HOW TO STRUCTURE AN ACADEMIC PAPER

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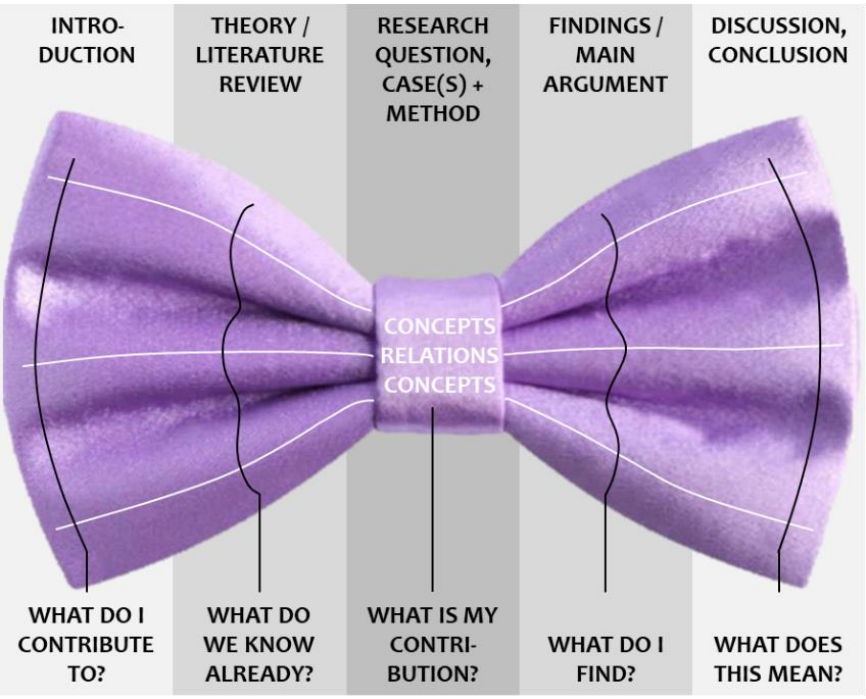
Writing academic papers is difficult. However, there are a couple of things that one can say quite generally about writing academic papers, which can help you organize your work, find what still needs to be improved, and evaluate your own writing as much as that of others.

Regarding the structuring of academic papers, the most important point is that **all academic work** – theoretical or empirical, from student papers to Nobel prize winning books – **is structured by its research question**. All parts of any academic manuscript derive their right to exist, as well as their rightful place in the text, from the research question. You cannot possibly start writing before you have fully defined and understood your research question. Throughout your paper, you then proceed to ask five key questions about your research question:

- **What** larger questions, debates or bodies of scholarly knowledge **do I contribute to**?
- **What do we know already** about those concepts and relations raised in my research question?
- **What** exactly **do I** do to answer my question and how does this **contribute** to answering it?
- **What do I find** that enables me to draw conclusions about my research question?
- **What do my findings mean** for answering my research question, and what follows from this?

As a useful metaphor, you can think of any academic text as organized as a **bow tie**: It **starts wide** and, relying on existing knowledge, **narrows its focus** until it arrives at a rather **specific research question**, which stands at its center. Thereafter, it **broadens again**, bringing in new arguments and analyses to address your question and draw a more **general conclusion**. Only the research question holds everything together: Those **concepts and relations** that make up the **research question** form the **threads that extend horizontally all across the bow tie** and hold its parts together. At every stage, you look at your research question, and those concepts and relations included therein, from a different perspective, weaving in **vertical threads** to develop your narrative.



In the following, I will explain each point and section in detail.

BEFORE YOU START

Before you can start building your paper, you **first** need to **develop your research question**. Next, you need to determine what are the **key concepts and relations** therein, and what **kind of research paper** you are writing. Only thereafter, you can begin structuring your paper.

1. Developing your research question

Please refer to my text on ▸ **Research Questions** for guidance on this step.

2. Identifying key concepts and relations

Every research question specifies the concepts and relations that will be considered in your paper. Most basically, these are those words in your research question **that you cannot replace or remove** without substantially changing its meaning. Typically, those words that refer to specific actors, places, moments or occurrences are not concepts: If you replace them, you may end up looking at different data, but you still ask the same question. Another way to find key concepts and relations is to try and draw the research question as a **system of boxes and arrows**: Concepts can be represented as boxes, and any relations between them can be represented as arrows. Additional key concepts and relations may be discovered by exploring what you mean by your interrogative pronoun: If you ask "how", what kinds of qualities are you interested in? If you ask "why", what kinds of reasons will you consider? If there are specific words that delimit what kinds of answers your paper will deal with (e.g., you are interested only in motives as reasons, or only in behavioral effects) can be added to your list.

3. Determining the type of research paper

Many research questions can be addressed in different ways: You can try to proceed toward an answer by means of **empirical research**, via **theoretical argument**, or (sometimes) by means of a **formal model or simulation**. While the overall structure of academic papers is the same regardless of how you proceed, the respective parts take somewhat different shape depending on whether you mean to write an empirical, a theoretical, or a logical paper.

If you mean to answer your question by looking at data, you are writing an **empirical paper**. Since your research question contains theoretical concepts, but data do not (try counting freedom or marking polarization in a text), such papers need to **translate all key concepts and relations into things we can actually observe**. While they begin and end, as all papers, with theoretical considerations, the knowledge that they add derives from empirical data. Accordingly, before you present your data, you need to explain how your data is suitable to study those concepts and relations that you are interested in – and afterwards, you need to explain what these findings mean conceptually.

If you mean to answer your question by reviewing and weighing existing arguments and scholarship, you are writing a **theoretical paper**. In this case, your paper essentially remains at the level of concepts

and relations, so there is no need for translation. For this reason, theoretical papers are generally more flexible in their organization (which, however, usually makes them more difficult to structure).

If you mean to answer your question by thinking systematically, following a set of formal rules, you are writing a **modeling paper**. Such papers are common in philosophy and mathematics, but comparatively rare in the social sciences, and most commonly take the shape of simulations and formal models. Logical papers offer answers by postulating some formal representation of a problem – say, a system of equations, algorithms or distinctions – and examining what outcomes are possible or likely within this formalization. Since any formal model depends on a range of assumptions that constrain its behavior, the key translation that is necessary in logical papers concerns the adequacy of the formal representation: Before your analysis, you need to explain **why it is appropriate to model the problem addressed in your research question** in the specific way that you propose; and afterwards, you need to explain what the observed behavior of your model or simulation means conceptually.

BUILDING YOUR STRUCTURE

Once you have determined what kind of paper you mean to write, and identified the key concepts and relations that form your research question, you can start structuring your paper.

Generally speaking, every research paper needs to address five broad questions.

1. What do I contribute to?

The first question that every research paper needs to address concerns its **relevance and positioning within the context of the existing scholarly debate**. To explain what you aim to contribute to, you need to answer three somewhat narrower questions.

First, you need to explain why there is a **need for research** on your subject at all. Are there unresolved puzzles left behind by existing scholarship? Are there new phenomena that are still ill-understood? In short, you need to justify why the specific concepts and relations addressed in your research question are in need of further research.

Second, you need to explain what **specific part of existing scholarship** you contribute to: Are there specific fields or paradigms that you address? What are the key bodies of knowledge that you will draw upon? In effect, this means that you need to explain where those concepts and relations addressed in your research question originate from.

Third, finally, you need to explain why you can hope to make a **contribution** by doing what you intend to do: Why is this kind of research paper suitable to add valuable knowledge? How do those data, arguments or models that you mean to rely on address those concepts and relations that are addressed in your research question?

After reading your introduction, any imaginable reader needs to be able to decide whether she or he can hope to learn anything from your paper that is relevant to them, what they can hope to learn, and why they can hope to learn from your specific contribution.

These questions, which jointly constitute the **Introduction** section of every paper, apply unchanged to any kind of paper, and should generally be answered before the end of the second page.

2. What do we know already?

The second question that every research paper needs to address concerns what we can already know based on the **existing scholarly literature**. As you address what we already know, the key question is this: **What do your readers need to know in order to understand your research question, approach and analysis?** Importantly, this means that the question is **not** what is known generally about the phenomenon that you study. It is not your task to present related works just because they exist – rather, you need to review only that knowledge that is needed to understand your contribution.

To develop this section, you can again refer to those concepts and relations addressed in your research question: First, you need to **define** and explain what you mean by each concept and relation. Second, you need to explain **what is already known** about the nature and behavior, origins and implications of the included concepts and relations – to the extent that knowing these matters for understanding your analysis. Whenever the existing scholarship already offers relevant insights regarding possible answers to your research question, this section is the place to review these.

The concepts and relations in your research question thus provide a critical check for your review of existing scholarship. If you refer to a concept or relation in your research question, but you **have not written anything about it** in your literature review, you should probably go and find out what is still missing. Inversely, for everything that you write here, you need to be able to explain how knowing this informs your research question and analysis. If you **cannot formulate how it is relevant**, you should probably delete it.

The above guidelines apply equally for all kinds of papers. However, for both **empirical and modeling papers**, the answers to this question necessarily constitute a separate section, most commonly entitled **Literature Review** of **Theory**. For **theoretical papers**, the review of existing knowledge is necessarily linked closely to the addition of new insights that arise from your own theoretical argumentation. For this reason, theoretical papers often state a rough version of their research question early, or after only a rudimentary examination of existing knowledge. Subsequently, they then move forward and back between the presentation of others' existing insights and your own, new ones, refining both the question and its answers as they proceed (see section 4 below).

3. What is my contribution?

Once you have reviewed what is already known, it is time to address the key question – that is, **how you are going to add to the existing knowledge**. To do so, you need to address three questions.

First, you need to explain **what follows from your review of the existing scholarship**: What do we know with confidence, what do we have reason to expect, and what is unclear? If there are any specific expectations that follow from your review of existing knowledge, it may be appropriate to formulate testable hypotheses.

Second, you need to **present your research question**. As you have already explained all of its components by now, this can be brief – but if there is any need to explain why you ask your research question in this particular way, here is where you can do this. If your review of existing knowledge already points to specific hypotheses that constitute parts of a possible answer, you may also move your research question before your hypotheses.

Third, you need to explain how that which you are going to do next is **suitable to address your research question** and deliver valuable new insights. How you need to argue this depends critically on the type of paper that you are writing.

If you are writing an **empirical paper**, you need to explain your **choice, treatment and analysis of data here**. Why is the kind of data that you analyze suitable to answer your question? What did you do to collect and process this data, and why is this appropriate for your study? How can the data address those theoretical concepts and relations in your research question, and how is your analysis capable of deriving a suitable answer? The answers to these questions, which constitute the **Method** section of the paper, thus address the **case selection and design** (e.g., experimental, cross-sectional, longitudinal, comparative or case study designs), the **methods of data collection** (e.g., interviews, observation, textual data, existing statistical data sets), **data processing and analysis** (e.g., qualitative, quantitative or mixed methods, specific analytic approaches and techniques), as well as the **operationalization of your theoretical constructs**. In essence, you need to **translate the entire research question into your empirical research strategy**: all relevant concepts, all relations and whatever else may be of relevance. Hence, if there is anything in your research question that you do not measure or address otherwise, you need to either add a measure or analysis, explain why it is legitimate to omit this in the investigation and why you can still draw conclusions about it, or remove it from the research question. Inversely, if there is anything in the operationalization for which you cannot explain how it is related to those concepts and relations addressed in your research question, it probably needs to go. Finally, you need to explain **how you can gain confidence** that your findings will be dependable (e.g., by reporting validation strategies, reliability measures, scale consistencies). While this part sometimes requires a lot of explanation, it is internally pre-structured, which usually facilitates the writing.

If you are writing a **theoretical paper**, you need to explain the **choice, treatment and analysis of those bodies of academic scholarship** that you depend on for your arguments. Why can these fields of knowledge contribute to answering your question? How do you combine the insights derived from different works, and why is this appropriate for your study? How do the respective concepts and relations that have been treated in the existing scholarship address those included in your research question? The answers to these questions, which are typically addressed early on in the paper, do not normally constitute a section in their own right, and are often brief. However, especially where you

refer to scholarship from different paradigms, fields and contexts, it is important to explain why and how you are justified in combining them, and what assumptions you make yourself in the process.

If you are writing a **modeling paper**, you need to explain your **choice of model and modeling parameters**: Why are those variables, actors, or whatever else constitutes the focus of your model suitable to express the concepts addressed in your research question? How do those actions, interactions, state changes or values that these can take in suitable to express the relevant relations? Why is the specific algorithm, mathematical, statistical or theoretical modeling a fair representation of the theoretical focus of your work? To answer these questions, you can proceed in four steps: First, you identify the **kind of model** that is suitable for your examination, and explain why; next, you **populate the model** by naming its constituent parts; third, you define **how each of the parts can behave** or what states these can take in; and finally, you explain how your **examination** will proceed (e.g., by mathematical simulation, logical examination, or whatever else is appropriate). In the course of this procedure, you need to **translate the entire research question into your model**: all relevant concepts, all relations and whatever else may be of relevance. Hence, if there is anything in your research question that you do not model, you need to either add it to your model, explain why it is legitimate to omit this in the model and why you can still draw conclusions about it, or remove it from the research question. Inversely, if there is anything in the model for which you cannot explain how it is related to those concepts and relations addressed in your research question, it probably needs to go. For most existing forms of modeling, there are standards for how this is done, which you can find by referring to existing work using the same kind of model. In most cases, the answers to these questions constitute a section called **Model**.

4. What do I find?

The fourth question that every paper needs to address is **what are the findings** of your investigation. How exactly these findings need to be reported obviously depends on the nature of your investigation.

For **quantitative papers** – both **empirical and mathematical or statistical simulation studies** – this section is conventionally structured: You proceed from descriptive properties step by step through your hypotheses (or, if you have no hypotheses, your key relations and concepts from your research question), each time reporting what the analysis announced above showed. In this presentation, there is generally no place for interpretation – only minor commentary is permitted if it is needed to understand how the reported findings relate to your hypotheses, if relevant, and those concepts and relations addressed by the research question. For quantitative research, the section wherein your findings are reported is typically called **Results**.

For **qualitative papers** – both **empirical and logical models** – the structure is more fluid. However, also here, you need to address all those concepts and relations specified in your research question and explain what your investigation yielded with regard to each of them. This kind of research generally requires some interpretation; however, interpretation should be strictly limited to translating observations into theoretical concepts and relations relevant to your research question. For qualitative research, the section wherein your findings are reported is typically called **Findings**.

For **theoretical papers**, finally, your findings are not normally separate from the existing knowledge that you are working with – simply because your findings derive directly from your re-appraisal and combination of existing knowledge. These papers **combine the review of existing knowledge and your own argumentation** in a section that has no standard name and is usually too long and complex to pass as only one chapter. Therefore, the introduction and analysis of scholarly knowledge is typically **subdivided into key steps** – steps that almost inevitably derive directly or indirectly from those concepts and relations addressed in your research question. This does not mean that you should address them one by one – often, you need to focus on specific combinations or relations between these concepts to derive valuable insights; however, for every subsection, you need to be able to explain how this constitutes part of an answer to your research question. By the end of the section, you need to have addressed all the concepts and relations that make up your research question. Within each subsection, you typically proceed by first introducing some existing knowledge that you wish to depart from, then add more knowledge while arguing about the relations between all the knowledge that you introduce. Each subsection ends by explaining how the arguments that you just presented offer new insights regarding the relevant concepts and relations in your research question. To develop these arguments, you inevitably need to develop offer your own interpretations of the findings and arguments presented in the existing scholarship; however, interpretation should be strictly limited to translating observations into theoretical concepts and relations relevant to your research question

5. What does this mean?

The final question that every academic paper needs to address is **what the presented findings and arguments mean for existing and future scholarship** in the field – and possibly, beyond these. To explain this, you need to answer three somewhat narrower questions.

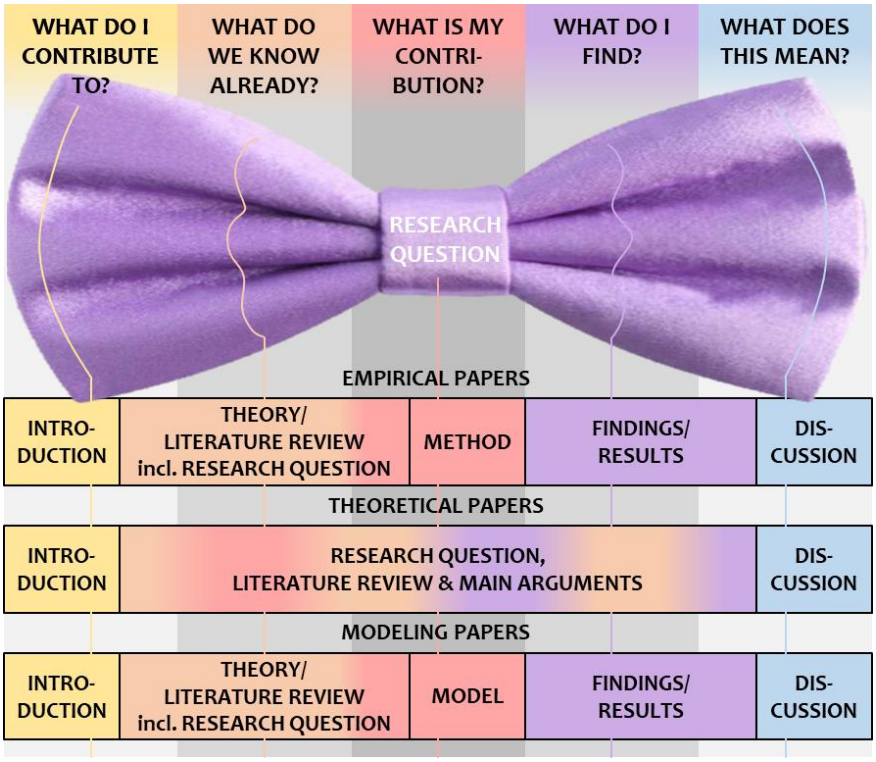
First, you need to give your **answer to your own research question**. Practically, this means that you briefly summarize the findings from the preceding section, focusing on the overall answer. You may also emphasize specific aspects of your findings that are particularly interesting or relevant for understanding your answer. Make sure that 1) your answer is a valid answer to your research question (not necessarily in the sense that you completely and finally answer it, but in the sense that it substantially improves our understanding of the phenomenon that you asked about) and 2) your answer adds to what was already known (i.e. you could not have given the same answer before your investigation). The answer to your research question should not normally require more than a paragraph to give. It does not constitute a section in its own right, but marks the beginning of the section called **Discussion**.

Second, you need to explain **what it means that you gave this answer**. Are there any open questions in the scholarly literature which you have been able to answer? Are there important additions to what was known previously, or have any prior conclusions been called into question? Did your answer raise new questions, or imply anything about how future research should proceed? As you answer these questions, you need to relate your findings back to the existing scholarly knowledge that you departed from, show how you add to it and discuss possible meanings. If there are implications of your findings that contribute to **additional bodies of scholarship** (i.e., knowledge that was not needed to understand your research question and were therefore not discussed before) or can be better

understood by drawing additional knowledge, here is also the place to reach beyond your research question. Typically, you begin with those fields that you said in the introduction you will contribute to, and add any additional, unforeseen implications at the end. If there are any implications beyond scholarly knowledge, such as practical recommendations or contributions to an ongoing public debate, this also can be addressed here. Your answers to this question take in most of the space in the discussion, which can reach from a few paragraphs to a few pages, depending on the complexity of your findings and the related fields.

Third, you need to explain **what are the limitations of your findings**. How far can your answers be generalized – or can you already say something about those conditions under which the same answers should, or should not hold? Are there any limitations that arise from the specific way in which you conducted your analysis – e.g., in the sense that you omitted or simplified something important, or that you chose to focus on some aspects only while there are important other aspects to consider? Did you run into difficulties during your analysis that warrant caution in interpreting certain findings? This section, which may or may not have a separate title, does not usually require more than a paragraph or two, but it is critically important for evaluating the quality of your study.

Many studies add a final, fourth part, to this sequence, wherein they **conclude** not just what answer they have given to the studied research question, but also what the study contributed to scholarly knowledge more generally. This is, however, optional and should generally be short.



EVALUATING YOUR PAPER'S STRUCTURE

As you develop your paper, you can use the structure of the bow tie to evaluate your paper and identify any parts that are missing, or superfluous. The simple logic is this: **In each section, you address each of those concepts and relations that form your research question – just every time, from a different angle.** Every academic work – paper, talk, book, or whatever – needs to address all key concepts and relations five times, explaining why these matter, what we know about them, how you contribute to this knowledge, what you find, and what that means for these concepts and relations and beyond. Whenever you complete a section but some of the components of your research question is not addressed therein, you probably need to add something. Whenever you write something that does not relate to any of your key concepts, it should probably go. You can use this as a grid to organize what you mean to say in each section: **Do you address each key concept and relation in each section? Are all the things that you say in the right place?** Subsequently, you can then find a useful and clear way of writing that up. Especially when you are structuring the longer sections – the Literature Review, Method, Findings and Discussion – it often makes sense to refer to some of the concepts, groups of concepts or concept-relations as chapter subheadings. This not only makes it easier for a reader to understand what you are addressing, but also helps connecting the presented information across the different sections. As in the illustrated bow tie, you weave your paper from the horizontal threads of key concepts and relations, which connect everything that you write across all the sections of your paper, and the vertical threads of the specific questions asked about your research in each stage.