Hows and Whys of reasoning with the American Statistical Association (ASA) Ethical Guidelines

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This is a brief presentation on the ASA Ethical Guidelines for Statistical Practice (2016) for the **C**onsortium for the **A**dvancement of **U**ndergraduate **S**tatistics **E**ducation (CAUSE). I do not work with undergraduates, but these comments (based on my experience with graduate, post graduate and professional training students and faculty) are relevant –and intended - for anyone teaching statistics at any level (in and outside the discipline).

outline

▸ ASA Ethical Guidelines for Statistical Practice (2016)

http://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx

▸ Ethical Reasoning defined (2012)

▸ How does Ethical Reasoning (ER) work with the Guidelines (2016)?

  ▸ Walking through two hard steps in ER: recognizing ethical challenges and identifying alternative decisions.

▸ Using the Guidelines requires more than familiarity!

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We have only about 25 minutes to discuss the Guidelines and how to use them. The Guidelines can be found here: http://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx

The preamble to the Guidelines, which were updated 2014-2016 and approved as revised by the ASA Board in 2016, includes these statements. Undergraduates, particularly those completing one "required" course in statistics or quantitative reasoning, can and should be introduced to the idea that there is more to "learning statistics" than applying formulae or running software! The results must be communicated, and the data analyst is often part of a team. Transparency and communication are huge – often underappreciated – aspects of quantitative work. Introducing the Guidelines can help reinforce their importance, even for those who don't <yet!> plan on a career as a quantitative practitioner.

The Guidelines are complex – with a total (as of January 2018) of 49 different elements. Two additional elements are under consideration (December 2018) by the Committee on Professional Ethics of the ASA, relating to bullying, sexual harassment/ assault, and intimidation.

The point is that it is a LOT to remember – but the point of this presentation is that memorizing the Guidelines and their content is not sufficient for professional practice. Recognizing when, and that, the Guidelines may be needed (identifying that an ethical problem or challenge exists) and determining what alternatives exist are two very difficult – and essential – steps in utilizing the Guidelines.

Knowing that there are Guidelines, and even what they contain, is not enough. Because different situations require different principles and elements of the Guidelines, Ethical Reasoning is an important skill set that can be learned and improved <and beginning this learning and improving should start as early as possible!> - and can be brought to bear on situations where the Guidelines may be useful.

Ethical reasoning (and these specific knowledge, skills, and abilities) are introduced here https://www.academia.edu/1130402/A_Mastery_Rubric_for_the_design_and_evaluation_of_an_institutional_curriculum_in_the_responsible_conduct_of_research

And discussed in several other papers, including two contributions to JSM proceedings. Search my Academia.edu web page for "Mastery Rubric" and "ethical reasoning" for papers (including Gunaratna & Tractenberg 2016) and talks.

The first step of the ethical reasoning procedure is to assess your prerequisite knowledge. This can be difficult but is not usually as difficult as articulating what the actual ethical problem is, so that step is the focus of this example.

How the challenges and solutions can be identified from an examination of the Guidelines is summarized in the table on the next slide. Two appendix slides show how to step through each of the ASA Ethical Guideline Principles (A- H) using the Ethical Reasoning steps. In the interest of time, this presentation focuses on one case and these two reasoning steps (identify an ethical challenge and identify alternative actions).

Identifying *issues (&solutions)*: challenging!

Case 1. The client/collaborator does not know how to present, or is not committed to presenting, the correct, transparent interpretation of results.

ASA Guideline Principle	Principle-identified challenges/decisions to be made
A. Professional integrity and accountability B. Integrity of data and methods	The data analyst will execute their professional obligations to the best of their abilities; no ethical challenges are identified using either of these Guideline Principles.
C. Responsibilities to Science/Public/Funder/Client	*Challenge*: the analyst has obligations – to science and to the public (and to a funder if funding is involved) to ensure that the collaborator/client uses (interprets, presents) their results responsibly.
D. Responsibilities to research subjects	Because the data were already collected, as the analyst fulfills Guideline Principles A & B, responsibilities to research subjects are met.
E. Responsibilities to research team colleagues	*Challenge*: the analyst has obligations to all members of the research team to ensure that the collaborator/client uses (interprets, presents) their results responsibly.
F. Responsibilities to other statisticians or statistics practitioners	*Potential solution:* This Guideline Principle can be used to help encourage collaborator/client responsible use of the statistical results.
G. Responsibilities regarding allegations of misconduct	*Challenge*: the analyst's obligations to ensure that the collaborator/client uses their results responsibly, implies that, if misconduct is encountered, the analyst has additional obligations that will arise.
H. Responsibilities of employers, including organizations, individuals, attorneys, or other clients employing statistical practitioners	*Potential solution:* This Guideline Principle can be used to help strengthen the resolve of the collaborator/client to use the statistical results responsibly.

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The Guidelines can help us to identify the ethical challenge that this case presents (a collaborator who doesn't want to be fully transparent) as well as potential solutions – to share these Guideline principles with the collaborator OR use the Guidelines to structure the communication from the analyst to the collaborator. For example, notifying the collaborator that the analyst has obligations to science and the public to ensure that all communication about the results is done fully and responsibly (Principle C); or to seek support from their boss or supervisor (Principle H) to make sure that all results are communicated fully and transparently.

Note that the case describes an interaction where the most specific one can be about what might be "wrong" is "the collaborator may impede the correct and transparent presentation of results". This is clearly action on the part of the collaborator, and not on the part of the analyst; however, the statistical analyst has obligations under multiple ASA Guideline Principles to report everything transparently and correctly – thus, challenges to the analyst's ethical and professional behavior arise when they are potentially prevented from following these Principles (specifically, C, E, and G).

Identifying alternatives

▸ "Doing nothing" _is a decision_. It is inconsistent with nearly every ASA Ethical Guideline principle.

▸ Other alternatives ("engage a colleague to formulate a response" and "report the client/collaborator") are generic, but _evaluable_. They may be starting points.

▸ Actually engaging in ethical reasoning to address a challenge you encounter will lead to more specific alternative actions than these!

(did I mention "doing nothing" is a decision - and that _in no case_ would a Principle support/is a Principle consistent with "doing nothing"?)

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Another difficult step in the process of reasoning ethically is to identify alternative actions. The easiest decision to make is "do nothing" – however this decision is not consistent with any of the ASA Ethical Guideline principles. This example features three very generic – but totally plausible – alternative decisions for an analyst faced with a collaborator who does not want to communicate all results fully/ transparently: "do nothing" <totally unsupported by ASA Ethical Guidelines>; "engage with a colleague in order to come up with a response" < which would be consistent with the Guidelines – unless the decision you both come up with is "do nothing", most likely>; or "report the collaborator" <which may be too extreme for the case – but if failure to communicate results represents fraud or other serious misconduct, it might not be too extreme>.

Identifying *alternatives*: challenging!

Case: The client/collaborator does not know how (or is not committed) to the correct, transparent interpretation and/or presentation of results.

Alternative actions:
Do nothing;
Engage a colleague to formulate a response;
Report the client/collaborator.

ASA Guideline Principle:	Principle-identified **alternative actions** and their evaluation:
A. Professional integrity and accountability	**Do nothing**: this alternative is not consistent with Principle A. **Engage a colleague to formulate a response**: consistent with Principle A
B. Integrity of data and methods	**Report the client/collaborator**: Principle A is not informative about this alternative. Principle B is not informative for any of these alternatives.
C. Responsibilities to Science/Public/Funder/ Client	Do nothing: this alternative is not consistent with Principle C. Engage a colleague to formulate a response: consistent with Principle C. Report the client/collaborator: consistent with Principle C, but only with simultaneous application of Principle G as well.

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Consideration (or discussion) of these three generic alternative actions can be useful for identifying exactly what to do. By considering what each of the ASA Ethical Guidelines Principles suggests about each of the three actions (as shown in this table, for just the first 3 Principles), suggestions for which of these three generic alternatives can be generated. If no suggestions arise supporting any of the alternative actions under consideration, then either the alternatives are not sufficiently well-formulated (e.g., not specific enough) *or* the specific elements of the Guideline Principles need to be consulted.

Again, simply memorizing the Guidelines and the 49 elements of the Principles will not yield the answer to the questions, "is there an ethical problem here?" or "what should I do about the ethical problem I have discovered?". That is why reasoning, and consideration of the Guideline Principles and their constituent elements, is important.

Take-home messages:

- ▸ There's more to "learning statistics" than applying formulae or running software.
  - ▹ Integrating the ASA Ethical Guidelines for Statistical Practice can help students understand the importance to statistical practice of <u>transparency</u>, *trust*, and **communication** –whether or not training for a career as a statistician!

- ▸ Knowing the Guidelines exist –or their contents- is not sufficient. *Reasoning* must also be taught/practiced.

- ▸ Cases need not be elaborate and can be as simple as "client/collaborator does not <follow a Principle or Principle element>"!

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Some References

- *ASA Ethical Guidelines for Statistical Practice* (2016). http://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx

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- Tractenberg RE. (2016-B). Integrating the ASA's Ethical Guidelines for Statistical Practice into course, program, and curriculum. In, J. Collmann & S. Matei (Eds)., Ethical Reasoning in Big Data. New York: Springer. 115-139.

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- Tractenberg RE (2016-D). Why and How the ASA Ethical Guidelines should be integrated into every quantitative course. Proceedings of the 2016 Joint Statistical Meetings, Chicago, IL.

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These papers/chapters are all available on my academia.edu web site https://georgetown.academia.edu/rochelletractenberg

Reasoning with the Guidelines: A

TABLE 1: Walking through the steps of Ethical Reasoning using the ASA Ethical Guidelines: executing ethical reasoning steps with each Guideline Principle.

Ethical Reasoning Steps:	Identify/ assess prerequisite knowledge	Recognize an ethical issue (decision that must be made)	Identify relevant decision-making frameworks (e.g., virtue or utilitarianism)	Identify and evaluate alternative actions	Make & justify a decision	Reflect on the decision
2016 ASA Guideline Principle:						
A. Professional integrity and accountability	To engage in ethical reasoning, the level of professional knowledge/ training must be sufficient to identify an ethical issue (when in doubt, ask for help!). *	Ethical issues in statistical practice arise whenever one or more ASA Guideline Principles *or their constituent elements* cannot be followed. Understanding "professional integrity and accountability" is essential.	The way to decide how to resolve the ethical issue must involve a framework for weighing different options; **virtue** (prioritizing obligations to the profession) and **utilitarianism** (prioritizing the action that results in the least harm) are two straightforward methods.	Actions that the ethical issue requires must also be identified – e.g., whether to ask a colleague or mentor for help, or to share the ASA Guidelines with the client/ collaborator, or to notify authorities that inappropriate use of the results of the analysis are being promulgated. These alternatives can be evaluated using the decision-making frameworks.	The default decision on ethical challenges can seem to be, "do nothing – and avoid that situation in the future". This decision is difficult-but not impossible-to justify.	Alerting colleagues in the profession about the situation can be accomplished by creating cases for teaching the ASA Ethical Guidelines; understanding how the ethical challenge arose – these are two ways to reflect on an ethical decision making process in order to prevent it in the future and to strengthen professional integrity for all practitioners.

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These two "bonus" slides discuss how ethical reasoning steps (each column) relate to each of the ASA Ethical Guideline Principles.

Guideline Principle A relates to the integrity of the practitioner, so this slide discusses how the steps of Ethical Reasoning work with this Guideline Principle. There is an asterisk * under the first step, "identify/assess prerequisite knowledge" – if an individual doesn't know about the Ethical Guidelines, or how they can be used, that's an important step in ethical reasoning – because consultation or asking for help is actually *the decision* the individual makes!!

Reasoning with the Guidelines: B

Ethical Reasoning Steps:	Identify/ assess prerequisite knowledge	Recognize an ethical issue (decision that must be made)	Identify relevant decision-making frameworks (e.g., virtue and utilitarianism)	Identify and evaluate alternative actions	Make & justify a decision	Reflect on the decision
2016 ASA Guideline Principle:						
B. Integrity of data and methods	If the integrity or source of the data, or proscribed methods, cannot be ascertained, that may constitute an ethical challenge.	Articulating (and then ensuring inclusion of) limitations and assumptions in reporting comprise decisions that often yield challenges (e.g., due to space) that are ethical in nature for the data analyst.	Both virtue ethics and utilitarianism can fail to promote decisions that are consistent with these ASA Guidelines when all stakeholders (i.e., not solely the analyst and the funder/client) are considered. *	The default alternatives can appear to be "acknowledge" and "do not acknowledge" limitations of the data and/or assumptions. Even articulating that this is a decision – and these are the (first) two alternatives considered - can – support more ethical and professional practice.	The justification for a decision should be based on the evaluation of the alternative approaches to the limitations and assumptions inherent in the data and analysis, respectively.	Reflecting on the decision entails considering what went better and what could be improved for future engagement. The analyst can feel the least amount of control over data –but always retains control over the methods to be employed and how results are presented.

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Guideline Principle B relates to the integrity of data and methods, and this slide walks through the ethical reasoning steps for the second Principle. *Many institutions and businesses offer ethics/bioethics and even ombudsperson consultation to support and strengthen responsible conduct across scientific disciplines. These support mechanisms should be sought and utilized whenever ethical challenges arise that seem beyond the individual's ability to reason through or resolve.