAVE and the GACLs, of course, offer the basic software applications that everyone seems to need every day and the managers of these facilities keep up-to-date with the latest versions of these tools. These 'workhorse' apps include all popular web browsers, the **Microsoft Office** suite, most if not all Adobe products (**Acrobat Reader**, full-blown **Acrobat Distiller**, the **Adobe Creative Suite** and **Design Suite**), media players, and CD/DVD burning software. Many of these standard applications become particularly important during the thesis and dissertation stage of a graduate student's career.

Useful Item 2: Highly Specialized Hardware - A description of highly specialized (and usually very expensive!) computing hardware available at UNT cannot be complete without first introducing the Research and Visualization Environment (RAVE) located in C236 of the Discovery Park. For graduate students in Engineering, Computer Science, the College of Information and the Education Technology fields, the RAVE is conveniently located right in your building! For students whose studies are on the main Denton campus, a short bus trip is all it takes to get to a facility with hardware so powerful it would make Steve Jobs, Bill Gates (and basically, any hardcore gamer) weep tears of joy just to see it. The RAVE features hardware to process really BIG files REALLY fast and allows graduate students and faculty and staff researchers to also convert these really big (usually data) files into formats that convey information in a meaningful way to other researchers and also the general public. The RAVE is where graduate researchers should go to produce visual output from their studies for use in conference paper presentations, journal articles, and high-level course projects. If you want your research in large scale visual detail, your work can currently be projected on a 12-screen video wall and by April 2011, also a 60-inch display. The RAVE features research-level workstations (3 Windows, 1 Mac, and several rack-mounted Linux) with top of the line Nvidia cards as well as extensive memory specifically designed and built to support high-performance research and editing. Fields as diverse as chemistry, materials engineering, information science and music take advantage of such computing power. The RAVE also has a 64-inch professional grade printer for producing poster-session materials. More articles specifically outlining hardware services in the RAVE appear here and here in earlier issues of *Benchmarks Online*.



Data Imaging Tools in the RAVE

Other high-level hardware can be found in the College of Music (COM) GACL. When it is time to do that all-important audition tape for further graduate study or for professional musical work, the COM GACL has a small recording studio to take care of those needs. Post-production audio hardware is also available. A new offering from the COM GACL is the checking out of iPods and iPads for classroom work. Art graduate students can help assemble that portfolio by printing out their projects on full color professional grade printers. The ACUS adaptive technology lab has special scanners, Braille embossers and readers to assist students requiring those services. As far as the basics are concerned, the GACLs provide scanning and DVD creation hardware as well.

Useful Item 3: Printing Facilities - As mentioned earlier, the RAVE provides high-level specialized printing services for large scale projects on its 64-inch Epson printer. Limited assistance in formatting work to fully take advantage of such large scale printing is also available. The printing services in the RAVE do not come free of cost - a fee of three dollars per square foot is assessed for this work. More information about research quality printing in the RAVE can be found here.

Most students are already aware of the free course-related printing available in the GACLs. All students must abide by the printing guidelines in the labs in order to continue to enjoy this wonderful service. Students cannot just print anything and they can only print a single copy of each document (additional copies should be made at Eagle Images). High-level research posters and print-outs of large images are most appropriate to the RAVE. Graduate students, however, also should be aware of some other important printing guidelines pertinent to their situation: when printing out a thesis or dissertation or any created research document, graduate students should meet with the particular GACL's lab manager in order to receive the proper clearance and instructions on how to do this successfully and within the guidelines. Also, graduate students working as teaching assistants should not be using the GACLs for printing course materials for the classes in which they are teaching. These materials need to be printed using the appropriate departmental resources instead. Many graduate students are not aware of the thesis/dissertation guidelines or the restrictions on teaching materials but these tenets need to be followed so all students can benefit

from the no-cost printing privileges. That being said, as someone who had to pay over 50 dollars in 1991 to print out (on a dot-matrix printer - yeah, I am THAT old!) my 250-page dissertation, I sure do wish that my alma mater (the University of Illinois) had had such a nice final copy print-out service available!

Final Notes: - All of these student computing services are available to all of UNT's students but the purpose here was to emphasize lab specialties that are utilized most frequently and cited as particularly helpful by our graduate student population. Graduate students are strongly encouraged to make extensive use of these services in the GACLs located in their colleges and schools and also the RAVE. Many of the services outlined here - especially the software applications - are quite extensive in their scope and can be quite steep in their learning curve. The majority of lab attendants (the folks who check your ID at the desk, do low-level desktop maintenance and support, and make sure that the printers are well-stocked with paper) are NOT going to be experts in particular research fields or with particular research software and tools. Graduate students will receive the instruction they need to learn these applications either from their faculty advisors, during their course of research and self-study or through information, advising and short courses provided by the ACUS Research and Statistical Support Services Team (see http://www.unt.edu/rss/) and other ACUS consultants. These consultants can meet with graduate students in the labs if need be for further assistance. Additionally, some of the college GACLs *do* have consultants on staff whose expertise extends to the highly specialized applications. Once fully-armed with the technical information and expertise needed, UNT graduate students should be able to take full advantage of all the terrific computing lab services described here. Graduate students, their faculty advisors and other Graduate College - related personnel are strongly encouraged to check out these facilities and services for themselves soon in order to gain firsthand knowledge of our research facilities and should plan on taking advantage of them as much as possible.

For more information about computing resources for graduate students, interested persons can contact the author of this article at ehinkle@unt.edu.

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Data Management Services Update

By Claudia Lynch, *Benchmarks Online* Editor

UNT's Data Management department will now offer a new exam grading service: The Dell Printer Station.

This new Dell Printer Station allows professors to print their exam forms from CITC's website -- http://www.unt.edu/ACS/datamanage.htm -- eliminating the cost of purchasing scantron forms, which will be a savings to the University of approximately $12,000 per year!!

Processing of the traditional NCS scantrons will continue, however ***after August 31st, 2011***, departments will be required to purchase their own scantrons from the NCS website: https://store.scantron.com Data Management will discontinue stocking the forms after this date.

See Dell Report sample and forms:

- Answer Key: http://www.unt.edu/helpdesk/DataMgmt/AnswerKey.pdf
- Response Forms: http://www.unt.edu/helpdesk/DataMgmt/ExamReportSample.pdf
- Exam Report Sample: http://www.unt.edu/helpdesk/DataMgmt/ResponseForm.pdf

As always, the reports can be emailed and stored electronically. Turnaround time is approximately 15 minutes. Come by and try out our new service soon!!

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EDUCAUSE in 2011: Time's Running Out!

By Claudia Lynch, *Benchmarks Online* Editor

There's still time to register for the EDUCAUSE West/Southwest Regional Conference. It will be held in Austin, Texas (February 22–24, 2011...or online). The EDUCAUSE 2011 annual conference is being held in Philadelphia, Pennsylvania next year (October 18–21; Online: October 19–21).

Click on the banners below to find out more information and/or to register. The Call for Proposals for EDUCAUSE 2011 ends Friday, February 18. Early-Bird Registration Deadline for **Online Participation** for the West/Southwest Regional Conference conference is Friday, February 18.

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