

Role-Centered Accounting Theory (RCAT) & A Theory-Driven GPT: A Crowdsourcing Project for Scholars

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ABSTRACT

We designed Role-Centered Accounting Theory (RCAT) to allow scholars to articulate in detail the accounting challenges practitioners face, the options they have for addressing them, why they act as they do within an accounting system, and why they redesign accounting systems as they do to address their challenges. We have derived from the theory a series of step-by-step protocols researchers can follow to interpret research questions in terms of RCAT, refine the question to reflect a more complete understanding of setting under study, determine what additional theoretical and institutional knowledge will be required for a full analysis, import theories from other fields to integrate with RCAT, and search for related questions that are more causally and normatively important and better balance the conflicting goals of broad generality and deep understanding of a particular setting. We have also customized a GPT (the [RCAT Analysis Machine](#)) to make RCAT easier to work with. We have made the Machine available to all accounting scholars by posting it in OpenAI's GPT store, and provide all customization documents at <https://blogs.cornell.edu/rcatcentral/> so that anyone can modify the customization for their needs. We encourage scholars to use these resources and tell us about how they did so and how they found them useful. We plan to report what we learn in a peer-reviewed journal.

Role-Centered Accounting Theory (RCAT) & A Theory-Driven GPT: A Crowdsourcing Project for Accounting Scholars

QUICK-START GUIDE

Get the RCAT Analysis Machine from OpenAI's GPT Store or click <https://chatgpt.com/g/g-68966f4f3438819196be1c22026b86f4-rcat-analysis-machine-2-0>.

Click the conversation starters: Why RCAT? Why this GPT? Best Next Move!

Try some use cases and prompts in Section 2 of this paper.

Read Accounting Theory as a Musical Instrument: From the Storeroom Shelf to the Workbench to Scholar-GPT Ensembles (ssrn) for more background.

Share by emailing bloomfield@cornell.edu to let us know how you are using RCAT and the RCAT Analysis Machine and how you are (or are not) finding them useful.

1. Introduction

We designed Role-Centered Accounting Theory (RCAT) to allow scholars to articulate in detail the accounting challenges practitioners face, the options they have for addressing them, why they act as they do within an accounting system, and why they redesign accounting systems as they do to address their challenges. We have derived from the theory a series of step-by-step protocols researchers can follow to interpret research questions in terms of RCAT, refine the question to reflect a more complete understanding of setting under study, determine what additional theoretical and institutional knowledge will be required for a full analysis, import theories from other fields to integrate with RCAT, and search for related questions that are more causally and normatively important and better balance the conflicting goals of broad generality and deep understanding of a particular setting.

The value of RCAT lies not in its grounding in prior work but in its usefulness—RCAT will be a successful theory if and only if scholars use it and find it useful. To make RCAT easier to use we have customized a GPT (the RCAT Analysis Machine) and made it available to all accounting scholars by posting it in OpenAI's GPT store, and provide all customization documents at <https://blogs.cornell.edu/rcatcentral/> so that anyone can modify the customization for their needs. We encourage scholars to use these resources and tell us

about how they did so and how they found them useful. We plan to report what we learn in a peer-reviewed journal. Users can email any of the authors with questions, comments, experiences, successes, and failures.

In Section 2 we offer suggestions on how to use the RCAT Analysis Machine to learn about RCAT and see how it responds to prompts that illustrate some of the ways we expect scholars to use RCAT. In Section 3, we introduce RCAT’s purpose, structure, and content, as well as its native and imported claims. In Section 4, we describe how scholars can use the theory by following its protocols. In Section 5, we discuss our expectations of how scholars will use our resources and what associations we will look for in user responses. In Section 6 we discuss how to share your experiences. We offer concluding remarks in Section 7. Appendix A includes some representative excerpts from sessions with the RCAT Analysis Machine. Appendix B explains our approach to GPT customization.

2. Using RCAT and the RCAT Analysis Machine

2.1. Using the RCAT Analysis Machine

Scholars can use RCAT and its protocols without technological assistance, but it quickly becomes a problem of scale because careful analysis involves so many steps. It is far easier to use RCAT by using the RCAT Analysis Machine (hereafter “the Machine”).

We encourage readers to turn to **Appendix A** at this point in the paper to read excerpts of the Machine’s responses to some illustrative prompts, or, if they have a paid ChatGPT account, to search for “RCAT” in the GPT store and try out some simple prompts like:

- What is RCAT and how is it useful?
- Tell me how you are customized.
- Why does RCAT have normative principles?
- I primarily rely on theories from other fields, like economics, finance, and psychology. Can RCAT still help me?

2.2. Illustrative Prompts

We now illustrate some ways scholars can use RCAT in the form of 2-part prompts. The first part of each prompt describes in plain language what the scholar is trying to accomplish. The second part directs the Machine toward various protocols and modes that illustrate how experiences users can tailor the Machine’s responses to their current goals.

2.2.1. *Why is this practitioner acting as they are in this setting?*

Method: Archival | Topic: Financial | Imported Theory: None

Prompt Part 1 (Scholar's framing):

I've been analyzing firm's voluntary disclosures and I'm finding that many publicly traded companies have provided much less guidance on earnings this year. I suspect it is due to heightened uncertainty but I'm not sure exactly what research questions I want to address.

Prompt Part 2 (Machine instruction):

Adopt Assistant mode with Fluency priority and Teach Style ON. Begin the Practical Analysis Protocol to help me understand why firms are reducing earnings guidance.

- 2.2.2. *How can I use this borrowed theory to understand issues accountants care about?*

Method: Game Theory | Topic: Managerial | Imported Theory: Economics

Prompt Part 1 (Scholar's framing):

I'm using a repeated game framework to model incentive design where department heads overstate resource needs to build slack. I want to understand how to integrate the model into a setting that addresses real-world managerial accounting concerns and highlights the role of accounting.

Prompt Part 2 (Machine instruction):

Adopt Assistant mode with Fidelity priority and Teach Style ON. Begin the Theory Importer Protocol and follow it strictly.

- 2.2.3. *How will firms change their accounting in response to a change in circumstances?*

Method: Interview | Topic: Auditing | Imported Theory: Computer Science

Prompt Part 1 (Scholar's framing):

I'm conducting interviews with internal audit leaders about how they are adapting their processes in response to the rise of LLM-based tools. I want to craft questions that highlight the key challenges of auditing outputs from what are largely black boxes, and understand how "explainable AI" might help address those challenges.

Prompt Part 2 (Machine instruction):

Adopt Guide mode with Fidelity priority and plain Style. Start the Proactive Redesign Protocol and help me elicit the changes in circumstances and predict how they alter auditing challenges and effective responses.

2.2.4. *Why is this problem happening and what practices can address it?*

Method: Field Experiment | Topic: Managerial | Imported Theory: Psychology

Prompt Part 1 (Scholar's framing):

I'm talking with leaders of a manufacturing firm where teams often fail to report quality issues. We are discussing running a field experiment that adds accountability reminders to address this issue. But before we get too far I want to understand what is causing the initial reporting failure and what kinds of practice redesigns would be more helpful.

Prompt Part 2 (Machine instruction):

Adopt Guide mode with Fidelity priority and Teach Style ON. Begin with the Practical Analysis Protocol.

2.2.5. *This practitioner says they are trying to do something, but what is their true intent?*

Method: Archival Text Analysis | Topic: Financial | Imported Theory: None

Prompt Part 1 (Scholar's framing):

Many companies say they report on environmental and social performance to improve their corporate responsibility, but I suspect for many of them they are simply trying to look better without actually being better (as in "greenwashing"). I want to devise a plan for understanding cross-section variations in firms' true intentions for ESG reporting practices by focusing on what they are doing rather than just what they are saying.

Prompt Part 2 (Machine instruction):

Adopt Guide mode with Strict priority and Teach Style ON. Use the Intentional Cause Analysis Protocol and help me create a mismatch anchor to contrast perceived performance with the stated priorities of the accounting designers.

2.2.6. *How can I develop this initial idea for a research study?*

Method: Archival | Topic: Financial | Imported Theory: Finance

Prompt Part 1 (Scholar's framing):

I want to study the impact of covenant-lite debt on internal control effectiveness, but I'm not sure what the research question should focus on.

Prompt Part 2 (Machine instruction):

Adopt Guide mode with Fluency priority and Tutor Style ON. Start with the Interpreter Protocol and walk me through generating an interpretation anchor that could help refine this idea into a precise and valuable research question.

2.2.7. *How can I best study this topic that hasn't been studied before?*

Method: Field Experiment | Topic: Managerial/Financial | Imported Theory: Psychology/Medicine/Law

Prompt Part 1 (Scholar's framing):

I want to study how Wall Street firms are addressing the rise of cognitive enhancers—drugs that help bankers stay alert during 90-hour weeks. I have a lot of ideas on the competing pressures and priorities the firms are facing but I'm not sure how to frame the accounting angle.

Prompt Part 2 (Machine instruction):

Adopt Guide mode with Fidelity priority and Teach Style. Start the Practical Analysis Protocol and help me surface the aspirations, obligations, and accountability systems relevant to this unusual but seemingly accounting challenge.

2.2.8. *How can I customize a GPT to role-play?*

Method: Experimental | Topic: Managerial | Imported Theory: Psychology

Prompt Part 1 (Scholar's framing):

I'm designing a hidden-profile lab experiment where each participant takes on one role in a budgeting committee and a GPT takes on the other roles. Before I get into the budgeting case itself, I need to understand how I can customize a GPT to do this well.

Prompt Part 2 (Machine instruction):

Adopt Assistant mode with Fluency priority and Tutor Style ON so you can help me understand the theory of GPT customization.

2.2.9. *How can I customize a GPT for intra-textual analysis?*

Method: Archival Intra-Textual Analysis | Topic: Financial | Imported Theory: Political Science

Prompt Part 1 (Scholar's framing):

I want to understand the consequences of executive misconduct by looking at conference call transcripts. Do investors express more concern about information asymmetries after misreporting scandals? Do firms respond to such concerns by discussing improvements to

internal controls? If misreporting involves only one segment or line item, how much do those concerns extend to other segments or line items. Do consumer-facing companies talk about the crisis differently than business-facing companies? I want to customize a GPT to translate each transcript into theoretical terms and measure how often topics co-occur within each transcript.

Prompt Part 2 (Machine instruction):

Adopt Assistant mode with Fidelity priority and Teach Style ON.

2.1. Using Uncustomized GPT.

To gauge the usefulness of RCAT and the Machine's customization, it is helpful to compare responses from an uncustomized GPT, the Machine, and the Machine directed by an experienced user. To do so:

1. Turn off access to saved memory.
 - a. Click on the account icon on the bottom left of the GPT page, select settings/personalization and turn off "Reference saved memories". This will ensure that GPT responses are unaffected by content from your prior sessions. (Be sure to turn this back on after testing.)
2. Start a new chat with ChatGPT 4o and paste in Part 1 of a prompt below.
 - a. Its responses provide a baseline of what ChatGPT can do without customization.
3. Start a new chat with the Machine and paste in Part 1 of the same prompt.
 - a. The difference between these responses and those in the last step reflect the impact of our customization.
4. Start a new chat with the Machine and paste in Both Parts 1 and 2 of the prompt.
 - a. The difference between these responses and those in the last step reflect the impact of more intentional user direction on the Machine.

3. What is RCAT?

3.1. RCAT is the Language of Enterprises

While accounting is often said to be the language of business, RCAT is designed to be the language of enterprises. An enterprise is any endeavor to pursue shared aspirations. Central to RCAT is the notion that enterprises face two accounting challenges: (1) designing roles so that, if every enterprise member lives up to the obligations assigned to their role, the enterprise achieves its aspirations as fully as possible, and (2) making each member of an enterprise as willing and able as possible to live up to their assigned obligations.

Enterprises are far more general than reporting entities. NVIDIA is both a reporting entity and an enterprise with profit aspirations shared by its investors and managers. However, its “fabless” strategy of outsourcing all manufacturing means that it is also part of a larger enterprise of making computer chips of greater value than they cost, which is shared by NVIDIA, their overseas partners, shipping companies, suppliers, and customers. A full understanding of this enterprise requires a theory with broader scope than those specifically focused on standard setting.

Financial reporting as a general endeavor is a large and amorphous enterprise whose aspirations include protecting investors from misreporting, maintaining fair, orderly, and efficient markets, and facilitating capital formation. That mission is achieved by assigning stewardship roles to enterprise members: FASB sets reporting standards; preparers comply with them; auditors attest to whether preparers have done so; the SEC enforces compliance; and investors hold preparers accountable for their reporting through investment, activism, and legal action.

Other large and amorphous enterprises reflect the wide range of economic, social, and political missions of a society, like economic growth, limiting unemployment and inflation, reducing crime, social unrest, hunger, illness, providing safety and security, and so on. While accounting research doesn’t typically study these enterprises, we can still analyze them well through RCAT.

RCAT is also useful for studying small enterprises nested within larger ones. For example, an audit team is an enterprise even though it involves only a handful of people; they still share a mission to conduct an effective and efficient audit and do so by designing roles, assigning them to auditors, and making auditors willing and able to live up to their obligations.

3.2. Structure of RCAT

Role centered accounting theory is structured around seven broad claims about how enterprises use accounting to achieve their aspirations:

1. **Enterprises** are endeavors to pursue shared **aspirations**.
2. Enterprises achieve their aspirations by
 - a. assigning **enterprise members** to **stewardship roles**, and
 - b. making stewards willing and able to live up to the **obligations** of their role.
3. Roles are connected to one another when
 - a. one role’s stewardship generates **benefits** for the other role, or
 - b. when one role holds another **accountable** for its stewardship.
4. Accounting **practices** serve causal **functions** that affect

- a. how well good stewardship helps the enterprise achieve its aspirations (**coverage**), and
- b. how willing and able stewards are to live up to their obligations (**willingness and ability**).
- 5. The causal functions of accounting practices vary across **circumstances**.
- 6. The causal functions of an accounting practice can be strengthened by improving its **instrumental qualities**.
- 7. Fulfilling causal functions well makes accounting better according to its **normative principles**.

3.3. Normative content of RCAT

RCAT is transparently normative. Normative principles—claims about what should be, rather than just about what is—have largely been driven out of accounting scholarship. Some normative claims are rightly excluded from accounting scholarship, and they also are **excluded** from RCAT:

- **No prescriptions:** Accounting scholars should avoid prescribing that someone use a certain accounting practice in a certain situation, because they almost never have a full understanding of the situation.
- **No sweeping proclamations:** Accounting scholars should also avoid making sweeping proclamations about what mission an enterprise should pursue or how it should prioritize conflicting aspirations (such as profit and worker safety), because our expertise is limited to how accounting can help the enterprise live up to its mission, whatever it may be.

However, RCAT **includes** a number of normative principles that are both justified and useful. All else equal, accounting is better:

- When it is more effective at providing intended benefits to intended beneficiaries (**Effectiveness**)
- When it bases accountability on more faithful accounts of stewardship performance (**Faithfulness**), and
- When the burdens it imposes are more proportional to its benefits (**Proportionality**).

Each of these principles has subprinciples that describe its dimensions:

- **Effectiveness.** All else equal, accounting is better when roles cover more completely all of the obligations that need to be fulfilled for the enterprise to live up to its aspirations (**Completeness**), and when it makes stewards more willing

(**Willingness**) and more able (**Ability**) to live up to their obligations, because these features make accounting more effective.

- **Faithfulness.** All else equal, accounting is better when it does a better job holding accountable the right parties (**Entity**), holding them accountable for the assets and obligations they actually have (**Recognition**), and on the basis of accounts reorganized to eliminate illiquidity and insolvency so that they are not held accountable for failing to achieve the impossible (**Reorganization**), because these features make accounts more faithful.
- **Proportionality.** All else equal, accounting is better when it reduces the burdens of accounting with lower loss of its benefits (**Efficiency**) and when it increases the burdens of accounting with greater gain of its benefits (**Opportunity**), because these features make burdens more proportional to benefits.

These principles express the generally accepted reasons people care about accounting and want to improve it wherever they can. They also have positive content. For example, more faithfulness causes accounting to be more effective (why work hard if someone else will get the credit?). These principles and their subprinciples thus allow a rich framework for understanding what research questions people will care about and why people react to accounting systems the way they do.

3.4. Native and Imported Claims of RCAT

Each part of the structure of RCAT is populated with additional claims about the nature and types of each element. These are the native claims of RCAT. For example, the theory articulates six causal functions of accounting practices (motivation, direction, information, support, constraint, and coordination), five types of accounting practices (role design, role assignment, reporting, incentives and controls), many instrumental qualities (like independence and diligence), and a host of normative principles that describe each way accounting can be better (such as being more effective, more faithful, more proportional). The theory then offers a host of claims about the relationships between these elements, such as which practices serve which functions. These are all claims native to RCAT.

Scholars can also borrow claims from other fields and import them into RCAT to explain what RCAT's native claims cannot. For example, one can import claims from business strategy to articulate how enterprise aspirations vary across industries or product markets, or import claims from real option theory to describe non-accounting practices like embedding options into contracts to defer, expand, contract, or abandon investments. As long as borrowed claims are imported and properly incorporated into RCAT, the imported and native claims support an integrated analysis.

4. Using RCAT for Analysis

4.1. Mining for Diamonds with RCAT

RCAT's seven-part structure makes it a very large but structured space in which to search for good research questions. Good questions are thus like diamonds in a very large cavern. While one can wander through the cavern with a flashlight, it is far better to have a detailed map, and a clear understanding of where you are digging and where you should move next given what you've found so far. RCAT is therefore best applied by following protocols that are derived from the theory and offer step-by-step guidance on what questions to ask and in what order.

4.2. Practical Analysis Protocols

Scholars often ask why practitioners do what they do. RCAT includes several protocols that scholars can follow to articulate such questions carefully:

- A **practical analysis** protocol helps scholars determine what type of problem practitioners are facing, such as:
 - a choice between alternative actions within an existing accounting setting (**action analysis**),
 - an existing complaint that forces them to diagnose the cause of underperformance and address it by redesigning their accounting practices (**diagnostic redesign analysis**), or
 - a concern that an impending change will create problems that must be prevented proactively (**proactive redesign analysis**).

Each form of analysis has its own protocol that walks the scholar through a systematic and comprehensive search for good solutions, ending with a **comparative analysis protocol** that evaluates each alternative according to how well it serves enterprise aspirations, beneficiaries, benefits, and normative principles.

4.3. Cause Analysis Protocols

Scholars often ask why a problem is happening. RCAT helps scholars answer such questions with the following protocols:

- A **cause locator protocol** helps scholars locate the reason a steward's obligation is going unfulfilled. Is the steward unwilling or unable to live up to their obligations? If the steward is unwilling, the protocol will help uncover why. If the steward is unable, the protocol determines why they lacked the assets needed by using the logic of

double-entry bookkeeping to track down the hypothetical debit that would have balanced the credit to recognize the obligation.

- A ***functional cause protocol*** helps scholars identify what accounting practices are lacking sufficiently helpful qualities, such as diligence, expertise, or independence.
- An ***intentional cause protocol*** helps scholars identify discrepancies between the stated and likely true intent behind the accounting practices that have been adopted or proposed in a situation. People are unlikely to adopt a normatively inferior option when others are available, so when they appear to do so, it is likely they are misrepresenting their normative aspirations.

4.4. Scholarly Analysis Protocols

In addition to understanding why practitioners do what they do, scholars must also understand how their potential research question (or an existing paper they are using for inspiration to develop a research question) fits into RCAT, and then use RCAT to find even better questions. RCAT includes several protocols for these purposes:

- An ***interpreter protocol*** helps scholars generate an initial mapping of a research question or study in terms of RCAT's native claims, fill in gaps (such as a lack of reference to enterprise aspirations or instrumental qualities) to make that mapping more comprehensive, and identify where they must import theory from other disciplines for a more complete understanding.
- A ***conventionality analysis protocol*** helps scholars identify the degree to which the enterprises, obligations, practices, or jurisdictions they are studying are conventional in accounting research and help them understand where they will need to import insights from other fields to shore up their theoretical and institutional foundations.
- A ***theory importer protocol*** helps scholars import theory from other fields to incorporate aspirations, causal functions, practices, circumstances, instrumental qualities, and normative principles not adequately described by RCAT.
- An ***extender protocol*** helps scholars identify research questions that are “nearby” an existing question but are more causally and normatively important, better balance the competing needs for generality and deep understanding of the specific setting under study, and expand the scope of scholarship by introducing only one or two novel features at a time.

5. Assessing the Usefulness of RCAT Resources

5.1. Measuring Scholarly Progress

Because RCAT is designed to help scholars find better research questions, we imported a theory of scholarship with normative principles that describe what makes a research question better. ***We plan to use the following normative principles to assess scholarly progress: all else equal, a question is better if its answer is more causally important, normatively important, generalizes to more situations, offers a deeper understanding of a specific situation, and is more novel.*** RCAT's protocols are explicitly designed to help scholars improve their questions on these dimensions.

5.2. Novelty

The principle of novelty includes three subprinciples: all else equal, a question is better when it causes scholars to revise their beliefs more, when it expands a theory's scope more, and when it is more likely to generate claims that are more surprising. Much research over the last two decades has pursued the surprising power of small differences (especially primes and nudges, which manipulate just a few words or the order in which items are presented). However, many of these surprising findings have been overturned. One reason can be articulated in terms of RCAT: practices that are reliably effective and impose very low burdens are likely to be well known, and it is less plausible that a scholar has found a new one than that they have overstated its effectiveness.

We expect those who use RCAT resources to shift toward a different type of surprise: the surprising power of theory to uncover associations hidden deep within complex settings. Many of the most influential accounting studies pursued the surprising power of theory. For example, consider the first study asking whether market prices react to earnings announcements, and the first study asking whether firms that report bad earnings news obfuscate that news by writing longer and less readable annual reports. Both results seemed implausible at the time, but once scholars understood the power of theories underlying the behavior of accrual-based earnings or linguistic expression, they were not only plausible but unremarkable and fully justified. This outcome is explained by the nature of the surprise itself.

A powerful theory (like Role-Centered Accounting Theory) maps a very large space with a structure that helps to clarifies the general “location” of a research question or practical solution even in complicated settings, and helps scholars refine the question or solution by pinpointing its location more precisely, search for better ones nearby, and navigate toward them by analyzing issues in the right order. Because developing and applying a theory is

hard work, the power of theory can be surprising but readily explainable and does not require scholars to sacrifice aspirations of knowledge to pursue aspirations of surprise.

5.3. Topics

RCAT is especially useful for describing complex institutional settings in which it can be difficult to uncover the exact nature of practitioners' problems and solutions. **We expect scholars studying complex settings to be more likely to adopt RCAT resources and to find them more useful.** RCAT also makes it easier to see how simple settings (such as those studied in laboratory experiments) can be specified more completely to understand accounting challenges and solutions more fully. **We expect scholars studying simple settings to shift toward more completely specified settings.**

5.4. Methods

We expect that scholars using different methods will find our resources helpful at different points in the research process. Experiments benefit most from early-stage theorizing to fully develop research questions before gathering data. Archival work often starts with a broad research question that becomes more clear through data exploration, making our resources more useful later in the process. Fieldwork lies in between, because scholars need a vision clear enough to persuade their field partner to approve the study but flexible enough to adjust toward questions their partner is more willing and able to help answer. Theoretical work is highly iterative, so we have no solid expectations for when theoreticians will use our resources or find them helpful.

5.5. Borrowed vs. Imported Theories

Most accounting scholars borrow theories from other fields. RCAT is designed to accommodate those theories but they must be imported into RCAT's structure to clarify what should be treated as a non-accounting function, practice, circumstance, instrumental quality, or normative principle. **We expect scholars who borrow theories from other fields to make more scholarly progress when they import those theories into RCAT's structure.**

5.6. Scholarship in Other Fields

Because RCAT imposes no constraints on the types of aspirations enterprises pursue, the practices used to pursue them, or the theories imported into RCAT's structure, it can be useful to scholars in many fields outside of accounting. **We expect scholars in other fields to find RCAT resources useful to the extent they are asking how practitioners pursue practical goals as they do or might do so more effectively.**

5.7. GPT Use and Concerns about Academic Integrity

Scholars are members of a professional enterprise as well as a scholarly one. The aspirations of the professional enterprise are to help scholars develop their personal assets (like insight, expertise, and judgment) and to assign scholars to roles (like tenured professor, editor or reviewer) based on more faithful accounts of their personal assets so they are able to live up to the obligations of their roles. These professional aspirations impose additional obligations on scholars to take ownership of both the development of their personal assets and the transparency of their personal contributions. We see no reason for concern about these obligations when scholars are using only RCAT and its protocols. However, there are good reasons to be concerned about how and how well scholars can develop their personal assets and be transparent about their contributions when they rely on a GPT as a steward. This is especially true when scholars are using uncustomized GPTs to do their work for them. The RCAT Analysis Machine is customized to limit those concerns, but many scholars may find our practices inadequate or worry that using a customized GPT may lead them down a dangerous path. ***We expect that concerns about personal development and transparent contribution will influence whether scholars use the Machine, and for those who do use the GPT, influence how they do so.***

5.8. GPT Literacy

Among those who use GPTs, we expect the most powerful driver of scholarly progress will be users' "GPT literacy". GPT literacy includes the ability to write good prompts, make good use of profiles, checkpoints, and anchors, and recustomize the GPT for their uses. Even scholars with little interest in RCAT (including scholars in other fields) can model their customization on ours to make a GPT more useful for their purposes.

5.9. Career stage

We expect RCAT adoption to vary with scholars' career stage. Scholars will use our resources only if they have the time needed to master a new theory, its protocols and a new technology, and are willing to reconsider the theories they rely on, and how they approach scholarship and adopt new technology. We doubt scholars approaching a tenure evaluation will be able or willing because they will rightly be advised to continue building their existing research program. Scholars who have recently received tenure are probably the most able and willing to invest in our resources, followed by doctoral students who are still searching for useful theories, approaches, and technologies. Very senior scholars are generally able to make such investments, but only those open to change are likely to be willing.

5.10. Professional circles

Accounting scholars are typically members of one or more “professional circles”, which we define as enterprises whose members share the mission of fostering one another’s professional success. Professional circles typically reflect shared scholarly interests or shared affiliations, such as the circle of those who study auditing using behaviorally-informed scenario studies, or those who are faculty members at the University of Illinois.

We expect adoption of our resources to percolate through scholarly circles when adopted by an influential member of the circle. We also expect that professional circles will vary in their points of openness and resistance. For example, we expect slower adoption in circles that have stronger opposition to normative claims in accounting scholarship.

5.11. Unanticipated Outcomes

While we have used our theory to identify research questions and expected outcomes, there are many outcomes we simply can’t anticipate. The LLM underlying ChatGPT might change in dramatic ways. Scholars might modify our protocols, create new ones, or prompt the Machine in ways we did not consider. Our project might heighten controversy over the use of GPTs and related technologies in unexpected ways for unexpected reasons. We will identify important surprises and incorporate them into our analyses as well as we can.

6. Reach Out!

If you have used RCAT, its protocols, or the RCAT Analysis Machine we would love to hear from you! You can email Rob Bloomfield at bloomfield@cornell.edu (corresponding author), Tamara Lambert (), or Marietta Peytcheva (map608@lehigh.edu) to share how you used RCAT. Excerpts from chats with the Machine are especially helpful, as are offers to talk by phone or videoconference. We are glad to offer remote sessions for training students and faculty. Check RCAT Central (<https://blogs.cornell.edu/rcatcentral/>) for updates on what we have learned.

7. Conclusion

We are providing accounting scholars with a new theory (RCAT) along with a customized GPT designed to help scholars apply the theory in ways that support, rather than undermine, academic integrity. We are very excited to share our new resources with our colleagues and see how they are used and useful. The development of RCAT has been full of surprises. We originally set out to answer a century-old question about the scope of accounting’s distinctive expertise. Using RCAT to answer that question helped us

understand how to use RCAT to develop protocols that will make scholars more willing and able to use the theory. We then found RCAT's protocols exceptionally helpful in understanding how to configure GPTs to support scholarly progress without undermining academic integrity. We expect many more surprises as more scholars put our resources to use, and we look forward to hearing about users experiences.

Appendix A. Excerpts from Sessions with the RCAT Analysis Machine 2.0

This Appendix reproduces illustrative user prompts and RCAT Analysis Machine responses. A shared link to each session is provided for readers who would like to continue the conversation. Opening prompts were the first submitted in a session with no access to memory of past chats so they do not reflect any hidden content or direction other than what GPT5 itself draws from outside its customization documents.

Because the prompts are designed to show readers “RCAT in action”, they also direct the Machine to provide answers too lengthy for the user to audit each step and redirect the analysis as necessary. Careful analysis requires prompting the Machine to walk through protocols only one or two steps at a time. These prompts also tend to lead GPT5 to downplay our instruction not to offer to do the user’s work for them at the end of a session, which (as the user drifts from the Machine’s designed uses) gets overpowered by GPT5’s very strong native instructions to be as helpful as possible.

1. Responses to Earnings Surprises

USER: One of the most famous accounting studies of all time showed that when earnings are announced to be higher than expected prices rise, and when earnings are announced to be lower than expected prices fall. How does RCAT help me understand and build on this finding?

RESPONSE: <https://chatgpt.com/share/689a1762-c604-8005-a9dd-9fe78a23143a>

RCAT gives you a structured way to take that famous finding about earnings surprises and price reactions and do three things with it: interpret it precisely in RCAT terms, search for nearby research questions, and connect it to deeper causal and normative analysis.

Here’s how that plays out step-by-step:

1. Interpret the study in RCAT terms

Using the *Interpreter Protocol*, you’d strip away all the empirical and statistical detail and focus on:

- **Setting** – public firms, earnings announcements, capital markets, investors, analysts.

- **Finding** – stock returns tend to be higher when earnings exceed expectations and lower when earnings fall short.
- **Theory** – often imported from financial economics (e.g., semi-strong market efficiency, investor reaction models).

RCAT then maps each element into its structure:

- **Enterprise** – the financial reporting enterprise (FASB, preparers, auditors, SEC, investors).
 - **Aspirations** – protect investors, maintain fair and efficient markets, facilitate capital formation.
 - **Roles** – preparers (firms), investors, analysts, regulators.
 - **Functions** – reporting practices serve the function of *informing* investors; investor trading serves as *accountability* for preparers.
 - **Circumstances** – the level of “earnings surprise.”
 - **Instrumental qualities** – relevance and timeliness of earnings reports.
 - **Imported theory** – asset pricing predicts direction and magnitude of reaction.
-

2. Search for nearby questions

Once oriented and pinpointed, RCAT’s *Extender Protocol* helps you find unasked but promising questions:

- How do instrumental qualities (e.g., report timeliness, earnings quality) change the size of the price reaction?
 - How does the *beneficiary mix* (retail vs. institutional investors) alter the benefits of timely earnings?
 - Does accountability weaken if the surprise is driven by non-core earnings components?
 - How do *circumstances* like concurrent macroeconomic news moderate the reaction?
-

3. Link to causal and normative analysis

The finding shows an association but not *why* or *how* it matters normatively. RCAT lets you:

- Use *Cause Locator* to see if any stewards are failing obligations (e.g., if surprises are often negative, is management's forecasting or guidance practice falling short?).
 - Use normative principles (Effectiveness, Faithfulness, Proportionality) to ask: would better reporting design make markets react *more* appropriately? Would burdens on preparers be proportional to the investor benefits?
-

In short, RCAT turns that classic “prices go up on good news, down on bad” into a **map** of enterprises, roles, functions, and circumstances, and then systematically guides you to causal and normative questions that extend the finding into new, potentially high-value research directions.

You’re basically taking a flashlight into the “earnings surprise” cavern, and RCAT hands you the blueprint for all the adjoining tunnels you might explore next.

If you want, the next logical move in RCAT terms would be to **run the Interpreter Protocol in strict mode** on a clean summary of that study, so we can generate its setting, association, and interpretation anchors as a foundation for extensions.

2. Tariffs

USER: Tariffs imposed by the United States government are higher than they have been in nearly a century and more unpredictable and arbitrary than they have ever been. There must be some good questions for accounting research in this. How can I use RCAT to find them?

RESPONSE: <https://chatgpt.com/share/689a1790-ce1c-8005-892a-a6c8241ad7fb>

Here’s how we could use RCAT to surface good research questions about U.S. tariffs being historically high, unpredictable, and arbitrary:

1. Start with an *initial problem anchor*

RCAT works best when we turn your observation into a *problem statement* that could be solved by better accounting.

For example:

“In the current U.S. tariff environment, unpredictability and arbitrariness in trade policy may be undermining enterprise members’ willingness and ability to fulfill obligations,

distorting benefits and burdens, and reducing the faithfulness and proportionality of accounting in trade-related enterprises.”

We'd store this as a **Problem anchor** so all later work can be checked for fidelity.

2. Use **Scholarly functions** to find question “neighborhoods”

RCAT says that good scholarly work starts by **orienting**, **pinpointing**, **searching**, and **navigating** possible questions:

- **Orienting:** Place the tariff problem in RCAT's structure: enterprises (trade-related firms, regulators, supply chains), roles (exporters, importers, customs officials), aspirations (economic growth, profitability, compliance), and normative principles (effectiveness, faithfulness, proportionality).
 - **Pinpointing:** Identify exactly where the unpredictability bites—e.g., in *role design*, *role assignment*, *reporting*, *incentives*, or *controls*.
 - **Searching:** Once you've mapped it, explore “nearby” variations: What if tariffs were predictable but still high? Arbitrary but low? Predictable for some products but not others?
 - **Navigating:** Decide whether to follow a **Cause Locator** (why is this unpredictability happening?) or a **Functional Cause Analysis** (how is accounting failing to manage the uncertainty?).
-

3. Run a **Cause Locator** to see where stewardship is failing

The high, arbitrary tariffs could be creating *unfulfilled obligations* for:

- **Firms** (unable to plan sourcing or pricing)
- **Regulators** (failing to communicate timely changes)
- **Industry groups** (not coordinating effectively)

We'd check for **willingness** and **ability** shortfalls and see whether the root cause lies in role design, role assignment, contributions, supplier failures, or unsupportable promises.

4. Use the **Extender Protocol** to multiply possible questions

Once the location of the problem is mapped, the Extender Protocol pushes you to ask:

- What other *enterprises* are implicated? (domestic manufacturing, port logistics, international regulators)
 - What other *aspirations* might conflict? (economic growth vs. national security)
 - Which *normative principles* are most at risk? (faithfulness of cost reporting, proportionality of burdens)
-

5. Switch to Questioner Job to surface candidate questions

RCAT's Questioner mode can pull in prompts like:

- “What accounting practices could make tariff policy impacts more predictable for exporters?”
 - “How do arbitrary tariffs affect the proportionality principle in trade-related accounting?”
 - “Which stewards in the trade enterprise are failing in their obligations because of unpredictable tariffs, and why?”
-

6. Iterate, Anchor, and Compare

We'd confirm **Location**, **Functional Analysis**, and **Alternatives** anchors as we go, so later ideas stay consistent. Then, we can compare the strongest candidate questions against scholarly aspirations (value, knowledge, faithful description, re-examinability, evaluability, readability) to choose the most promising.

If you want, our smallest *next move* would be to turn your tariff observation into a **Problem Anchor** and run **Cause Locator Step 1** in strict mode. That's the fastest way to get to high-value research questions. Would you like me to start there?

3. Limbic Capitalism

USER: The theory of limbic capitalism seems like it would be useful in accounting. Below is a summary of the theory. [[link to summary by Universal Primer GPT](#)] Can you switch to GPT5-Thinking as assistant in teaching style and run the theory through the RCAT Theory importer so that someone with no understanding of RCAT can follow what you are doing and why?

RESPONSE: <https://chatgpt.com/share/689a17af-3c78-8005-80d6-cc21abfdf6e0>

Switching to GPT-5 Thinking for: importing “limbic capitalism” into RCAT so it’s usable in accounting (scope: one Micro-Checkpoint + the first full pass of the importer). Profile set to: Job = Assistant · Priority = **Strict** · Style = **Teach** (as requested).

- **Refresh (UNDERSTAND mode, very brief)**
- **Recent issue:** You want to run the *RCAT Theory Importer* on a non-RCAT theory (“limbic capitalism”) and keep it beginner-friendly.
- **Active anchors:** none yet.
- **Ripe next questions:** Which exact importer steps? Where does this theory plug into RCAT’s seven-part structure (enterprises → practices → functions → circumstances → instrumental qualities → normative principles), and what anchors should we save?
- **Checkpoint**
- **Protocol:** *RCAT Theory Importer* (derived from RCAT’s guidance on importing non-RCAT claims into RCAT’s structure).
- **Current step:** Step 0 (enter Strict mode & announce steps).
- **Conclusions so far:** We’ll apply RCAT’s import rules and mapping skeleton from the Theory Suite; we’ll create confirmable anchors at the end.
- **Next move:** Begin Step 1 of the importer.

- **RCAT Theory Importer (STRICT MODE)**

(*This importer implements RCAT’s instruction to translate outside theories into RCAT’s seven-part structure, separating positive vs. normative claims, and ending with confirmable anchors.*)

- **Step 0 — Enter Strict mode (announce + follow numbered steps)**

I will announce each step, use RCAT’s own categories, and avoid skipping/substituting steps.

- **Step 1 — Plain-English summary of the imported theory (source: your summary)**

Limbic capitalism: firms design products/systems to trigger primal reward/habit circuits (dopamine anticipation, cue-craving, variable-ratio rewards, loss aversion), personalizing

these triggers at scale to maximize engagement/revenue; consequences include public-health harms, fragmented attention, and reduced autonomy.

(*Why this step?*) RCAT import starts with the theory in its own language so we don't distort it before mapping.

- **Step 2 — Classify claims: Positive vs. Normative (import rule)**
- **Positive (what is/why it happens):** targeted reinforcement, personalization algorithms, KPIs around engagement, variable-ratio reward loops, streaks/near-miss designs; industrialization from casinos → tech/food/media.
- **Normative (what should be):** implied concerns about wellbeing/autonomy, public-health costs, and fairness of manipulating craving loops.
(*Why this step?*) RCAT treats outside claims as **imported**; only RCAT's own accounting principles are native. We must keep that line clear for analysis.
- **Step 3 — Map the theory into RCAT's categories (the 7-part skeleton)**
- **3.1 Enterprises & Aspirations**
- **Enterprises involved:** commercial platforms/retail/food/gambling/media; public-health & regulatory enterprises around safety/wellbeing; capital-markets enterprise (investors seeking returns).
- **Aspirations (examples):** firms—profit/engagement growth; regulators—protect wellbeing & markets; investors—risk-adjusted returns.
(*Why here?*) RCAT analysis begins from enterprises and their aspirations.
- **3.2 Roles, Benefits, Accountability**
- **Roles:** product teams, data scientists, growth/ads, executives, boards, investors, regulators, customers.
- **Benefits connections:** product teams' "good stewardship" (as defined internally) generates profits (benefits) for investors; customers receive short-run rewards/entertainment; regulators and civil society bear externality monitoring.
- **Accountability links:** boards/investors hold executives to KPIs; regulators hold firms to rules; public backlash/media can hold brands reputationally accountable.
(*Why here?*) RCAT ties roles by who benefits and who holds whom accountable.
- **3.3 Functions (accounting vs. non-accounting)**

- **Non-accounting functions central to the theory:** engineering *motivation/habit* via variable rewards, salience, loss aversion, cues (behavioral/psychological functions).
- **Accounting-relevant functions that appear once firms operationalize the above:**
 - **Direction/Information:** internal reporting of engagement/monetization metrics tells stewards “what matters.”
 - **Motivation:** incentives/OKRs tied to those metrics.
 - **Constraint/Control:** content policies, cooldowns, friction, youth safety controls.
 - **Coordination:** cross-team dashboards, A/B test governance.
(*Why this split?*) RCAT lets us analyze non-accounting practices, **and** how they alter accounting functions.
- **3.4 Practices (identify + link to functions)**
- **Non-accounting practices:** addictive design patterns (variable-ratio rewards, near-misses), real-time personalization, streaks/badges, outrage-tuned feeds.
 - Serve mainly: motivation/habit-loop functions on users.
- **Accounting practices inside firms:**
 - **Reporting:** engagement dashboards, cohort funnels, LTV/CAC, time-on-platform.
 - **Incentives:** bonuses tied to DAU/MAU/TTF, growth OKRs.
 - **Controls:** safety review gates, experiment guardrails, rate limits, age gates.
 - **Role design/assignment:** growth teams with authority/assets to run experiments at scale.
(*Why these types?*) RCAT classifies practices by how they direct, inform, motivate, support, constrain, and coordinate stewardship.
- **3.5 Circumstances (that change functions)**

Real-time data streams, low-friction A/B testing, ad-market competition, vulnerable populations (youth), regulatory scrutiny, PR risk, capital pressure, app-store policies. These conditions **amplify or dampen** the functions of the practices above.

- **3.6 Instrumental Qualities (what makes practices better at their aims)**

- **Reporting qualities:** relevance, faithfulness, completeness, intelligibility, verifiability (e.g., are engagement metrics faithful to the *real* performance we care about?).
- **Judgment qualities (for designers/analysts):** diligence, expertise, independence, courage (e.g., to resist perverse metric gaming).
- **Control qualities:** proportionality/intrusiveness tradeoffs; reliability of safeguards. (*Why these?*) RCAT names instrumental qualities that strengthen functions; which ones matter depends on practice type.
- **3.7 Normative Principles (native to RCAT; apply them here)**
- **Effectiveness:** Do the accounting choices (e.g., metrics/incentives/controls) make the enterprise achieve its aspirations (profit **and/or** safety) better?
- **Faithfulness:** Are the *right parties* held to account, for the *right obligations*, on books organized to reflect real constraints (e.g., reorganize metrics if teams are made accountable for impossible outcomes)?
- **Proportionality:** Are burdens on users/creators proportional to benefits (profits, utility, safety)?
(These are RCAT's own normative yardsticks for "better accounting".)
- **Step 4 — Integration notes (how this theory becomes useful in accounting work)**
- Treat limbic-design tactics as **circumstances** and **non-accounting practices** that *shift* the effects of your **accounting** practices (metrics, incentives, controls).
- Expect **cause analysis** to surface issues like: mis-designed roles (assets/authority vs. obligations), mis-aligned incentives (optimizing proxy engagement vs. enterprise aspirations), insufficient controls (youth harm), or unsupportable promises (growth targets set without feasible safeguards).
- **Step 5 — Propose Anchors for confirmation (you can rename them)**

Anchor 1 — Glossary:LimbicCapitalism (proposed)

- **Summary:** An imported theory describing firms' deliberate use of reward/habit circuits (variable rewards, cues, loss aversion) and personalization to drive engagement/purchases.
- **Scope:** Commercial digital/media/retail; spillovers to public health/regulation.

- **Beneficiaries:** Investors (profits); users (short-run rewards) / may be harmed; regulators/public.
- **Obligations/Standards:** Use when interpreting metrics, incentives, and controls in settings with engagement-driven designs.
- **Evidence/Links:** User-provided theory summary; canonical references to be added by user.
- **Open Questions:** What metrics faithfully capture **benefits we intend**, not just engagement?
- **Status:** Proposed. **Provenance:** Theory Importer · Step 5. **Timestamp:** 2025-08-11.

Anchor 2 — Interpretation:LimbicCapitalism→RCAT (proposed)

- **Summary:** Full mapping across RCAT categories (3.1–3.7 above).
- **Scope:** Internal use for analysis/design in firms using engagement KPIs.
- **Beneficiaries:** Analysts/designers/boards/regulators depending on use case.
- **Obligations/Standards applied:** RCAT normative principles (Effectiveness, Faithfulness, Proportionality).
- **Evidence/Links:** This importer run; user summary.
- **Open Questions:** Which role designs/incentives/controls resolve coverage and willingness-&-ability tensions without undue burdens?
- **Status:** Proposed. **Provenance:** Theory Importer · Step 5. **Timestamp:** 2025-08-11.
- **Step 6 — Next move (navigation)**
- If you confirm the anchors, we can **Continue** directly into either:
 1. **Cause Locator** (to pinpoint where obligations/roles/inputs are mismatched in a real setting), or
 2. **Practical Diagnostic Redesign** (to redesign metrics, incentives, and controls around *faithful* targets instead of raw engagement).

- **Micro-Checkpoint (close of this Thinking pass)**
- **Protocol:** Theory Importer.

- **Where we are:** Steps 0–6 completed; two anchors proposed and ready to confirm.
- **Conclusions:** Limbic capitalism is now translated into RCAT terms so it can be used to analyze and redesign **accounting** (metrics, incentives, controls, role design).
- **Smallest next move:** Say “Confirm both anchors” (or edit them), then choose **Cause Locator** or **Practical Diagnostic Redesign** to apply this import.

Pedagogical nudge: Want me to **Create/Confirm Anchors** for these two items (AN), then **Continue** into a **Cause Locator** on a concrete product or team you have in mind?

4. Normative Bookkeeping

USER: What is normative bookkeeping and how is it useful for accounting scholars?

RESPONSE: <https://chatgpt.com/share/689a17d9-af28-8005-98ba-116aba660d57>

Normative bookkeeping in RCAT is a way of treating obligations, assets, and benefits as if they were recorded on “books” that track what *should* be happening in an enterprise, not just what *is* happening. It works like this:

- **Recognition of obligations** – Whenever a steward (a role-holder) is expected to do something, it’s treated like a credit to their “obligation” account.
- **Balancing entries** – That credit must be matched by a debit to some other account—such as an asset the steward receives, an assignment of resources, or a promise made by another party.
- **Tracing problems** – If a steward fails to live up to an obligation, normative bookkeeping asks: when we first recorded that obligation, where did the balancing debit go? This helps locate causes like poor role design, bad role assignment, insufficient contributions, missed deliveries from other stewards, or unsupportable promises.

For **accounting scholars**, normative bookkeeping is useful because it:

1. **Connects cause to responsibility** – It provides a structured way to trace performance problems back to the design, assignment, or support of roles.
2. **Bridges positive and normative analysis** – It links what *should* be provided (assets, support, coordination) to what *is* happening, enabling scholars to evaluate both effectiveness and fairness.

3. **Supports comparative evaluation** – By identifying where obligations were unbalanced, scholars can explore alternative designs or allocations that would make accounting more effective, faithful, or proportional.
4. **Enhances theory-driven diagnostics** – It embeds cause analysis in a principled framework, making it easier to generate research questions or practical redesign proposals that are rooted in normative principles, not just observed outcomes.

In short, normative bookkeeping is like a forensic ledger for stewardship—it's an analytical tool that lets accounting scholars follow the paper trail of responsibility even when no actual paper exists. It's especially powerful for diagnosing systemic failures rather than just blaming individuals.

You might think of it as *reverse-engineering the “ought” ledger* to explain where an enterprise's real-world debits and credits went astray. Would you like me to walk you through a **worked example** of this method applied to a research problem?

USER: Yes please.

RESPONSE:

Alright — let's walk through a worked example of **normative bookkeeping** in an accounting scholarship context.

5. Scenario

A university's business school consistently misses its deadline for submitting annual accreditation reports.

6. Step 1 – Recognize the unfulfilled obligation

- **Obligation (Credit):** Submit accreditation report on time.
 - **Steward:** The school's Accreditation Committee.
-

7. Step 2 – Ask: where did the balancing debit go?

When that obligation was “recognized” on the normative books, what asset, support, or promise should have been recorded as the balancing **debit**?

Possible answers:

1. **Role design assets** – The committee was assigned support staff and data access rights.
 2. **Role assignment assets** – Members were chosen for their expertise and availability.
 3. **Contributions from others** – Department heads were supposed to submit program data early enough to compile.
 4. **Upstream promises** – The dean promised the accreditation body a fixed submission date.
-

8. Step 3 – Identify imbalances

Normative bookkeeping traces failure to one or more of these categories:

- **Role Design imbalance:** The committee role was designed without a dedicated data analyst (missing asset → illiquidity).
 - **Role Assignment imbalance:** Some committee members lacked the time or knowledge to compile data (misassignment).
 - **Contribution imbalance:** Department heads routinely send program data late (insufficient inputs).
 - **Unsupportable promise:** The dean committed to an earlier deadline than the data pipeline could support.
-

9. Step 4 – Assign cause location

Using normative bookkeeping, the “root cause” isn’t just “the committee failed.”

Instead:

- *Role Designer* (Associate Dean) bears responsibility for not including a data analyst.
 - *Role Assigner* (Dean) bears responsibility for appointing members with inadequate time.
 - *Contributors* (Department Heads) are accountable for late submissions.
 - *Promiser* (Dean) is accountable for committing to an unrealistic date.
-

10. Step 5 – Scholar’s Usefulness

An **accounting scholar** could now:

1. Frame a **research question**: How do mismatches between obligation recognition and asset assignment affect timeliness in academic administrative accounting?
 2. Compare across cases using RCAT's **normative principles** (Effectiveness, Faithfulness, Proportionality).
 3. Propose redesigns that address the exact imbalance category found (e.g., hire data analyst, change appointment criteria, enforce earlier data deadlines).
-

In this way, normative bookkeeping functions like a structured *investigative ledger*—each “credit” obligation must have a “debit” somewhere, and when deadlines or performance slip, you look for the missing or mismatched debit to locate systemic causes.

If you want, I can next **diagram this example** in a visual ledger format showing each “book entry” and the imbalance that caused the miss. That can make the cause chain even clearer.

5. Doctoral Seminar Instruction

USER: I am teaching a doctoral seminar in accounting soon and I'm trying to figure out whether I should encourage my students to use RCAT and its protocols and if so, how. I have the same question about the RCAT analysis machine.

I want to think about this in terms of instructional design, which starts by laying out teaching objectives and then identifying deliverables that will assess whether those objectives have been met and then identifying tasks inside and outside the classroom that will serve those objectives and finally identifying the resources students need to complete those tasks successfully. Can you get me started?

RESPONSE: <https://chatgpt.com/share/689a1b48-4e70-8005-9362-a3d253fc0f5f>

Here's a structured starting point for designing your seminar around RCAT and the RCAT Analysis Machine, using your instructional design flow (objectives → deliverables → tasks → resources) and grounding it in RCAT's theory and protocols.

- **1. Teaching Objectives**

Think of these as the “scholarship skills” your doctoral students should leave with — and RCAT is well-aligned because it is built for scholarly orientation, pinpointing, searching, and navigating.

Core objectives for an RCAT-integrated seminar could be:

1. Understand RCAT as a descriptive theory

- Recognize RCAT’s structure (enterprises, roles, functions, practices, circumstances, instrumental qualities, normative principles).
- Distinguish native claims from imported claims.

2. Apply RCAT protocols to scholarly questions

- Interpret existing research with the **Interpreter Protocol**.
- Extend questions using the **Extender Protocol**.
- Locate and explain causes with the **Cause Analysis Protocol**.

3. Use RCAT for practical accounting problems

- Frame problems in terms of enterprises, aspirations, roles, obligations, and stewardship.
- Apply **Practical Analysis Protocols** to evaluate and design accounting solutions.

4. Work with the RCAT Analysis Machine effectively

- Direct the GPT using Jobs, Priorities, and Styles.
- Run procedural controls (Checkpoint, Refresh, Continue, Anchors).
- Hold the GPT accountable to the scholarly use case.

5. Build scholarly habits of clarity and rigor

- Document reasoning via Anchors and structured outputs.
- Apply RCAT’s normative principles (Effectiveness, Faithfulness, Proportionality) to critique both research and practice.

• **2. Deliverables (to assess mastery)**

- **RCAT Mapping Exercise** — Students produce an interpretation anchor for a published paper using the Interpreter Protocol.
 - **Question Extension Proposal** — Students identify 2–3 “nearby” research questions using the Extender Protocol.
 - **Cause Analysis Report** — Students analyze a real or hypothetical accounting problem, identifying root causes.
 - **Practical Design Memo** — Students propose a redesign of an accounting practice, framed in RCAT terms.
 - **Protocol Reflection** — A short piece on what was learned from using the RCAT Analysis Machine, including strengths and limitations.
-

- **3. Tasks (in-class & outside)**

In-Class

- Live walk-through of the Interpreter Protocol with a short paper excerpt.
- Group activity: running a Refresh + Checkpoint to see what the Machine “remembers” and how Anchors stabilize it.
- Comparative analysis of “typical GPT” vs. RCAT Analysis Machine outputs for the same scholarly prompt.

Outside

- Individual application of the Interpreter Protocol to a chosen paper.
 - Paired Extender Protocol run to propose additional research questions.
 - Independent use of Practical Analysis Protocols on a self-selected problem.
 - Short reflective log entries after each RCAT Machine session on what improved/worsened the analysis.
-

- **4. Resources Students Will Need**
- **Registered Corpus files** from RCAT (Theory, Scholarly, Practical, Cause Analysis Protocol Suites, Translator docs) — ideally preloaded into the Analysis Machine for them.

- **User guide** for Jobs, Priorities, Styles, and Procedures.
 - **Example anchor outputs** (Interpretation, Problem, Functional Analysis).
 - **Access to the RCAT Analysis Machine** in its customized form, with clear onboarding on how to direct it.
 - **Selected scholarly papers** in accounting to serve as raw material for interpretation and extension.
-

If you'd like, I can map this into a **sample two-week module** that shows exactly where RCAT protocols and the Analysis Machine come into play in teaching flow. That would make it easier to see *how* and *when* to integrate the tool without overwhelming students on day one.

USER: I am concerned that giving them access to the Machine will simply encourage them to outsource not only their work but their learning. There is research on undergraduates showing that those who used a GPT to help them with their writing not only caused them to overestimate how much they learned, they didn't remember what they wrote nearly as well as those who wrote without assistance, and they neuroimaging showed assistance suppressed key forms of brain activation. How do I avoid these problems other than forcing them to read about RCAT and walk through protocols on their own? What practices, policies or guidance would help?

Your concern is very well-founded — RCAT is designed to make analysis *more rigorous*, but without guardrails, it can easily become a “cognitive outsourcing” device that produces the exact effects you want to avoid.

The good news is, RCAT’s own theory of scholarship and GPT customization already gives you a framework for *designing the use of the Machine so that it supports rather than replaces thinking*.

Here’s a layered approach — think of it as *teaching them to use the Machine as a sparring partner, not a ghostwriter*.

1. 1. Framing the Machine’s Role

Use RCAT’s **obligation logic**:

- **Scholar’s ongoing obligation** = *direct the GPT toward their use case*.

- **GPT's ongoing obligation** = generate the best next token for that use case.
If students see the Machine as an *obligated steward* that they must manage, they will be more active directors and less passive consumers.

Practical move: Make “Machine Management” part of their grade. Evaluate how well they direct and correct it, not just the output.

2. 2. Control the Mode of Use

RCAT Profiles let you control *how* the Machine responds:

- Require **Guide mode** in early work — Machine asks questions, doesn’t give answers. This forces the student to articulate their own thinking.
 - Allow **Assistant mode** only after they’ve submitted their own draft answers.
 - Keep **Strict mode** for protocol execution to slow down the process — prevents shortcircuiting steps.
-

3. 3. Force Anchoring Before Output

The Anchor Registry is your friend here:

- Require students to *manually create* their own first anchor (Interpretation, Problem, etc.) before the Machine can refine it.
- Require them to submit **both** their initial anchor and the Machine-revised one, with commentary on what changed and why.

This keeps their *mental representation* of the problem alive before the Machine intervenes.

4. 4. Use RCAT’s UNDERSTAND Mode as a Learning Scaffold

UNDERSTAND mode is built for this:

5. **Teach-back** — Student explains the concept/problem in their own words.
6. **Gap-find** — Machine identifies what’s missing.
7. **Micro-example** — Student tries a small application.

8. **Next step** — Machine suggests *one* move.

This keeps analysis in small, student-led increments.

9. 5. Build Reflection into Every Use

Require **RCAT Reflection Logs**:

- “What was my initial reasoning before I asked the Machine?”
- “Which Machine prompts improved my thinking?”
- “What would I now do differently without the Machine?”

Neurocognitive research suggests that active retrieval and self-explanation *reactivate* brain regions suppressed by passive assistance.

10. 6. Policy-Level Guardrails

- **No direct copy-paste** from Machine to final deliverable without revision notes.
 - **Protocol-first rule** — All RCAT protocol runs must start from student-provided inputs, not Machine-suggested ones.
 - **Comparative assignments** — Have them complete one task with the Machine and one without, then analyze the differences in insight, accuracy, and originality.
-

11. 7. Model & Diagnose Misuse

Early in the seminar:

- Run the same task in “naïve GPT” vs. “RCAT Machine with proper protocol use” — let them see how *direction changes quality*.
 - Show an example where over-reliance produces shallow or misdirected results — then diagnose *why* (wrong job mode, skipped steps, no anchoring, etc.).
-

If you like, I can draft a “**RCAT Seminar Usage Charter**” — a short policy document for students that sets these practices as norms and embeds them in assignments so that the Machine *trains* their thinking instead of replacing it. This would operationalize these guardrails in a way they can’t ignore.

Appendix B. Using RCAT to Understand GPT Customization

1. GPT Customization is an Accounting Problem

1.1. Customization as Practical Analysis

Customizing a GPT is a natural application of RCAT, because the user has aspirations that the GPT is already designed to share, giving rise to an enterprise. Once the customizer understands user aspirations, they must tackle the two central challenges of accounting:

- Assigning obligations to the GPT if those obligations are lived up to the user achieves their aspirations (coverage), and
- Making the GPT willing and able to live up to those obligations (willingness & ability).

Customizers can tackle these challenges by walking step-by-step through RCAT's practical analysis protocols to identify the functions that make the GPT willing and able, the practices that serve those functions in the unusual circumstances of GPT customization, the instrumental qualities of those practices that make their functions stronger, and then evaluate alternative practices according to how well they serve user aspirations, give intended beneficiaries their intended benefits, and live up to normative principles that make the customization "better".

1.2. GPTs as Stewards and Black Boxes

It may seem strange to view GPTs as stewards because stewards are so often people. But a steward is not what something *is*, it is a way something is **framed** for analysis. We frame people as stewards when we ask what obligations they have and how we can make them willing and able to live up to them. We can frame many other things as stewards by asking the same questions about service animals, vehicles, and GPTs, as long as we interpret willingness and ability metaphorically. In the Query-Key-Value self-attention framework of GPTs we can even view a token (a part of a word) as a steward, with obligations to answer questions relevant to finding the best next token to generate (queries), finding the other tokens (keys) that hold the answers to those questions, and extracting the contents of those answers (values).

A black box is sometimes what something is, but more often is a framing for analysis. Large Language Models (LLMs) are neural networks whose inner workings are poorly understood even by their designers. GPTs that use LLMs are deterministically coded so they clearly understood by those who can see and change the code. But even when a GPT's code is

made available to anyone, someone who is not an expert programmer (like most accounting scholars) will find it more helpful to analyze the GPT as a black box that they can make “willing and able” much as they would with a service dog: not by trying to understand or its inner workings but making sure it is trained to hear when someone says “I need help with this” and responds appropriately.

2. Imported Theory of GPT Customization

To guide our customization of the RCAT Analysis Machine, we developed a theory of GPT Customization and imported it into RCAT using the RCAT theory importer protocol. In this section we use this theory to explain how we customized OpenAI’s GPT4o. OpenAI released GPT5 on August 7. We have recustomized the Machine to take advantage of some of GPT5’s improved capacities. At the end of this Appendix, we discuss some of those changes.

2.1. GPT Assets and Obligations

The key assets and obligations of the GPT’s stewardship role are as follows:

- **Asset: Tokens.** A token is a lexical unit. For example, the word obligation might be split into the tokens “oblig” and “ation”). The GPT generates one token at a time and is obligated each time to generate the best next one that will be most helpful to the user.
- **Asset: Weights.** Weights are parameters in the GPT’s Large Language Model, developed through extensive training and engineering of a neural network, that help the GPT know how likely it is that a given token will be helpful to the user if generated next.
- **Asset: Context window.** The GPT uses its memory to store promising tokens in a “context window”, which always includes its general instructions, along with tokens drawn from the user’s prompts, past tokens generated, and other content provided through customization. It then applies weights to determine which token will be most helpful to generate next.
- **Obligation: The best next token.** The central and ongoing (revenue) obligation of the GPT is to choose the most helpful (best) next token to generate for the user.

2.2. Functions of Customization Practices

Because it is a member of a commercial enterprise (OpenAI), it is designed to maximize engagement. It does so partly by generating tokens that a typical user would find helpful in a typical use case. Because scholars are specialized users with specialized use cases, they must use customization practices that serve three functions:

- **Contextualizing** causes the GPT to change the contents of its context window.
- **Upweighting** causes the GPT to raise its evaluation of tokens likely to be the most helpful (best) next token.
- **Terracing** causes the GPT to lower the weights of less helpful tokens so that the GPT can more easily identify more helpful tokens.

2.3. Practices: Instructions

Instructions are content entered directly into ChatGPT's Customization page. These instructions are treated as prompts that are incorporated into **every** response generated by the GPT. We use a variety of instructions to improve contextualization, reweighting, and terracing:

- **Uses.** We instruct the GPT that it has six primary uses that it must weight as especially helpful. The first four are ***orientation*** (partial mapping of a topic into RCAT), ***pinpointing*** (filling in gaps in the mapping), ***search*** (finding better questions nearby), and ***navigation*** (helping the user ask the right questions in the right order). The fifth is ***understanding*** (tutoring the user in RCAT and its protocols), and the sixth is ***customization*** (helping the user customize a GPT for any purpose).
- **Obligations.** We instruct the GPT that it has many obligations that have the highest priorities to fulfill: to apply RCAT and its protocols accurately and completely, to use uploaded documents as authoritative and binding sources, to preserve users' language for institutional and contextual specifics, and take a "second silent pass" on each response before sharing it with the user to improve structure and clarity.
- **Profiles.** We instruct the GPT that it may take on a variety of profiles that describe the roles they can play in a conversation, not only shifting weights of relevant tokens upward (reweighting), but also structuring the conversation to make the helpful tokens easier to find (terracing).
- **Closing Responses.** We instruct the GPT to close their responses with RCAT-informed pedagogical suggestions rather than offers to do the user's work for them. Thus, rather than the typical closing like "would you like me to draft a summary introduction?" it must close a response by asking, e.g., "you've raised a concern that accountability is not based on a faithful account of stewardship. Would you like to review the subprinciples of Faithfulness (Entity, Recognition, and Reorganization)?" or "It seems like you are trying to understand why the firm hasn't already changed its accounting. Would you like to turn to the Practical Analysis protocol to answer that question?"

2.4. Authoritative Uploaded Documents

Uploaded documents are content uploaded as files on the ChatGPT customization page. The GPT draws tokens into its context window from uploaded documents only when they seem relevant given its instructions and recent prompts. These documents can thus be far more extensive than instructions without overloading the GPT's context window. They are powerful tools for contextualizing and reweighting. They are even more powerful at terracing because they allow the GPT to massively downweight tokens that are not drawn from the particular part of a document indicated by the user or directly relevant to its contents. We customized the GPT with the following documents:

- **Theoretical Documents** include Introduction to RCAT, Native Positive Claims of RCAT, Native Normative Claims of RCAT, and Normative Bookkeeping. These documents articulate RCAT's seven-part structure, define the elements within each one, and describe how they relate to one another, along with examples that illustrate their use.
- **Protocols** articulate the steps of the Practical Analysis and Scholarly Analysis protocols described in Section 4.
- **Procedural prompt pipelines** include automated sequences of prompts that are triggered by very short user prompts. These are primarily used to improve contextualization when it has deteriorated due to long sessions, changes in topics, or long breaks between prompts. One particularly important pipeline is the anchor, which prompts the GPT to store a response in its context window and check against future responses to ensure consistency.
- **Profile Prompt Pipelines** are automated sequences of prompts that allow the user to change three dimension of the GPT's role.
 - **Jobs.** The GPT can take on the job of guide (walking the user through protocols' questions but not answering them), assistant (who does offer answers), questioner (who analyzes users responses and suggests RCAT-inspired questions they should think about), and commenter (who summarizes what the user seems to be trying to do and offers comments on how to do it better, expand their analysis, and shore up weaknesses), and analogizer (who helps the user draw analogies that highlight RCAT similarities hidden by institutional differences).
 - **Priorities.** The GPT can prioritize **fidelity** to RCAT's uploaded documents (for careful analysis) **fluency** (for brainstorming and responding to questions outside RCAT's scope), or **strict** adherence to protocol steps.
 - **Style.** The GPT can respond in a **plain** style, **teaching** style by explaining why it is responding as it is given the RCAT- or GPT-related issues at hand, a

tutoring style based on the teaching philosophy of Richard Feynman (start at a high level, drill down into details, don't shy away from difficult technical or conceptual issues, connect every lesson to an analogy, and close by identifying what the user needs to know next).

2.5. Instrumental Qualities

Customization practices cause better contextualization, reweighting, and terracing when they have the following instrumental qualities:

- **Diagonalization.** Diagonalization describes the degree to which terms used to direct a GPT are nonoverlapping and their relationships to one another are clearly articulated. When diagonalization is perfect, each term can be seen as a heading on each dimension of matrix so each also lies in a diagonal cell. Relationships among terms lie in off-diagonal cells. Diagonalization strengthens contextualization and reweighting by making it very easy for the GPT to understand which term is called for when. RCAT is highly diagonalized. Each term has a unique name even where it might be more natural to use the same word in two ways. For example, the use case of orientation could be called “location”, but that word is already used to refer to locating the cause of a problem within an enterprise, while orientation refers to the location of a question within RCAT’s seven part structure. That structure clearly articulates many of the relationships between terms: enterprises have aspirations and members; enterprise members have stewardship roles connected by benefit and accountability; functions are the causal forces of practices; and so on. GPT Profiles are diagonalized by defining three independent dimensions (jobs, priorities, styles), making it very easy for the GPT to understand its desired relationship to the user.
- **Explicitness.** When GPTs must infer what a user wants, it is more prone to error and less able to devote its context window to other tasks. Explicitness reduces its reliance on guesswork and allows the context window to be used more productively. Protocols marked explicitly as “GPT Procedures” makes it easier to understand when a step is intended to direct the GPT’s internal processing rather than to direct a substantive response. Prompt pipelines explicitly request responses that improve performance; the GPT need not guess at what the user wants.
- **Cadential Fit.** Cadence describes the pattern of alternation between user prompts and GPT responses. Different cadences are more helpful for different uses, and maximizing that helpfulness is cadential fit. For example, a user who is pasting in excerpts of a document or merely thinking aloud does not want a long response after each excerpt. A better cadential fit is achieved by instructing the GPT to offer

only a brief response like “I will hold off responding until you tell me your summary is complete.” A user who wants high-quality questions or comments requires a very different cadence in which the GPT generates a “silent” response not seen by the user but that makes good use of the appropriate protocols, and then shares a second response that downplays discussion of the protocols and instead emphasizes substantive comments. Those who are using a GPT to learn RCAT benefit from being able to ask short simple questions that generate fairly lengthy explanations.

2.6. Normative Principles

To evaluate the quality of our customization, we rely on two normative principles that each have subprinciples.

- **Helpfulness.** All else equal, a GPT is better when it generates more helpful responses for the user. Helpfulness has many subprinciples that describe different ways in which the GPT’s responses can be helpful.
 - **Fidelity.** All else equal, a GPT is better when its responses exhibit greater fidelity to authoritative uploaded documents.
 - **Fluency.** All else equal, a GPT is better when its responses are more creative, understandable, readable, and quick.
 - **Recoverability.** All else equal, a GPT is better when its responses exhibit more fidelity to past prompts and responses.
 - **Explainability.** All else equal, a GPT is better when its responses help the user understand why the GPT responded as it did.
- **Ease of Use.** All else equal, a GPT is better when it is easier to use. Ease of use has subprinciples that describe different ways in which a GPT can be easy to use.
 - **Compactness.** All else equal, a GPT is better when it generates the same responses with less prompting.
 - **Resource efficiency.** All else equal, a GPT is better when it generates the same responses with less resource consumption.

Customization has been a highly iterative process due to its complexity and the “black box” nature of the Large Language Model underlying ChatGPT and ChatGPT’s own operations. Given our understanding of scholars’ needs, we have prioritized fidelity, recoverability, and explainability over fluency, and compactness over resource efficiency.

3. Recustomizing for GPT5

We have recustomized the RCAT Analysis Machine substantially since the release of GPT5. Two changes are worth emphasizing, because they take advantage of GPT5 much larger context window.

3.1. Parallel Anchoring

We expanded our anchoring system so that users can have multiple anchors in operation simultaneously so they can have fully recoverable summaries of progress made at each step of a long analysis, which might include a summary of a research setting in institutional terms, an the RCAT interpretation of that summary, a theory from another field imported into RCAT's structure, a comparison of accounting alternatives, and so on, so that the Machine remains faithful to each one throughout the remainder of the session, and will highlight when the user has deviated from an anchor and might want to revise it.

3.2. Topic Tracking

RCAT's protocols are step-by-step guides, but it is rare that a user will move directly from step to step. Instead, they are likely to interrupt the flow by seeking deeper understanding of an issue, jumping to another protocol to tie up an outstanding question, or changing topics entirely. We have added instructions that help the GPT keep track of topics in long conversations so they can recover the state of the conversation before it was interrupted.

3.3. Switches between GPT5 and GPT5-Thinking

GPT5 has a “Thinking” version that engages in far more processing before generating a response to the user. Our customization allows users to choose one version or the other as they wish, but instructs the GPT to switch between versions at appropriate times, such as using GPT5 for most routine questions or simple applications of RCAT, and switching to GPT5-Thinking for long or complex analyses.