



## QUALITATIVE EMPIRICAL RESEARCH IN LEGAL WRITING

THE EXAMPLE OF EXEMPLARY  
REASONING

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LWI conference, Portland, OR, July 13, 2016

## Qualitative empirical research is messy...



...but it is NOT hopeless.

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In this session I will step you through an empirical research project on which I'm currently working. My hope is that you will become confident to pursue your own empirical research projects after seeing how messy they are even for experienced researchers. My goal, too, is that you will have a sort of template for discovering your own research questions and designing your own studies. **HOWEVER, THIS IS NOT A METHODS COURSE.** In a PhD program in communication or writing studies, you'd probably have at least two whole-semester courses on research methods. You won't learn that material here today, but I'm hoping that the annotated bibliography I'm providing will guide you some if you decide to proceed with a study, and I'm happy to reply to inquiries about study design and method after the conference is over.

So here is our agenda [NEXT]

## We will step through a single study's life cycle (so far)



- Communication and resources
- Where I'm coming from
- A manifesto about legal communication research
- Developing a research question with the DUORS model
- Selecting methods
- Implementing methods (making and using a coding guide)
- Statistics and ethics

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Read overview.

**Please contact me with questions or to discuss your own study**



- I'm available at [BLarson@GATech.edu](mailto:BLarson@GATech.edu)
- I tweet @Rhetoricked
- Materials for this program available at [www.Rhetoricked.com](http://www.Rhetoricked.com)
  - Slides (with notes and citations to authorities)
  - Handouts
  - Annotated bibliography
- For this session you will NEED
  - Writing utensil
  - Ability to move around

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Read this.

PLEASE INTERRUPT ME WITH QUESTIONS DURING THE TALK. If I can answer quickly without derailing us, I will. Otherwise, I'll put your question in the parking lot for the end of the session.

NEXT: My background/perspective.

## I have a blended disciplinary identity



- Ph.D. in Rhetoric & Scientific & Technical Communication
- Trained in empirical research methods
- Assistant professor of rhetoric and technical communication
- Six years experience teaching communication
- J.D. with fifteen years practice experience in information tech, copyright, and trademark law
- Eight years experience teaching legal communication (as adjunct at Minnesota)

**My research has used several of the methods discussed in this talk... qualitative and quantitative**

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## Legal communication teachers should research legal communication



- Quality teaching in any field is motivated by systematic empirical and theoretical consideration of what is being taught.
- The professionalization of legal writing and research faculty demands that they make the subject of their instruction the object of their research.

## Manifesto

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Quality teaching in any field is motivated by systematic empirical and theoretical consideration of what is being taught. We cannot rely only on our own practical experience. We must systematically examine what is being done in the field in order to prepare our students for it.

The professionalization of legal writing and research faculty demands that they make the subject of their instruction the object of their research. The professionalization of writing professors in the broader academy accompanied the focus those professors put on research into writing, moving away from the old model where writing teachers in English departments published articles and books on Shakespeare and the Romantics—literary research—and toward a model where writing teachers publish research on writing processes, contexts, and products—communication research.

I'm not alone in suggesting that empirical work in this space is warranted. Note Shaun Spencer's survey article in 2015 and the studies cited there, for example. And yesterday (July 12), Kirsten Davis, Lance Long, and Catherine Cameron explored the question as well in a panel at LWI.

OK, rant over [NEXT]

## Use DUORS to find and refine a research question



- Dissonance
- Unknown
- Originating question
- Rationale
- Specifying question

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Credit for this model to Dr. Christina Haas, professor of writing studies at University of Minnesota and editor of empirical research journal *Written Communication*.

**Dissonance is the felt unease, the sense that something is off-key**



- A practice appears not to have a theory
- Two practices seem to clash
- Two theories seem to clash
- Theory and practice don't seem to align
- Theory, or practice, appears to be disconnected from pedagogy

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Image “Dissonance” © 2009 Mait Jüriado. CC license. <https://flic.kr/p/64xikP>

- This is more than just curiosity. As Merton (1959, p. x) says: “questions that matter” are “so formulated that the answers to them will confirm, amplify, or variously revise some part of what is currently taken as knowledge in the field.”
- A theory is just a set of ideas or concepts intended to explain facts or events. We could spend a whole day on metatheory, talking about what makes a good theory. We’ll save that for another time.
- Why does it make sense to start your inquiry with existing theory about the topic?
  - If you are going to make “new knowledge,” you need to know how it fits into the old knowledge.
  - Data collection is always abstraction: Theory helps you choose which data to collect. What will your variables be?
  - You have an easy “lead”: Either the theory will explain your data, or your data will challenge or at least nuance the theory.

So what was my dissonance? [NEXT]

## Exemplary reasoning is at the heart of legal practice



- Figures in lawyer briefs and court opinions hundreds of times per day
- Central fixture of law-school education
- Perennial challenge in teaching legal writing

My dissonance: It seemed that the *theory* of exemplary reasoning does not inform its *practice*.

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READ. Note later terminological discussion.

We are probably all familiar with the famous example from HLA Hart...

**Eg: “Anyone who operates  
a vehicle in the park...”**



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Photo credit: “smart electric drive,” © 2012 GruinBlog, CC BY-NC-SA 2.0, <https://flic.kr/p/cniKFm> (Example adapted from H.L.A. Hart, pp. 126-27. )

Imagine there is an ordinance... “Anyone who operates a vehicle in the park is guilty of a misdemeanor.”

Imagine that the ordinance passed in response to people driving automobiles over the curb, across sidewalks, and onto park lawns during picnics, parties, and events.

This seems to be a very simple legal rule to apply, but almost certainly, there will be difficulties. One important question is [NEXT]

## What is a “vehicle”?



Vehicle



NOT



?



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Graphic credits: “Old car,” © 2008 Bogdan Suditu, CC BY 2.0. <https://flic.kr/p/4C84Ra> ; “My old bike,” © 2008 Keith Barlow, CC BY-NC-SA 2.0, <https://flic.kr/p/5swrWb> ; “Classic British Motorcycles – Ariel,” © 2015 Paul Townsend, CC BY-NC-SA 2.0, <https://flic.kr/p/rcuUej> ; “motor bike,” © 2014 krismadden, CC BY-NC-SA 2.0, <https://flic.kr/p/voVS5J>

- Case 1: We have the paradigmatic vehicle, the thing everyone had in mind when the law passed. No one even asks whether the rule applies.
- Case 2: Court says no. It mentions that it is “Not self-propelled” though some dictionaries include unpropelled objects in the “vehicle” category.
- Case 3: Motorcycle? Yes. Court only says, “It’s more like a car than like a bicycle.” It doesn’t say how. DON’T CLICK YET.
- The court has never adopted a rule about what is and is not a vehicle, but even if it did, it could not necessarily foresee how it would apply in future. (And to the extent that it governs cases unlike those currently before the court, the rule would be dictum and not binding on future courts.)
- So now we are confronted with Case 4: A bicycle with a motor, but where the motor was not running when the citation was issued. [CLICK NOW] In other words, the rider was pedalling it. Is this more like the bicycle or the car or motorcycle, and on what basis might we make the determination? What similarities are there between the bicycle and the objects in the previous cases? Which similarities are relevant to this decision? [NEXT]

**Lawyers call this “analogizing”  
but...**



...many rhetoricians and argumentation theorists call it  
“arguing from example.”

- Aristotle probably would have
- Perelman and Olbrechts-Tyteca definitely did

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POT said one difference between analogy and example is that analogies span two “spheres.” For example: “A woman needs a man like a fish needs a bicycle.” This analogy compares things in widely divergent spheres. POT said that if one is applying the same legal rule to two situations, one is using exemplary reasoning. Because lawyers and legal theorists say “analogizing,” I’ll probably slip and call it analogy here sometimes, too.

Why is the question of how exemplary reasoning works important? Well [NEXT]

## Court decisions should be or at least seem rational



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Photo credits: Hart, <https://www.mtholyoke.edu/~gerla22f/classweb/Human%20Rights%20Theories%20-%20Contemporary%20Perspectives.html> (fair use asserted); Dworkin, <http://www.telegraph.co.uk/news/obituaries/law-obituaries/9873847/Professor-Ronald-Dworkin.html> (fair use asserted); Posner, <http://harvardmagazine.com/2015/12/rhetoric-and-law> (fair use asserted); Frank, United States Federal Judicial Center - United States Federal Judicial Center, available at <http://www.fjc.gov/servlet/nGetPic?jid=789>.

- Legal philosophers generally think the law should be rational (Hart 1997, Dworkin 1986) or seem rational (Posner 1993, Frank 2009).
- Judge Posner has argued that judicial opinions are judges' rhetoric, not necessarily evidence for the reasoning that happens in their heads.
- But making a judge lay out an argument (whether it accurately represents her *reasoning* or no) makes the law susceptible to review on appeal, to public debate, and to revision by statute or other means..
- In court briefs, lawyers are trying to offer courts a rational route from the problem before the court to a solution that suits the lawyers' clients. Courts evaluate those arguments (not necessarily the reasoning underlying them) when handing down judgments.

But based on Posner's comments, we might want to distinguish legal *reasoning* from legal *argument*

## Choosing between “reasoning” and “argument”



- We can study both, but the tools are very different.
- “Reasoning” is what goes on in the reasoner’s head.
- “Argument” is what the reasoner speaks or writes to support a claim or standpoint.

A valid legal argument is a series of propositions such that the truth of the propositions provides a reasonable basis to accept the conclusion as true. In this sense, a valid legal argument has *rational force*.

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Here’s where it will become clear for the first time that developing your research question is not something that happens entirely before you choose research methods.

Reasoning:

- There are methods for studying it.
- I took a cog sci minor in my PhD, so I’m interested in cognitive processes
- But the methods for studying it, like think aloud protocols, discourse-based interviewing, experimental studies, fMRI, etc. are much more resource-intensive, and at this stage, I’m not sure I have enough information to formulate the kind of focused research question that would benefit from those methods.
- Here, I’m interested using principles of argumentation theory and rhetoric to explore a *normative* theory of argument by analogy, in other words, what such arguments *should look like* to be acceptable from a philosophical/rhetorical perspective.

Argument: Read There are other possibilities for a definition of argumentation, but we don’t have time to go through them. [see below]

So this leads to the U and O in the DUORs model...[NEXT]

**Unknown is whether lawyers' writing exhibits rational force**



This leads to the originating question . . .

**Do the analogical arguments of lawyers and judges exhibit characteristics of valid legal arguments, i.e., characteristics sufficient to give them rational force?**

. . . and to the rationale:

**Legal theory/philosophy/jurisprudence anticipates that legal arguments will have rational force. Arguments from analogy play a considerable role in legal arguments (at least in common law systems). If such arguments do not have rational force, legal theory must be adjusted to account for this fact.**

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## SEND AROUND HANDOUT PARTS 1 AND 2

READ this before reading slide contents:

Per Merton (1959, p. xiii) the originating question = “a statement of what one wants to know.” Note that this is a BIG question. We could look in lots of places for data, and we could look for it in lots of ways. But we have limited to argumentation now, moving away from reasoning, suggesting that our “variables” will be linguistic ones.

Note that OQ and rationale appear on the handout. Read OQ.

Per Merton (1959) the rationale is “stating why one wants to have the particular question answered” (p. xiii) “what will happen to other parts of knowledge or practice as a result of answering the question” (p. xix). A question and its answers “must be shown to be relevant to other ideas and facts in the discipline” (p. xx). Merton says “the same question may have import both for systematic knowledge and for practical use” (p. xxi).

So, we are interested in rational force. The most widely accepted way of achieving rational force is for an argument to take logical form, usually in the form of a deductive syllogism. But...

## Logic does not justify reasoning by example



- Aristotle knew this.
- Legal philosophers (Brewer, Weinreb, Posner) confirm it.
- They offer divergent, but not very helpful solutions:
  - Brewer: Use abduction to get a rule and apply it deductively.
  - Weinreb: Just trust analogical reasoning.
  - Posner: It's not a kind of reasoning at all. (accord Bentham)
- We need a theory that practice can operationalize and that can provide a rational critique of practice.

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READ.

The theory I've selected comes from the field of informal logic and the work of Doug Walton. Though not trained as a lawyer, he often writes about legal argumentation.  
[NEXT]

## Walton, Reed, and Macagno propose an argument “schema”



- A schema is **not deductively valid**. Accepting the premises does not compel the conclusion.
- But a schema **provides a reasonable basis** for one to accept the conclusion if the premises are true.
- A schema is **defeasible**; new propositions can be introduced to undermine or defeat it.
- **Critical questions** guide evaluation of the argument schema.
- Consequently, a schema can be accepted as **having rational force** (though not the same force as deductive or demonstrative arguments).

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This last point is important. Without the schema or something like it, the argument from analogy lacks rational force. And if it lacks rational force, it should have no place in our legal arguments.

Also note that the schema has a form that is similar to the deductive syllogism [NEXT]

## Walton, Reed, and Macagno propose an argument “schema”



### Exemplary (analogical) argument schema (EAS)

#### *Major Premise:*

Case 1 is similar to Case 2, in that both have  $f_1 \dots f_n$ .

#### *Relevant Similarity Premise:*

Features  $f_1 \dots f_n$  are relevant to legal category A.

#### *Minor Premise:*

Legal category A applies to Case 1.

#### *Conclusion:*

Legal category A applies to Case 2.

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- Larson adapted this schema from Walton, Macagno, and Reed (2008, p. 62, “Argument from Analogy version 2”).
- Note that the schema does not require any generalization or “analogy warranting rule.” It’s enough to argue from particular to particular, what Aristotle called “paradigma”—or argument by example.
- Of course, not all these terms must be stated for an argument from analogy to fit the schema...

EAS appears on p. 1 of the handout. [NEXT]

## The writer can apply an argument scheme in an enthymeme



- Remember the deductive syllogism
  - Major premise: All men are mortal.
  - Minor premise: Socrates is a man.
  - Conclusion: Socrates is mortal.
- What's omitted? You ask "Is Socrates mortal?", and I say...
  - "He's a man, and therefore he is mortal."
  - "All men are mortal, and therefore he is, too."
  - "Socrates is a man!"

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An enthymeme is an argument with a term (premise or conclusion) omitted.

With an enthymeme, the reader must infer one or more terms of the argument (premises or conclusion). In theory, there is no limit on how many can be implied rather than expressed.

- "He's a man, and therefore he is mortal." (Omitted major premise.)
- "All men are mortal, and therefore he is, too." (Omitted minor premise.)
- Or simply, "Socrates is a man." (Omitted major premise and conclusion.)

Note that in legal writing, we usually teach students NOT to leave terms unexpressed but instead to state all the terms of their arguments.

So, I've suggested that an analogical argument in the form of WRM's schema has rational force, but I also noted that evaluating such an argument calls for critical questions. [NEXT]

## Walton, Reed, and Macagno propose critical questions



### Critical questions: Exemplary argument schema

1. Do Case 1 and Case 2 actually have  $f_1 \dots f_n$ ? (Is the major premise true?)
2. Are  $f_1 \dots f_n$  relevant to A? (Is the relevant similarity premise true?)
3. Does legal category A apply to Case 1? (Is the minor premise true?)
4. Are there dissimilarities between Case 1 and Case 2 relevant to A?
5. Is there some Case 3 that is also similar to Case 1 (in that both have  $f_1 \dots f_n$ ) except that A is not applied in Case 3?

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WRM propose five critical questions, which also appear on p. 1 of the handout. The first three test the three premises of the schema itself. It may seem obvious, but these three can be particularly important if the writer has not expressed all terms of the schema, that is, if she has presented an enthymeme.

Questions 4 and 5, though, permit the introduction of new information that could defeat the argument if true.

Let's try this out [NEXT]

**Let's try it!**



“Anyone who operates a vehicle in the park is guilty of a misdemeanor.”

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Handout, p.1: Originating question, schema, CQs, and example about vehicle above.

- First, each person alone prepares an argument following the schema (no enthymemes, please).
- Then, present to a partner; partner asks critical questions (focus on CQs 2 and 4, probably).
- Chat about it.

My experience was dissonant with the theory supporting the argument schema.

- I did not learn analogical argument this way
- I was not teaching analogical argument this way
- The textbooks I had seen did not describe analogical argument this way
- I was not consciously using this model in my own practice (though that evolved as I was thinking about this problem)

Of course, empirical research means I have to explore this issue in a systematic way outside of my own experience... [NEXT]

## We need a specifying question



Merton (1959): A specifying question:

- Points “toward possible answers to the originating question in terms that satisfy the rationale for having raised it.”
- Recasts the originating question to “indicate the observations that will provide a provisional answer to it.”
- Identifies “empirical materials through which the problem can be investigated to good advantage.”

In other words, the specifying question provides a (dramatically) **narrower scope** than the originating question, it says **what you will look at** and **how you will look** in order to contribute to answering the originating question, and thus it requires you to think about **method**.

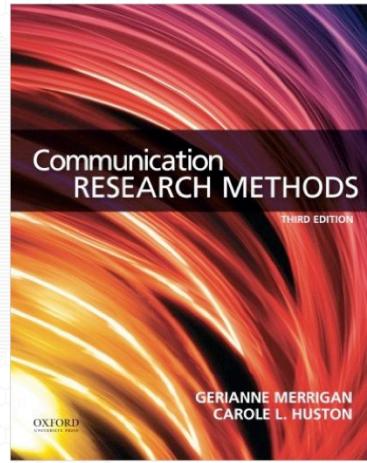
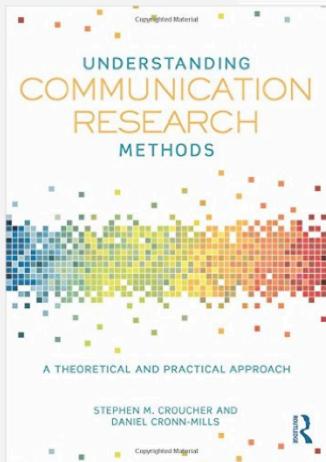
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Merton (1959 p. xiii) Specifying questions = “questions that point toward possible answers to the originating question in terms that satisfy the rationale for having raised it.” “The originating question must still be recast to indicate the observations that will provide a provisional answer to it” (p. xxvi). “This objective typically requires a search for empirical materials through which the problem can be investigated to good advantage” (p. xxvi).

Handout: Given previous handout, how might you frame a specifying question? That is, what might you look at and how might you look at it? Think-pair-share.

We'll come back to that after talking method...

## Orient yourself to empirical methods with a basic text



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- I'm using Croucher and Cronn-Mills in an upper division undergrad course and considering Merrigan and Huston for a graduate methods survey course.
- These texts describe different research or epistemological paradigms.
- They then describe how different methods work with these paradigms. Some methods are better suited for certain paradigms and questions than others.
- Value of these two is that they are easy to read, orient you with an appropriate vocabulary, and point you toward texts that provide more detailed instruction and also to examples of studies conducted using these methods.
- Note that I'm not emphasizing the quantitative/qualitative divide here, and neither do these authors, because many kinds of studies require both qual and quant components.

One first question you might want to consider is what your natural research paradigm is. [NEXT]

## Think about what your own research paradigm might be



- Research paradigms are epistemological or knowledge-making paradigms.
- Usually rooted in one kind of theory or another.
- Handout
- Commonly known:
  - Social science/discovery paradigm: Prone to quantitativeness and hypothesis-testing
  - Interpretive (or “interpretative”) paradigm: Interested in phenomenology and social construction; less about quantitative, but still interested in generalizable knowledge.
  - Critical paradigm: Interested in understanding power and making social change.

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See, generally Croucher & Cronn-Mills and Merrigan & Huston.

STOP AT HANDOUT!!!!!!

Handout: Quiz from Merrigan and Huston p. 27. Put adhesive notes in answer spots. Walk around and find someone as little like you as possible. For example, if you have lots of blue, look for someone with lots of yellow, and vice versa, and if you are polychromatic, find someone who is monochromatic, or vice versa. Talk about what kinds of people/objects might you observe and how might you observe them to empirically explore the originating question (see also previous handout).

BACK TO SLIDE: There are three commonly known paradigms discussed in communications research. If you have two or three purple post-its, you are probably from the social science paradigm. If you have two or three pink post-its, you probably come from the interpretative paradigm. And if you have two or three yellow/gold post-its, you probably come from the critical paradigm.

## Different paradigms favor different methods



Discovery	Interpretative	Critical
Survey research	Discourse analysis	Marxist critique
Network analysis	Ethnography	Feminist criticism
Experimental research	Narrative criticism	Postmodern criticism
Content analysis	Metaphor criticism	Cultural studies analysis
Neoclassical rhetorical criticism	Dramatism (Burkean rhetorical criticism)	Semiotic criticism
Classical genre criticism	New rhetorical genre criticism	Critical discourse analysis
Conversation analysis	Argumentation theoretic analysis	Feminist discourse analysis
Time-log diaries	Qualitative interviews and focus groups	
	Case study	
	Think-aloud protocols	

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Adapted by Larson from Merrigan and Huston (2014, p. 29).

Argumentation theory: Toulmin (2003); pragma-dialectics, see van Eemeren and Grootendorst (2004) and related texts, especially Feteris (1999); Perelman & Olbrechts Tyteca (1969).

Think-aloud protocols:

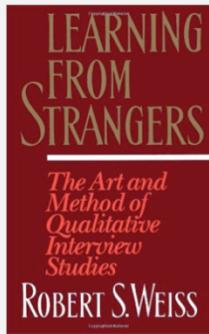
WARNING: These assignments of category are not firm. In other words, you can use methods listed here under one paradigm in another paradigm.

Assuming you find a paradigm you like and a method or methods that interest you [NEXT]

## A basic methods text is not enough: Once you find your method...



- Read at least one leading book on using the method
- Read a few studies to see the affordances and constraints of the method



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STOP: Once you think you've found the right method/model, read the leading book on it. Then read at least a half-dozen studies conducted using it (inside and outside the law). I mean it. In graduate programs, you might have a whole-semester class on a single method. Make sure you understand affordances and constraints it poses. Consider consulting what Spencer calls a "methodologist."

Easiest way to find studies is to “cite forward” from the leading texts. (Shepardize them.) Easy to do with Google Scholar.

I've listed leading texts for a few methods in the annotated bibliography.

So, assuming you are now familiar with methods that interest you, you still need that specifying question. [NEXT]

## How I derived my specifying question



### Desiderata

- Everyday writing
- Artifacts = texts
- Quantification
- Generalization (at least within narrow scope)
- Use my own practical experience
- Engage with theory discussed previously

### Specifying question

To what extent (if any) do lawyers' briefs and court opinions relating to motions for summary judgment in copyright cases adjudicated in filed opinions between 2010 and 2015 provide evidence that legal writers use the exemplary argument schema (EAS) when making arguments from analogy?

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I'm a bit of a hybrid of discovery and interpretive paradigms. What kinds of factors might help me shape my specifying question, in other words, help me state what data I'm collecting and how I'm analyzing it?

- . . . everyday legal writing: trial court rather than the comparatively rare appellate situations.
- . . . texts—at least for this phase.
- . . . quantify. Important if I will later need to make the argument that there is a problem with theory or practice.
- . . . general claims (at least within some narrow range). Here, I'm taking the entire population of related texts (a couple hundred of them).
- . . . part of the law that I understood well—copyright.
- . . . engage with the theory above.

[REVEAL SQ]

Note that this does not specify my method, but the method I had in mind when writing this SQ was content analysis, a method that requires the researcher to code instances of the phenomenon of interest (called units of analysis) and then summarize the findings quantitatively. This method of analysis is not purely qualitative, because of the quantitative objectives, but it is certainly qualitative in that it calls for judgment in coding each unit. Of course, that does not tell us HOW the researcher will code the instances. That's the work of a coding guide [NEXT]

**A coding guide should make it possible for anyone\* to do your coding**



Essential for at least two reasons:

1. You need to be able to describe your coding when you write up your results so others can try to replicate or challenge your findings.
2. You should test your coding approach to make sure it's stable and reliable (re-coding things you coded earlier and coding things someone else has coded using the guide).

\*Not just anyone, really. It might be anyone with a certain type or amount of professional training.

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Distribute Handout Part III

We'll discuss stability and reliability later.

## It may take multiple pilots to finalize a coding guide



- What spans of text should we consider as “units of analysis”?
- How would we code or “score” them?
- What would be interesting about them (in light of the specifying question)?

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- Handout Part III: Specifying question + excerpt from a legal brief. Refer to earlier handout with EAS and CQs.
- Individually. Consider what spans of text you would consider instances of analogical argument. Consider how you would code them. What could be interesting about them in light of the specifying question?
- Find someone similar to you (or as similar as possible) in the Post-It exercise. Discuss what you thought.
- As a big group: How many instances did you find in the excerpt? What info would you collect about them?

## I reached some conclusions about what I wanted to code



- Units of analysis
  - Citation is helpful, because there (almost) always is one.
  - Excluding consecutive (*Id.*) citations.
  - Include all citations to cases on copyright or summary judgment issues.
- For major premise
  - Does the text identify facts of precedent case identified?
  - Are facts of case at bar identified?
- For relevant similarity premise: Does the text offer a basis for the facts to be deemed relevant in light of the rule applied?
- For minor premise: Does the text indicate the outcome in the precedent case?
- Discourse characteristics: Is the precedent case binding precedent in this jurisdiction?
- Is the comparison a true analogy? (I.e., is the precedent applying a rule from different body of law that the author wants to have apply here by analogy?)

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Distribute Handout Part IV.

You would have come up with different answers here than I did. That's cool. As long as you explain what you chose and why, no problem.

**But even when you think you've finalized a guide, you may have more to do**



Give it a try!

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Handout Part IV: Coding guide + excerpt + coding worksheet.

## Recapping and looking forward



We have talked about:

- “Discovering” a research question
- Using theory to guide discussion
- Refining a research question
- Understanding research paradigms and methods
- Making and using a coding guide

We still need to discuss ethics, inter-rater reliability, and statistics

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**If your research collects data  
about humans . . .**



. . .you probably need to file an IRB protocol.

Talk to your institutional review board about their policies.

If your school does not have an IRB, consider collaborating with a scholar whose school does.

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## Inter-rater reliability and code stability



### Inter-rater reliability

- Will you code things the same way as I do using my coding guide?
- Do not accept observed agreement ("We agreed 85% of the time.")
- Use a statistical test that accounts for chance
  - Cohen's Kappa
  - Others

### Stability

- Does your understanding of the codes evolve over time?
- Recode a sample of your artifacts and check for inter-rater reliability with yourself
- Same measures as for IRR

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You may find that your university has a statistics clinic or the like available for faculty. Use it!

## Statistical significance and power are important for some studies



### Significance (Generalizability)

- Is measured difference in the sample representative of difference in the population?
- Often described with p-value, which represents probability that difference is result of sampling.
- Different statistical tests, depending on nature of values

### Effect size

- Assuming sample difference represents population difference...
- Is the difference big?

### Power (Generalizability)

- If there is no difference in the sample, is that representative of the population?

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- Significance tests: Chi-square for nominal variables; T-test (one- or two-tailed) for sample with Gaussian (normal) distribution; Mann-Whitney or Wilcoxon rank sum test for non-parametrically distributed samples; others for special purposes; consult with a statistics expert.
- Effect size: There may be a real difference in the sample, but it may not be a big difference. This is practical significance instead of statistical significance. Wide variety of tests based on the nature of the sample and the variables. (Wikipedia article on this is a little technical but generally pretty good.)
- Power: If you want to say there is NO difference between two groups, you need to have a sufficiently large sample to rule out the possibility that your sample missed the individuals that would have made the difference apparent. In general, a greater power requires greater sample sizes. You need to calculate power BEFORE you collect your data, because it determines the sample size you need. This can be tricky if you don't know in advance what the effect size is likely to be. Talk to a statistics guru.

## Not all methods require statistical analysis



- Many methods make extensive observations of small number of artifacts, sites, participants and hardly ever have statistical analyses ("Transferability" instead of "generalizability")
  - Ethnography.
  - Qualitative interviews and focus groups.
  - Rhetorical and critical analyses.
- Many methods can work with no or only light use of statistics:
  - Neoclassical rhetorical criticism.
  - Discourse analysis.
- Some methods require at least some statistical analysis:
  - Conversation analysis.
  - Corpus linguistics.

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Many methods... Note that the way you show the quality of your data in these instances is by describing your process and giving examples of your coding and analysis.

Usually, the text you read on a method and the example studies you read (see above) will signal the kinds of statistical analyses you need to use. Those choices are usually conventional within a methodological discipline. You can usually figure them out using a statistics text and Wikipedia.

## So what have I found (so far)?



See handout.

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**THANK YOU!**



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