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A MESSAGE FROM THE PRESIDENT

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- Alexandra M. Schmidt -

ISBA President, 2015

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Spring has just arrived in Brazil and it is time to admire the beautiful *ipê amarelo* (golden trumpet tree). However, we have been experiencing temperatures which make us wonder how much hotter the summer will be. This probably is already an effect of the El Niño, which apparently will be one of the strongest on record.

Undeterred by weather quirks, ISBA activities do not stop. During the summer meetings (ISI World Meeting held in Rio de Janeiro and the JSM, held in Seattle) I had the opportunity to discuss with some colleagues two major topics which I believe are important for ISBA. One is the creation of an ISBA Asian Chapter. Discussions on the creation of this Chapter are in progress and I hope to have more news for the December issue of the bulletin. If you are interested in participating in this discussion and contributing to the creation of the Asian Chapter, please contact me. The other topic is the creation of a Section on Teaching Bayes, as detailed below.

Teaching Bayes Bayesian methods have been experiencing an enormous growth in the last 25-30 years. A Google request for "bayesian" lists about 11,300,000 results; one for "frequentist statistics" lists about 261,000 results. Maybe I did not choose the best keywords to make this comparison but it is clear that, in the google search, the former dominates the latter. However, we know that Bayesian methods are not yet standard tools for solving statistical problems. Maybe this is partly related to how Bayesian methods are taught to statistical students and students from other disciplines. I believe it is time ISBA plays a role in discussing the teaching of Bayesian methods.

Over the last couple of months we have been discussing the creation of a Section on Teaching Bayes (the name of the Section is not chosen yet). I contacted ISBA's former president Fabrizio Ruggeri and he told me that this idea was already discussed in the past.

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Following his suggestion, I contacted Dalene Stangl (Duke University) and asked her to write an article for the Bulletin about her perception on how Bayesian inference is taught to statistical students and students from other disciplines. I also contacted several researchers from different departments across the world asking them to give a brief description of how Bayesian methods are taught in their region or university. I thank all those who replied to my request, and invite you to read Dalene's article and the testimonies.

Do you believe that the creation of a new Section will help to remedy this problem? Are you willing to contribute to this Section? I invite you to send me comments and suggestions.

New Editors of ISBA Publications Following the bylaws, this year we formed the Editorial Search Committee to propose candidates for the positions of Editor-in-Chief of Bayesian Analysis, Editor of the ISBA Bulletin, and ISBA Web Editor, for the next 3 years. The committee was composed by Marina Vanucci (Rice University, USA, chair), Dani Gamerman (UFRJ, Brazil), Peter Green (University of Bristol, UK and University of Technology, Australia), Chris Hans (Ohio State University, USA), Robert Kohn (UNSW, Australia), and Fabrizio Ruggeri (CNR-IMATI, Italy). Thank you all for accepting to be part of this committee and execute this important job for ISBA!

The three names proposed by the committee were approved by the board:

- **Editor-in-Chief of Bayesian Analysis**: Bruno Sansó, Professor of Statistics, University of California at Santa Cruz, USA
- **Editor of the ISBA Bulletin**
  Beatrix Jones, Senior Lecturer in Statistics, Massey University, New Zealand
- **ISBA Web Editor**
  Kate Calder, Professor of Statistics, Ohio State University, USA

Bruno, Beatrix, and Kate, congratulations! Thank you for accepting to contribute to ISBA. The terms start in January 2016, and end in December 2018.

ISBA Elections Stay tuned, ISBA elections are coming up soon! ISBA will hold its annual election from October 22 - November 22. The list of candidates with their statements can be read here. To be able to vote you must have a current ISBA membership. Log on to `bayesian.org` and check your membership status under "Membership Status" in the right hand panel.

If you are not a current member, please renew your membership, participate in ISBA's elections, and keep contributing to its growth!

Joint Meeting of COPSS and Friends of COPSS held at the JSM (Seattle, August 2015) COPSS stands for the Committee of Presidents of Statistical Societies, which strives to "work on shared problems and improve intersociety communication." The members of this committee are the presidents and vice-presidents of the following societies: ASA, IBS (ENAR/WNAR) IMS, and SSC.

ISBA is one of the friends of COPSS and, as such, usually participates in the annual meetings of COPSS. The other society friends are: the International Chinese Statistical Association, the International Indian Statistical Association, the Korean International Statistical Society, the Royal Statistical Society, and the Statistical Society of Australia, Inc. This year, Sonia Petrone, Steve MacEachern, and myself represented ISBA at the Joint Meeting of COPSS and Friends of COPSS held in Seattle, during the JSM. Each of the societies submitted a brief report describing its activities in the last year. There was also an update about the creation of The International Prize in Statistics, which "would recognize the 'major achievement' of an individual or team in the field of statistics". Apparently, one of the difficulties in establishing this prize is determining the amount of money attached to the prize and how this prize will be funded. During the meeting, Trevor Butterworth gave a talk about "Promoting Statistics to general audiences". Regarding this subject, I invite you to visit `http://stats.org` and `http://ThisIsStatistics.org`.

World Statistics Day In 2010, the General Assembly of the United Nations adopted 20 October as the World Statistics Day. This year ISBA joined the Royal Statistical Society, the American Statistical Association and the International Statistical Institute, and signed a statement for World Stati-

stics entitled Data for Sustainable Development. The statement can be read here.

ISBA site and our payment system The ISBA site is nearing the end of its useful life. Sites that take payments from people are different from sites that do not, because they are a constant target for scammers. The struggle against spammers and hackers and phishers has become sufficiently great that we have started to suffer negative consequences, such as having to terminate our relationship with PayPal (who had been handling credit card payments for us).

We need a new web site before we can offer a seamless, modern payment experience again. That is going to take some time, and on behalf of the ISBA executive committee I ask for your patience until that gets worked out. In the mean time, here is how you can pay for things like memberships, donations, and conference registrations that are handled through bayesian.org.

Go ahead and renew your membership (etc) as you would before. Once your transaction is complete, the site will give you a "Thank you" page with the total amount of your transaction. You will then need to proceed to a new section of the site `bayesian.org/payments`, where you can click a button to make a credit card payment to ISBA. Once your payment is received, Gabriella Bonfanti, our administrative manager, will be notified and manually mark your transaction as current. You will receive an email notifying you that your transaction is complete.

The payment process is obviously brittle and labor intensive, and we do not want to live with it any longer than we have to. We are working hard to get a new web site rolled out in early 2016, at which point payments will return to normal, and the site will be better than ever.

Call for the Zellner Medal ISBA is accepting nominations for the Zellner Medal. The Zellner Medal is ISBA's highest honor. Its purpose is to recognize ISBA members who have rendered exceptional and distinguished service to ISBA over an extended period of time, and whose contributions have had an impact on the society beyond the time of his or her incumbency.

Nominations for the Zellner Medal may be submitted here. **The deadline is November 15.**

Donations for the Bayarri and de Finetti funds Last year, our Past-President, Sonia Petrone, encouraged the creation of Named Lectures to be delivered at the ISBA World Meetings. ISBA Named Lectures are established to honor individuals who have had a fundamental role in the advancement of Bayesian Statistics. For more details, see bylaws N, at `http://bayesian.org/business/bylaws`.

Currently, we have proposals for two Named Lectures and are seeking funds to support them.

> **The Susie Bayarri Fund**
>
> ISBA is raising an endowment fund to establish a named lecture in honor of lifetime member Susie Bayarri. The Susie Bayarri Lecture shall be delivered at the ISBA World Meetings by an outstanding young researcher under 35 years of age. To reach the amount required for the establishment of the Named Lecture, additional contributions to the endowment fund of US $8,000 are needed.
>
> **The Bruno de Finetti Fund**
>
> ISBA is raising an endowment fund to establish a named lecture in honor of Bruno de Finetti, who made fundamental contributions to Bayesian Statistics. The Bruno de Finetti Lecture shall be delivered at the ISBA World Meetings. To reach the amount required for the establishment of the Named Lecture, additional contributions to the endowment fund of US $8,000 are needed.

Please consider making donations toward the establishment of these Named Lectures. Donations can be made at `http://bayesian.org/business/funds`.

I welcome your comments on these topics or others - please feel free to email me at alex@im.ufrj.br . ▲

FROM THE PROGRAM COUNCIL

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ISBA 2016 World Meeting

The organization of the next ISBA 2016 World Meeting is well under way. The Scientific Committee has received an unprecedented number of high-quality proposals for the recent call for special topic sessions, indeed more than twice the number that the Scientific Committee was expecting based on previous meetings. This is certainly indication of the interest for the meeting, as well as of the vitality and impact of Bayesian thinking in today's world. In order to accommodate the largest number possible of sessions, the Scientific Committee had to work with the local organizing committee and extensively reconsider the scientific program. Even so, unfortunately it was not possible to include many deserving session proposals in the regular program of the conference. For all accepted presentations, abstract submission is now open on the following website http://abstracts.isba2016.org/ and must be concluded by **December 15th, 2015**, although it would be helpful if the speakers could submit as soon as possible. For organizational reasons, we would also like to ask the speakers to complete the registration and accommodation reservation by March 1st, 2016. Rooms are limited at the conference venue, so booking in advance is suggested. One night deposit is enough to book the room and it is fully refundable till February 10th, 2016.

The Scientific Committee is now inviting proposals for **contributed poster presentations**. As in the tradition of the previous Valencia and ISBA meetings, the contributed papers will be presented in the very popular plenary evening poster session, which is generally considered to be a highlight of the conference. Depending on the space available at the conference venue, we may need to limit the number of posters accepted. However, as usual the Scientific and the Local Organizing Committee will try their best to accommodate the largest number of contributions. Some of the poster submissions will also be selected for short oral presentations as part of 1 hour-long contributed sessions in the afternoon. The proposals can be submitted online at http://abstracts.isba2016.org/ by **December 15th, 2015**. If you do not wish to have your abstract considered for the oral presentation, you can so indicate in the space available for "Notes" at the end of the abstract submission form.

The Scientific Committee is glad to communicate that also the call for applications to the ISBA Travel Awards has been overwhelmingly positive. The Committee has received applications from an incredibly large number of outstanding young researchers. The selection of the winners of the Awards will certainly be difficult. Due to the impressive list of applications, the Scientific Committee may will need extra-time to be able to communicate their decisions to the winners. In the meantime, the Scientific Committee is already inviting application to the standard **junior travel support grants**. The applications need to be submitted by filling the forms available at http://travelsupport.isba2016.org by **December 15th, 2015**. Decisions should be expected approximately by January, 20th 2016. The junior travel support grants represent the traditional mean that ISBA has been using to facilitate the participation of young researchers to the ISBA World meetings. As we all know, ISBA is one of the few professional societies that encourages and sponsors the active participation of PhD students and young researchers to their meetings. ISBA sponsored more than 80 students for their travel to the World Meeting in Cancun in 2014. For the 2016 World Meeting, ISBA has been applying for funds from the government and private companies to support the travel of students and young investigators to the conference. So far, only **Google**, **Stata** and **RStudio** have agreed to help us with such endeavor. We will have dedicated ISBA-Google, ISBA-Stata and ISBA-RStudio funds, in addition to the funds usually provided by ISBA and government agencies. The **Section on Bayesian Computation** is also offering travel support funds obtained from their Section budget. **Collegio Carlo Alberto**, a joint venture of Compagnia di San Paolo and University of Turin is also providing general financial support to the conference. If you own a company, or know of any other private entity which may be willing to be added to

the list of sponsors, please let us know as soon as possible! Even by supporting the travel of just one or two students, they would provide a very important aid to their research and to the mission of ISBA. However, any amount is welcome. The current list of sponsors can be found here: http://sponsors.isba2016.org.

Also, remember that students who are also ISBA members obtain a hefty discount on the registration fees. We have also been able to obtain discounted rates for 70 hotel rooms at the conference hotel (and same half-board accommodations). These rates are applicable to: Ph.D. students, postdoctoral fellows (or equivalent no full time tenure-track position), who received their Ph.D. title after 2010. Further details, including how to obtain a VISA to Italy, are available on the conference website (http://www.isba2016.org). Please, note that new rules for obtaining a VISA to EU countries may require an **interview in person** to an Italian consulate abroad (or to other consulate of a EU country in the Schengen area, if justified). We recommend to read the indications provided on the conference website and plan your travel in advance.

ISBA Co-sponsorships

As announced in the previous bulletin, starting with 2016 there will be new procedures for requesting ISBA co-sponsorship of conferences, meetings (including the Sections' meetings) and other events. The main novelty is that all requests need to be received by May 30th of each year for conferences organized at any date between January 1st and December 31st of the following year. The full policy was published in the last bulletin, and it is now available online at https://bayesian.org/meetings/planning. The policy includes also precise rules for the use of the funds, which should be used only for junior travel support. In addition, the funds may be used to establish one or a maximum of two ISBA New Researcher Travel Awards, which are awarded on a competitive basis to junior researchers. A junior researcher is a graduate student in a current degree program or someone who has received a PhD or equivalent in the last 5 years. The full description of the new types of travel grants is available at http://bayesian.org/awards/StudentTravelAward. ▲

A CALL TO ACTION

A Call to Action

Dalene Stangl
Duke University

This article begins discussion on why and how Bayesian foundations and methods should be taught to students in primary and secondary schools as well as university undergraduates in all disciplines. I'll start with some early work on the subject and provide some personal views on where we should be going. I'll end with a call to action of ISBA members, making some suggestions for how this community can be more active and effective in changing the attitudes of the statistics education community that has to date resisted.

At the graduate and advanced undergraduate level the last thirty years have experienced dramatic change in the teaching of statistics. At these education levels Bayesian thinking is now included in the curriculum. Unfortunately this is not yet the case in primary and secondary education or in undergraduate education of non-statistics majors. I have been arguing for nearly twenty-five years that the lack of effort on our part to reach this group is a mistake. Bayesian thinking, i.e., to learn to collect information and merge that information with our values to make coherent decisions, should indeed be the ultimate goal of educating the masses. While the importance of statistical understanding in primary and secondary education has continued to grow (184,173 students took the advance placement (AP) statistics exam in 2014), there has been no incorporation of Bayesian thinking into the AP curriculum. Views against teaching Bayesian statistics to these groups remain strong, and ISBA as an organization has been rather absent in this fight although several of its members have been pushing for

years.

Nearly twenty years ago Don Berry and Jim Albert argued that it was important to teach Bayesian methods to undergraduates who were not majoring in statistics. They argued against those who proposed that Bayesian methods could not and should not be taught at this level. (Albert, 1997; Berry, 1997; Moore, 1997). Arguments against teaching Bayesian methods to these groups included notions that students could not understand conditional probability, that there was a lack of consensus among Bayesians on how to tackle standard problems, that Bayesian methods were rarely used, and that the inclusion of Bayesian ideas would impede trends toward use of real data. While progress over the last twenty years further counters these arguments, these views continue to be held by the majority in the statistics education community.

The statistics education community, and its primary ring-leaders are not Bayesian. The International Conference on Teaching Statistics (ICOTS) and US Conference on Teaching Statistics (USCOTS) usually has but a smattering of sessions on teaching Bayesian statistics. It's barely on their radar. Jim Albert, Bill Bolstad, Peter Sedlmeir, I, and a few others have continued to push the teaching of Bayesian methods at this level through participation at USCOTS and ICOTS, but this is not an easily moved contingent. These conferences are a pretty lonely place for the few Bayesians that attend.

It is not just statistics education conferences where Bayesians and Bayesian ideas are absent. The AP statistics exam is completely frequentist. Popular textbooks, if lucky, include Bayes' theorem, but rarely include other Bayesian foundations or inference topics. There are no Bayesians on the American Statistical Associations committee to revamp the GAISE guidelines. The statistics education community's current "big thing" is randomization and permutation tests for teaching statistics. While this may help students better understand the concept of a sampling distribution, it still puts undo emphasis on hypothesis testing and is unhelpful at making a p-value a meaningful measure of evidence. It does nothing to train students to think in a more decision-theoretic way.

Perhaps a more justified argument against teaching Bayesian ideas at this level would be that there is still only one book, Berry's elementary statistics book, Statistics: A Bayesian Perspective (1996), that is well suited for audiences without calculus backgrounds. His book relies only on high school algebra and remains my go-to reference for any non-statistician who asks me for a first book. While recommending the book, it still needs two things, a facelift and a follow-on book that would take the reader into the analysis of data, and this is where it gets tricky. We have Tony O'Hagan's First Bayes and Jim Albert's Minitab macros and javascript software. But what about the students in high schools and community colleges who are still stuck with hand calculators? What about the students at universities with access only to SPSS, JMP, SAS, STATA and other software?

There is also the question of what would we teach in courses for majors other than statistics. Albert (2001) describes a "Statistics for Poets" class. This class focuses on the distinction between statistics and parameters, the inherent variability in data, that sample data provide an incomplete description of the population, the dependence of statistical procedures on the underlying assumptions of the model, the distinction between inference procedures including estimation, testing, prediction, and decision making, and the interpretation of statistical "confidence". He argues that the primary advantage of teaching from a Bayesian viewpoint is that Bayes' thinking is more intuitive than the frequentist viewpoint and better reflects the commonsense thinking about uncertainty that students have before taking a statistics class. Albert and Rossman (2001) have published a collection of activities that assist in teaching statistics from a Bayesian perspective. Like the Berry textbook, it covers estimating proportions and means using discrete and continuous models. Web-based javascript software to illustrate probability concepts and perform Bayesian calculations is also available.

What can ISBA do?

To break into statistics education at the primary and secondary levels, we must crack the intro college course for nonmajors. This course drives the AP curriculum, which in turn drives the primary and secondary curricula. ISBA must take the lead. Here I propose some first steps.

1. Create a Teaching Section aimed at educa-

tion of students in primary and secondary school and undergraduates majoring in disciplines other than statistics.

2. Create a teaching resources repository that houses materials that teachers can freely and openly access.

3. Create a MOOC that models an undergraduate statistics course for non-majors.

4. Work on a facelift of the Berry textbook and write a textbook that takes students a step further.

5. Create a subgroup of the Teaching Section that petitions textbook companies and the College Board to include Bayesian thinking.

Teaching Resources Repository

Albert, J. (1995). Teaching inference about proportions using Bayes and discrete models. The Journal of Statistical Education, 3(3).

Albert, J. (1996). Bayesian Computation Using Minitab. Duxbury Press.

Albert, J. (1997). Teaching Bayes' rule: A data-oriented approach. The American Statistician, 51(3): 247-253.

Albert, J. (1993). Teaching Bayesian statistics using sampling methods and MINITAB. The American Statistician, 47, 182-191.

Albert, J. (1998). Using a sample survey project to compare classical and Bayesian approaches for teaching statistical inference. Journal of Statistical Education, 8(1).

Albert, J. (2000). Teaching inference about proportions using Bayes and discrete models. Journal of Statistical Education, 3(3).

Albert, J. and Rossman, A. (2001). Workshop Statistics: Discover with Data, A Bayesian Approach. Key College.

Barnett, V. and Barnett V. (1999). Comparative Statistical Inference. 3rd Edition. Wiley Series in Probability and Mathematical Statistics.

Berry, D. A. (1996). Statistics: A Bayesian Perspective, Duxbury Press.

Berry, D. A. (1997). Teaching elementary Bayesian statistics with real applications in science. The American Statistician, 51(3), 241-246.

Bolstad, William. (2007) Introduction to Bayesian Statistics, Wiley.

Carlin, G. and Louis, T. (2000). Bayes and Empirical Bayes Methods for Data Analysis. 2nd Edition, Chapman & Hall.

Fienberg, S.E. (1996). Teaching Bayesian approaches to legal thinking. Proceedings of the International Society for Bayesian Analysis.

Gelman, A., Carlin, J. Stern, H., and Rubin, D. (2003). Bayesian Data Analysis. 2nd Edition, Chapman & Hall.

Gelman, A. (1998). Some class-participation demonstrations for decision theory and Bayesian statistics. The American Statistician, 52, 167-174.

Goodman, S.N. (1999). Toward evidence based medical statistics: The Bayes factor. Annals of Internal Medicine, 130(12): 1005-10013.

Gigerenzer G. and Hoffrage, U. (1995). How to improve Bayesian reasoning without instruction: Frequency formats. Psychological Review, 102, 684-704.

Hively, W. (1996). The mathematics of making up your mind. Discover, May: 90-97. Hoff, Peter, (2009). A First Course in Bayesian Statistical Methods, Springer.

Howson, C. and Urbach, P. (1993). Scientific Reasoning the Bayesian Approach. Open Court.

Moore, D. (1997). Bayes for beginners? Some reasons to hesitate, The American Statistician, 51(3), 254-261.

O'Hagan, A., First Bayes, http://tonyohagan.co.uk/1b/

Parmigiani, G. (2002). Modeling in Medical Decision Making A Bayesian Approach. Wiley.

Sedlmeier, Peter (2001). Teaching Bayesian reasoning in less than two hours. Journal of Experimental Psychology: General, 130(3), 380-400.

Stangl, D., (1998). Classical and Bayesian paradigms: can we teach both? In Proceedings of the Fifth International Conference on Teaching Statistics, edited by L.

Pereira-Mendoza, L.S. Kea, T.W. Kee, W. Wong, International Statistics Institute, 1, 251-258.

Stangl, D. (2000). Design of an internet course for training medical researchers in Bayesian statistical methods. In Training Researchers in the Use of Statistics edited by

Carmen Batenero, International Association for Statistical Education.

Stangl, D. (2001). A case study for teaching Bayesian methods. In Proceedings of JSM 2001, ASA Section on Education.

Stangl, D. (2002). From testing to decision making: Changing how we teach statistics to health care professionals. In Proceedings of the Sixth International Conference on Teaching Statistics, International Statistics Institute.

Stangl, D. (2003). Do's and don'ts of teaching Bayesian methods to healthcare professionals. In Proceedings of JSM 2003, ASA Section on Teaching Statistics in Health Sciences.

Stangl, D. (2002). Teaching Bayesian statistics at many levels. In Proceedings of JSM 2002, ASA Section on Bayesian Statistical Science. ▲

TEACHING BAYES AROUND THE WORLD

TESTIMONIES ABOUT TEACHING BAYES AROUND THE WORLD

I contacted several researchers from different departments across the world asking them to give a brief description of how Bayesian methods are taught in their region or university. The testimonies that I received follow below. I thank all those who replied to my request.

Alexandra M. Schmidt
ISBA President, 2015

Michael Evans, Department of Statistics, University of Toronto, Canada

It is interesting to consider the current state of the teaching of Bayesian methodology. My knowledge is limited primarily to my own context and so these comments should be interpreted with that restriction in mind. Another relevant comment is that for me the word "Bayesian" simply means that inference is carried out in the context of a joint probability distribution on the model parameter and data and doesn't necessarily require the use of a loss function and formal decision theory or an appeal to coherency under a betting scenario.

Actually, I came to believe in the necessity of a Bayesian approach to inference through attempts, over many years, to teach introductory statistics (both calculus and non-calculus based versions) in a way that I believed was logically consistent. The only way I seemed to be able to achieve this goal was to add a proper prior to the ingredients. The importance of a logical foundation for inference, especially for students being introduced to the subject, seems without question. It is my impression, however, that while there have been changes in curriculum over the years, the primary approach to teaching introductory courses is definitely still non-Bayesian. In fact, I do not know of an introductory course that primarily approaches the material via Bayes. At best an introductory calculus based course includes some discussion of Bayesian methodology. The book Evans and Rosenthal (2004, 2010) Probability and Statistics: The Science of Uncertainty, W. H. Freeman includes a centrally placed chapter called Bayesian Inference so that students are exposed relatively early to this way of thinking about statistical problems. This text, or one with the same emphasis, is not used in all such courses at my university which has several campuses. It is the case, however, that upper level undergraduate courses and

graduate courses on Bayesian methodology are widely available on a fairly regular basis.

From a practical point of view it seems necessary that an introductory course on statistics include more than Bayesian methods as these are still not the most commonly used in applications. So there is no argument against teaching, for example, p-values and confidence intervals, but one can still wonder at the need to make these central. In fact, the Bayesian approach follows more naturally from a development of probability which usually occupies the first part of such courses. Certainly making Bayes central will also influence the way statistical analyses are carried out in the future by practitioners.

Also relevant to a discussion of teaching Bayesian methodology is the state of the non-calculus based introductory course. This course seems to be almost exclusively non-Bayesian. I would argue that it is this course that provides the ultimate test of how successful Bayesian approaches are at becoming the standard. Some may say that the mathematical requirements for Bayes are too high for these students. There is no reason, however, why the main concepts can't be introduced in very simple finite contexts with the more advanced situations covered by software and an appeal to intuition through approximations. Undoubtedly designing such a course is a challenging task as it requires a text that addresses this as well as the needs of the various disciplines that send their students to such courses.

So overall, while the teaching of Bayesian methods has increased over the years, my impression is that it is still taught primarily as a specialized topic and thought of by many as being somewhat outside the mainstream.

Dani Gamerman, Department of Statistical Methods, Federal University of Rio de Janeiro, Brazil

My first systematized contact with teaching happened when I returned home from my PhD. Since then I have been dedicating myself to the teaching of Statistics at both undergraduate and postgraduate always at UFRJ, with some exceptions associated with visits to other centers. Since that time until today, I believe that the teaching of Statistics should be presented in an integrated manner with the main approaches (frequentist and Bayesian) placed within the same context as they are intended to solve the same problems. How can this be accomplished? I will present our experience of a few decades adopting this philosophy. I must warn in advance the the report below of my experience is restricted to teaching Statistics for undergraduate and graduate students for the Statistics degree.

To begin with, it is important to have a documented basis to support and supplement student learning. This base is typically given by published books and the one we use at undergraduate level is Probability & Statistics by Morris DeGroot. Although it presented some important gaps in earlier editions, the central idea of the book is the almost simultaneous presentation of the methods and techniques of the two approaches. Latest editions (DeGroot and Schervish, 2011) have sought to remedy the gaps, and robustified this book as a sound base for learning Statistics. Some details are still missing (particularly in the Bayesian approach for testing hypotheses) but they can now be supplemented with easily available additional material.

For the graduate level, we developed teaching material based on our experience with the available literature. This was initially done with handwritten lecture notes, later systematized in digital format and finally materialized in a book. This book was first published in Portuguese and later in English, now in its second edition (Migon, Gamerman and Louzada, 2014). This book seeks to systematize more theoretically the same spirit that in our view guided DeGroot's book.

The result of this process is that no student of Statistics of UFRJ (both undergraduate and graduate) gets his degree without being exposed to the fundaments and techniques governing the two main points of view, with all their differences and similarities. Some of my colleagues argue that students, especially undergraduate, have no scientific maturity to apprehend the differences between the two approaches at once. They maintain that it is more prudent to present the two approaches separately, especially for students without good mathematical basis.

My personal experience recognizes the existence of this difficulty. But I believe it is much easier for the student to come out from the integrated learning process with a broader vision and greater capacity for reflection, and hence equip-

ped to be a better professional.

References

M. H. DeGroot and M. J. Schervish (2011). *Probability and Statistics* (4th Edition). Addison-Wesley: Boston.

H. S. Migon, D. Gamerman and F. Louzada (2014). *Statistical Inference: an Integrated Approach* (2nd edition). Chapman & Hall: Boca Raton.

Jaeyong Lee, Department of Statistics, Seoul National University, South Korea

The purpose of this report is to describe the education of the Bayesian statistics in South Korea. I need to confess up front that this report is not based on reliable numerical data, but on my personal experience. Nevertheless, I am acquainted with most of the people in South Korea who are in charge of Bayesian education in their institution. Thus, this report is not far from the reality. The nature of this report is more of the posterior mode rather than the posterior mean; in other words, it is a description of the places where most activities happen.

In South Korea, there are 189 universities and some 60 of them have statistics departments (or programs). The sizes of faculty in statistics departments range from 4 to 13. Relatively large departments have from 1 up to 3 faculty members familiar with Bayesian statistics.

These departments typically have one undergraduate and/or one graduate Bayesian courses. The audience of these courses consists of not only the students with statistics major but also those with other majors such as economics, mathematics, industrial engineering, electrical engineering, agriculture, biology and meteorology, etc. As statistics is popular with the big data boom, there are more students than ever who take statistics courses and accordingly Bayesian statistics courses. I guess these numbers will increase.

In the undergraduate course, popular textbooks include Gelman, Carlin, Stern & Rubin (2014), Hoff (2009), Kruschke (2010) and a couple of books written in Korean. A typical course material consists of the basics of Bayesian statistics, the parametric models with conjugate priors, Bayesian computation techniques, and the multiparameter models requiring Markov chain Monte Carlo. In the courses, the posterior analysis is done with Winbugs, JAGS or Stan. Among these software, Winbugs is used the most.

In the graduate course, the material covered is similar to that of the undergraduate course. But computation and theory are treated with more depth. For example, in the undergraduate course, Gibbs sampling, and Metropolis-Hastings algorithm are covered, but their implementation is through the Bayesian computation software. But in the graduate course, coding with R or high-level computing languages such as C, C++ or Fortran is required. The graduate course often covers advanced topics such as Bayesian nonparametric models or Bayesian asymptotics. This is the case where there is one ore more faculty members who are familiar with Bayesian statistics. But in other universities, there is no Bayesian statistics course.

In rare occasions, Bayesian statistics is treated partly in other statistics courses such as mathematical statistics or statistical computing. In most universities, there exists no Bayesian education outside of statistics department. An exceptional case is Seoul National University where there are a few Bayesian experts outside statistics departments. For example, in the School of Computer Science Bayesian statistics is taught in the artificial intelligence and the machine learning courses in both undergraduate and graduate programs. In the Department of Political Science and International Relations, the Bayesian statistics is taught in Methods of International Relations, a graduate course covering the basic statistics concepts. In other universities, there are methodology courses, outside the statistics department, that cover statistics, but the Bayesian statistics in these courses are not mandatory. The Bayesian statistics is covered in rare cases when the lecturer is familiar with Bayesian inference.

In summary, major universities with relatively large statistics departments have one or two Bayesian statistics courses. But the number of these universities is small. Large number of universities don't have any Bayesian statistics courses. In fact, many of them don't have even statistics department. Outside the statistics departments, there is no Bayesian education with a few exceptions.

References

Gelman, A., Carlin, J. B., Stern, H. S. & Rubin, D. B. (2014). *Bayesian data analysis*, Vol. 2, Taylor & Francis.

Hoff, P. D. (2009). *A first course in Bayesian statistical methods*, Springer Science & Business Media.

Kruschke, J. (2010). *Doing Bayesian data analysis: A tutorial introduction with R*, Academic Press.

Manuel Mendoza, Statistics Department, Instituto Tecnológico Autónomo de México, Mexico

The interest on the Bayesian approach to statistical inference has been growing over the years in Mexico, both among statisticians and professionals of other areas who use the statistical methods. As a consequence, not only an increasing number of academic programs are willing to include a course on Bayesian Statistics but also different research groups are interested in short practical training courses on Bayesian methods.

I have been teaching Bayesian statistics in Mexico for more than 25 years. The courses are mostly part of graduate and undergraduate programs in Mathematics, Statistics, Actuarial Sciences and Economics. Not so often, I have also enjoyed the opportunity to teach short courses on this subject for Biologists, Health Scientists and colleagues from other fields.

The introductory course has three parts. First, we review the basic elements of decision theory, discuss the coherence axioms and, on that basis, the principle of maximum expected utility is derived. In the second part, the usual problems of parametric inference, including prediction, are identified as decision problems and the general solution for each problem is discussed. The use of the Bayes rule as a learning mechanism is introduced along with some, simple, examples. There, the role, interpretation, and the importance of the prior distribution as well as the utility (loss) function are carefully emphasized. The third part reviews the likelihood principle, the property of sufficiency and the construction of conjugate priors. The idea of a noninformative prior is also introduced and several methods to obtain this type of priors are discussed. This part includes a collection of specific problems where the results are compared with its frequentist counterpart, and, in particular, the test of precise hypothesis is discussed. The computation challenges involved in the Bayesian approach are illustrated and the MCMC simulation methods are introduced. Other courses are designed to illustrate the Bayesian analysis of more elaborated structures. Thus, we review hierarchical models, linear regression models, time series models and several others topics, according to the specific audience. The modeling process as well as the inference are discussed and the students become familiar with some computation tools as R, Winbugs, OpenBugs or JAGS.

Students attending a Bayesian course have already taken one previous course on (frequentist) statistics and often, other courses on statistical methods. The general reaction to the Bayesian ideas is not only of interest but most of the time with great enthusiasm. The more mathematically-oriented students find the axiomatic foundations of inference particularly important; as some of they say: 'now Statistics makes sense'. Most of them are also very interested in applications, specially on non-trivial ones. As for the students whose main interest is on data analysis, they usually become familiar with the computation tools very rapidly and explore the results that they can get with astonishing success. It sometimes happens however, that some of these students see at the end, the Bayesian analysis as a computational algorithm where they can input their model and data to get a posterior distribution. For these type of users, not only the idea of a Theory of Inference become irrelevant, but even a careful elicitation of the prior distribution lacks of importance since they feel that it is just as an starting point of an iterative mechanism whose final result generally does not depend on it. This attitude towards Bayesian statistics appears, even more often, among professionals of other areas who have a rather imprecise idea of what the Bayesian analysis is and are looking for a rather automatic and powerful mechanism to obtain inferences.

Under these circumstances, the main concern I have when teaching a course on Bayesian statistics, in particular when the goal is to provide the audience with the tools to develop real applications, is to include a careful discussion on the foundations. Most of the time however, this discussion is very brief and, in order to reinforce these ideas, I use readings and exercises.

I have also seen cases where the instructor of the course is not a Statistician but a researcher who asks for recommendations to design the course. If she/he is not familiar with the foundations it might be difficult for her/him to make this section of the course really useful.

As an alternative, I have found that other way to make the users of the Bayesian machinery to understand the danger of applying it just like a black box, is to show specific cases where the results can be misleading (the results depend on the conventional prior suggested by the R package, or even worse the simulation does not converge, for example). Usually these examples cause great impact on the users. In this sense, a collection of interesting, real, applications where this kind of problems appear (among others), might be of great value for those teaching a course on Applied Bayesian Statistics, no matter if they are Statisticians or not. I wonder if it could be possible to have access to a resource like this in the future through the ISBA web page, for example.

Yasuhiro Omori, Faculty of Economics, University of Tokyo, Japan

In Japan, usually, those who study statistics belong to various departments such as economics, mathematics, engineering and so forth since there is only one department of Statistics (at Institute of Statistical Mathematics), which is intended for graduate students. The professors of statistics also belong to these departments, and there are at most several professors at each department. Thus, I suppose that it will be difficult to teach Bayesian statistics every semester. To improve this situation, it is necessary to establish statistics departments and some are trying to establish one department in a local city in 2017 (Shiga Prefecture). If we could continue to establish more statistics departments, the situation may be improved. For the moment, in my opinion, ISBA 2012 meeting in Kyoto was a very good opportunity to stimulate young Japanese scholars to study Bayesian Statistics. Since it is difficult to host Bayesian meeting every year in one country, it may be a good idea to launch Asia-Oceania ISBA Workshop (small workshops to reduce the work for hosting the meeting) every year.

Lizanne Raubenheimer, Department of Statistics, Rhodes University, South Africa

Most of the universities in South Africa still follow the traditional way of teaching Statistics, where Bayesian methods are only taught at the third year and post-graduate levels. As a student, at the University of the Free State, I was introduced to Bayesian Statistics at the second year level, where some of our third year and post-graduate modules also included topics on Bayesian Statistics. At Rhodes University, the students who major in Mathematical Statistics, take a module on Bayesian Statistics in their third year and a module in Bayesian Statistics at the post-graduate level. Typically the Bayes' rule will just be mentioned in a second year class. We offer service courses to students in Commerce, Pharmacy, and Science, but these service courses are still offered in the traditional frequentist way. Here I agree with Berry (1997), where he said "The Bayesian approach is easy to teach to students in elementary statistics courses" and "Students are well served by the Bayesian approach, and indeed they come to understand the frequentist concepts of confidence intervals and P values better than do students exposed only to a frequentist approach". There are too many students (and sadly academics) out there using the Bayesian interpretation for frequentist intervals. I do think we should introduce the Bayesian school of thought in our first year service courses. As Bolstad (2002) said "Introduction to Bayesian Statistics should be an alternative to the standard Introduction to Statistics first year service course. Most students only take one statistics course. This is our one opportunity to engage them."

References

Berry, D. A. (1997). *Teaching Elementary Bayesian Statistics with Real Applications in Science*, The American Statistician, 51(3), 241-246.

Bolstad, W. M. (2002). *Teaching Bayesian Statistics to Undergraduates: Who, What, Where, When, Why, and How*, ICOTS6, http://iase-web.org/documents/papers/icots6/3f2_bols.pdf.

Mike So, HKUST Business School, Hong Kong University of Science and Technology, Hong Kong

Institutions of higher education in Hong Kong generally teach Bayesian Statistics (BS) in applied mathematics, mathematics, and statistics departments and in business schools. We may be the only school offering a course dedicated to BS. Over the years, the enrollment has not been particularly strong. The course topics range from standard prior and posterior analyses, through the use of BS to solve business problems, to statistical computational techniques related to BS. The course is well-received by students, many of whom later pursue a higher degree in statistics. In our business school, BS tools are welcomed by many postgraduate students who may use BS in their research. However, the statistical background of general business school students, especially undergraduates, is not very strong and it is hard for them to distinguish between frequentist and Bayesian approaches. Furthermore, as the BS course is listed as an elective, students do not have an incentive or strong motivation to learn the Bayesian paradigm. In my courses, BS is introduced in business cases to address issues such as asset allocation, risk management, environmental science, and business analysis problems. It is thus part of traditional statistics or business-oriented courses. Frankly, we can do more to promote the use of BS in business schools, especially given the rapid development of big data and business analytics in the business world. If we can demonstrate the relevance of BS to business decisions and real problems using case studies, students will appreciate the opportunity to learn the techniques. In addition, if we can promote BS to practitioners, the importance of BS can be realized by companies and thus will have influence our students' perceptions of BS.

In other universities in Hong Kong, BS is included in traditional statistics courses, like business statistics, introduction to probability or statistical inference; BS forms about 15-30% of these courses. Based on an informal survey of six universities in Hong Kong, BS plays a significant role in two main streams of academic majors. One is actuarial science/insurance/statistics and the other is operations management/engineering. BS makes up a substantial component of courses in computational statistics, credibility theory, decision analysis, reliability analysis, etc. These courses draw only a small percentage of the students whose majors are related to statistics, indicating that there is much room to expand the popularity of BS in statistical education in Hong Kong. BS is more popular in postgraduate courses. There is a large stream of research in statistics where Bayesian methodologies are developed and Bayesian computational methods are enhanced, and BS tools are becoming important in business, engineering, and biomedical research. Cross-disciplinary examples showcasing the business, engineering, medical, and scientific uses of BS to students and companies would create more interest in BS and stimulate job opportunities. Linking BS to understandable cases and demonstrating the uses of BS in business will increase student interest in the role of BS in a financial hub like Hong Kong.

John Silander, Department of Ecology & Evolutionary Biology, University of Connecticut (UCONN)

Perceptions on how Bayesian inference is taught to students of Ecology and Evolutionary Biology:

Ecology as a discipline came late to appreciating the advantages of Bayesian approaches applied to statistical model development and data analyses. It was not really until about 2010 that one began to see more than a handful of papers being published in the ecological literature embracing Bayesian methods; the related fields of genetics and evolution came to this earlier. In ecology at least, there was initially a fair amount of pushback from those with strong frequentist perspectives.

From the instructional perspective the problem remains that there are few venues for effectively introducing students (graduates or undergraduates) to Bayesian perspectives and methods early on. The typical biometry course (which is the usual entry point for most ecology and evolutionary biology (EEB) students) almost universally focuses on frequentist methods, rarely if ever mentioning Bayes; this also seems to be the case with most introductory stats courses. Here at UCONN, a number of our graduate students take the one-year graduate-level Applied Statistics course in the Stats department, and it seems that Bayes is rarely if ever mentioned. Indeed my perception is that in most statistics curricula, Bayesian methods are brought in only after students already has a number of courses under their belt. But it strikes

me that Bayesian perspectives and methods could be introduced from the start; indeed, from an intellectual perspective as scientists, we actually think and do science as Bayesians, so this all makes sense.

Looking at the introductory texts that are available, there are few to be found that start with Bayes. Berry's 1995 text "Statistics: a Bayesian Perspective" does not strike me as quite what one would like to see, and moreover, it is now 20 years old. Bolstad's 2007 "An Introduction to Bayesian Statistics" looks to be a more effective introduction. But I have no idea whether these, or other texts, have been effectively used in many introductory courses. [Incidentally I see that Bolstad offers a month-long introductory Bayesian course on-line] For EEB students looking for an introduction to Bayesian methods, I have recommend McCarthy's 2007 book "Bayesian Methods for Ecology". This book provides an overview of the Bayesian perspective, and shows frequentist versus Bayesian approaches in side-by-side, worked examples; this works well for students learning on their own from the start.

But, these introductory books don't begin to get at the heart of the Bayesian advantage - Hierarchical models. From my perspective this only comes to EEB students via tutorials and plenty of hands-on experience working with their advisors (given that the advisor is well versed in HB), with more senior graduate students and post-docs well-versed in HB, and paired with faculty and graduate students in Statistics for that necessary reality check that they are on the right track. This can be a time consuming process, and from what I can tell, is pretty rare in other EEB programs around the country. I can attest to the fact that this is the way I learned Bayesian approaches and HB methods; indeed a mentoring relationship with colleagues in Statistics was critical. More recently with the blossoming of 'R' scripts, it has become admittedly become a bit easier.

In my department at UCONN, we are fortunate (and pretty unique) to have at least 4 faculty members who are versed in Bayesian methods and have some familiarity with HB in particular, and we are fortunate to have colleagues in Statistics with whom we collaborate. In consequence we have all had excellent success in producing landmark papers in our disciplines and training some very competitive graduate students and post-docs in the academic job market who have landed tenure track jobs at top universities around the country.

Ecology's main scientific society, ESA, has run some 1-day short courses at their annual meetings on Bayesian methods, indeed some of my students and post-docs have been involved in running these courses in past years. For example, here is a link to an ESA short course offered at the annual meeting in 2014. Unfortunately these 1-day courses are barely enough to get participants started on thinking about HB modeling. And it seems that these short courses are always the same "an introduction, rather than building momentum." Moreover, to be effective and sustainable and to establish a culture of Bayesian methods there has to be follow-up mentoring. Alternatively, I see just now that there are some on-line courses (typically month-long) in Bayesian methods including HB. I have no experience with these courses (indeed `www.statistics.com` is new to me), nor any idea how successful these may be, but they are quite inexpensive, build on each other, and may provide good venues for both introducing students to Bayesian methods and for developing some experience with HB methods in particular.

But again for ecologists and evolutionary biologists there will inevitably need to be mentoring opportunities to make these efforts sustainable. Some follow up with more tailor-made short-courses for different, more specialized audiences (e.g. ecologists, evolutionary biologist, etc.) might augment the sustainability of these efforts. Also once one becomes minimally proficient with HB modeling, there should be wider opportunities for ecologists and evolutionary biologists to brush up on new advances in the field, and forums for addressing persistent modeling challenges and cutting-edge problems.

Maria Antónia Amaral Turkman, Centre of Statistics and its Applications, University of Lisbon, Portugal

It is difficult to tell precisely when was the first time the teaching of Bayesian Statistics, or better, the teaching of Bayesian ideas, was introduced at the universities in Portugal. However, I think I would not be wrong if I say that it started at the School of Economics of the Technical University of Lisbon (now ISEG), during the sixties or seventies, with Bento Murteira, within the context of courses on decision theory. Still today, in the

undergraduate degree on Mathematics Applied to Economics and Management from that school, the principles of Bayesian statistical modelling are taught within the course on Statistical Decision. The first undergraduate and postgraduate degrees, on the area of Statistics, were created in Portugal in 1981, at the Faculty of Sciences of the University of Lisbon (FCUL). At those times I used to give an introduction to Bayesian Inference as part of the syllabus of a course on Statistical Inference. I also ventured to teach Bayesian Statistics, at a more advanced level, within a course on Methodologies of Statistics, integrated in the M.Sc. degree on Probability and Statistics at that University. It took however a long time till Bayesian Statistics started to be taught as an independent course at FCUL (at the end of the XX century) and at other universities throughout Portugal. Nonetheless, those were the seeds that allowed the development and growth of research and consequent teaching of Bayesian Statistics in Portugal.

Nowadays, elementary ideas of Bayesian inference are introduced in some of the undergraduate degrees in Mathematics, or Applied Mathematics, throughout the country, as part of the syllabus of courses in Statistics, Statistical Inference, or Mathematical Statistics, with more or less deepness, but where classical statistics is always the dominant methodology. More advanced and serious teaching of Bayesian Statistics, giving particular attention to the computational aspects and use of adequate software, is done at the level of M.Sc. or Ph.D. Indeed, there are some universities who offer in the portfolio of their M.Sc. degrees in Statistics, a course on Bayesian Statistics, (FCUL, University of Minho, Open University) and others where Bayesian Inference, Computational Bayesian Statistics or Bayesian Methods are taught at Master degrees in Mathematics and Applications, within courses such as, Mathematical Statistics (IST - University of Lisbon), Biomedical Statistics (IST - University of Lisbon, and FCT - Nova University), Computational Statistics (FCUL and University of Aveiro), Bioinformatics (University of Porto), Statistical Methods in Bioinformatics (M.Sc. in Bioinformatics and Computational Biology, FCUL). As far as I know, at the Ph.D. level, Bayesian Statistics is usually taught in a tutorial mode (e.g., at Nova University, University of Aveiro), due to the reduced number of students who pursue research in that area. At FCUL, for instance, and at the request of the supervisor, Ph. D students may be asked to attend the course on Bayesian Statistics which is offered to the master students. However, I was informed that this year (2015/2016), there will be a course, integrated in a joint Ph.D. program in Mathematics and Applications (Universities of Minho, Aveiro and Porto) where Bayesian Inference will be formally taught.

Outside the areas of Statistics and Mathematics, particularly in the areas of Biology, Ecology, Computer Sciences, Bioinformatics and Medicine, there is, among the Portuguese academicians, quite a lot of awareness of the importance of the Bayesian methodology in their areas of research, with a consequent interest in integrating Bayesian ideas in their teaching portfolio. Several years ago, Bayesian Inference was part of the program of Advanced Courses on Bioinformatics, taught at the Gulbenkian Institute of Sciences (IGC). Also at the Faculty of Medicine, University of Porto, there are courses on Bayesian Networks in Medicine and Bayesian Models in Clinical Research and Decision Support, offered on a yearly basis, to professionals, researchers or students in the areas of Health, Information Sciences, Mathematics and Statistics. Besides this, some universities, departments and research units, organize on an irregular basis, short courses where several aspects of Bayesian Statistics are of concern. These are given, either by Portuguese researchers, or by internationally recognized researchers on Bayesian Statistics.

Without trying to be exhaustive in my description and apart from general courses on Bayesian Inference, there were courses offered on Bayesian Nonparametric Statistical Methods, Bayesian Computing with INLA, Bayesian Modelling and Inference with Gaussian Markov Random Fields, Bayesian Dynamic Models in Time Series, Bayesian Model Selection and Generalized Linear Models, Bayesian Data Analyses with R and WinBUGS, Spatial and Spatial Temporal Modelling of Small Area Disease Rates, etc. Symptomatic of the growing interest in Bayesian Statistics in Portugal, is the fact that the short course offered by the Portuguese Statistical Society during its XXII Congress, this year at the beginning of October, is precisely on “Introduction to Computational Bayesian Statistics”. ▲

SAVAGE AWARD AND MITCHELL PRIZE 2014

2014 ISBA Awards and Prizes

- Subhashis Ghoshal -
Chair of ISBA Prize Committee
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ISBA awards and prizes for the year 2014 were presented in the reception ceremony of the Section on Bayesian Statistical Sciences of the American Statistical Association on August 11, 2015, during the Joint Statistical Meeting in Seattle, WA. This year only the Savage Award for the best theses on Bayesian Statistics and the Mitchell Prize for solving an important practical problem were given. The winners of the Savage Awards, one in the Theory and Methods category and one in the Applied Methodology category, were each awarded checks of $750 value. There were two additional honorable mention in the former category and one additional honorable mention in the latter category. All five winners and honorable mentions received certificates of their achievements. The Mitchell Prize was given for a paper with three co-authors. They received a check of $1,000 value split among them and all three coauthors also received a plaque for their achievement.

Below the winners and honorable mentions for the Savage Award and the Mitchell Prize are given.

Savage Award – Theory and Methods

Winner: Vinayak Rao
Title of Thesis: Markov chain Monte Carlo for continuous-time, discrete state systems
Advisor: Yee Whye Teh
Institution: University College London, U.K.
Citation: For delivering important methodological breakthroughs with continuous time state space models by a clever use of the uniformization technique

First honorable mention: Veronika Rockova
Title of Thesis: Bayesian variable selection in high-dimensional applications
Advisors: E. M. E. H. Lessafre and B. Lowenberg
Institution: Erasmus University Rotterdam, The Netherlands
Citation: For advancing high dimensional regression and factor analysis methods with a novel and versatile family of EM algorithms for efficient variable selection

Second honorable mention: Sayantan Banerjee
Title of Thesis: Bayesian inference for high dimensional models; convergence properties and computations issues
Advisor: Subhashis Ghoshal
Institution: North Carolina State University, U.S.A.
Citation: For a rigorous and interesting theoretical treatment of high dimensional precision matrix simulation

Savage Award – Applied Methodology

Winner: Christine Peterson
Title of Thesis: Bayesian graphical models for biological network inference
Advisor: Marina Vanucci
Institution: Rice University, U.S.A.
Citation: For the development and application of informative priors within graphical models in biological network problems

Honorable mention: Masanao Yajima
Title of Thesis: Bayesian Modeling of interactions of structured heterogeneous data
Advisors: Jan de Leeuw and Donatello Telesca
Institution: University of California, Los Angeles, U.S.A.
Citation: For beautiful contributions to Bayesian pharmacogenetics studies and Bayesian analysis of biomolecular pathways

Mitchell Prize

Winners: Nimar S. Arora, Stuart Russell, and Erik Sudderth

Title of Paper: NET-VISA: Network processing vertically integrated seismic analysis

Publication reference: Bulletin of the Seismological Society of America, Volume 103, pages 709–729 ▲

BAYESIAN ANALYSIS - A MESSAGE FROM THE EDITOR

UPDATE FROM BA

- Marina Vannucci -
Editor-in-Chief
marina@rice.edu

The Sept issue of Bayesian Analysis (Volume 10, Number 3) was published in final form at the beginning of September and is available at the journal website under the "all issues" tab. It features a discussion paper by Gustavo da Silva Ferreira and Dani Gamerman on "Optimal Design in Geostatistics under Preferential Sampling". The paper analyses the effect of preferential sampling in Geostatistics when the choice of new sampling locations is the main interest of the researcher. A Bayesian criterion based on maximizing utility functions is used. Simulated studies are presented and highlight the strong influence of preferential sampling in the decisions. The computational complexity is faced by treating the new local sampling locations as a model parameter and the optimal choice is then made by analysing its posterior distribution. Finally, an application is presented using rainfall data collected during spring in Rio de Janeiro. The manuscript is published together with three invited discussions, followed by a rejoinder. The issue also contains other fine articles on various topics of Bayesian statistics.

The December issue of BA (Volume 10, Number 4) is being assembled as "first online" and it is available under the "current issue" tab on the journal website. The issue will feature papers presented at the 2014 ISBA World Meeting.

Thanks to the new Production and Editing systems we have adopted at Bayesian Analysis, accepted articles are now available at the journal website under the "advance publication" tab, and journal issues are assembled 'live'. We hope that the new production system will allow readers to read articles in a timely manner and to cite them appropriately. I encourage BA authors to consider paying the voluntary article charges, to help defray the costs of hosting the journal on Project Euclid and the added costs of the new production system.

Finally, just a reminder that there will be an invited session at the ISBA 2016 conference which will feature a BA paper, to be chosen by the EiC in late November among those accepted for publication (and not yet published in final form). The paper will be discussed at ISBA 2016 and published after the conference, in the Sept 2016 issue of BA, with discussions and rejoinder.

Thanks for your support of the Journal! ▲

ISBA - SECTIONS

BAYESIAN NONPARAMETRICS SECTION

- Antonio Lijoi -
Chair
lijoi@unipv.it

North Carolina has been at the center stage of the Bayesian Nonparametrics community last June. Indeed, the 10th Conference on Bayesian Nonparametrics has taken place in Raleigh, at North Carolina State University. This is the main event in the field that gathers authoritative experts and talented young scholars who are significantly contributing to the advances of Bayesian nonparametric theory and applications. About 200 participants have joined the conference. The local organizing committee has done a terrific job and its invaluable efforts have made it possible to run a successful scientific event. The comittee was headed by Subhashis Ghosal (NCSU) and included David Dunson (Duke), Katherine Heller (Duke), Li Ma (Duke), Brian Reich (NCSU), Surya Tokdar (Duke) and Hongtu Zhu (UNC). The scientific program was set up by the scientific committee formed by Ismael Castillo (Université Paris 7), Emily Fox (University of Washington), Alejandro Jara (Pontificia Universidad Católica de Chile), Jaeyong Lee (Seoul National University), Antonio Lijoi (University of Pavia), Yee Whye Teh (University of Oxford), Surya Tokdar and Aad van der Vaart (chair, Leiden University). The three keynote speakers were: Harry van Zanten (University of Amsterdam) who presented some results on asymptotic properties of priors for learning smooth functions on graphs; Emily Fox who discussed about some challenging issues in scalable modeling and inference for data with complex dependencies; Igor Prünster (University of Torino) whose talk was on new theoretical results for dependent random measures. Besides the three plenary talks, there have been 8 invited sessions, 14 contributed sessions and 2 poster sessions. All of them shared vivid and fruitful discussions and the whole conference has provided an effective overivew of hot topics and newest trends in the field. The slides of the talks will be soon made available through the conference website. The social dinner was held at the North Carolina Museum of Art, whose permanent exhibition displays a number of masterpieces of European and American art: a place definitely worth visiting if you happen to be in Raleigh. And one of the highlights of the night certainly was David Dunson's entertaining "*Stroll through nonparametrics Bayes*" with his personal ranking of the 10 most "influential" BNP papers!

Both ISBA and the Bayesian Nonparametrics Section of ISBA have contributed to the conference by issuing seven travel support grants to young participants who presented either a poster or a talk. This year the awardees were

- *Matthew Edwards*, 3rd year PhD student at the University of Auckland, New Zealand.
- *Fengnan Gao*, 3rd year PhD student at the University of Leiden, The Netherlands.
- *Maria Lomeli*, 4th year PhD student at the University College London.
- *David Mensah*, 4th year PhD student at the National University of Singapore.
- *Zacharie Naulet*, 3rd year PhD student at Paris Dauphine and CEA Saclay, France.
- *Yordan Raykov*, PhD student at Aston University, UK.
- *Claudia Wehrhahn*, PhD student at Pontificia Universidad Católica de Chile.

Following a recent tradition of BNP conferences, an additional program has been held the week after the meeting. On this occasion David Dunson (Duke), Katherine Heller (Duke), Brian Reich (NCSU) and Surya Tokdar (Duke) have organized a SAMSI research program on *Bayesian Nonparametrics: Synergies between Statistics, Probability and Mathematics*, which has featured seminars, panel discussions and breakout discussion groups. Research in BNP naturally inserts itself at the interface of Statistics, Probability, Computer Science and Applied Mathematics and the program has reflected such a feature. Its primary aim was to facilitate interaction between leading experts and graduate students and young researchers in BNP and has focused on topics related to multiresolution methods, high-dimensional analysis and statistical emulation and computation.

Now the baton passes to Judith Rousseau (Université Paris Dauphine) who will lead the team organizing the next 11th BNP conference in Paris.

Good luck! And if anyone is interested in organizing the 12th BNP conference in 2019, please contact the BNP Section Program Chair, Alejandro Jara: given the increased crowd willing to participate to BNP events, it is not too early to start thinking of it.

Thanks to all participants for making the 10th BNP conference such a great meeting. And I'm sure we are all looking forward to the next meeting in Paris in 2017! ▲

IV LATIN-AMERICAN MEETING ON BAYESIAN STATISTICS

IV COBAL: Honoring the life of Francisco Torres Avilés

- Luis Pericchi -
luis.pericchi@upr.edu

From July 01 to July 04 2015, Latin-American Bayesians met in Medellin Colombia under the auspices of the Technological Metropolitan Institute ITM and the National University of Colombia at Medellin with the Co-Sponsorship of ISBA who funded 6 junior travel support grants. Three of these young researchers were selected as speakers in the Young Research Session. The COBAL IV scientific program also included 6 plenary conferences, 3 short courses, the presentation of 22 posters and 11 short presentations. Details can be found in http://www.medellin.unal.edu.co/~cobal/.

The meeting was very successful with 108 participants, among them 55 students, 6 professionals and 47 researchers, from Brazil, Colombia, Chile, Mexico, Spain and USA. Most interesting was the participation of faculty and students from several Colombian institutions.

The Latin American Bayesians meet at the end of the meeting and decided to organize COBAL V, in 2017 in Guanajuato CIMAT Institute, Mexico. Andres Christen and Leticia Ramirez will be local organizers. We also decided to promote a general discussion on the formation of a new chapter of ISBA in Latin America.

The meeting was in honor of our dear Chilean colleague, and secretary of the scientific committee, Francisco Torres Avilés, who passed away while visiting University of San Carlos Brazil. Our meeting owns deeply to Francisco.

Local Committee: Carlos Barrera Chair, Juan Carlos Salazar Uribe, Isabel Cristina Ramírez Guevara, Víctor Ignacio López Ríos

Scientific Committee: Luis Pericchi (chair), Francisco Torres Avilés (secretary), Edilberto Cepeda, Eduardo Gutiérrez Peña, Gonzalo García Donato, Juan Carlos Correa Morales, Manuel Mendoza, Rafael Borges Peña, Rosangela Helena Loschi. ▲

NEWS FROM THE WORLD

Announcements

13th Brazilian Meeting on Bayesian Statistics (XIII EBEB)

The XIII Brazilian Meeting on Bayesian Statistics (EBEB) will be held at the Universidade Federal de Minas Gerais, in Belo Horizonte, Brazil, on 22-26 Feb, 2016. The meeting is organised by ISBrA (Brazilian chapter of ISBA) and aims to integrate the Brazilian and international Bayesian communities.

The 13th edition will have 11 plenary speakers working on different fields from both academy and industry. There will also be 6 invited young researchers and 2 short courses.

The list of plenary speakers include: Emily Fox (Washington), Robert Kohn (New South Wales), Helio S. Migon (UFRJ), Carlos A. B. Pereira (USP), Raquel Prado (Santa Cruz), Gareth Roberts (Warwick), Fernando Quintana (PUC-Chile), Steven Scott (Google), Jim Smith (Warwick), Stephen Walker (Texas), Mike West (Duke).

The list of invited young researchers include: Osvaldo Anacleto (Edinburgh), Lilia C. C. Costa (UFBA), Thais C. O. Fonseca (UFRJ), Rafael Izbicki (UFSCAR), Vinícius D. Mayrink (UFMG), Thaís V. Paiva (UFMG).

The short courses are: Introduction to Bayesian non-parametric inference, by Vanda Inácio (PUC-Chile); Finance risk management, Actuarial Sciences and Bayesian Statistics, by Manuel Mendoza (ITAM, México).

Bayesians around the world are invited to submit their work for oral or poster presentation. The meeting's official language is English and everyone is welcomed to attend and interact with the Brazilian Bayesian community.

Registration is now open! In order to register and also for further details, please visit www.redeabe.org.br/ebeb2016. Do not hesitate to contact us for further information and general inquiry.

The meeting will take place one week after the Carnival. So you may consider a longer visit to Brasil to include it. Either way, do come and join us for a few days of fun and work, with or without the Carnival. We look forward to be host to national and international visitors from Brazil and elsewhere.

We hope to see you all in EBEB 2016!

Flávio B. Gonçalves (ISBrA President and Chair of the Organizing Committee) & Dani Gamerman (Chair of the Scientific Committee) ▲

Member News

Sir Adrian Smith to Receive Honorary Degree from The Ohio State University

The Ohio State University will be awarding an Honorary Degree to Sir Adrian Smith at its Autumn Commencement in December 2015. The Doctor of Science degree is one of Ohio State's highest honors. It will be awarded to Dr Smith in recognition of his distinguished career as an academic researcher and his public service.

Dr Smith's work has had an extraordinary impact on the Bayesian community. A few of the many highlights include his work on the hierarchical model and Gibbs sampling, his prominent role in the Valencia meetings, his translation of de Finetti's *Theory of Probability*, and his tireless advocacy of Bayesian methods. He has had an enormous impact on students and young researchers. His page on Mathematics Genealogy lists 42 students and 145 descendants, many of whom are household names. The striking clarity of his views on the motivation for and benefits of Bayesian methods have brought many into our fold.

Dr Smith's connection to Ohio State is strong. He visited the Department of Statistics during the winter of 1991. During his stay, he taught what is believed to be the first formal course on Markov chain Monte Carlo sampling methods for Bayesian inference. In conjunction with his visit, the department hosted the first conference on MCMC methods in February 1991—a meeting which is well remembered by all who attended. ▲

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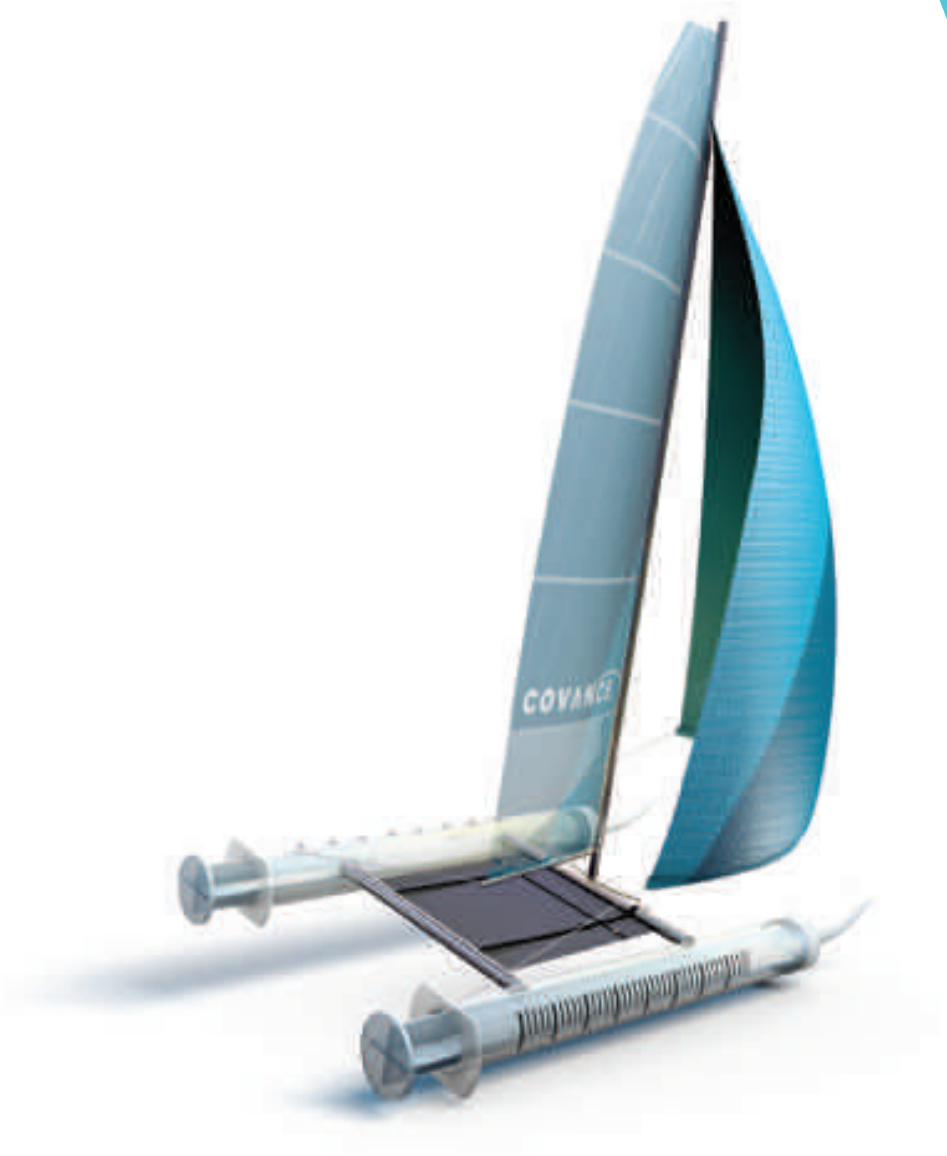

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