Abstract Writing Workshop

Elissa Krakauer, Ph.D. Bio. Anthro. (HEB)
Donna Mumme, Ph.D. Psychology
Abstract

What is it?

You said to do an abstract.
Abstract

GEOLOGICAL NOTES

A SCRUTINY OF THE ABSTRACT, II

KENNETH K. LANDES
Ann Arbor, Michigan

ABSTRACT

A partial biography of the writer is given. The inadequate abstract is discussed. What should be covered by an abstract is considered. The importance of the abstract is described. Dictionary definitions of "abstract" are quoted. At the conclusion a revised abstract is presented.

For many years I have been annoyed by the inadequate abstract. This became acute while I was serving a term as editor of the Bulletin of The American Association of Petroleum Geologists. In addition to returning manuscripts to authors for rewriting of abstracts, I also took 30 minutes in which to lower my ire by writing, "A Scrutiny of the Abstract." This little squib has had a fantastic distribution. If only one of my scientific outpourings would do as well! Now the editorial board of the Association has requested a revision. This is it. listens to your entire paper, from 10 to 500 will read the abstract.

If you are presenting a paper before a learned society, the abstract alone may appear in a pre-convention issue of the society journal as well as in the convention program; it may also be run by trade journals. The abstract which accompanies a published paper will most certainly reappear in abstract journals in various languages, and perhaps in company internal circulars as well. It is much better to please than to antagonize this great audience. Papers written for oral presenta-
Abstract

• Abstracts appear:
  • At the start of published papers
  • In published conference proceedings (for both presentations and posters)
  • In electronic databases (e.g., PubMed)
  • In invitations to review a manuscript for a journal
  • When writing book proposals, grant proposals, etc.
Abstract

• Summarizes (often in 1 paragraph) the entire paper
Abstract

• Summarizes (often in 1 paragraph) the entire paper

  • *Introduction*: the goal of the study, crucial background
  • *Methods*: basic study design
  • *Results / Thesis*: summary of major findings
  • *Discussion*: Interpretations, conclusions, broader implications

• Be sure that the abstract perfectly matches the paper
Abstract

• Summarizes (often in 1 paragraph) the entire paper
• Usually ~150-300 words
• Typically written in the past tense
• New text (not cut/pasted from the body of the paper)
• Stands alone
Abstract

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• Usually ~150-300 words
• Typically written in the past tense
• New text (not cut/pasted from the body of the paper)
• Stands alone
Abstract

• Avoid being vague
  • E.g., “Several implications will be discussed”
• Typically written in the third person
• Includes keywords
• Avoid typos
• Avoid references (unless critical to the study)
For over 140 years, lichens have been regarded as a symbiosis between a single fungus, usually an ascomycete, and a photosynthesizing partner. Other fungi have long been known to occur as occasional parasites or endophytes, but the one lichen–one fungus paradigm has seldom been questioned. Here we show that many common lichens are composed of the known ascomycete, the photosynthesizing partner, and, unexpectedly, specific basidiomycete yeasts. These yeasts are embedded in the cortex, and their abundance correlates with previously unexplained variations in phenotype. Basidiomycete lineages maintain close associations with specific lichen species over large geographical distances and have been found on six continents. The structurally important lichen cortex, long treated as a zone of differentiated ascomycete cells, appears to consistently contain two unrelated fungi.
Abstract

Secular Changes in Standards of Bodily Attractiveness in American Women: Different Masculine and Feminine Ideals

NIGEL BARBER

Department of Psychology
Birmingham-Southern College

ABSTRACT. Silverstein, Peterson, and Perdue (1986) studied changes in curvaceousness of the models in Vogue magazine over time and found that curvaceousness was inversely correlated with American women's participation in higher education and the professions. In the present study, it was predicted that the male standard for women's bodily attractiveness would differ from the female standard and would change differently over time, based on evolutionary theory. Published data on the bodily curvaceousness of models in Playboy and Vogue and on Miss America winners were used to test this hypothesis. Although they did not differ on average, the male and female standards changed differently over time. There was less variation in the male standard, represented by Playboy and by Miss America winners, than in the female standard, represented by Vogue. Results suggest that cultural standards of attractiveness are influenced by an evolved psychology of mate selection that has implications for understanding changes in the standard of attractiveness and its relation to eating disorders.
Abstract

• Usually written last
• Contains no graphics
**Abstract**

**ABSTRACT:** This paper presents methods that use Magnetic Levitation (MagLev) to measure very small differences in density of solid diamagnetic objects suspended in a paramagnetic medium. Previous work in this field has shown that, while it is a convenient method, standard MagLev (i.e., where the direction of magnetization and gravitational force are parallel) cannot resolve differences in density $<10^{-4}$ g/cm$^3$ for macroscopic objects (>mm) because (i) objects close in density prevent each other from reaching an equilibrium height due to hard contact and excluded volume, and (ii) using weaker magnets or reducing the magnetic susceptibility of the medium destabilizes the magnetic trap. The present work investigates the use of weak magnetic gradients parallel to the faces of the magnets as a means of increasing the sensitivity of MagLev without destabilization. Configuring the MagLev device in a rotated state (i.e., where the direction of magnetization and gravitational force are perpendicular) relative to the standard configuration enables simple measurements along the axes with the highest sensitivity to changes in density. Manipulating the distance of separation between the magnets or the lengths of the magnets (along the axis of measurement) enables the sensitivity to be tuned. These modifications enable an improvement in the resolution up to 100-fold over the standard configuration, and measurements with resolution down to $10^{-6}$ g/cm$^3$. Three examples of characterizing the small differences in density among samples of materials having ostensibly indistinguishable densities—Nylon spheres, PMMA spheres, and drug spheres—demonstrate the applicability of rotated MagLev to measuring the density of small (0.1–1 mm) objects with high sensitivity. This capability will be useful in materials science, separations, and quality control of manufactured objects.
Abstract

• Usually written last
• Contains no graphics
• Usually not needed for a presentation or poster (which is itself a type of ‘summary’), but there is often an abstract publication that goes with both
Abstract

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• Contains no graphics
• Usually not needed for a presentation or poster (which is itself a type of ‘summary’), but there is often an abstract publication that goes with both
• Don’t mislead readers
Pacing – how much time for each part?
Abstract

Malaria is a devastating parasitic infectious disease with an enormous impact on public health and economic growth, particularly in Sub-Saharan Africa. Besides advances in anti-malarial drugs and vaccine development, a successful malaria eradication program relies on controlling the mosquito vector.

In this study, we pursue a novel approach for malaria vector control by inhibiting an enzyme important for ensuring reproductive success of the mosquito Anopheles gambiae. The enzyme, A. gambiae transglutaminase 3 (AgTG3), catalyzes the cross-linking of its native substrate Plugin, which is then transferred to a female mosquito in a coagulated mass known as the mating plug. Interfering with AgTG3-catalyzed mating plug formation prevents efficient sperm storage, with a direct consequence on fertility.

This study demonstrates that the mutation of a highly conserved cysteine residue in AgTG3 (Cys323) abolishes its cross-linking activity without disrupting other properties of the enzyme such as protein folding and oligomeric assembly. These results suggest that Cys323 is an active site residue and support the design of specific inhibitors targeting this site as a promising strategy to reduce the malaria disease burden worldwide.

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Hand and Body Position During Locomotor Behavior in the Aye-Aye (*Daubentonia madagascariensis*)

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Department of Biological Anthropology and Anatomy, Duke University, Durham, North Carolina

Aye-ayes (*Daubentonia madagascariensis*) have unique hands among primates, with extraordinarily long fingers in relation to body size. These long digits may be vulnerable to damage from forces during locomotion, particularly during head-first descent—a locomotor mode that the aye-aye utilizes frequently. Previous behavioral studies of aye-aye locomotion reported that *Daubentonia* must curl its fingers during horizontal quadrupedalism and/or descent to reduce potential stresses on its long fingers. To test this hypothesis, we examined hand and body position in three captive adult aye-ayes while they walked quadrupedally on horizontal and oblique branches. Substantial variation in hand position was observed among individuals for each substrate orientation. While hand postures with curled fingers were preferred by one individual during descent, they were not preferred by the other two individuals, contrary to our expectations. Differences in body position were more consistent among all three individuals. The angle of the body relative to the substrate was significantly reduced during descent (8.4°) compared to horizontal locomotion (16.9°). These results suggest that changes in body position, rather than hand position, may help reduce stresses on the digits. A biomechanical model is proposed that demonstrates how a reduction in the body angle in relation to substrate may act to move the center of mass more caudally. This mechanism of moderating loads by altering body position, rather than hand position, may represent an important functional aspect of arboreal locomotion in aye-ayes and other primates. Am. J. Primatol. 57:105–118, 2002. © 2002 Wiley-Liss, Inc.
What if you’re not in the sciences?

<table>
<thead>
<tr>
<th>Sciences</th>
<th>Social Sciences</th>
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What works for the sciences . . .

Experimental Social Sciences (e.g., Applied Economics, Behavioral Medicine):

**Objective:** Using self-refilling soup bowls, this study examined whether visual cues related to portion size can influence intake volume without altering either estimated intake or satiation.

**Research Methods and Procedures:** Fifty-four participants (BMI, 17.3 to 36.0 kg/m²; 18 to 46 years of age) were recruited to participate in a study involving soup. The experiment was a between-subject design with two visibility levels: 1) an accurate visual cue of a food portion (normal bowl) vs. 2) a biased visual cue (self-refilling bowl). The soup apparatus was housed in a modified restaurant-style table in which two of four bowls slowly and imperceptibly refilled as their contents were consumed. Outcomes included intake volume, intake estimation, consumption monitoring, and satiety.

**Results:** Participants who were unknowingly eating from self-refilling bowls ate more soup [14.7 +/- 8.4 vs. 8.5 +/- 6.1 oz; F(1,52) = 8.99; p < 0.01] than those eating from normal soup bowls. However, despite consuming 73% more, they did not believe they had consumed more, nor did they perceive themselves as more sated than those eating from normal bowls. This was unaffected by BMI.

**Discussion:** These findings are consistent with the notion that the amount of food on a plate or bowl increases intake because it influences consumption norms and expectations and it lessens one’s reliance on self-monitoring. It seems that people use their eyes to count calories and not their stomachs. The importance of having salient, accurate visual cues can play an important role in the prevention of unintentional overeating.

Experimental Social Sciences (e.g., Psychology):

Despite a long tradition of effectiveness in laboratory tests, normative messages have had mixed success in changing behavior in field contexts, with some studies showing boomerang effects. To test a theoretical account of this inconsistency, we conducted a field experiment in which normative messages were used to promote household energy conservation. As predicted, a descriptive normative message detailing average neighborhood usage produced either desirable energy savings or the undesirable boomerang effect, depending on whether households were already consuming at a low or high rate. Also as predicted, adding an injunctive message (conveying social approval or disapproval) eliminated the boomerang effect. The results offer an explanation for the mixed success of persuasive appeals based on social norms and suggest how such appeals should be properly crafted.

What works for the sciences . . .

Social Sciences (e.g., Economics):

In developing countries, informal firms account for up to about half of all economic activity. Using data from World Bank firm-level surveys, we find that informal firms are small and extremely unproductive compared with even the small formal firms in the sample, and especially relative to the larger formal firms. Formal firms are run by much better educated managers than informal ones and use more capital, have different customers, market their products, and use more external finance. Few formal firms have ever operated informally. This evidence supports the dual economy (“Wal-Mart”) theory of development, in which growth comes about from the creation of highly productive formal firms. Informal firms keep millions of people alive but disappear as the economy develops.

What works for the sciences . . .

Social Sciences (e.g., History):

Historical scholarship often relies on intermittent adjustments rather than radical innovation. Through a close reading of three different universal histories published between 1690 and 1760, this essay argues that the secularization of world history in the age of Enlightenment was an incomplete and often unintended process. Nonetheless, one of the most significant changes in this period was the centering of universal history in Europe, a process that accompanied the desacralization of the story of man. Once human progress was embraced as a universal process, the story of the development of the arts and sciences gradually eclipsed the non-European cultures that had formerly played a central role in the Christian narrative of human history.

But what about the humanities?

• Literature
• Arts
• Philosophy
• Religion
• Languages
• Classics
Questions are still being answered.

- **Introduction/Objective** = Why do we care about the problem?
- “**Method**” = What did you do to get to your argument?
- “**Results**” = What is your argument?
- **Discussion** = What are the larger implications of your findings?
Questions are still being answered.

- **Introduction/Objective:** Why do we care about the problem?
  - State of knowledge in the field.
  - What gap is your research filling?

- **“Method”** = What did you do to get to your argument?
  - Could involve analyzing literary works, completing a series of paintings, searching archives, comparing documents.

- **“Results”** = What is your argument?
  - A statement of the thesis.

- **Discussion** = What are the larger implications of your findings?
Same Basic Structure

• Introduction/Objective = Background and Why do we care about the problem?

• “Method” = What did you do to get to your argument?

• “Results” = What is your argument?

• Discussion = What are the larger implications of your findings?

Literature

In late-Victorian literature and psychology, memories were frequently thought to transgress mental boundaries, drifting from one mind to another or assuming a spectral existence. Objects with powerful – and often traumatic – associations acted as an especially potent conduit by which memories could pass between people who were distant in time and space. Examining literary, psychological, and parapsychological writings by Thomas Hardy, Arthur Conan Doyle, George Henry Lewes, Samuel Butler, and F. W. H. Myers, this essay argues that these works provide a distinctive set of narratives about the potential displacement and uncertain ownership of memory. By offering a range of speculations about how emotions, memories, and experiences adhere to the material world, such narratives dramatize the permeability increasingly attributed to memory, consciousness, and individual identity at the end of the Victorian period.

Art

The role of chance in producing a picture by snapping a shutter release before a complex and quickly changing scene weakens the bond between the historic action photograph and the meanings it is routinely asked to bear. To appreciate this problem and to understand the array of popular notions that have been marshaled to finesse or suppress the role of chance in photographic production, I consider the case of Joe Rosenthal's 1945 photograph of American servicemen raising a flag on Iwo Jima. The analysis pushes the production of this famous photograph through a series of zoological analogies: Is it like a fisherman reeling in a trophy catch? Like a cat pouncing on a mouse or a spider setting a trap for a fly? Like a pig pushing its snout through the dirt? Like chimpanzees banging at typewriters? These analogies are playful but also serious. We need new models for understanding the production of the historic action photograph because the predominant modern and postmodern approaches to that production have suppressed the role of chance. Whereas the modern regime tends to understand the historic action photograph as an inspired flash of history, the postmodern regime tends to understand it as a discursive effect. Entertaining the notion that such a photograph is instead a stochastic result leads to a new conception of photography and its relationship to history. Chance emerges as a third kind of photographic madness, alongside the industrial madness decried by Charles Baudelaire and the indexical madness that moved Roland Barthes.

What does all this mean for you?

Let’s Take a Look!
• Partner up with the one or two people seated closest to you.
• Quickly read through the first abstract and talk it over.
• Focus on the content.
  ➢ What is working?
  ➢ Is anything missing?
  ➢ What would you do differently?
• Repeat with the remaining two abstracts.
• Participate in the big group discussion.
Abstract #1:

- What is working?
- Is anything missing?
- What would you do differently?

Methane is an extremely effective greenhouse gas, with 20 times the heat trapping effect of an equivalent amount of carbon dioxide. As Arctic permafrost thaws, the release of methane could cause drastic increases in the rate of climate change. Wetlands are the largest natural source of methane, yet scientists lack a quantitative understanding of how methane emissions from wetlands change over time. We believe anaerobic methane production is oxygen limited and tested this hypothesis by combining fieldwork at Sallie’s Fen in New Hampshire with direct laboratory manipulation. After collecting peat samples from a New Hampshire wetland, we created parallel incubations with air atmospheres and nitrogen atmospheres completely lacking oxygen. We compared methane production rates using a flame-ionization detector on a gas chromatograph. We also tested microbes as limiting reactants by setting up incubations lacking various fungi or bacteria and comparing methane production rates. Additionally, we made high time-resolution measurements of carbon dioxide and methane across the wetland surface over a period of 24 hours. We cryogenically separated the gases using a vacuum line with liquid nitrogen, a capillary, and a water trap. We compared the covariance between these concentrations and the isotropic composition of carbon dioxide to understand if methane is produced at the surface boundary layer.
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Abstract #2:

- What is working?
- Is anything missing?
- What would you do differently?

Corruption, defined as preferential treatment following a bribe, has been an important policy concern in many countries. Prior research efforts have attempted to emulate and model such behaviors of corruption; however, this has proven to be quite difficult in the confines of the laboratory because it requires study participants to be primed for “corruption.” This cross-cultural behavioral study allows human subjects in a group of four to engage in an online board game with limited transparency and separation of powers to study how corruption affects individuals and aggregate performance. This study has clear open-ended rules with no hints of priming for corruption. One player is randomly chosen to be the “auctioneer,” representing the government official. The other three players are “bidders,” representing private interests. Each bidder is allotted an amount of online chips, which he or she can use with the help of the auctioneer to reach a goal on the game board for a high monetary prize. In addition, the players are given time to communicate with each other and to send chips to one another. The preliminary results indicate that instances of corruption are more prevalent in the U.S. than in Israel (41% vs. 31%). In addition, in games where corruption plays a role, the auctioneer ends up with a much higher monetary reward in the United States but not in Israel. It was also observed that the auctioneer is much more likely to approach the bidders about possible bribery in the U.S., whereas bidders are more likely to approach auctioneers in Israel.
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- Some trimming needed ...

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Abstract #3:

- What is working?
- Is anything missing?
- What would you do differently?

Run in conjunction with the Harvard Department of Philosophy, the “Philosophy, Education, and Community Action” project (PECA) contained multiple constituent programs. These included a philosophy of education seminar and the development of philosophy education curricula for K-12 students, resulting in trial programs run at both the elementary (at the Peabody Essex Museum in Salem, MA) and high school (at Harvard University) levels over the course of the summer. This project exists as another component of the overarching program, researching the structure of humanities curricula with a focus on integrating practical methods into humanities education. Specifically, this investigation examines a model for post-secondary humanities courses which includes field work components in addition to traditional classroom-based study. Based on an analysis of previously implemented syllabi in a range of humanities disciplines and the field-based philosophy education programs developed and run by the PECA project, this report proposes a novel structure for fieldwork-based humanities courses.
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Questions?
When you don’t know your results / conclusions...
When you don’t know your results / conclusions...

This actually happens in the real world
When you don’t know your results / conclusions...

This summer, I have rotated among several different projects related to the processing of social information (social cognition) and the ability to infer the thoughts and feelings of others (mentalization). The SCAN Lab uses behavioral methods and functional magnetic resonance imaging (fMRI), a neuroimaging method that monitors changes in metabolic activity among different brain regions, to investigate the neural basis of social cognition.

One project I am working on aims to determine the power of social influence on one’s judgment of physical attractiveness. Previous research has shown that we

Technological advances over the past decade have led to the proliferation of consumer review ranging from Yelp.com to movie review websites such as Rotten Tomatoes where consumers can share experiences about product quality. With the click of a button, we can now acquire information from countless other consumers about products ranging from restaurants to movies to physicians. My research this summer investigates the way consumers use this information, how this information varies depending on the type of reviewer, how this affects markets, and the motivations that drive people to leave reviews.
My boss told me to “Dress for the job you WANT, not for the job you HAVE.” Now I’m sitting in a disciplinary meeting wearing my Batman costume.
Acknowledge that you are not done:

Significant knowledge gaps exist in the fate, transport, biodegradation, and toxicity properties of biodiesel when it is leaked into the environment. In order to fill these gaps, a combination of experiments has been developed in a Multimedia Risk Assessment of Biodiesel for the State of California. **Currently, in the Tier II experimental phase of this assessment, I am investigating** underground plume mobility of 20% and 100% additized and unadditized Soy and Animal Fat based biodiesel blends and comparing them to Ultra Low-Sulfer Diesel #2 (USLD) by filming these fuels as they seep through unsaturated sand, encounter a simulated underground water table, and form a floating lens on top of the water. **Thus far, initial findings** from analyzing the digital images have indicated that all fuels tested have similar travel times. SoyB20 behaves most like USLD in that they both have a similar lateral dispersion lens on top of the water table. In contrast, Animal Fat B100 appears to be most different from ULSD in that it has a narrower residual plume in the unsaturated sand, as well as a narrower and deeper lens formation on top of the water table.
Acknowledge that you are not done:

• The **preliminary results** indicate that instances of corruption are more prevalent in the U.S. than in Israel (41% vs. 31%).

• **Thus far,** we have succeeded in biotinylating the ERAD substrate . . .

• **Preliminary findings reveal** that women did write in all genres: epic poetry and metaphysics to vaudeville and republican journals.

• The **successful completion of the proposed project** might link a gene implicated in neural progenitors to TNBCs . . .

• **If** our hypothesis is supported, then ...
Use “Weasel Words”

- Might
- Could
- May
- Seem
- Suggest
“Weasel words” are useful!

• Bullying and being bullied in childhood were associated with distinct domains of psychosocial risk in adulthood that may later lead to poor physical health.

• Citizens’ complaints might thus be an operative mechanism that explains the link between education and the quality of government.

• Overall, our data suggest that although the D-helix sequence is not conserved in ABC transporters, its precise positioning within the NBD structure has a critical role in NBD dimerization.

• Our ideas for a physical zero-knowledge system could have applications beyond the context of nuclear disarmament. The proposed technique suggests a way to perform comparisons or computations on personal or confidential data without measuring the data in the first place.
“Dressing for the job you want” not only in terms of content but also in terms of style.
“Dressing for the job you want” . . . Which words signal “student”?

1. This question [the origin of morality] is the reason why I have personally taken an interest in Professor A’s research.

2. This summer, I have been lucky to work on a multitude of projects related to genomics and politics, under the supervision of Professor B.

3. After a day’s worth of fieldwork research, I return to a quiet space and relive all the interactions yet again so I can construct a detailed narrative that captures all that we’ve seen and learned so far.

4. I spent the first half of the summer working with NFAT1. Transformed E. coli bacteria were induced with isopropyl-beta-D-thiogalactopyranoside (IPTG) to express NFAT1-DBD.
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1. What is the origin of morality? In order to begin to answer this question, we conducted an experiment on one aspect of morality: inequity aversion.

2. Data from several different surveys were used to assess public opinion about genomics research.

3. Through participant observation and detailed ethnographic field notes, this research provides a contextualized understanding of the lives of Chinese senior migrants who have immigrated to the US after retirement.

4. In the first phase of the study, transformed E. coli bacteria were induced with isopropyl-beta-D-thiogalactopyranoside (IPTG) to express NFAT1-DBD.
Wrapping up . . .

• An abstract is kind of like a movie trailer for your research.
Abstract as a movie trailer

• Catch the reader’s attention.
• Capture what is essential about the work.
• Make the reader want to read the whole paper.
But don’t mislead.

Batman v Superman: Dawn of Justice
How to avoid rookie mistakes:

• Solicit feedback from your mentor and/or colleagues.

• Expect to revise your abstract and to revise it again and again and . . .
Abstract MadLibs!!

This paper presents a ________ method for ________
(synonym for new) (sciencey verb)
the _________________. Using ________________, the
(noun few people have heard of) (something you didn’t invent)
________ was measured to be _____ +/- ______
(property) (number) (number)
_______. Results show _________ agreement with
(units) (sexy adjective)
theoretical predictions and significant improvement over
previous efforts by ____________, et al. The work presented
(Loser)
here has profound implications for future studies of
(buzzword)
______________ and may one day help solve the problem of
(supreme sociological concern)

Keywords: __________, __________, __________
(buzzword) (buzzword) (buzzword)