

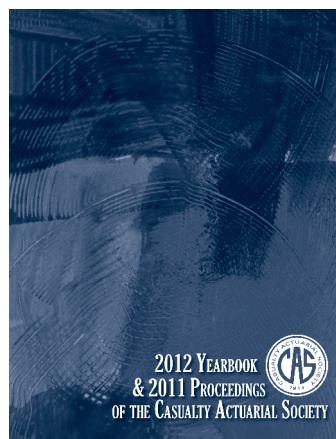
# The Actuarial Review

THE NEWSLETTER OF THE CASUALTY ACTUARIAL SOCIETY • VOLUME 39, NUMBER 2 • MAY 2012

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*The 2012 Yearbook/ 2011  
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The 2013 RPM Seminar is scheduled for March 11-13, 2013, at the Hyatt Regency Huntington Beach Resort & Spa in Huntington Beach, CA. Contact Megan O'Neill at the CAS Office at [moneill@casact.org](mailto:moneill@casact.org) or (703) 562-1742 for details on sponsorship opportunities for the 2013 event. 

# Setting a Bold Course for the Future of The CAS



**W**hen I assumed responsibility as president-elect, and then president, I anticipated that my terms would be quiet ones. Events of the past few weeks and months demonstrate that these will be anything but quiet years for the CAS. I am prepared to meet the challenges, with your help.

Some have characterized me as a “shark”; I consider that a compliment. Let it be clear that my interests in the CAS are foremost, and I can be as aggressive as I need to be in protecting the interests of our Society against threats to its continued viability. While I would prefer to operate in a collaborative environment, I will protect the CAS with the same ferocity that a lioness protects her cubs. I have a vested interest in our continued success.

That being said, when I assumed responsibility as president-elect of the CAS, I considered inertia, or complacency, as our most significant threat. Our members, and our Society, had become too inward-focused, slow to adapt to change, slow to innovate. I saw my mission within CAS leadership to be an advocate for an energized view of the possibilities for the CAS. That energized view would be critical to realizing the CAS’s full potential as a professional Society.

Don’t get me wrong. As the only actuarial organization in the world exclusively devoted to property/casualty risks, the CAS is—and will continue to be—in a very strong position. Our market is dynamic and growing; opportunities abound. Further, skills learned in the general insurance arena can easily be applied more broadly, expanding both the breadth and the depth of opportunities available to casualty actuaries. No wonder we face increased competition, both from within the actuarial profession and from others!

I believe the CAS educational process offers the best and most comprehensive foundation for actuarial practice in the casualty field. It provides a solid grounding in relevant technical skills as well as hands-on experience in applying those skills to inform business decisions. Where appropriate, with the full cooperation of the respective national actuarial organizations, it offers nation-specific content that prepares actuaries for practice in

their home jurisdictions.

Most importantly, the CAS offers our members a strong sense of community, wherever in the world they may be living and working. While our membership is quite varied, CAS members share a common bond and common interests. We are a highly motivated and engaged group of professionals. At our core, we are professionals.

We bring integrity to our work. We know that our profession will be judged by our weakest link, and we work actively to ensure that our members bring their absolute best to their principals and to the public. We have a vigorous counseling and discipline process. Through our Code of Professional Conduct, each of us has a responsibility to ensure the quality of the work that is delivered by all casualty actuaries.

Our principals know and respect the quality of our work. They value our technical insights, our business acumen, yet they challenge us to work harder. Employers recognize that, as our Society grows one size does not fit all. Some of us choose to pursue more technical routes, while others of us opt for more general business roles. In each of these roles, our employers encourage us to think big. On the technical front, they encourage us to continue to improve our techniques, incorporating innovations from other fields and professions, and be quicker to adapt emerging practices in other industries for our work. On the general business front, they encourage us to hone our team-building, communication, and resource management skills.

For our Society, they encourage the CAS to innovate within our education framework, maintaining relevance while achieving greater efficiency and effectiveness. They caution that, as their businesses become more global, the CAS must extend the borders of its reach. They ask why the CAS does not advance more relevant research on issues that are critical to their businesses or advocate more vociferously on public policy issues affecting the casualty insurance business.

In an increasingly competitive environment, we must challenge ourselves to ask the tough questions: How do we

**I can be as aggressive as I need to be in protecting the interests of our Society against threats to its continued viability.**

**From the President,** page 5

# In Appreciation: Matthew Rodermund's Life of Service

By C.K. "Stan" Khury, *Actuarial Review* Editor Emeritus

*Editor's Note: The Actuarial Review staff was saddened to learn of the death of Matt Rodermund, AR Editor Emeritus. Stan Khury offers this appreciation of the father of the Actuarial Review.*

**M**atthew Rodermund demonstrated what it means to live a life of service. From the time of his Fellowship in 1947 until well after retirement, his life was an unbroken chain of service to the CAS and the actuarial profession. In 1990 the CAS memorialized this remarkable dedication by creating a special award carrying his name, The Matthew Rodermund Service Award. Appropriately, this award recognizes CAS members who have made significant volunteer contributions to the actuarial profession *over the course of a career*, as Matt had done.

Matt began his career at the Interboro Mutual Indemnity Company and worked there until 1961, when he joined the Munich American Reinsurance Company as Vice President-Actuary. He remained there until his retirement in 1981. Matt's service to the CAS spanned virtually all aspects of its operations. He held multiple leadership roles including serving as a member of the Council, the governing body of the CAS, from 1957 to 1960; editor of CAS publications from 1964 to 1973; and chair of numerous committees on all aspects of CAS operations, both technical and administrative.

Perhaps no service rendered by Matt to the CAS community better exemplifies his commitment than his work on *The Actuarial Review* from 1974-1988. Four years prior to the first issue of *The Actuarial Review* there was an informal publication titled *The CAS Newsletter*, penned largely by the then-president. In 1974 Matt was asked to lead the regular production of *The CAS Newsletter*.

Matt produced the first issue of *The CAS Newsletter* in February 1974. It didn't take him long to introduce significant enhancements and innovations including the new name, *The Actuarial Review*, in the very next issue. Much of what Matt did survives today. He recruited talented members of the CAS to head various departments including a puzzle editor, a cartoonist, a columnist for a regular column of clever commentary then called "Maunderings," and a crossword aficionado who would create an occasional actuarial crostic for the enjoyment of CAS members.

Producing a single issue of *The Actuarial Review* required a herculean effort in those days before desktop computers and word processing. Everything had to be typed, then type-set on what was affectionately known as "stickies" (text printed on

**In Appreciation,** page 6

## FROM THE READERS

### Dear Editor:

Thank you, Kevin [Madigan], for writing, and thank you, *Actuarial Review*, for publishing, this much needed call for moderation in our modeling enthusiasms ("Opinion: A Healthy Skepticism Toward Models," *AR*, February 2012). I suspect, however, that the call will go largely unheeded. The great UC Berkeley statistician David Freedman once said that "today, models are the cocaine of the theorizing classes."

By this quote, I take him to mean that models induce

feelings of excitement, euphoria, optimism, and delusional omnipotence; those of us who have used or built them can certainly testify to their highly addictive properties. That's not entirely bad, as actuaries can occasionally use a little extra optimism and creative stimulation. Also, some very interesting ideas might be so inspired.

But one shouldn't try to reason with addicts while they're in the throes of their model-induced manias, nor should one allow them to operate heavy equipment.

—Keith Curley, FCAS **AR**



# New Fellows by Mutual Recognition

The CAS welcomes the following new Fellows by Mutual Recognition:

**Mr. Nelson Lee, FCAS**

Group Actuary, Partner Reinsurance Company Ltd.

Hamilton, Bermuda

Fellow of the Institute of Actuaries of Australia

**Mr. Joseph Charles Monk, FCAS**

Global Chief Actuary, Alterra Capital


London, England, United Kingdom

Fellow of the Institute and Faculty of Actuaries U.K. 

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## From the President, From page 3

advance and differentiate the CAS brand? What are our core strengths? What do we expect for membership growth, and how will we achieve the desired growth? Will new models of operation be required in order for our Society to achieve the market response times? How can we embrace innovation and creativity and embed these traits in our culture? What role should the CAS play with universities, employers, and regulators in advancing the role of the actuary, while maintaining the cultural tenets that make us what we are? How should we deploy our resources, financial and human, for optimal effectiveness?

These are trying times for our Society. Where threat is imminent, such times can serve as a burning platform from which meaningful change can occur within the Society. Whatever form the changes take, they can be a source of tremendous opportunity and adventure. I'm confident that we together are up to the challenge. 

## 25 Years Ago in the *Actuarial Review*

# A Good Symbiosis

By Walter Wright

*In May 1987, Matthew Rodermund's editorial was titled "Still, the Merger Issue." Twenty-five years have passed, but is the resolution to this issue any closer? What Matt wrote then is still relevant. Here's what he said:*


Most of our readers know that the idea of trying to create a single actuarial society never goes away. Recently, it has come alive again in the pages of both *The Actuary* (the Society of Actuaries newsletter) and *The Actuarial Review*. Fred Kilbourne's "Random Sampler in the August *AR* (reprinted in the October *Actuary*)" triggered a number of comments, including the editorial by C.L. Trowbridge, editor of *The Actuary* (also in the October issue), in which he asked, "Are we *really* two professions?"

Another editorial by Trowbridge, in his February issue, quoted from an address by the president of the British Institute of Actuaries referring to the prime business of all actuaries, saying "It is the actuary's job to assist in the scientific quantification of financial risks...in this he is unlike the accountant, or the statistician, indeed, he is unique."

Our own editorial in November pointed to the growth of the symbiotic relationship between the CAS and the SOA, and hailed it. But we did not advocate merger. A spate of letters in *The Actuary* have recently urged merger, to be consummated, it is hoped, by the time of the profession's centenary celebration in 1989. And there were two letters in *AR* in February, one for merger, one against.

Those in favor of merger usually speak in terms of a society with sections for the several disciplines, or even a type of university with schools, colleges, and departments. Most merger advocates recognize that the examination systems would have to be restructured. The anti-merger letter from Randall Holmberg, in our February issue, insists that such restructuring would be difficult indeed, considering the widely different technologies employed by casualty and life actuaries.

We suggest that another of the real-life conditions working against merger is the disparity in size of the two major societies. That may be one of the principal reasons why past merger discussions have broken off. One of the important parties in a single organization, however democratically that organization is structured, would be a distinct minority. Perhaps that could be overcome, but probably not until the public at large knows more about actuaries than it does now. When the day comes that the public thinks of actuaries as risk analysts instead of mainly as calculators of mortality rates, then a successful merger might be feasible.

Actually, there's no reason why all of us, through the Academy, can't mount a public relations and information campaign. Well-placed institutional advertisements on television, perhaps even a few documentary programs on national networks, might tell the public what we really do, and that we do it not only in all lines of insurance, but also in many other types of financial enterprise. But, not incidentally, we first have to convince *ourselves* that we are all in the same business. If we do that, we'll better be able to convince the public. Then we can merge. Till then, a good symbiosis is the best we're going to get. 

**In Appreciation,** From page 4

long narrow strips of special paper treated with a light adhesive), cut and pasted by hand to actually compose a complete page of copy. Then after the copy was proofread, a mock-up was sent to the printer who in turn produced a proof for final editing. After the final editing, it would be sent to the printer for printing and distribution. With the exception of the proofreading, Matt did all of this—for 15 years! The magnitude of Matt’s achievement becomes even more impressive when one considers that the CAS office staff at that time consisted of only two persons. In all of this, Matt was a stickler for proper writing. He conveyed his standard by giving a copy of Strunk & White’s *Elements of Style* to anyone who served on the staff of *The Actuarial Review*.

Matt did not do his own proofreading. He required that an “outsider” conduct this task because he knew that the writer of a piece cannot reliably proofread his or her own work. Matt assigned the proofreading task to another Fellow, who in turn recruited his own wife to do the proofreading with him.

The “family affair” aspect of producing *The Actuarial Review* extended well beyond the proofreading husband-and-wife team. Matt’s wife, Edythe, assisted him. She was, by Matt’s own determination, the most dedicated staffer that he had working on *The Actuarial Review*. Not only did she help with all aspects of production, she was talented in her own literary way. She used to write an occasional cleriheh (a light verse form, usually consisting of two couplets, with lines of uneven length and irregular meter, the first line usually containing the name of a well-known person). She always signed her clerihehs with the initials “A.W.” No one ever knew what these initials stood for or that it was Edythe that wrote them. Edythe gave away this secret on a social visit when she inadvertently revealed that “A.W.” stood for “Actuarial Wife.” Her dedicated and selfless service to the CAS was not publicly acknowledged contemporaneously because neither she nor Matt wanted it known that she was, for all intents and purposes, serving as the co-editor of *The Actuarial Review*. But now her contribution can be revealed and memorialized alongside the


recitation of Matt’s many contributions.

Matt wrote a number of papers and reviews of papers including the introduction to the original 1990 edition of the CAS textbook *Foundations of Casualty Actuarial Science*. In 1983 Matt wrote a style manual for all CAS publications to assure that all CAS publications had the same look and style, irrespective of who was editing what publication. He had a streak of wit in him that was hard to miss. That is perhaps best illustrated in his well-known 1964 *Proceedings* paper titled “How to Tell a Pure Actuary from

a Lay Actuary.” This timeless paper still rings fresh and true. For example, in distinguishing between a “pure” actuary and a “lay” actuary, Matt wrote, “A rate derived by the method of moments is one fashioned with care by a pure actuary. A rate derived in a matter of moments is one pulled out of the air by a lay actuary.”

Two examples illustrate the breadth of Matt’s creative talents. He often entertained his fellow actuaries at CAS meetings by playing the piano and leading songfests. Those who participated, as well those who merely listened, remember those evenings with great affection. The other example is his mammoth project of writing, producing, and directing an actuarial play titled, *How to Succeed as an Actuary Without Really Trying*, performed in November 1973 at the CAS annual meeting at

the Sheraton Boston (with an encore performance in May 1977 in Washington, D.C., on the occasion of a joint meeting with ASTIN). The cast consisted of actuaries and their relatives. It was adapted from the 1961 Frank Loesser hit Broadway musical *How to Succeed in Business without Really Trying*. An entertaining review of this performance can be found on the last page of this link: <http://casact.org/pubs/actrev/historic/feb74.pdf>.

After Matt’s retirement from *The Actuarial Review*, the CAS Board adopted a resolution recognizing Matt’s contribution with a special Lifetime Achievement Award. Matthew Rodermund was one of a kind, a light that enriched the CAS faithfully for more than 50 years. 

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# CAS Board Responds to SOA Announcement

In a statement to CAS members and candidates, the CAS Board of Directors affirmed the organization's independence and responded to the Society of Actuaries' (SOA) intention to offer a general (property-casualty) insurance specialty track leading to Fellowship in the SOA. The Schaumburg, IL-based organization expects to offer its own general insurance track in fall 2013.

The CAS Board issued the following statement on March 16, 2012:


The CAS Board affirms that it is the intention of the CAS to remain independent while at the same time cooperating with other actuarial organizations to meet challenges to the profession. Your Board has adopted the following statements:

1. As the only actuarial organization in the world exclusively focused on general insurance risks, the CAS is uniquely positioned to provide the most comprehensive and rigorous education in actuarial science and risk management for general insurance actuaries. The CAS will continue to strengthen its

education, research, and programs to support our members worldwide in meeting the requirements of their principals and the public.

2. A key advantage that has enabled the CAS to achieve this status during its nearly 100-year history has been the single focus it has maintained on general insurance with respect to all aspects of actuarial education, research, and programs.
3. With the continued expansion of challenges in general insurance, the CAS will maintain this single focus in seeking to meet its mission, irrespective of any new entrants to the marketplace.

The CAS has a long history of independence while concurrently collaborating with all actuarial organizations in the U.S. and around the world on matters of mutual interest. This continues to be the policy of the CAS.

The CAS leadership encourages CAS members and candidates to e-mail comments on the CAS Board's message and the SOA's announcement to the CAS office at [office@casact.org](mailto:office@casact.org). 

## Timeline of Developments Related to the Consolidation Proposal

This timeline is intended to provide details on the sequence of events that led to the SOA's announcement that it will offer a general insurance track.

**October 17, 2011**—Incoming SOA President Brad Smith contacts CAS leaders to inform them that during his inaugural speech as SOA President, he will call for the consolidation of the actuarial profession in the United States. He mentions that the SOA believes that it needs to offer general insurance exams to help it fulfill its strategic vision to be a leading global provider of actuarial education. An alternative approach proposed by CAS President Ralph Blanchard suggested that a joint venture between the CAS and the SOA might address the SOA competitive needs in certain parts of the world. There appeared to be no interest in additional discussion of this joint venture alternative.

**October 18, 2011**—Mr. Smith's speech at the SOA Annual Meeting states: "One of the impediments to the actuarial profession becoming more substantial contributors to solving public policy issues is the structure of our professional organizations in the United States. . . . There is absolutely no need for three separate professional organizations, the SOA, the CAS and the AAA to exist. They need to consolidate into one efficient, effective organization."

**October 19, 2011**—CAS President Ralph Blanchard invites feedback from CAS members on Mr. Smith's proposal through the CAS Roundtable blog and a short online poll. The CAS Member Advisory Panel is also asked to complete a survey. A majority of both the members at large and on the panel disagree with the consolidation proposal.

[Timeline](#), page 8

**October 2011**—Following Mr. Smith's speech, the SOA Board authorizes the formation of a task force to explore whether other U.S.-based actuarial organizations are willing to discuss a possible consolidation of the actuarial professional organizations in the United States, consider various options for such a consolidation, and make a recommendation to the SOA Board for possible action.

**November 9, 2011**—Following a CAS Board meeting on November 6, the CAS Board issues the following statement:

The CAS is the only non-nation specific actuarial organization exclusively focused on property-casualty risks, and our members find this of value. Our members have made it clear, and the CAS Board agrees, that they do not see benefits in consolidation with other actuarial organizations. The CAS has been, and continues to be, strongly in favor of cooperative efforts with other organizations, including efforts to address the concerns raised in the SOA President's speech.

In addition to unanimously agreeing to release the statement, the CAS Board decides that it will not participate in the SOA task force.

**November 30, 2011**—Leaders of the CAS and SOA meet to informally discuss ways in which the organizations might be able to collaboratively address the SOA's concerns. The meeting was intended to allow the CAS to get a better understanding of the issues underlying the proposal for consolidation, to communicate to the SOA the reasons for the CAS Board's rejection of the proposal, and to determine common ground for possible solutions. The joint venture previously suggested by Mr. Blanchard and other alternatives were discussed. The SOA leadership did not show an interest in further discussion of the joint venture alternative.

**January 2012**—At the Board meeting of the American Academy of Actuaries, Mr. Smith announces that the SOA has formed a task force to explore the feasibility of the SOA offering

general insurance exams.

In addition, the Academy Board agrees to form a profession-wide task force to develop a potential roadmap to formulate or affirm the optimal structure of the U.S.-based actuarial profession in order to meet the needs of its members and the public it serves. Recommendations made by this task force are not binding on any of the U.S.-based actuarial organizations and any policy decisions and actions to be taken would be left to the sole discretion and authority of the respective organizations to do as they wish.

**February 2012**—CAS President Pat Teufel meets with Mr. Smith in conjunction with the Institute of Actuaries of India's Global Conference of Actuaries. Mr. Smith informs Ms. Teufel that he expects the SOA's task force that is exploring the feasibility of offering general insurance exams will recommend moving forward with a general insurance exam track when it reports to the SOA Board in March.

**March 7, 2012**—During its meeting, the CAS Board agrees to identify representatives to serve on the U.S. actuarial profession task force to ensure that the casualty actuarial perspective is represented. The CAS Board also agrees to offer an invitation to the SOA leadership to attend the May CAS Board meeting to discuss the issues underlying their consolidation proposal.

**March 13, 2012**—Mr. Smith phones CAS leaders to inform them that the SOA will announce plans to offer general insurance exams.

**March 14, 2012**—The SOA announces that it will begin offering an exam track in general insurance in 2013 in direct competition with the CAS basic education system and credentialing process.

**March 15, 2012**—The CAS Board issues a message to CAS members and candidates as outlined in the related article in this issue of the *Actuarial Review*. [AR](#)

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# Master of Music

**M**ichael Ersevim has been devoted to music his entire life. Were it not for his many other avocations and interests, one might say he has been engrossed in it. Starting violin lessons at age six, he studied with several teachers through grad school, performing in various Rhode Island All-State and college orchestras. But playing the violin is only one expression of his musicianship, he has also sung in choirs, played the keyboard, conducted orchestras, and recorded music.

Branching out from the string section, Michael studied voice formally while attending Trinity College. He is classically trained and has performed with many professional choirs: The Pro Arte Chorale in New Jersey, The Mendelssohn Choir of Pittsburgh, and college and chapel choirs at both Trinity and Carnegie Mellon University. He has been section leader for Episcopal Cathedral in Hartford for several years, and has recorded with other hired professionals for ad hoc projects.

Michael also plays the keyboard, and having never studied piano formally, he is basically self-taught. Notwithstanding, after having become enchanted by the marvelous organ at Trinity, and motivated by the desire to gain access to the powerful instrument to make his own beautiful noise, Michael took lessons with John Rose, a member of the American Guild of Organists, for one semester during his sophomore year.

Michael's orchestral conducting experience originates with the Rhode Island Senior Youth Philharmonic, in which he served as first violinist while in high school. His path to wielding the baton actually began with an innocent stand-up routine in which he mimicked the Youth Philharmonic's director, a great and very demanding conductor. Extending the spoof, Michael asked the orchestra to play Beethoven's 3rd Symphony, a piece they were rehearsing for their next concert. After about five minutes of rapt conducting, he realized that all the adults had filtered into the back of the room and were watching his performance. The conductor recognized that Michael's conducting showed promise and let him complete the first movement at the orchestra's helm. From that day until his graduation from high school, Michael served as the assistant conductor of the youth orchestra.

Early in his college career, Michael attended a class in conducting offered by his Trinity advisor, who quickly recognized Michael's conducting abilities as had the Senior Youth Philharmonic conductor before him. Michael was immediately asked to assist the advisor by conducting the college choir with him, and was awarded the chance to direct the musical *The Mystery of Edwin Drood* in spring of his junior year.

Although he concentrated much of his study in math and physics, Michael's degree was Bachelor of Music. He later earned a Master of Music, studying at Carnegie Mellon and the Hartt School of Music in the Hartford area.



*Michael Ersevim*

**His path to wielding the baton actually began with an innocent stand-up routine in which he mimicked the Youth Philharmonic's director, a great and very demanding conductor.**

A year after earning his master's, Michael and his wife were visiting a friend in Germany when he learned that Michael Lankester required his immediate assistance putting on a production of Stravinsky's *Oedipus Rex* at the Bushnell Theatre in Hartford. Needing to locate the score quickly, he asked his German friend to recommend a sheet music purveyor in the vicinity, and the friend directed him to an excellent music store in nearby Switzerland. Michael and his wife took a day trip to purchase the

score, and he studied it on the return flight. Michael attended the first rehearsal on the very next day, where he found Lankester referencing Stravinsky's work from a tattered old score, in stark contrast to Michael's pristine version.

**Nonactuarial Pursuits**, page 10

## **NAP Needs Your Input!**

Do you have, or know a CAS member who has, an interesting nonactuarial pursuit? If so, we'd like to hear from you. Send an e-mail to [ar@casact.org](mailto:ar@casact.org) and let us know what you do in your off-hours.

Lankester looked at the new score in astonishment and asked, “Where on *Earth* did you find that? I asked all my friends in England if they could find me a score to purchase, but to no avail! I could only get a hold of this old rental copy!” As casually as he could, Michael said, “Oh, I just picked this up in Switzerland.” Michael had been lucky to find what turned out to be a very rare copy of the work, and counts himself doubly lucky to have had the opportunity to conduct the difficult and demanding Stravinsky opus at the Bushnell—the pinnacle of Michael’s musical career thus far.

In 2005, the American Guild of Organists held their annual meeting in Hartford. As part of the festivities, Michael was asked to rehearse and conduct a small orchestra of about 20 members in the performance of two organ concerti. The performance, which featured Michael’s former organ professor John Rose as a soloist and Hartford Symphony members in the orchestra corps, was very well received.

Stepping out of the orchestra pit and into the limelight, Michael has graced the stage in several Gilbert and Sullivan operettas. He performed the role of the Lord Chancellor in *Iolanthe* on three occasions: for Trinity College in 1988, with the Pittsburgh Savoyards in 1994, and with the Simsbury Light Opera Company (SLOCO) in 2002, and he embodied the role of the Mikado in *Mikado* with SLOCO in 2007.

Michael served on the board of SLOCO from 2009 until the summer of 2011, when the company’s musical director left and Michael volunteered to fill the position. Initially, his fellow board members were skeptical of his fitness for the position, until Michael made them aware of his formal music education and his past conducting experience, after which they welcomed him as the new musical director.

For his first assignment as director, Michael prepared a performance of *HMS Pinafore*, which opened in March 2012. In the months before the production, Michael spearheaded the casting effort, selecting performers based on a combination of their vocal talent, stage presence, and past experience. He then prepared the singers (chorus and soloists), hired the orchestra, rehearsed them and directed them in the performance. Michael loves the challenge of bringing a production from audition to performance—he finds melding voices and instruments to be like fitting puzzle pieces together, and relishes the chance to learn the music intimately.

Michael’s musical interests continued to grow, from performance to conducting, and then from conducting to capturing the music. Shortly after college, he set up a basement recording studio, starting with nothing more than a mixer, a few microphones and a tape-based 4-track. Later came the integration of computers, MIDI (musical instrument digital interface) capabilities, more keyboards and controllers, good mic preamplifiers, better recording devices, more cables, and more mics. Presently, he has everything he needs to register 8-track recordings in the field, and even more sophisticated recordings in his

home basement; he is a sucker for anything with multiple knobs, dials, meters, and LEDs with which he can tinker, and loves the technical aspects of artistry. He records recitals, choirs, ensembles, and other performances on location.

Recently, Michael was asked to produce the school song for his younger son’s school. The teachers were trying to put something together, and knowing of his particular skills and convenient hobby, they called him and asked for his assistance. He presented them with a finished song that included a full MIDI background and multi-tracked vocals, some provided by the teachers and several provided by Michael himself.

Michael’s interests are far-ranging and include photography, movie making, ham radio, racing cars, languages, online and

offline Scrabble, and ping pong. He can often find the humor in any situation—a skill that serves him well as the humor editor of the *AR*. He enjoys puns and word play, and causes delight in the office with his quick wit. For example, his company’s president recently sat on his eyeglasses, breaking them. The newly un-bespectacled leader acknowledged that he shouldn’t have left the glasses in his chair. Michael quipped, “I guess your hindsight is now 20-20.”

Decades after his first satirical attempt at conducting, Michael’s biggest thrills still come from leading a large professional orchestra. He gets an adrenaline rush, sometimes even in rehearsals. “It is much akin to racing around a track in a powerful race car: the responses to your inputs are immediate and precise, your focus is acute, you start to sweat, you definitely don’t want to crash and burn, and it requires skill, patience, nerves, a steady hand and a desire to deliver an exciting and coherent performance.”

Michael Ersevimi is senior pricing actuary at AmTrust Underwriters. 

**Decades after  
his first satirical  
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orchestra.**

# Come to Work with Me

*wrote this piece several years ago when I was an executive with General Motors. A lot of things have changed since then, including my employment with what once was "Fortune One."*

*Some of you will relate to this and may have even encountered more sacrifices. For those who want to "climb the corporate ladder," you should know what you might be in for.*

*My apologies in advance if you think I am bragging or whining, or both.*

I am one of those people you may have dreamed of becoming or perhaps envy. I am an executive for a Fortune 500 company. I live in a beautiful home in the suburbs, drive a late model luxury sedan to work, and have a red convertible sports car in the garage. My beautiful wife does not work outside the home. Her degree is in elementary education, and she would have had to be recertified in each state to which we moved—which we decided would not be worth the effort. She serves as my reading service (which takes an hour or two a day) and manager of our household and investments, and enjoys staying in touch our sons and their wives and our grandchildren.

From all of the outside appearances, we live the American Dream. We appear to live the life of luxury without a care in the world. But what you see from your vantage point is not what my family and I have experienced to get here.

I didn't inherit my lifestyle, and my career has been a strain on my family. We never lived more than nine years in one place. And the time we did live in the same house for nine years, I spent a year and a half working in Georgia while my family stayed back in Iowa, to try to sell our home. My older son was born in New York, my younger in Texas. (We only have two sons.) The older graduated high school in Iowa (I spent his senior year in Georgia apart from the family). The younger graduated in Michigan. They attended schools in Texas, Pennsylvania, Illinois, Iowa, and Michigan. Our life has not been easy on our family: we all had to leave friends frequently when we moved, and we really don't have a place to call our home town. We always had to live far from our extended family. It wasn't easy

on our marriage either. Being away a lot and working late nights under a lot of pressure from work makes for a person who is not easy to live with. And it's not very good for one's health. I know I should exercise and eat better, but long work days make that impossible.

Early in my career, I spent twenty to thirty-five hours a week studying for the professional examinations my profession requires to be "credentialed." You all know the strains that the actuarial exams have on you and your families. I won't expand on it here.

Later, I went to night school to get my MBA, at the request of my boss. When I was not in a formal classroom or studying for some professional designation, I seemed to be studying just to keep up on my profession. I need to be current on the new developments in my profession. And I know if I don't keep up, I will be replaced with someone who does. (Or with someone who can do it cheaper, usually because they have less experience.)

So what is it like on a daily basis? Well, come to work with me and see.

I awake at 5:30 in the morning. I shower, shave, and dress for a 30-minute drive into the office. At

work, I power up my computer, check phone messages, and get to work. My staff knows I arrive early, and I will spend time with one or more of them, but otherwise have the time to myself. This is when I get my work done, that and at home in the evenings and on the weekends.

By eight o'clock, I will have a progression of visitors and meetings that will last until four o'clock or later. Many days, I end up leaving at five or six in the evening.

We have operations in several foreign countries, as well as other time zones within the United States. Phone messages and e-mails come in at all times of the day and night. Conference calls can get scheduled for very odd hours of the day.

Lunch is spent at my desk (not at "the club," as Hollywood likes to portray it) going over my in-box, reading national and professional business papers, and trying to keep up on the current events in the industry. It is the only time I am able to close my door without it being for a meeting or a conference call.

**From all of the outside appearances, we live the American Dream.... But what you see from your vantage point is not what my family and I have experienced to get here.**

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I like to leave after working nine or ten hours, if I can get away that soon, but that's not always possible. Sometimes, when my sons were still living at home, I would leave the office with work, to meet my family at some sporting event or concert one of them were involved in. Then, after the event was over, I would work well into the night. I still spend time in the evening finishing up work.

So what do I actually do at the office?

Some of the time is spent in training staff. There is a lot of work to do, and having a well-trained staff is essential. Of course, some of those well-trained staff go off to work for another company and you have to start over with another one, but that's the way it goes. And the very best of your staff are the ones that other departments and companies want, not the mediocre workers you can afford to lose.

Mediating disagreements between departments and individuals takes another portion of the day. Think of all the disagreements you have at work and all the times you "took it to the boss." Well, I'm the boss that a bunch of people take it to.

I'm also the person who has to deal with poor performers, people who break the rules, people who don't show up for work, people who create problems at work, and otherwise just don't do the job they were hired to do. Sometimes it is a situation that can be fixed and that takes time. Other times, it is just a matter that they need to leave the company. That means meetings, documentation, more meetings, more documentation, and then that difficult final meeting.

You all know how important accurate pricing, accurate loss reserves are, and how important the work we do is to a company. Understanding that can place a huge responsibility on yourself.

When people come in from out of town for meetings, it is customary (and polite) for someone at the office to join that group for dinner. That's me and my peers. From occasionally

to several evenings a week, I will be the host of such a dinner. I like to eat, but I prefer to eat at home with my family, not at a restaurant with people I see once every three months. (My wife happens to be a great cook—I just don't get to eat her cooking as much as I would like to.) When I am at one of those dinners, I get home at about ten or after, and I still have that briefcase full of work to finish, so it's well into the night before I finally turn in. Five hours of sleep in a night is not uncommon for me; some weeks, it is the standard.

"Vacations are a joke." Those are my wife's words, not mine. Besides my wife, when vacationing, my traveling companions are my cell phone, my portable e-mail device, and my personal (work) computer. The office even knows my car's phone number. (Yes, they can even get me while I am driving—I can't turn that phone off.) I leave my itinerary with my secretary. If I don't check my voice mail and e-mail daily, I will come back to a mess. I get paid well for my knowledge, and the business doesn't go on vacation just because I did.

So why do I put up this all of this?

Yes, the salary is nice. It allows for a nice lifestyle.

And I enjoy the challenges that the work provides, although

sometimes I wish the challenges were less intense.

And I like the people I work with—other professionals who are like me.

And since I am going to spend eight or more hours a day at work, I might as well do something that is enjoyable and pays well.

But if you think it's a breeze, you are wrong. God did His part, and I did my part.

*Postscript: My current job does not have as much diversity of activities and I am not away as much as I was when I worked at GM. I still get up at 5:30 a.m. and often leave late. Still, I wouldn't trade this profession for any other. AR*

**Think of all the disagreements you have at work and all the times you "took it to the boss." Well, I'm the boss that a bunch of people take it to.**



# CAS to Offer Exams 5 and 6 Twice a Year


**C**AS Exams 5 and 6 will be offered twice a year beginning in 2013 and 2014, respectively. The CAS Board of Directors approved the proposal by the Examination Committee at the Board meeting held March 7-8, 2012.

For many years, all preliminary actuarial exams (Exams 1-4) have been offered multiple times per year. The CAS Board directed the Examination Committee to explore offering the next two CAS exams in the basic education system twice a year.

The increased offerings of Associate-level examinations will give some candidates the opportunity to complete the CAS membership requirements more quickly than under the current structure in which Exams 5 and 6 are only offered once per year.

The Examination Committee considered the logistical challenges in increasing the exam offerings. The Committee's proposal to the Board addressed how to produce enough quality test items, how to ensure appropriate syllabus coverage for two exams each year, and how to achieve consistency between both sittings of the exams. The proposal also outlined changes that would need to be made to existing organizational structure and development schedules.

The Committee concluded that it could overcome any logistical challenges with the involvement of the large number of committed volunteers that had been recruited to assist with the transition to the new basic education structure in 2011. With that transition complete, the Examination Committee recommended, and the Board agreed, that the CAS would begin offering Exam 5 twice a year beginning in 2013 and Exam 6 twice a year beginning in 2014.

"As the only actuarial organization in the world exclusively focused on property/casualty risks, the CAS is uniquely positioned to provide the most comprehensive and rigorous education in actuarial science and risk management for P/C actuaries. Employers and our candidates for CAS membership recognize that our singular focus positions us as a leader in educating casualty actuaries, as demonstrated by the high demand among candidates for additional exam opportunities," commented CAS President Pat Teufel. "I am pleased that the Board has made the commitment to meet the demand and enable our candidates to pursue membership in the CAS at a quicker pace. I thank the dedicated volunteers for their efforts in implementing this initiative." 

## Nominations Sought for CAS Service Awards


**T**he CAS wants to recognize significant volunteer contributions, and we need your help. Nominate a worthy CAS volunteer for the 2012 Above & Beyond Achievement Award (ABAA), the 2012 New Members Award, or the 2012 Matthew Rodermund Service Award.

The ABAA is annually bestowed upon CAS members who have made contributions that are clearly outside of expected volunteer responsibilities and duties. Consideration is also given to contributions to the committees of other actuarial organizations that benefit CAS members. Any CAS member who is not a current board member or officer is eligible to receive this award. Keep in mind that an extraordinary effort can be shown in an assignment of limited scope, as well as on a larger task.

The New Members Award acknowledges outstanding volunteer efforts within the first five years of a member's last credential. The criteria for this award are exceptional CAS volunteer work beyond what is reasonably expected of new

members. Time committed to CAS volunteer activities and leadership positions will be considered.

The Matthew Rodermund Service Award was created to acknowledge CAS members who have made significant volunteer contributions to the actuarial profession over the course of a career. The award was established in 1990 in honor of Matthew Rodermund's years of volunteer service to the CAS. Volunteer contributions may include committee involvement, participation in CAS meetings and seminars, volunteer efforts for Regional Affiliates or special interest sections, and involvement with other actuarial organizations. Past presidents are not eligible.

Nominations are due by June 29, 2012. All award winners will be announced at the 2012 CAS Annual Meeting in Orlando. Nomination forms can be found at <http://www.casact.org/volunteer>. Send nominations to Matt Caruso at [mcaruso@casact.org](mailto:mcaruso@casact.org). 

# Point

## A New Actuarial Organization is Needed

By Michael J. Miller, FCAS

The February 2012 *AR* included two separate, disconcerting ideas. One related to a proposal that the three U.S. actuarial organizations be consolidated (“CAS Action on Developments Regarding the SOA Consolidation Proposal”). The second was an argument that professional actuarial work in the future will be defined by ever-more sophisticated applications of probability and statistics (“From the Readers: Recognizing Uncertainty when ‘Getting to the Right Answer’”).

Now is the time for a significant change in the organizations that serve U.S. actuaries. A combination of the CAS, SOA, and AAA is not the needed change. The combined organization would be just as ineffective and irrelevant as the AAA and would serve to hasten the growing irrelevance of the CAS.

The AAA has never achieved the organizers’ original intent. Although the AAA’s name is a valuable asset, this name has been wasted on an ineffective organization. There is nothing that the AAA does that makes the slightest difference to any actuary’s practice or employment or to the public in general. Why any actuary chooses to be a member of the AAA is a puzzle.

Through the 1970s and into the early 1980s, the senior leaders of the CAS worked successfully to transform the CAS from a trade association to a true professional organization serving property/casualty actuaries. This truly professional organization was premised on the basic concept that actuaries were experts in insurance and the quantification of risk, and were uniquely qualified by experience and training to be future cost analysts. The CAS did not present itself as an organization of applied statisticians masquerading as actuaries.

In the last decade, the CAS has lost sight of what has traditionally defined the uniqueness of the actuarial profession and is now in the process of gradually transforming itself into a trade association for applied statisticians. Memorization of statistical formulae now trumps real analysis. One need only review the syllabus of basic education and the topics that dominate the CAS sponsored seminars to understand that the CAS now mistakenly believes that the essence of actuarial science is the ongoing search for a more sophisticated mathematical model or statistical formula. For an increasing number of actuaries, probability and statistical formulae are now a substitute for experienced actuarial and business judgment.

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# Counter Point

## The CAS is True to Its Important Mission

By Pat Teufel, FCAS, MAAA

I agree with Mike Miller that now is the time for significant changes in the organizations that serve U.S. actuaries and that consolidation of the CAS, SOA, and Academy is not the needed change. However, I disagree with his observations that both the CAS and the Academy are ineffective and increasingly irrelevant. Speaking directly for the CAS and tangentially for the Academy (I am a special director on the Academy Board), I believe that both organizations continue to be true to our respective missions.

Employers and principals of casualty actuaries tell us that the value of the CAS lies in our comprehensive and rigorous educational framework, and the ability of our members to offer insights by applying those technical skills to real business issues, all within a context of professional integrity. These three facets—professionalism, technical training, and practical application—have been at the core of the CAS since its inception.

In defining its objectives for CAS basic education, our Board of Directors set forward a clear direction:

*All CAS members should be competent in the application of casualty actuarial techniques.*

*CAS Fellows should not only be able to apply such techniques, but be able to synthesize such methodology and exercise complex judgment to bring those tools to bear in developing practical solutions to business problems not necessarily encountered before. Inherent in this ability is that Fellows be able to clearly communicate this understanding and complex judgment including inherent assumptions made and limitations in the approach taken to another party.*

Again, in this statement, we see the consistent themes of technical proficiency and professionalism applied to develop practical solutions to business problems.

Mr. Miller comments that the CAS has lost sight of what has traditionally defined the uniqueness of the actuarial profession and has gradually transformed itself into a trade association for applied statisticians. I strongly disagree. While I acknowledge that the CAS has recognized the need to incorporate statistical techniques and mathematical modeling in our curriculum, the CAS certainly does not see these tools as an end in themselves. They are simply the foundation from which actuaries can apply their unique expertise and judgment in the assessment of risk

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No profession can sustain itself unless its members offer unique skills. There is nothing unique in the ability to apply statistical models and develop electronic worksheets. As an example, economists utilize the same statistical methods as do actuaries. Very soon, non-actuaries with applied statistical expertise and computer programming talent will be creating and marketing “actuarial” software. Our clients and employers will be able to buy software that is essentially an “actuary off-the-shelf.” If an actuary is nothing more than an applied statistician, why any insurer would hire a credentialed CAS actuary when a college graduate with a degree in applied statistics can be hired for less money is a puzzle.

Now is the time for a new U.S. actuarial organization built once again on the concept that actuaries are uniquely qualified to estimate costs associated with future contingent events. The proposed new organization, Practicing Actuaries of America, will support actuaries in the area of property/casualty and health insurance. PAA members will be actuaries that actually practice, and will not include academics, theorists, economists, mathematical model-builders, and applied statisticians. PAA members will be focused on applying their unique expertise in projecting those future costs which are integral to the solution of a specific real-world business problem confronting an insurer or self-insurer.

An Associate member of PAA will be required to demonstrate an expert’s understanding of risk transfer and risk-sharing mechanisms, the legal and competitive environment in which U.S. insurers and self-insurers operate, and the analytical skills that are fundamental to accepted actuarial methods of projecting costs. Basic knowledge of applied statistical methods and formulae can be sufficiently demonstrated by a person’s college record. PAA members will have the analytical skills to actually develop a needed mathematical formula or model, rather than merely applying a textbook statistical procedure or pre-authored electronic worksheet. A Fellow of the PAA will be required to complete a two-year, on-the-job internship under the direction of an experienced actuarial mentor approved by the PAA. Compliance with the Code of Professional Conduct will be

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## Counter Point, From page 14

and the estimation of costs associated with future contingent events. How many times have we, as experienced practitioners, received the initial output of a generalized linear model and sent a colleague back to the drawing board because “that just doesn’t feel right”. While exams are fundamental to our educational process, the credentialing of a casualty actuary is still largely driven by a period of apprenticeship, where our successors learn, through trial and error, the meaning of actuarial judgment. In accordance with the U.S. Qualification Standards, a member of the CAS is not qualified to practice in the United States without at least three years of experience under the supervision of a qualified actuarial professional. In fact, the current requirements developed by the American Academy of Actuaries are more stringent than the standards that Mr. Miller recommends for a Fellow of the newly organized Practicing Actuaries of America.

Mr. Miller’s comments remind me of a concern in my early days that applying computer technologies to actuarial work would somehow undermine the value of the actuarial credential. Back then, the “computer room” was regularly housed within the actuarial department, since actuaries were viewed as one of a small minority of professionals who might benefit from technological innovation. By serving as the keepers of the IT infrastructure, did we all migrate to the IT space? Did the use of technology in our work somehow undermine the value of actuarial judgment and insights? Why, then, should we be afraid to make full use of today’s innovations in our work? As actuaries, we can—and must—continue to provide insight beyond the technical.

Mr. Miller erroneously suggests that the current CAS membership is no longer “active practicing actuaries.” The vast majority of our members continue to be engaged in traditional actuarial work within the pricing and reserving departments of insurance companies. Why we would want to exclude those professionals who have chosen to apply their informed actuarial judgment in nontraditional actuarial areas of practice as educators, regulators, risk managers, economists, climatologists and any other field for which we can provide meaningful

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### The CAS Wants to Hear From You

This discussion will be moving to the CAS Roundtable (blog) and all CAS members are encouraged to weigh in on these important topics. Has the CAS become a Society of “actuarial numerologists and other applied statisticians?” Will the CAS’s consideration of an expanded statistics and model-building curriculum for our basic education undermine the value of the CAS credentials? Should the CAS be doing more to advance the relevance and value of the CAS actuarial practitioner? Is a new organization needed to accomplish these aims?

The CAS Leadership looks forward to your comments and suggestions.

# Management Data and Information Prize Papers Awarded

By Jeremy Benson, FCAS

**R**ecent technological advances have enabled actuaries to process larger quantities of data than ever before. Credit scoring, multivariate modeling, economic capital modeling, catastrophe modeling, and business intelligence models are all examples of advancements that provide actuaries with an ever-evolving scope to their analyses and application of their skills to new business problems. The CAS Committee on Management Data and Information sought papers on a variety of subjects for its 2012 Call Paper Program. The following two papers were published in the *2012 Winter E-Forum-Volume 2* and presented at the RPM Seminar. Both papers' authors were awarded the Management Data and Information Prize for the top papers.

## **Social Media Analytics: Data Mining Applied to Insurance Twitter Posts**


*By Roosevelt Mosley*

The use of social media has grown significantly in recent years. With the growth in its use, there has also been a substantial increase in the amount of information generated by users of social media. Insurers are making significant investments in social media, but many are not systematically analyzing the valuable information that is resulting from their investments.

The paper discusses the application of correlation, clustering, and association analyses to social media. This is demonstrated by analyzing insurance Twitter posts. The results of these analyses can help identify keywords and concepts in the social media data, and can facilitate the application of this information by insurers. As insurers analyze this information and apply the results of the analysis in relevant areas, they will be able to proactively address potential market and customer issues more effectively.

## **Beginner's Roadmap to Working with Driving Behavior Data**


*By Jim Weiss and Jared Smollik*

Usage-based auto insurance has received considerable publicity, but the driving behavior data that fuels these programs has been the subject of limited academic scrutiny. This paper provides historical context and identifies key challenges and risks that result from working with this data. It also explores the infrastructure required to support data collection, with a focus on vehicle telematics. Finally, the paper discusses how actuaries may collect, organize, and analyze driving behavior data for use in insurance applications. It illustrates how sound data management may enable insurers to use this unique data to achieve organizational goals, while rising to the challenges and risks it presents. 

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### **Point,** From page 15

judged only by a panel of PAA Fellows, with each panel member fully qualified by experience and training to opine on the specific actuarial issue in question.

The PAA will be dedicated to actuarial analysts that project future costs and serve the business needs of insurers and self-insurers. The CAS will presumably continue to exist to serve actuarial numerologists and other applied statisticians. 

### **Counter Point,** From page 15

insights to help solve real business issues?

I am dismayed by Mr. Miller's implication that the CAS has become a Society of "actuarial numerologists and other applied statisticians." If that is the world that the CAS aspires to, I agree with Mr. Miller that it will not be long before our clients and employers will be able to buy "actuary off-the-shelf" software. On the contrary, the CAS is well-positioned for Mr. Miller's vision of a professional society that utilizes all of the available tools, also bringing new insights for our principals and employers through the application of informed and experienced actuarial judgment. Only when we add value over and above what is available off the shelf will casualty actuaries recognize their full potential. That is my hope for our organization. 



# Changes Ahead For CAS Education

The CAS is implementing some enhancements for its educational offerings this year.

## UCAS

The CAS is trying something new with its UCAS recordings in 2012: online evaluations and quizzes. Members who listen to the recordings in 2012 may evaluate the recorded sessions online. In addition, and only with the input of the session speakers, a brief quiz may be available at the end of the recording to test knowledge. These additions went into effect with the 2012 Ratemaking and Product Management Seminar. Once the recording is heard to the end, the user may also print a completion certificate for CE recordkeeping purposes. The recordings from 2009-2011 will remain available at the previous UCAS site until December 31, 2012.

## Web Program/Web Scheduler

Now attendees are able to browse, search for, and schedule concurrent sessions at upcoming meetings and seminars. With the new Interactive Program Guide available through Conference Exchange, full program descriptions and speaker bios (to the extent they have been provided to the CAS) will be uploaded to the CAS Web Site within one week of their submission to the content management system. This will allow the CAS to post the most up-to-date session information. Attendees may also select the concurrent sessions they wish to attend and schedule them online. **AR**

## COMING SOON: A NEW CAS WEB SITE



# Online Directory of Actuarial Memberships Enhanced

In response to requests from members, the Online Directory of Actuarial Memberships has been enhanced to allow members to share more information if they choose. The Online Directory includes members of all of the North American actuarial organizations: Casualty Actuarial Society, American Academy of Actuaries, American Society of Pension Professionals & Actuaries, Canadian Institute of Actuaries, Conference of Consulting Actuaries, and Society of Actuaries.

Members now have the option to:

- add a professional bio and photo to their directory listings.

- include a link to a company or personal Web site.
- share links to their LinkedIn profiles, Twitter feeds, and Facebook accounts.

These enhancements provide another avenue for members of the actuarial profession to connect with each other and serve to improve the usefulness of the directory for those who may be seeking an actuary's services.

To explore these enhancements and update your directory profile, please visit the Online Directory of Actuarial Memberships at <https://www.actuarialdirectory.org/>. **AR**

# Quantifying Uncertainty in Trend Estimates with JAGS

Longtime readers of this column will recall that I have been advocating using Monte-Carlo Markov Chain (MCMC) methods for quantifying the uncertainty in various statistical estimates.<sup>1</sup> MCMC algorithms generate samples from the posterior distribution of a Bayesian model.

Whenever possible, I like to program new algorithms myself and, in doing so, I develop a better understanding of the algorithm. I have done this with various MCMC algorithms for a few years now. Lately, I have been advised by a number of my actuarial colleagues to look at some of the many software packages for MCMC modeling. One of the more popular packages is called JAGS, which is short for “Just Another Gibbs Sampler.” JAGS is a computer language that is similar to BUGS (Bayes Using Gibbs Sampling). A major consideration in its favor is that one can call it from an R program. I have tried it and have found the simulations to run significantly faster. It also looks easy to program. So I am now hooked and expect to use it regularly in future work.

To get started with JAGS, it helps to have a sample program. A few months ago, Dave Clark posted an interesting trend problem on the COTOR listserv for which I offered a solution using a Bayesian MCMC algorithm. Here I will give the JAGS version of that solution. Files containing the R and JAGS code are available on the CAS Web Site along with the online version of this article.

The data (Table 1) in Dave’s original post consisted of quarterly average claim severities, where each observation was the average claim severity over the last four quarters.

Our trend model is a curve of the form  $y' = a \bullet e^{b \bullet t}$  where  $y'$  is the fitted average severity,  $a$  is a constant,  $b$  is called the trend coefficient (as distinct from the annual trend factor  $e^b$ ) and  $t$  is the time in years. It is the trend coefficient that is of interest. The

traditional (dating from the 1970s) way of estimating the trend coefficient is to fit a model of the form  $\log(y') = \log(a) + b \bullet t$  by ordinary least squares regression. Figure 1 gives a graphic representation of the fit along with the standard regression diagnostic statistics for the trend coefficient.

Dave’s complaint about the traditional estimate was that it failed to recognize the correlation between the quarterly average severities when the averages contain overlapping quarterly observations. It is not difficult to demonstrate that the coefficient of correlation between  $y_t$  and  $y_{t+u}$  are equal to 0.75, 0.50, and 0.25 when  $u$  equals 1, 2, and 3 respectively. Dave’s question was twofold. (1) How should one take the correlations into account when fitting the model? (2) What is the standard error of the estimate for the trend coefficient?

My solution was to assume the vector  $\{y_t\}$  has a multivariate normal distribution with mean  $a \bullet e^{b \bullet t}$  and covariance matrix  $\sigma \bullet C \bullet \sigma$ , where  $C$  is a 12 x 12 correlation matrix with 1s along the diagonal, 0.75s along the first superdiagonal and subdiagonal, 0.5 along the second super and subdiagonals, and 0.25 along the third super and subdiagonals. The unknown scalars  $a$ ,  $b$ , and  $\sigma$  had uniform prior distributions over the intervals (0,10000), (-0.25,0.25), and (0,1000), respectively.<sup>2</sup>

The R program that simulates the posterior distributions proceeds in the following steps.

1. Reads in the data in Table 1.
2. Sets up the correlation matrix  $C$ .
3. Passes the data and  $C$  to a JAGS program (a separate file) using the R package rjags.
4. Calls back 10,000 samples from posterior distributions for the trend coefficient from the JAGS program.
5. Produces Figures 1 and 2 below.

**Table 1**

Quarter	1	2	3	4	5	6
Severity $y$	7,192	6,824	6,995	6,840	6,620	6,844
Quarter	7	8	9	10	11	12
Severity $y$	6,840	7,214	7,634	7,597	7,343	7,476

<sup>1</sup> See, for example, my *Actuarial Review* columns in the February 2008, the November 2009, and the February 2011 issues.

<sup>2</sup> A reviewer of this article pointed out that it was possible to incorporate a correlation matrix into a standard regression methodology. He duplicated my results very closely with this methodology.

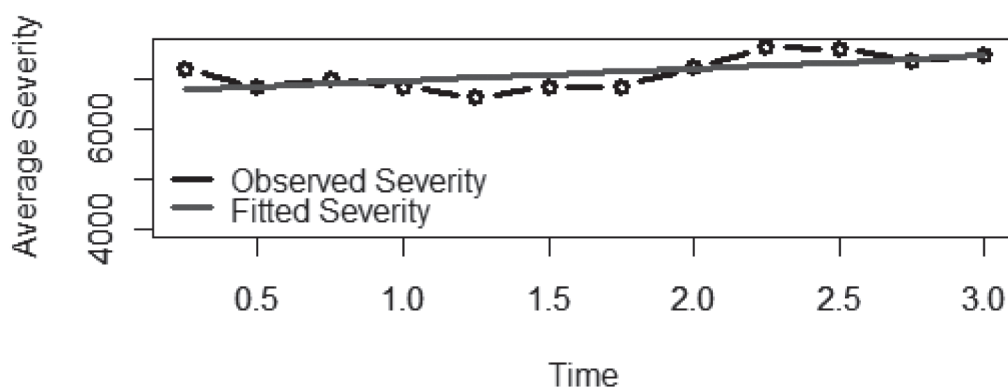
Figure 2 consists of a histogram of the posterior distribution of the trend coefficient and diagnostic statistics similar to those in Figure 1. Note that for these data, this Bayesian model produces a lower estimate and a larger standard error than the traditional model. It is worth noting that the two models differ in their error structure as well as the correlation assumptions. The traditional model assumes a normal distribution for each  $\log(y_t)$ , while the Bayesian model assumes a normal distribution for each  $y_t$ .

JAGS is freeware downloadable from <http://mcmc-jags.sourceforge.net/>. Its programming language is similar, but

different from R. The documentation for JAGS calls it a dialect of the BUGS language. The R package, `rjags`, is available from CRAN, the usual source for R packages. You should also download the user manual for both JAGS and `rjags`. The distributions in JAGS are sometimes parameterized in, what is for me, unfamiliar ways. The user manuals are short on examples. Hopefully the R and JAGS code for this article will provide a good start.

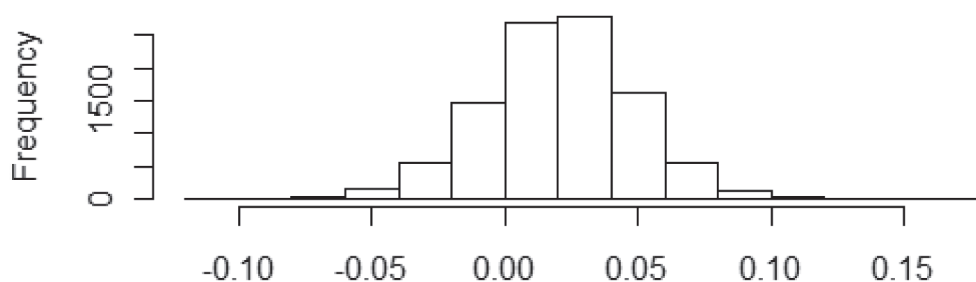
JAGS with R is a great tool for doing Bayesian MCMC analyses. I recommend that you see this for yourself. [AR](#)

**Figure 1 - Traditional Trend Estimate**



Trend Coefficient = 3.5 % Standard Error= 1.3 %  $\Pr\{t < 0\} = 1.04\%$

**Figure 2 - Trend Coefficients from the JAGS Simulation**




Mean = 2.1 % Standard Error = 2.8 %  $\Pr\{b < 0\} = 21.9\%$

# CAS Webinars—Cost-Effective Continuing Education Opportunities for 2012

Looking for opportunities to gain CE credit? Check out the Webinars offered by the CAS! A sample of past topics presented includes “Reinsurance Counterparty Risk,” “Claim Fraud Detection,” “Copulas,” and “Calculating a Loss Ratio for Commercial Umbrella.” The Webinars have been well attended and have received positive reviews since their start in 2007. A wide variety of subjects will be covered by the Webinars throughout 2012.

The CAS Webinar Committee works with presenters to develop educational opportunities that are timely and useful,


all at a reasonable cost. Attending Webinars is a great way to get organized continuing education credit without leaving your office. Many of our Webinars focus on timely professionalism topics. The CAS Web Site, as well as the weekly e-mails, will have information on registration and Webinar content. Be sure to consider the CAS Webinars when planning your continuing education for 2012!

If you would like to recommend topics for future Webinars, please send an e-mail to [meetings@casact.org](mailto:meetings@casact.org). We’d love to hear from you! 

## Save the Date for Catastrophe Seminar

The 2012 Special Interest Seminar will be held October 4-5, 2012, at the Marriott Waterfront Hotel in Baltimore. “In Focus—Taming Cats: Managing Natural and Man-Made Catastrophe Risks,” is the annual 1.5-day technical seminar. The following aspects of catastrophic risk will be addressed:

- Pricing and cats
- Reserving and cats
- ERM and cats
- Modeling and cats
- Government/regulation and cats
- Professional standards

A call for presentations went public at the end of March. The Special Interest Seminar Subcommittee, chaired by Kathy Barnes of Towers Watson, will review the resulting proposals and other suggestions from volunteers and will develop the program around two general sessions and up to 25 concurrent sessions. More than 225 actuaries are estimated to attend the seminar. 

## Save the Date for the 2012 Annual Meeting!

**November 11-14, 2012**

**Walt Disney World Swan Hotel  
Lake Buena Vista, FL**





## Reinsurance Seminar Coming to Boston Area

Join the CAS and the Casualty Actuaries in Reinsurance (CARE) in Cambridge, Massachusetts, for the 2012 Seminar on Reinsurance! The Reinsurance Seminar will cover a variety of reinsurance topics and will present practical approaches to problems. Participants can expect to gain awareness and insight into difficult issues and are encouraged to share their own ideas.

The program is intended primarily for the experienced actuary (or other experienced industry professional) with knowledge of reinsurance. Some sessions will involve technical pricing, reserving, and modeling issues, while others will be of a more general reinsurance nature.

The seminar will consist of two general sessions as well as concurrent break-out sessions. Many of the breakout sessions will be offered twice to allow for smaller audiences and to keep

scheduling flexible. To see a list of the concurrent and general session descriptions, visit the CAS Web Site.

Casualty Actuaries in Reinsurance, or CARE, was founded in 1988 by a group of reinsurance actuaries who saw the need for a forum to discuss their common practical issues and to foster reinsurance research and education. CARE was later organized as a special interest section of the CAS. CARE is guided by the Senior Actuaries Group, which is composed of chief actuaries active with reinsurance firms. The Senior Actuaries Group meets during each CARE meeting to advise the two CAS committees primarily involved in reinsurance practice. CARE also conducts its annual business session during this meeting and elects new officers at that time. Register online today at <http://www.casact.org/reinsurance>. **AR**

# CLRS

## CASUALTY · LOSS · RESERVE · SEMINAR

**September 5-7, 2012**  
Sheraton Denver Downtown Hotel  
Denver, CO



[www.casact.org/clrs](http://www.casact.org/clrs)



## Do You Know a Student Deserving of a Foundation Scholarship?

In 2011, The Actuarial Foundation awarded college scholarships to a record 48 students who are pursuing careers in the actuarial profession. Scholarship opportunities are now open for the 2012-2013 school year, but application deadlines are approaching fast.

If you know a student who could benefit from a Foundation scholarship, tell him or her to visit the Foundation Web Site today (<http://www.actuarialfoundation.org/programs/actuarial/scholarships.shtml>).

## Financial Smarts is for Everyone

The Actuarial Foundation has released the Spring 2012 *Financial Smarts* newsletter, which offers thoughts for consideration on when to claim Social Security benefits. Topics include information on claiming strategies for couples, tax considerations, and how monthly benefits increase with retirement age.

Read the latest issue, then join actuaries who are giving back to their communities on behalf of the profession. Volunteer to bring *Financial Smarts* to your local library!

For more information, visit <http://www.actuarialfoundation.org/programs/newsletter.shtml>.

## Make an Impact in a Middle School Classroom


Have you ever wanted to give a presentation during a career day or other event at your local middle school? Did you think it would be difficult to talk about the actuarial profession or engage the students? The Actuarial Foundation now has a *Classroom Guide for Actuaries* for all six installments in its *Expect the Unexpected With Math* series to help you make your first classroom visit.

Each guide explains how to use these fun classroom materials to help students see the real-world relevance of math and how it is used in the professional world. View all the materials and guides, then present these lessons in a school near you! Visit [www.actuarialfoundation.org/programs/youth/actuary\\_guide.shtml](http://www.actuarialfoundation.org/programs/youth/actuary_guide.shtml) for more information.

## Give the Foundation's New Online Game a Spin

Since the Foundation released the "Probabilities Tour" online game to middle school students in fall, it has been accessed more than 16,000 times!

In this game, which is an added bonus to the *Expect the Unexpected With Math® The Power of Probability* materials, students learn about theoretical and experimental probability and how probability applies to a world they understand. Play the "Probabilities Tour" game today! Visit [www.actuarialfoundation.org/probabilitychallenge/tour](http://www.actuarialfoundation.org/probabilitychallenge/tour) to play!

Read more from The Actuarial Foundation in its latest newsletter at <http://www.actuarialfoundation.org/publications/newsletters.shtml>. 

# Prizes to be Awarded for Best ICA 2014 Papers and Presentations

The ICA 2014 Scientific Committee has issued the Call for Papers and Presentations for the 2014 Congress, which is available through the ICA 2014 Web Site at [www.ICA2014.org/callforpapers](http://www.ICA2014.org/callforpapers). Actuaries and non-actuaries interested in presenting a paper or making a presentation are invited to submit an abstract of their proposed paper/presentation to the Scientific Committee by the **deadline of 30 September 2012**.

The Scientific Committee has announced that it will award prizes for the one or two Best Paper(s) and/or Best Presentation(s) in each of the subject matter tracks:


- Life Insurance
- Health Insurance and Related Topics
- Non-Life Insurance (General Insurance; Property/Casualty Insurance)

**Prizes**, page 23

# From Pop Culture to Housewares— Opportunities for Expanded Actuarial Influence

In the interest of expanding the reach and sway of the CAS, many exploratory committees and task forces have been formed and much energy has been expended to investigate and develop potential new areas for increased growth, visibility, and influence. Notable traction has been made in the areas of regulatory requirements, enterprise risk management, climatology/catastrophe modeling, accounting standards, dynamic financial analysis, legal issues, and predictive modeling, to name a few.

There are, however, a few key areas in which the CAS still has not garnered much influence:

- Baby formula (a misnomer, really—we never found any formulas...).
- Lawn furniture (although we're finally starting to see some upward growth in the gnome department).
- Karaoke song selections (there is some promising new research using drunkard's-walk modeling).
- Plasma TVs (everyone wants the latest diagonal—shouldn't the CAS be involved?).
- Men's spring fashions (I'm sure we all recall the catwalk debacle in Milan...).
- Archery (credibility examples notwithstanding, hopes have been fading since the 1984 Olympics).
- Fried chicken (we are notably absent in the contentious "extra-crispy" increased-layer arena).
- The "Engagements" section in the *New York Times* (aw, what an exciting, high-society entry we would be!).
- Motocross (despite the initial inroads made into the 125cc and 250cc classes...).
- Portraiture (B&W and Sepia have been all but locked up by the SOA).
- Rap music (an oxymoron to begin with, our "street-cred" could use some bolstering).
- BCS formula (we specialize in creating formulas no one can understand).
- SCUBA gear (sometimes we need to do a "deep-dive" on a topic—can't we leverage any synergies here?).
- Children's books (some companies' financial reports could be good bases for fairy tales).
- Vacuum cleaners (although some have drawn nice parallels with reserve levels for Comp lines). 

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## Prizes, From page 22

- Pensions, Employee Benefits, and Social Insurance
- Enterprise Risk Management and Financial Risks
- Professionalism and Education
- Consulting

The Scientific Committee will determine the number of prizes and cash amounts up to a total of USD 2,000 per track. Consideration will be given in the selection of prizes to both traditional papers and less formal presentations. Additional prize opportunities will be announced later.

ICA 2014 is scheduled for 30 March through 4 April in Washington, D.C. The theme of the Congress is "Learn, Interact,

Grow" and consistent with this theme, the Scientific Committee's goal is to provide an environment where attendees can learn new ideas by sharing concepts and approaches with other professionals from around the globe, while growing the body of actuarial knowledge and improving the tools used in an actuary's daily practice.

View the complete Call for Papers and Presentations on the ICA 2014 web site for proposal submission procedures and requirements. Please contact David Core ([dcore@casact.org](mailto:dcore@casact.org)) of the ICA 2014 Secretariat with any questions about the Call for Papers and Presentations. 

## ISO Casualty Index™

### *An alternative way to manage casualty risk*

The ISO Casualty Index™ provides an independent, transparent, and robust reference point for monitoring United States casualty insurance industry trends in loss ratio and loss development.

Insurers, reinsurers, and other entities with exposure to casualty risk can use the Index for planning, tracking of underwriting cycles, and analysis of historical loss trends. The Index is an effective benchmark to assess your company's performance against the industry aggregate over time.

The ISO Casualty Index also opens up exciting new possibilities for risk transfer to capital markets. The Index could be used by insurers, reinsurers, and other entities as a trigger in industry loss warranties and/or other insurance-linked securities.

#### Index summary

ISO updates the ISO Casualty Index quarterly with loss ratios and link ratios as explained below. The Index covers ten trailing accident years of experience. The quarterly updates provide additional segment-level granularity and timely performance benchmarks.

ISO adds the latest loss ratio and link ratio data to the index quarterly, typically five to six months after the end of the calendar quarter. When an accident-year evaluation reaches 132 months, ISO removes it from the Index and adds the most recent accident year. The Index includes ratios based on both paid and case-incurred losses.

#### Loss ratios

Loss ratios are the ratio of losses to the corresponding premium. To calculate the loss ratio, we divide aggregated losses by the corresponding premium for a given evaluation period.

#### Link ratios

Link ratios provide insight into the emergence of loss over time. To calculate the link ratio, we divide aggregated losses from one evaluation quarter by aggregated losses for the previous quarter.

The ISO Casualty Index currently covers ten well-defined liability segments:

#### General Liability

- Owners, Landlords, and Tenants
- Manufacturers
- Contractors
- Products
- Local Products
- Completed Operations
- Errors and Omissions



#### Commercial Auto Liability

- Trucks, Tractors, & Trailers – Non-Zone Rated
- Trucks, Tractors, & Trailers – Zone Rated
- Private Passenger Types

#### How ISO Calculates the Index

ISO prepares the ISO Casualty Index by aggregating data from the ISO statistical database by accident year. The database contains more than 15 billion detailed transactional records from more than 700 insurer groups in the U.S. primary admitted insurance market.

ISO derives the Index from the same data we use to calculate advisory prospective loss costs. We apply rigorous data verification and review procedures to the statistical plan data to promote quality and consistency. The depth and breadth of the statistical data ISO collects allow for a high degree of customization and enables historical correlation testing between an individual entity's results and the Index.

To find out more visit: [www.iso.com/casualtyindex](http://www.iso.com/casualtyindex)

# DRM Research Handbook Available Online

By Robert Bear, Chairperson, CAS Dynamic Risk Modeling Committee

The newly completed *DRM Research Handbook* offers guidance on the important issues and considerations that confront actuaries when designing, building, or selecting dynamic risk models (DRM) of property-casualty risks. In its "simplest" form, a dynamic risk model can be used to analyze a narrowly defined pricing or reserving risk using stochastic simulation of future cash flows. In a complex form, a dynamic risk model can be used to analyze the entire cash flow of a corporation, including all aspects of company operations.

The complex form of dynamic risk modeling for an entire insurance operation is commonly referred to as dynamic financial analysis (DFA), or internal models. DFA focuses on the modeling of insurance risks, and the goal of the DRM Handbook Working Party was to distill the essential technical aspects of creating a model into a cohesive document for the practicing actuary as well as the student of risk modeling.

All but two chapters of the *DRM Research Handbook* were

developed several years ago by this working party. Chapters 6 and 7, titled "Price Modeling" and "Reserve Modeling," respectively, were completed in 2011 and have recently been uploaded to the CAS Web Site. The entire *DRM Research Handbook* may now be viewed at <http://www.casact.org/research/drm/>. The new chapters will be presented at this year's Casualty Loss Reserve Seminar.

Although the Dynamic Risk Modeling Committee will continually want to update and enhance the *DRM Research Handbook*, this is an appropriate function of a subcommittee rather than a working party. Hence, this working party has completed its task, and the members are now a permanent subcommittee of the DRM Committee.

*Robert Bear is a consultant whose firm RAB Actuarial Solutions LLC offers actuarial, reinsurance, and statistical modeling services. He may be reached at [rabsolutions@gmail.com](mailto:rabsolutions@gmail.com).* The AR logo consists of the letters "AR" in a stylized, bold, sans-serif font, with a registered trademark symbol (®) to the upper right.



# Text Mining and Statistical Analysis of Crash Reports Can Power Predictive Modeling of Distracted Driving Accidents

**PHILADELPHIA, Pa.**—Distracted driving has grabbed headlines recently as a consensus emerges around the risk posed by drivers using cell phones. A presentation at the Casualty Actuarial Society's Ratemaking and Product Management Seminar held March 19-21 showed how new analytic methods are emerging that can provide statistical insight into distracted driving.

The presentation reestablished a familiar fact: cell phone users are more likely to be in multicar accidents and rear-end collisions than are non-users. But the approach that led to the conclusion, advanced by Philip S. Borba, a principal and senior consultant at the actuarial consulting firm of Milliman, differed from the usual methods.

Mr. Borba utilized a federal database of written crash reports to look for word patterns that indicated cell phone use. Then he measured how frequently cell phone use was linked to auto accidents. And while his conclusion is not necessarily groundbreaking, the technique can be. It helps show how written reports, like claims adjusters' narratives, can be used to hunt for quantitative information. The information can then be used to feed predictive models, the fast-growing area in which complex sets of variables are analyzed to inform underwriting and pricing business.

Mr. Borba's study shows that modern methods let analysts unlock numerical data where little or none has been thought to exist. Then actuaries and other analysts have new sets of numbers to crunch, so they can continue to add value to their employers.

So instead of turning numbers into words—the heart of report writing—Mr. Borba's study showed how to turn words into numbers.

Mr. Borba looked at 6,949 accident reports from a federal project analyzing crashes, the National Motor Vehicle Crash Causation Survey. In the study, researchers listened to police scanners, and then scurried to sites of auto accidents—"almost like ambulance chasers," Mr. Borba said. Once there, they interviewed everyone on the scene and then filed a separate standardized report.

The reports collected data two ways. First, the researchers filled out a structured form, assigning a number or code to a series of characteristics, like date and time of accident, driver use

of medication, presence of a cell phone and whether a cell phone was used. Then they wrote a brief report, usually describing the accident in about 400 words. The longest was about 1,200 words.

There were two ways to analyze how often a driver was using a cell phone. One way—having a computer count up the checked boxes—is straightforward and is a standard analytic tool. The other way—having a computer "read" the narrative and draw conclusions—is more cutting edge.

So the study was a good way to show how well the latter works.

The first step, according to Mr. Borba, is to take a typical phrase describing cell phone use—"He was dialing his cell phone," for example. That needs to be broken down to a series of N-grams. (An N-gram is a word or short series of words.)

"He was dialing his cell phone" has quite a few N-grams. Each word of the sentence—"he", "was", "dialing", etc.—gets its own N-gram. Two word combinations such as "he was" get their own N-grams. So do three-, four- and five-word combinations. Then N-grams that don't really add to the mix, like combinations including the word "and," get dropped.

Even so, there are a lot of N-grams. The 6,949 reports generated 13.3 million N-grams. Harnessing computer power, Mr. Borba searched the written reports for signs of cell phone use.

He found that about 20% of narratives mentioned cell phone use. The vast majority also had the cell phone box checked. A few didn't. Fewer still had the box checked but had no mention of cell phones in the written report.

Still, the analysis showed that using N-grams to comb through written reports is an effective way to make numbers out of words.

From there, Mr. Borba ran three traditional statistical analyses—controlling for variables like weather and time of day. He found that cell phone use:

- Did not increase the likelihood of an injury in an accident.
- Did increase the likelihood of a multi-vehicle accident.
- Did increase the likelihood of a rear-end collision.

The latter two make intuitive sense, according to Mr. Borba. Using a cell phone seems particularly dangerous when other cars are around. If the distraction causes you to swerve, you are in greater danger if there are other cars around.

# FINANCIAL REPORT FISCAL YEAR ENDED 9/30/2011

<i>FUNCTION</i>	<i>REVENUE</i>	<i>EXPENSE</i>	<i>DIFFERENCE</i>
Membership Services	\$2,369,700	\$3,034,416	(\$664,716)
Seminars	2,344,249	2,041,467	302,782
Meetings	1,352,288	1,299,101	53,187
Exams	5,558,135	(a) 4,904,317	(a) 653,817
Publications	4,641	26,277	(21,636)
<i>TOTALS FROM OPERATIONS</i>	<u>\$11,629,013</u>	<u>\$11,305,579</u>	<u>\$323,434</u>
Interest and Dividend Revenue			173,367
Realized Gain/(Loss) on Marketable Securities			33,347
Unrealized Gain/(Loss) on Marketable Securities			(159,194)
<i>TOTAL NET INCOME (LOSS)</i>			<u>\$370,954</u>

NOTE: (a) Includes \$2,955,735 of Volunteer Services for income and expense (SFAS 116).

## BALANCE SHEET

<i>ASSETS</i>	<i>9/30/2010</i>	<i>9/30/2011</i>	<i>DIFFERENCE</i>
Cash and Cash Equivalents	\$1,319,673	\$1,471,491	\$151,818
T-Bill/Notes, Marketable Securities	6,692,588	6,984,424	291,836
Accrued Interest	7,935	8,931	996
Prepaid Expenses / Deposits	382,051	220,507	(161,544)
Prepaid Insurance	25,357	26,343	986
Accounts Receivable	129,348	411,937	282,589
Textbook Inventory	13,284	12,335	(949)
Computers, Furniture, Leasehold Improvements	815,502	767,338	(48,164)
Less: Accumulated Depreciation	(603,965)	(639,708)	(35,743)
<i>TOTAL ASSETS</i>	<u>\$8,781,773</u>	<u>\$9,263,597</u>	<u>\$481,824</u>
<i>LIABILITIES</i>	<i>9/30/2010</i>	<i>9/30/2011</i>	<i>DIFFERENCE</i>
Exam Fees Deferred	\$1,045,785	\$1,017,410	(\$28,375)
Seminar and Meeting Fees Deferred	566,689	728,571	161,882
Accounts Payable and Accrued Expenses	720,633	617,120	(103,513)
Accrued Pension	426,147	531,819	105,672
Deferred Leasehold Improvements Allowance	108,744	87,696	(21,048)
Deferred Rent Obligation	104,316	100,568	(3,748)
<i>TOTAL LIABILITIES</i>	<u>\$2,972,314</u>	<u>\$3,083,184</u>	<u>\$110,870</u>
<i>MEMBERS' EQUITY</i>	<i>9/30/2010</i>	<i>9/30/2011</i>	<i>DIFFERENCE</i>
Unrestricted			
CAS Surplus	\$4,810,728	\$5,045,265	\$234,538
Michelbacher Fund	158,491	161,162	2,671
CAS Trust - Operating Fund	197,383	237,075	39,692
Centennial Fund	250,634	304,420	53,786
ICA 2014 Fund	52,963	66,505	13,542
Research Fund	250,786	276,521	25,736
Subtotal Unrestricted	<u>\$5,720,985</u>	<u>\$6,090,949</u>	<u>\$369,964</u>
Temporarily Restricted			
Scholarship Fund	\$3,789	\$3,351	(438)
CAS Trust - Ronald Bornhuetter Fund	55,911	56,853	942
CAS Trust - Reinsurance Prize Fund	28,774	29,259	485
Subtotal Temporarily Restricted	<u>\$88,474</u>	<u>\$89,463</u>	<u>\$990</u>
<i>TOTAL MEMBERS' EQUITY</i>	<u>\$5,809,458</u>	<u>\$6,180,412</u>	<u>\$370,954</u>

Leslie Marlo, Vice President - Administration

## AUDITED

CAS Audit Committee: Kenneth Quintilian, Chairperson;  
Jeanne Crowell, Vice-Chairperson, Lisa Canzit, David Klein, James Merz, and John Tierney

# Soccer Tournament Scheduling

**J**eff Eddinger suggests a real-life soccer problem. There are 10 teams. Because of limited field space, only eight teams can play each week (four games maximum in any week). No team can play more than once a week. What's the minimum number of weeks for a tournament in which each team plays every other team exactly once? What could a schedule be?



**Know the  
answer? Send  
your solution to  
ar@casact.org.**

## Hot and Cold

Jon Evans reported on an extra-solar planet named PV/Nk, which has exactly four equally long seasons: winter, spring, summer, and fall. From the Coldest Day, which is in the middle of winter, to the Hottest Day, which is in the middle of summer, the temperature increases at a uniform rate. Similarly from the Hottest Day to the Coldest Day, the temperature decreases at a uniform rate. During the winter, the average temperature measured in degrees Celsius equals the average temperature measured in degrees Fahrenheit. During the summer, the average temperature

measured in degrees Kelvin equals the average temperature in degrees Fahrenheit. He asked for the temperatures on the Hottest Day and on the Coldest Day.

Rick Carter noted that the uniform temperature change implies the following:

1. Winter average temperature = coldest + (hottest - coldest)/8
2. Summer average temperature = hottest - (hottest - coldest)/8

From  $F = (9/5)C + 32$ , it is easy to check that the average winter temperature is  $-40$  Fahrenheit or Celsius. From  $K = C + 273.15$  the average summer temperature is  $574.5875$  Fahrenheit or Kelvin. Using Rick's equations, the (average) temperature on the Hottest Day is  $677.019$  Fahrenheit, and the temperature on the Coldest Day is  $-142.431$  Fahrenheit.

Some readers pointed out that by "the temperature on the Hottest Day" we in fact meant the highest temperature on that day, and similarly for the temperature on the Coldest Day we meant the lowest temperature. To get the average temperature on either of these days, you would need to know the number of days in the year.

We also received solutions from Nathan Babcock, Kyle Bartee, Andrea Boudreau, Kelly Burns, Michael Captain, Ernest Chia, Bob Conger, Greg Cuzzi, Jeff Dvinoff, Enrique Escalante, Jonathan Fulop, Nick Getter, Rex Goodman, John Herder, John Jansen, Bridget Jönsson, Richard Kollmar, Bob Matthews, Jim Muza, Dave Oakden, Seoh Oh, Sean Porreca, Yiannis Psiloyenis, Jason Russ, Gregory Scruton, Michael Bayard Smith, Greg Talbot, David Uhland, Arlene Woodruff, and Wanning Wu. [AR](#)

## Text Mining, From page 25

And if a driver looks at his phone for a moment, he might miss the driver in front of him hitting the brakes.

The point of the exercise, though, wasn't to establish a breakthrough in the link between cell phones and auto

accidents. It was to show how an actuary could use the technique to mine data from written reports, such as a claims memo.

Still, Mr. Borba said he learned something: "Turn off your cell phone in urban areas." [AR](#)



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CAS  
PROFESSIONAL  
EDUCATION  
CALENDAR

**June 4-5, 2012**  
**Seminar on Reinsurance**  
Hyatt Regency Cambridge  
Boston, MA, USA

**September 5-7, 2012**  
**Casualty Loss Reserve Seminar (CLRS)**  
Sheraton Denver Downtown Hotel  
Denver, CO, USA

**October 4-5, 2012**  
**In Focus Special Interest Seminar**  
Baltimore Marriott Waterfront  
Baltimore, MD, USA

**November 11-14, 2012**  
**CAS Annual Meeting**  
Walt Disney World Swan Hotel  
Lake Buena Vista, FL, USA

**March 11-13, 2013**  
**Ratemaking & Product Management (RPM) Seminar**  
Hyatt Regency Huntington Beach Resort & Spa  
Huntington Beach, CA, USA

**May 19-22, 2013**  
**CAS Spring Meeting**  
The Westin Bayshore Vancouver  
Vancouver, BC, Canada

## IN MEMORIAM

**Alexandre Cung-Rousseau**  
(FCAS 2008) 1981-2011

## Follow Us



FSC LOGO

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