# *The* **Logic** *of* *Academic Writing*

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# Dedication

*For Doug Walton, our Big Friendly Giant*

# About the Authors

**Fabrizio Macagno** (Ph.D. Università Cattolica del Sacro Cuore, Milan, 2008) is a researcher and invited assistant professor at the Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, Portugal. His current research, between the fields of linguistics and philosophy of language, is focused on the persuasive use of emotive language and on the dialectical dimension of discourse implicitness, which he analyzes within the contexts of legal and political discourse. He applies the theoretical models developed to the context of education, proposing methods for analyzing classroom discourse and conversation. He is the author of several papers on definition, informal fallacies, argumentation schemes, and dialogue theory published in major international peer-reviewed journals such as *Journal of Pragmatics*, *Intercultural Pragmatics*, *Argumentation*, *Philosophy and Rhetoric*, *Informal Logic*, and *Pragmatics and Cognition*. His most important publications include the books *Argumentation Schemes* (Cambridge University Press, 2008), *Emotive Language in Argumentation* (Cambridge University Press, 2014), and *Interpreting Straw Man Argumentation* (Springer, 2017).

**Chrysi Rapanta** (Ph.D. Università della Svizzera italiana, Lugano, 2011) is a researcher at the Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, Portugal. Her research has always been highly interdisciplinary, focused on the use of argumentation theory in the fields of education, communication, and computer-supported collaborative learning. Before joining the Universidade Nova, she worked as an assistant professor of business communication at Zayed University, an Emirati educational institute in Dubai. Her most recent research focuses on teacher education, specifically on assisting in-service middle-grade teachers in their experience and application of argument-based teaching in different disciplinary fields. She has published in major international peer-reviewed journals such as *Review of Educational Research*, *British Journal of Educational Technology*, *Journal of Philosophy of Education*, and *Informal Logic*. She is the author of *Argumentation Strategies in the Classroom* (Vernon Press, 2019) and co-author of *Managerial Communication for the Arabian Gulf* (Business Expert Press, 2016).

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# Detailed Table of Contents

CHAPTER 1

# Introduction

*The Logic of Academic Writing* was developed from a practical educational need, namely teaching early-year Ph.D. students at our university — a medium-sized public university in Europe — some basic ideas on how they can structure their arguments in ways that may make sense for an academic paper to be written and consequently published. Our Faculty of Social Sciences and Humanities did not offer any course, seminar, or even workshop on academic writing at any level (BA, MA, Ph.D.), but students have always been requested to write essays, papers, and dissertations for their courses. We decided to address the requests that we received from students and the complaints of the professors and lecturers — the former worried about the difficulties that they had in drafting papers at the university level, and the latter concerned about the poor quality of students' writing. Thus, the course of academic writing was organized and designed for Ph.D. students, and the first class started. We are not native speakers of English, but we have quite a lot of experience in writing different types of papers on different subjects using different methods. Moreover, we intended to focus on the reasoning structure of academic writing, rather than on style and language. Obviously, language is essential for expressing one's reasoning; however, the reasoning, to be expressed, needs to be first clearly formulated.

Our initial idea when we wrote the syllabus was to use one of the existing textbooks cited in academic writing courses around the world. However, after one hour of class we had to change drastically this plan. We were facing students that *were not asking for linguistic or stylistic tips*. They were demanding a much deeper skill that underlies style and linguistic choices, namely *the way they need to think* when they write a paper. For us, it was not only difficult, but even pointless to teach initial-stage researchers how to write a paper without first addressing the reasoning that underlines it. It was like building a nice and shiny castle on sand. Our audience could learn tips, but what are tips for, when the whole mechanism of reasoning that leads to structuring an academic paper was missing? Our students never asked themselves, nor were they ever taught to ask, *why* and *for whom* they should write. Therefore, we designed the course starting from the very essence of writing academically.

Our research expertise is in argumentation studies: the discipline that analyzes how arguments are produced, evaluated, and addressed, considering the pragmatic, logical, and dialectical levels. Since academic writing is characterized by supporting an original idea through proofs or arguments, we decided to focus on the "logic" of writing, that is, on the reasoning we use for structuring our ideas, paragraphs, and papers. By

"logic" we mean something very different from the modern concept of formal logic. We do not deal with formalizations, but with the reasoning mechanisms that we use when we develop and organize our ideas, connect them with other ideas, and support them through arguments.

The logic of academic writing is the argumentative strategy on which our papers, our sections, and our paragraphs are based. It is a strategy, as it is a plan that connects different steps and has a specific goal, namely convincing the audience of an original and important idea. And it is argumentative, for two reasons. First, we can defend our idea and we can convince our audience only through arguments, which only in very few disciplines are formal deductions. In most cases, the arguments that we use are based on premises accepted by a community and the conclusions are drawn from principles that in the ancient dialectics were called "maxims," principles shared by everyone. Second, a paper is a dialogue between the author and his or her readers. An idea will be considered interesting and worth reading only when it addresses a topic that is perceived as important by the readers and tackles a problem that is open and needs to be solved. Our arguments are acceptable when they start from the premises of our community of readers, avoiding repeating what is obvious for them or taking for granted what is obscure or unknown to them.

In this book, we present the argumentative approach to academic writing that we used in our classroom. What characterizes this approach and makes it unique is the perspective that is adopted. We do not start from preexisting ideas that need only to be presented in a way that is suitable to an academic public. We intend to show that writing academically is a consequence of *thinking* academically, or rather "strategically." We explain how the linguistic and presentational devices are the result of a much deeper plan underlying them, and how mastering the logic of a paper leads to understanding and even developing academic styles. The logic of academic writing is not aimed at teaching how to use language and write texts academically, but at enabling readers to create *their own* style based on *their own* argumentative strategies.

Before explaining in detail our approach as teachers of academic writing, it is necessary to make some connections with (and distinctions from) the existing books on this topic. After listing the most important similarities and differences between this text and other comparable works, we will show the basic features of the reasoning-skills approach, which will be then developed throughout the chapters of the book. At the end of this introductory chapter, we will provide some suggestions as to how the book may be used as a teaching and/or a study manual at different levels and contexts of academic writing courses.

## 1.1 What Others Say, What We Say

The relationship between writing and argumentation has been mentioned and, in some cases, developed by some existing works on academic writing. However, argumentation has never been considered or taken as the starting point or the vantage point, but only as the explanation of specific phenomena occurring in writing.

A crucial work is the one by which the title of this section is inspired, namely Graff and Birkenstein's book *They Say, I Say: The Moves That Matter in Academic Writing*. The

authors refer explicitly to the important place of argumentation, both oral and written, within academic writing. As they claim, "[A]cademic writing is a means for entering a conversation" (Graff & Birkenstein, 2010) and, therefore, the goal of teaching this skill is to "make sophisticated rhetorical moves" (ibid., p. 3). Although this sounds promising, and it is indeed the heart and soul of writing academically, the book is focused particularly on quoting and referencing, not considering other parts or aspects of writing.

An explicit focus on argumentation is also given by other seminal works in the field of academic writing. For instance, in the book *On the Surface of Discourse* (Hoey, 1983), some main patterns for structuring discourse are presented taking into consideration the "social aspect" of academic writing, i.e., the idea that when we write, we write for and within a community of "others." Hoey (1983) highlights the general problem-solution-evaluation pattern for structuring discourse, also providing some subpatterns and structuring strategies, most of them argumentative (although this is not made explicit by the author). Examples of those are the multilayering strategy of combining different responses to different (aspects of the) problems, and the generalization strategy of providing different compatible examples (instances) of the same claim.

Turabian's work *Student's Guide to Writing College Papers* (Turabian, 2010) brings to light the importance of argument when it comes to academic writing. Although the book was proposed as a manual for researching, writing, and formatting college papers, it also pays attention to some aspects of argumentative structure, especially in the chapter titled "Planning Your Argument." The author explains the use of the *warrant* as a main inferential structure in any type of writing, illustrates its use when it comes to scientific arguments, and concludes with contrasting arguments based on warrants with arguments based on *evidence*. This is exactly what we consider as the most important aspect of academic writing, which is at the basis of our writing skills. However, Turabian's book does not explain or discuss what counts as evidence or as a warrant when writing a paper and how it can be integrated in one's own arguments.

The works referenced above — and few others not mentioned here — establish an explicit relationship between argumentation and academic writing, aiming at unveiling the reasoning structures behind writing a paper. Unfortunately, this aim is not commonly shared by the plethora of academic writing books, which mostly address the linguistic problem of writing academically, some at the superficial (but necessary) level of style and others at a more thorough level of discourse analysis. Although the language of academic writing is an extremely important dimension, structuring the ideas of a paper in a way that makes *academic sense* is a skill that precedes the stylistic features and linguistic mechanisms guiding the expression of ideas. *The Logic of Academic Writing* is devoted to this goal.

## 1.2 A Reasoning-Skills Approach to Academic Writing

Adopting a reasoning-skills approach to academic writing implies that the focus is on the development of certain understandings that will lead to the manifestation of inherently available argumentation skills. According to research in the field of psychology, the skills of arguing and counterarguing are naturally acquired at a very early age (Stein & Miller, 1991); however, they do not usually manifest spontaneously during

the adolescent and adult age, and explicit practice is necessary for that (Kuhn & Udell, 2003). This means that if argumentation skills are a necessary requirement for writing academically, then learning and teaching of academic writing should explicitly focus on these skills.

In general, argumentation skills are of cognitive, metacognitive, and metastrategic nature (Kuhn, Zillmer, Crowell, & Zavala, 2013; Rapanta, Garcia-Mila, & Gilabert, 2013). But what does this mean when applied to academic writing? In terms of cognitive skills, academic writers are expected to:

- Know their specific field of study, its situation in the broader scientific area, and its relation to other relevant areas of knowledge;
- Know the most relevant works in their field, both theoretical and empirical, and be able to construct interpretations of those in ways that give strength to their own ideas;
- Know the methods that they propose as ways of resolving the identified gaps or problems in the literature of their field.

In terms of metacognitive skills, academic writers are expected to:

- Anticipate objections/counterarguments/critiques from the scientific community in which their work is situated, and reply accordingly to those;
- Anticipate ambiguities and the readers' risk of "getting lost" in the paper by being clear in all the parts of the writing;
- Anticipate criticism from scientific ethics bodies/commissions by avoiding plagiarism.

Finally, in terms of metastrategic skills, academic writers are expected to:

- Apply logical structures that sufficiently support their arguments throughout their writing;
- Recognize the positive value of other works in their field and be humble regarding their own contribution;
- Defend their own solution to the problem/issue by applying the most appropriate methods for it, taking into consideration the possible limitations of their contribution to the field.

Usually, fresh graduate students are taught or advised to follow an academic structure in their writing based on certain academic conventions. However, for the "structure" to make sense to the readers and the scientific community, it needs to be "filled in" with logical arguments that support and defend the writer's claims. Similarly, citing the work of others is not (only) a matter of writing the citation in the scientifically correct way; first and foremost, it is a means for acknowledging what others did before, to support and distinguish the author's viewpoint. On this view, citations have a strategic and argumentative function in different parts of the text. Finally, general writing tips such as "avoid plagiarism" or "structure your paragraphs" — which we can find so often in the literature or more commonly in the guidelines for academic papers — lack meaning when they are not situated within an argument-friendly approach to writing, one that recognizes that writers first of all need to be persuasive and at the same time apply the values of *objectivity*, *humility*, *pride*, and *integrity*.

These four dispositions lie behind the reasoning skills on which this book will focus. Therefore, a brief description of each at this point is necessary.

### 1.2.1 Objectivity versus Persuasion

The first and most important challenge for academic writing is finding the balance between *presenting objective evidence* (e.g., facts, statistics, results of experiments, or quotations from respected sources) and *presenting one's own idea* as the one that merits consideration. This challenge is rhetorical, and to address it we need to go back to Aristotle's distinction between the three fundamental dimensions of discourse: *pathos*, *ethos*, and *logos*.

A great part of being logical has to do with avoiding fallacies related to wrong uses of *pathos* and *ethos*, some of which are explained below. Another great part, treated in detail throughout this book, has to do with using logic or reasoning in one's construction and justification of arguments.

Briefly, *pathos* aims to appeal the specific (emotional) inclinations of an audience, *ethos* presents the writer (or speaker) as worthy of the audience's trust, and *logos* derives from the intellectual understanding shared by the arguer and the audience. Some fallacies related to the "bad" use of *ethos* are the following: (1) presenting oneself as the source of acceptability of a claim; (2) taking for granted what is not obvious (imposing a view); (3) imposing unwarranted evaluations; (4) imposing unwarranted conclusions; and (5) pretending to be *the* authority (without a need to cite anyone). Table 1.1 presents these academic writing fallacies with an example for each.

**Table 1.1 Some Ethos-Related Academic Writing Fallacies**

| Fallacy type | Example |
|---|---|
| Presenting oneself as the source of acceptability of a claim | ***I think*** *that Haidl Dietlmeier's (1993) suggestion that activities done and topics dealt with in second language (L2) classes should allow linguistic interaction in familiar contexts is quite adequate. Thus, topics and activities* ***must*** *be close to real situations, so that learners can interact in a natural way close to the reality they will find when they have to use the second language. For this reason, in L2 classes more attention* ***should*** *be paid to the social acts performed in communication.* |
| Taking for granted what is not obvious (imposing a view) | *In L2 classes, reference should be made to the value achieved by the different manifestations of small talk and to the fact that conversations should not be limited to the transmission of relevant factual information,* ***as a wrong reading of Relevance Theory (Sperber & Wilson, 1986, 1995) might lead one to think.*** |
| Imposing unwarranted evaluations | ***The surprising result*** *is that, in contrast to the other theories, my proposal can integrate all the forms of reasoning.* |
| Imposing unwarranted conclusions | *The expectation of an answer coming from this field of studies* ***is hopeless.*** ***But I will*** *take advantage from two novelties concerning a new field of research.* |
| Pretending to be the authority (no need to cite anyone) | ***This is called*** *"argument." In argumentation, when I want to support a practical conclusion, I can show how the means can lead to the intended result.* ***For ease of expression, I will call this*** *"practical reasoning."* |

Like the use of *ethos*, the use of *pathos* may also incur several fallacies, although its academic use is not as common. One type of problematic use of *pathos* is the misuse of rhetorical questions to force the audience to accept statements that have not been

proven, or that at least should have been supported by references or other types of evidence. An example is the following:

> **Some might object to the proposed distinction** *that I have drawn between consequences and means.* **Isn't it a well-known, valid principle that consequences are different from means?**

Here, the rhetorical question is used to reply to a potential objection, anticipated by the author. However, instead of providing evidence in favor of the potentially doubtful distinction, the author is begging the question, forcing the reader to accept the very claim that they doubt.

Rhetorical questions are not the only strategies based on the use of colloquial style for evading the burden of proof. The use of loaded language, question-begging epithets (Macagno & Walton, 2014), or simply the presentation of a claim to be proved as a personal choice are other dangerous tactics. The following are some examples:

*I decided, however, not to use the term…*

*I think that this way of presenting the topic is not helpful…*

*It seems intuitive and attractive to…*

*If I am right…*

The first two sentences express points that should be supported by arguments (Why not use the term? Why is the way the topic is presented not helpful?) as matters of personal choice. In this fashion, the author shifts the type of dialogue: instead of engaging with the reader in a discussion on what is more acceptable or reasonable, he or she presents the doubtful subject matter as part of a personal story. The third sentence involves the use of loaded terms. The author is begging the question, as instead of proving *why* something appears intuitive and *why* it is actually not intuitive, he or she is taking it for granted. The last example expresses the antecedent of a conditional, which can be used as a rhetorical question. The author shifts the burden of proving the correctness of the claim onto the audience.

### 1.2.2 Humility versus Pride

Humility is the willingness "to listen with respect to anyone, without this exempting us from pronouncing our judgments" (Eco, 2015; p. xiii). In academic writing it mostly concerns the research method and the interpretation of texts. It is, and should be, compatible with confidence in writing (academic pride). The balance between humility and pride is well expressed in Umberto Eco's (2015) book *How to Write a Thesis*, where the author states the following:

> When you speak, you are the expert. If you are to be exposed as a fraud because you have not done rigorous work, shame on you, but you have no right to hesitate if you have done good work. On your specific topic, you are humanity's functionary who speaks in the collective voice. Be humble and prudent before opening your mouth, but once you open it, be dignified and proud. (p. 183).

Eco points out that the balance between these two apparently contrasting virtues lies in the rigor of one's work. Humility is what leads us to try to find the most persuasive evidence to prove our point, as we consider ourselves as dwarfs who face the giants who precede us. Humility is the force that leads us to acknowledge our mistakes and improve upon them. Humility is, however, also the origin of our pride, as we are aware that we have done what is possible to be able to talk to the giants.

### 1.2.3 Integrity versus "Getting It Done"

Finally, applying academic integrity to all areas of your academic life instead of simply getting your work "done" is a necessary companion of true success. Academic integrity mainly refers to the following activities:

- Citing correctly and appropriately;
- Avoiding plagiarisms;
- Presenting new, unpublished works;
- Paying attention to detail.

A last consideration that forms part of a skills-based approach to academic writing is the identification of the audience, i.e., *for whom* you write. It is common that for a dissertation, the author only writes to satisfy his or her adviser and committee, forgetting that (for the majority of students) this first piece of scientific work will be shared with the broader scientific community through online repositories, and therefore will accompany the author for the rest of his or her academic life. Therefore, it is recommended that authors orient their writing toward a *universal* audience, to use argumentation theorist Chaïm Perelman's term, including and firstly the most probable readers — the members of the *relevant scientific community*. As this might sound too general, especially for a beginner academic writer, we decided to focus this book on writing a specific and very common piece of communicating scientific ideas to a broader audience, i.e., writing a paper. A paper is different from an essay, as it implies its consideration by a scientific audience, for example a journal's editorial board and peer reviewers (an essay might be a paper, but the contrary is not necessary). It is also different from a research report, as in this latter case specific writing rules apply for communicating the results of empirical research. A paper, in the way conceived in this book, is any article, of theoretical or empirical nature, presenting original research to a particular scientific community, as defined by a journal or a conference audience.

## 1.3 How to Use This Book

This book is meant to be a manual for helping early or advanced researchers to think about their own arguments and how to structure them, when they write an academic text — and more precisely a paper aimed for scientific publication. To be able to cover an extended range of audiences, curricula, and contexts, we opted for not focusing on a specific type of paper (report, case study, book review, etc.). Instead, we describe the logic behind publishing original theoretical or empirical research, with an exception for

literature review articles (see Chapter 4). We also include a short chapter at the end (Chapter 9) covering three other very common types of academic writing in all disciplines: abstracts (both for articles and conference proceedings/book abstracts), presentations ( for an academic audience), and critical commentaries (especially as a part of a scientific conference).

### 1.3.1 Interdisciplinarity

*The Logic of Academic Writing* was conceived and written considering as potential audience the students, researchers, and lecturers of our highly interdisciplinary Faculty of Social Sciences and Humanities at the New University of Lisbon in Portugal. The faculty specializes in the following disciplines, to which correspond specific Ph.D. programs: Anthropology, Art History, Geography and Planning, History, Language and Communication Sciences, Literary Studies, Music Sciences, Philosophy, Politics, and Sociology. The authors' background is also highly interdisciplinary. The first author holds a Ph.D. in Linguistics and Communication, but his research is mainly in the field of Philosophy of Language, while the second author has taught and published in the field of Business and Professional Communication but focuses her research mainly on Pedagogy and Philosophy of Education. This is the reason that the book contains examples from different disciplinary areas, mainly related to our own research interests. The examples are of different levels of complexity, as the course was lectured to students of different academic levels in the disciplines mentioned above.

### 1.3.2 Levels

The material in this book was first proposed as a 26-hour Ph.D. seminar open as an optional course to all Ph.D. students of our faculty. Later, it was later adapted as a 20-hour seminar for a group of masters' and Ph.D. students from disciplines ranging from medicine and engineering to arts and communication. Finally, it was also offered as short, two-hour classes on specific topics at the bachelors' level. Thanks to the argument skills approach adopted, the contents of the book are accessible and adaptable for a range of students' levels ranging from bachelor's to doctorate. Moreover, all the chapters of the book, but especially Chapters 2–7, include useful information for more advanced researchers, as writing (and publishing!) a paper is not an easy task for any of us. Through sharing some useful tools from argumentation theory (Chapters 2 and 3), we hope that our book can be of help to turn the mysterious art of writing into a skill that everyone can learn.

### 1.3.3 Chapters

The book is structured in nine chapters, which are interrelated but independent. In fact, each chapter may be used/read separately, according to the teacher's, student's, or researcher's needs. At the end of the book is an Appendix with a list of exercises for testing and improving the understanding of the contents (the only chapters not having exercises are this introductory chapter and Chapter 9, "Abstracts, Presentations, Commentaries."). The exercises are also accompanied by suggested solutions.

Now, let us get started.

CHAPTER 2

# Argumentative Structure of a Theoretical Paper

The title of this chapter might be puzzling. It starts with the phrase "argumentative structure," which seems to be an obviousness. If a paper is theoretical, it needs to have arguments. This is absolutely true. However, this is not what we mean by "argumentative structure," or rather not only. The art of writing an academic paper is to think of it as a big argument, which we call a "macro-argument." A paper is an argument, a giant argument that supports our original idea and that is composed of several sections, which are the necessary components of a paper. Each section is in turn an argument, having a specific conclusion to prove, and is composed of smaller blocks, our paragraphs.

If we think of a paper as a macro-argument, the way we read and write papers changes completely. As readers, we will look for the main idea that the author wants to defend, and the reasons that he or she produces for proving it. As authors, we will see our paper as a strategy, a plan in which we will need to incorporate four crucial elements ("the issue," "the problem," "the solution," and "the defense," defined in Section 2.3.1). Thus, our sections will become parts of a strategy and our paragraphs will build blocks for each section.

The strange nature of our chapter title resides also in its second half. A theoretical paper apparently has to do with a theory; if a theory is conceived as a *system* of ideas, a *body* of principles offered to explain a phenomenon, then very few of us can claim to write theoretical papers. Our starting point is to better define what *theoretical* is, and show that we all write theoretical papers, sections, or paragraphs more often than we think we do.

## 2.1 Why a Theoretical Paper?

A theoretical paper is a paper aimed at addressing a problem related to the methodology that can be used to answer to practical or empirical questions or analyze empirical data. A theoretical paper, or a section of a paper with theoretical aims, must result in a "theoretical" contribution, which is an *explanation of a phenomenon grounded on reasons*. This explanation needs to be considered very generally as a grounded supposition on how a phenomenon works or can be classified or described. When we make a theo-

retical contribution, we provide abstract and general conclusions on how we can make better sense of a state of affairs, a concept, or some characteristics that we observe. For example, we can propose an explanation of how a specific linguistic phenomenon works, how certain events can be classified for a certain purpose, how certain events can be described by showing or finding specific characteristics. Thus, we can make an abstract and very general proposal, such as a new way to conceive what an argument is, proposing that it be analyzed as an instrument for a specific goal. Or our theoretical proposal could be more specific, such as the classification of the strategies that students use when writing a text. In that case, we might abstract some generic features that are present in many different texts, and explain how these features are used for distinguishing the texts in classes. However, we would not explain the texts themselves; we would merely bring to light some characteristics that we could then use for justifying or explaining a broader phenomenon, such as writing strategies.

Thus, a "theoretical" proposal is not *only* a new explanation of a phenomenon. First, we are making a theoretical proposal when we classify in an original way our object of study, when we propose a new method, a new way of evaluating, or a new way of coding our observations. Our theoretical contribution is an abstraction, a general and new way of looking at things. Second, a theoretical contribution has a specific goal, as it is intended to provide principles or methods on which an activity is based. Without a specific goal, namely an activity or a result, a theoretical contribution is merely speculation.

For this reason, the first step of writing a theoretical section or paper is to be aware that we are writing a specific type of text that has some peculiar characteristics and, more importantly, needs to answer some implicit questions. To be aware of the theoretical nature of our writing, we can ask ourselves some questions:

1. What am I proposing? Is it a proposal that applies to many different objects of study, and can it explain, evaluate, classify, or code them?
2. Am I discovering some characteristic in my object of study that has not been noticed before, and is this characteristic *useful* for explaining (or assessing, or studying…) it?
3. Am I inventing something new, or am I just applying a method that already exists?

Thus far, we have been using the words "object of study," without specifying what that is or can be. The reason is that we can "theorize" on different subject matters and have a theoretical contribution in different types of papers or even in different sections of our paper. We can have a new criterion of classification in our literature review section, when we propose an original way to organize, compare, and assess the existing studies. We can have a theoretical proposal in the Discussion section of our empirical paper, when we draw some general conclusions that go beyond the results of our study. We can have a theoretical contribution in our methodology section when we propose a new one or adapt and modify an existing one. And obviously we need to have a theoretical contribution in our theoretical paper.

In all such cases, we need to further answer these questions, to assure a high quality in our theoretical contribution:

1. Why do I need new theoretical principles?
2. Why are these principles indeed new?

3. How can these principles be used?
4. Why should these principles be accepted, and why are they better than the existing ones?

To answer these questions we need arguments, namely reasons that are based on premises that are accepted by our interlocutors. For this reason, we need to think of our paper, or our theoretical section, as a complex macro-argument, consisting of several argumentative "bricks" or modules.

## 2.2 The Goal of a Theoretical Paper/Section

As mentioned above, a theoretical contribution is an *abstraction* for a specific *goal*. These two aspects are described in detail below, showing the different characteristics of "abstraction" and "goal." At the most generic level, we can say that this abstraction is a generalization, which can be of different type and force, and can be used for different purposes, such as classifying our object of study, predicting what happens when certain circumstances occur, providing a method or coding for attaining a certain objective, or even constructing a new "game" with its own rules.

Under the label of "theoretical" we include the texts or the parts of texts whose goal is to advance and support a specific type of conclusion characterized as follows:

1. *Nature* of the conclusion. A theoretical paper is intended to support a theoretical generalization, that is, an explanation, classification, definition, or prediction that is valid for potentially all the qualified circumstances taken into account. A theoretical generalization is not a finding, as it does not concern only the entities analyzed nor is it limited to the experiments conducted and the types of entities considered. Rather, it is abstract, not limited to specific circumstances and areas. Theoretical generalizations are transferable; they allow making inferences to, or across, cases different from the ones considered (Maxwell & Chmiel, 2014; Polit & Beck, 2010).
2. *Purpose* of the conclusion. A theoretical generalization can be used for different purposes, which can be summarized as follows:
    a. *Descriptive* generalizations, namely judgments on or explanations of states of affairs. An example is a definition ("slurs can be defined as words expressing a negative attitude") drawn from the observation and analysis of different cases.
    b. *Predictive* generalizations, namely predictions on the characteristics or behavior of similar entities in future similar circumstances. Predictions are similar to descriptions, but refer also to future or possible entities. For example, a predictive generalization can be that the expressive force of slurs can be considered as a presupposition.
    c. *Normative* generalizations (regulative rules), namely norms that are proposed, suggested, or argued for in order to achieve a specific goal. An example is a methodology that is suggested or proposed in order to achieve a specific outcome.

   d. *Performative* generalizations (constitutive rules), namely the "laws" that *need* to be complied with (Hindriks, 2009, p. 255). This type of generalization characterizes the lawmaking activity, and establishes the conditions for being part of a certain system. However, sometimes theories are similar to legal systems, in the sense that they propose "games" in which one has to comply with certain rules. An example is the following rule of the activity called "critical discussion," in which "the discussant that has called the standpoint of the other discussant into question in the confrontation stage is always entitled to challenge this discussant to defend his or her standpoint" (Van Eemeren & Grootendorst, 2003, p. 368).

3. *Content* of the conclusion. A generalization can concern different subject matters, which can be classified as follows (Mayring, 2007):
   a. Laws, namely causal regularities. Examples can be the relations between specific cognitive appraisals of a situation (a danger) and the corresponding emotion ( fear).
   b. Definitions, namely semantic equivalences. An example is the definition of "slur."
   c. Procedures, namely how conclusions or types of behaviors can be reached. For example, a theoretical paper can be aimed at proposing a method for studying a specific behavior (students' argumentation).
4. *Force* of the generalization. A generalization can be universal, plausible, or inductive (Walton, 2006, pp. 15–21). Thus it can apply to different types of conditions, and can be challenged in different ways:
   a. Universal laws apply to past, present, and future entities. These laws can be rebutted by a single case, also imaginary.
   b. Statistical regularities apply to the statistically significant percentage of cases. There can be contradictory observations, but as long as the generalization is qualified as holding only in a certain percentage of cases, it is acceptable.
   c. Rules, namely defeasible regularities and similarities (Mayring, 2007), are generalizations that are usually valid, considering the cases observed. An abstraction can be considered as a defeasible generalization that can explain the cases observed. It is not intended to apply universally, as it is a tentative conclusion that can be considered as acceptable until a better one (more explicative, with less exceptions or counterexamples) is found.

These different types of theoretical generalizations need to be supported by different types of justifications. Depending on the goal of the conclusion, we need to use different types of argument for showing that our theoretical proposal is useful and better than the existing ones.

1. *Descriptive* generalizations need to apply to different cases across domains and allow further conclusions. These generalizations need to be valid for all observable cases, or in case of a qualified (including statistical) generalization, within the limits of such a qualification. For example, if we want to show that a word (e.g.,

"slur") has a specific meaning, we need to argue that all of its uses fall under our definition. Similarly, if we want to show that a text can be described according to five typologies, we need to show that they are exhaustive of all the types of text we can find. In this way, we can justify that our generalization is good. But clearly, "good" is not enough. A good generalization does not mean that it is useful, and to this purpose we need also to show the purpose of our descriptive generalization. For example, we need to show what problems we can solve by establishing our definition of our word, or the classification that we are proposing.

2. *Predictive* generalizations need to be applicable to possible future or imaginary cases. Philosophical papers often deal with puzzles that challenge the validity of a generalization or theory — such as an entity that cannot be classified as falling under the existing categorizations. Unless the puzzle can be solved or explained based on the generalization in question, there is the possibility that such a generalization needs to be replaced by a more explanatory one. Since predictions concern possible cases, the argumentation cannot be based on observations or observations only. The arguments need to be abstract enough to include not only what exists or has been considered so far, but also what can be imagined. Also in this case, the "goodness" of the generalization needs to be distinguished from its purpose.
3. The proposal of *methods* or *procedures* needs to be justified by taking into account the goals that are pursued, the needs that are addressed, and the benefits (and drawbacks) that the proposals would bring. A proposal needs to be supported by arguments showing how it explains or predicts certain behaviors and pointing out its pragmatic aspect (it is a better method than the other available, etc.). For example, if one wants to propose a coding of a dialogue, or a classification of the types of text, he or she has to show how such a coding or classification is useful for achieving a specific goal, namely to be *used* for *analyzing* certain objects and *drawing* certain conclusions. This presupposes that the method is reliable (it can be used by different analysts with the same results) and, most importantly, that it can reveal qualities, properties, or features that are important for certain objectives (such as assessment).
4. The development of theory in the sense of a *game*, an abstract system constituted by its own rules, needs to be motivated mostly based on pragmatic reasons, showing the possible implications and benefits of this abstract construct. For example, the model of the game X can be justified by the claim that it represents an ideal dialogue with which real dialogues can be compared for evaluation purposes.

The different types of theoretical conclusions thus need different types of arguments. However, we can already see that some common structural elements can be found in the distinct types of theoretical papers or sections. In all these cases, our proposal needs to be justified, and more importantly, needs to be relevant to a problem, concern, or goal. This goal-directed nature of writing can be analyzed in detail by bringing to light its components.

## 2.3 The General Argumentative Structure of a Paper

As mentioned above, a paper can be considered as a complex macro-argument, in which a conclusion is supported by various premises. In this section, we point out the bricks that compose this macro-argument and make it complex.

### 2.3.1 The Macro-Components of a Paper

The starting point is to analyze the types of conclusions that need to be defended, namely the goals that we pursue in the different stages of writing. The goals of our paper can be specified according to four crucial elements:

1. *The issue.* Our paper needs to address a specific topic that is important for and relevant to the discipline, the field, and more importantly the readers. In defining our issue, we need to show that it is important, and that it is worth investigating.
2. *The problem.* Our paper needs to be focused on a specific open and unsolved concern that is important for the audience. In defining our problem, we need to show that it is a matter that: (a) is unsolved (no one has explained it or explained it successfully or adequately); and (b) that needs to be solved, because it is important for society, the community, the audience.
3. *The solution.* Our paper needs to provide an explanation of the open problem that is better than the alternatives, or that leads to results better than the existing theories or methods do.
4. *The defense.* Our paper cannot offer a definite solution for everything. We need to show in what respects we can accept the conclusion of our paper, and what the limitations are thereof. We need to defend our solution not only by providing arguments for accepting it, but also by taking into account its weaknesses and limiting it to what it can explain.

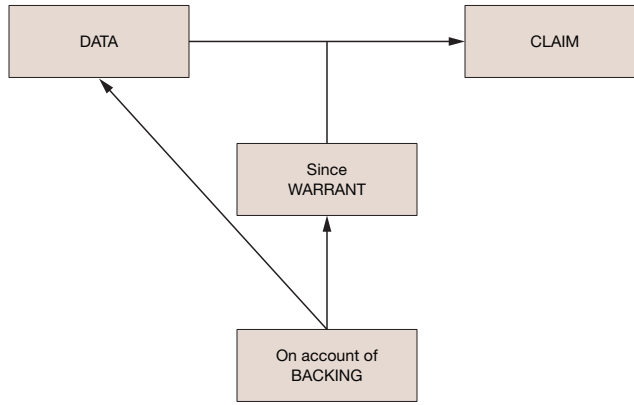
These features outline a schematic and very general structure in which a paper can be imagined in terms of an argument, and its parts or sections as argumentative structures in which different and intertwined conclusions are supported by reasons. This abstract model of a paper is analyzed in its parts in the following sections.

### 2.3.2 The Anatomic Structure of an Argument

In order to imagine how a paper is structured, it is useful to imagine it as a body that we can observe through a magnifying glass. The parts (or sections) that compose the body have their own components that are functional to the whole.

The "gross, anatomical structure" (Toulmin, 1958, p. 87) of a paper, mirrored by all its sections, can be modeled as an argument, in which a conclusion (a claim) is supported by different reasons and data. To describe the structure of this argument, we can use Toulmin's model, the most abstract way of describing the structure of an argument. According to Toulmin, an argument can be represented as a pattern of a *claim*, *data*, a *warrant* connecting claim and data, and *backing* substantiating the warrant (or, as we will show, the data). The adapted structure of Toulmin's model (Toulmin, 1958, p. 97) can be represented as in Figure 2.1.

**Figure 2.1 Toulmin's Structure of Argument Analysis**



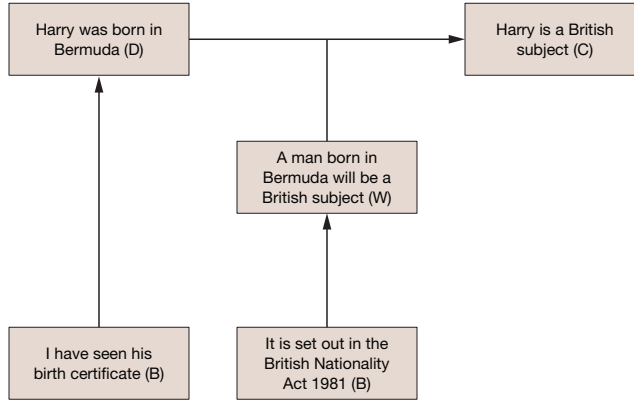

We can interpret Toulmin's pattern and analogize it to the macro-structure of a paper. A datum (a fact on which a conclusion is based) can be regarded as a premise, which is an interpretation of the facts or evidence available for the purpose of supporting a conclusion. The warrant is the rule of inference linking the premise to the conclusion. The backing is the evidence that can be provided in support of the premises of the argument. For example, we consider the classic case:

**Example 2.1: Toulmin's argument structure**

Harry was born in Bermuda and, since a man born in Bermuda will be a British subject, Harry is a British subject. (Toulmin, 1958, p. 92)

This argument can be analyzed in its components in Figure 2.2:

**Figure 2.2 Backings in Argument Analysis**

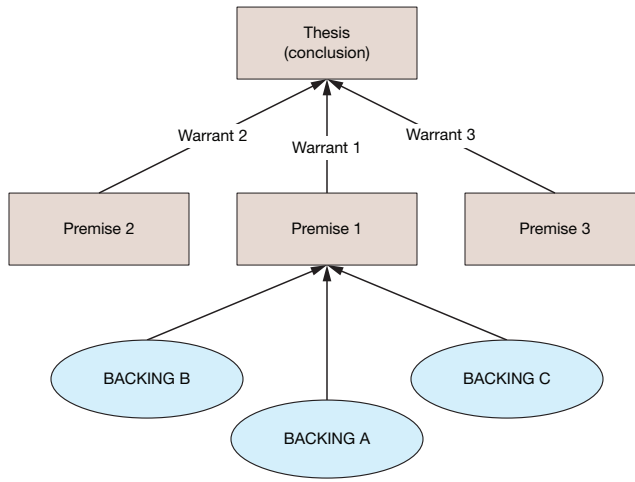


To support a premise or an inference rule, further reasons can be provided, based on premises that can be directly verified by the interlocutor. For example, to support the datum in Example 2.1, the speaker can provide his backing testimony ("I have seen his birth certificate"), which is immediately assessable by the interlocutor. Backing is also used to support the warrant through referring to the authority of a legal provision directly verifiable.

The notion of "directly verifiable" is taken to indicate arguments that appeal to sources external or extrinsic (Stump, 2004, p. 194) to the meaning or the logical form of the premise, whose force derives from facts that the interlocutors can access and assess independent from the argument. For example, the use of an authority (Dr. X, expert in…) or testimony (witness Y, who saw the facts) provides a support for the conclusion that is based on the trust the reader or the hearer has or can have in the source of the statement. In this category we can also include reference to statistics, such as studies conducted by others that we take as reliable. Other types of arguments used for the backing can be appeals to direct experience, that is, evidence that the hearer or the speaker can directly access and verify (document *x*, law *y*…). The distinction between data (premises) and backings is crucial at a strategic level, as the force of a thesis (a conclusion or claim) depends on the acceptability of the premises, and the acceptability of the premises can be increased or established using backings.

The most generic argumentative structure of a theoretical paper can be thus conceived as a macro-argument having two distinct levels of support, the premises (Toulmin's "data"), and the backings. A paper can have a single line of argument, that is, a premise that supports the thesis (conclusion) and is backed in different ways. A distinct strategy is to provide different arguments. In this latter case, the strength consists in the joint and independent support that each argument can provide to the conclusion. The generic argument structure of a paper can be represented as in Figure 2.3:

**Figure 2.3 General Argumentative Structure of a Paper**



We can represent the argumentative structure of distinct papers by using this model and distinguish between papers characterized by a single line of argument from others providing different independent reasons.

An example of a paper characterized by *a single line of argument* is the following, summarized in its abstract (emphasis added):

**Example 2.2: Single line of argument**

> Some presuppositions are easier to cancel than others in embedded contexts. This contrast has been used as evidence for distinguishing two fundamentally different kinds of presuppositions, 'soft' and 'hard.' 'Soft' presuppositions are usually assumed to arise in a pragmatic way, while 'hard' presuppositions are thought to be genuine semantic presuppositions. **This paper argues against such a distinction and proposes to explain the difference in cancellation from inherent differences in how preposition triggers interact with the context**: their focus-sensitivity, anaphoricity and question-answer congruence. (Abrusán, 2016, p. 165)

The conclusion (the thesis), that *the difference between soft and hard presupposition does not exist*, is supported by the argument that *the difference in cancellation can be explained in a different way* (i.e., in terms of inherent differences in how preposition triggers interact with the context). This argument, in the paper, is supported by different backings, in this case evidence from the linguistic analysis of specific triggers.

An example of a paper that aims at proposing a specific approach (the thesis) based on *distinct independent arguments* is the following paper by Glucksberg and Keysar. Here, they intend to defend the conclusion that "metaphors are not understood by transforming them into similes, but rather they are intended as class-inclusion statements and are understood as such; this grouping induces the similarity relation." To prove this point, they present five arguments ( from the conclusion):

**Example 2.3: Independent arguments**

1. Metaphoric comparisons, two unlike things compared, can be expressed as class-inclusion statements. Literal comparisons, two like things compared, cannot. This follows directly from the view of metaphoric comparisons as implicit class-inclusion statements.
2. Metaphoric comparisons are recognized as such because they involve a comparison between category levels in an assumed hierarchy. The categorization nature of the comparison is the cue to metaphoricity.
3. Metaphors, whether in canonical class inclusion form or simile form, do not retain the same meaning when reversed. They are nonreversible because metaphor expresses a class-inclusion relation, and this relation is not symmetrical.
4. Hedges and specification of the grounds for similarity of a metaphor reduce perceived metaphoricity. These effects follow from the class-inclusion nature of metaphors. The canonical metaphor explicitly expresses an unqualified class-inclusion relation. Anything that qualifies the class-inclusion character or reduces its scope will reduce metaphoricity.

5. The simile, perhaps used as a qualifier or hedge, potentially poses a more difficult comprehension problem for a listener. Listeners must recognize that the comparison is between levels of an assumed category, and then treat the simile as an implicit categorization. This requirement may impose an additional cognitive burden on a listener. If so, then similes may be more difficult to understand than their corresponding metaphors because similes do not express the class-inclusion relation explicitly. (Glucksberg & Keysar, 1990, p. 16)

These five arguments provide independent support to the conclusion. By rebutting one argument, the critic does not automatically reject the conclusion, which is still defended by the remaining four arguments.

A more complex argumentative structure is constituted by arguments that independently support a specific aspect of the conclusion, but they are all needed for it. For example, we consider the following structure of a paper summarized in its conclusion. The author wants to argue in favor of the notion of "mutual knowledge," and more precisely the hypothesis that the knowledge shared by the interlocutors is a fundamental factor of human communication and language comprehension. However, he needs first to rebut the opposing view (called relevance hypothesis) by showing that it cannot be accepted; then he needs to reply to the criticisms against mutual knowledge; and only after, to provide arguments in support of his own conclusion (emphasis added):

**Example 2.4: Complex argumentative structure**

My arguments in favor of the mutual knowledge hypothesis and against the relevance hypothesis are grounded in five interrelated observations. **First**, I have suggested that Sperber and Wilson's proposal that mutual cognitive environments constitute the true context for comprehension **is not sufficiently clear and distinguishable from the concept of mutual knowledge**. As such, the relevance hypothesis seems to make use of the very idea that it attempts to replace. **Second**, mutual knowledge is possible to determine in a finite period of time via Clark and Marshall's (1981) mutual knowledge induction scheme **without resorting to an infinite set of beliefs statements usually viewed as a consequence of establishing mutual knowledge**. **Third**, it appears that mutual knowledge is indeed **a necessary prerequisite for the comprehension of many kinds of utterances in conversation**. [...] **Fourth**, parts of the processing model underlying the relevance hypothesis **are not supported by contemporary psycholinguistic research**. Specifically, there is little empirical evidence in favour of the idea that listeners must first decode an utterance into some propositional representation before choosing a context in which that proposition is viewed as most relevant. **Finally**, there is **some recent psycholinguistic evidence demonstrating that speakers formulate their utterances precisely to satisfy the amount of knowledge they share with their listeners**. This shared knowledge is also directly utilized by listeners when interpreting utterances in everyday discourse. These findings appear most congruent with the predictions of the mutual knowledge hypothesis. (Gibbs, 1987, p. 585)

The conclusion is the result of both destructive and constructive arguments. The three destructive arguments are needed for two reasons: (1) to reject the existing criticisms

against the conclusion that the author wants to defend (author's second argument in the list above), and (2) to attack the alternative and incompatible view in which no common knowledge is needed for comprehension (author's first and fourth arguments). The constructive arguments (author's third and last arguments) are both necessary for supporting the conclusion, as they address two specific dimensions of the phenomenon: the theoretical necessity of common knowledge, and the empirical evidence of the importance of common knowledge for communication.

This general argumentative structure can be further specified considering the four crucial macro-components of a paper: the *issue*, the *problem*, the *solution*, and the *defense*.

## 2.4 The Argumentative Structure of the Issue

By "issue" we mean an important topic, one worth discussing. The issue is the starting point for any argumentative activity (Walton, 2006, p. 3), as it is useless to discuss a matter that the interlocutor does not even care to disagree about, as it does not concern him or her. As Cicero maintained, an argument is "a reasoning that lends belief to a doubtful issue" (Cicero, *Topica* II, 8). However, doubt alone is not enough; it needs to lead to a discussion and an interest in having this doubt clarified or resolved. For this reason, an author must demonstrate the argumentative structure and the supporting arguments to make the point that a specific topic is indeed an issue.

### 2.4.1 The Dimensions of the Issue

An issue needs to be distinguished from the "problem," which is the specific research question that the paper addresses. For example, "emotive language" can be considered as an issue, while "Can emotive meaning of emotive language be represented in terms of inferences?" is a possible (theoretical) problem. While the problem is a question that requires a reply, an issue is a topic that needs to be interesting for discussion, meaning that it can concern the audience and it is possible to address it through the use of arguments. Three aspects need to be distinguished: interestingness, relevance, and possibility of discussing.

The first point is *interest*, as a discussion needs to have a theoretical or a practical (ethical) goal. The issue needs to be a concern that is debated theoretically, and/or is a matter of deliberation and choice. For example, "emotive language" is a theoretical issue, as its representation is important for the fields of pragmatics and linguistics. At the same time, emotive language is also important for practical reasons, because if we manage to draw distinctions between abusive and acceptable linguistic uses, we can also explain and motivate why some statements should be prohibited (or criticized).

Interest is closely related to *relevance*. An issue is topic-relative to a specific community, thus, it is relevant to it. An issue topic does not need only to be interesting in general, but also to be interesting for the reference community. For this reason, a paper needs to address a topic that is related to the goals of the targeted journal or readers. For example, emotive language is not an issue for mathematics, as it is unrelated to what academics discuss in this field and more importantly what defines this field.

The third point, related to the second, is possibility of discussion, as the issue needs to be debatable in the sense that its *acceptability* can be established based on *arguments* (a method) within a specific community. For example, emotive language can be an issue in linguistics, philosophy, or pragmatics because it is debatable using the instruments, arguments, and methods developed in these fields. However, it would be problematic to discuss about emotive language in journals of chemistry or economics, even though this topic may be of interest in these fields. The method that can be used for establishing a philosophical view would not likely be understandable by economists or scientists, and vice versa.

To summarize, the choice of the issue in a paper can be regarded as a conclusion to be supported by arguments. This type of argumentation needs to be aimed at establishing the following:

1. The subject matter is worth attention, as it is a scientifically important topic or it has social implications.
2. The subject matter is relevant for the community of reference.
3. The subject matter can be addressed using the methods shared within the community of reference.

The relationship between interest, reference community, and method is crucial for the issue. Journals can be considered as communities, having specific interests and preferred methodologies. Therefore, even within the same field, the same issue can be relevant for one journal but not for another. For example, the theoretical issue of "emotive language" is relevant to linguistic journals in the field of pragmatics, but less for the ones on syntax or applications of linguistic theories. Moreover, the instruments that can be used for proving a claim on the aforementioned issue, such as philosophical (analytical) arguments or qualitative studies, would not likely be understandable or acceptable for academics working in syntax or acquainted more with statistical methods.

In some rare cases, the issue can be introduced without any argument, as it is one of the topics that can be considered as relevant to the specific community of reference or journal. Papers in a special issue, for example, do not need to argue in favor of the importance of the issue. This matter is usually defended in the introduction of the special issue itself. When a topic is a "hot topic" or when a journal has published several papers on the same issue, the author does not need to say why it is important and interesting. What matters is to clarify or explain the issue to a possibly broader audience. However, this is an exception. Moreover, authors who intend to widen the readership of their work to other disciplines or fields need to present at this stage why someone having interests different from the ones of the restricted community of the journal should read it. The issue, in such cases, needs to be *argued for*.

### 2.4.2 Emergence of the Argumentative Structure of the Issue

The argumentative dimension of the issue emerges clearly when the author faces the challenge of addressing a topic that is generally considered as not interesting by the reference community. For example, we consider the following introduction, in which the

author explains to the community of philosophers (he is writing in a philosophy journal) why metaphors deserve some attention by them:

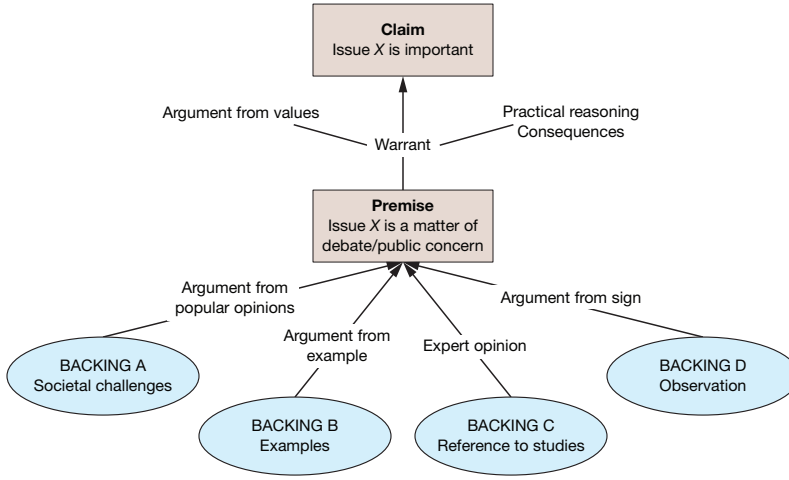
**Example 2.5: Introducing the Issue**

> To draw attention to a philosopher's metaphors is to belittle him — like praising a logician for his beautiful handwriting. Addiction to metaphor is held to be illicit, on the principle that whereof one can speak only metaphorically, thereof one ought not to speak at all. Yet the nature of the offence is unclear. I should like to do something to dispel the mystery that invests the topic; but since philosophers ( for all their notorious interest in language) have so neglected the subject, I must get what help I can from the literary critics. They, at least, do not accept the commandment, "Thou shalt not commit metaphor," or assume that metaphor is incompatible with serious thought. (Black, 1955, p. 2)

In this introduction, the author transforms an argument against the very importance of the topic (metaphors are problematic, and they should be used limitedly) into an argument in favor of it. The author describes the contrary argument, and presents it as a mystery, as a criticism that philosophers advance without knowing the reason. In this sense, he shows that metaphors are worth investigating because the nature of their negative impact on philosophical writing is indeed mystery, and mysteries are interesting and should be solved. The argument that the author uses has a specific goal, namely to support the positive evaluation of a topic based on a specific dimension, relevance (or interest for) to philosophers.

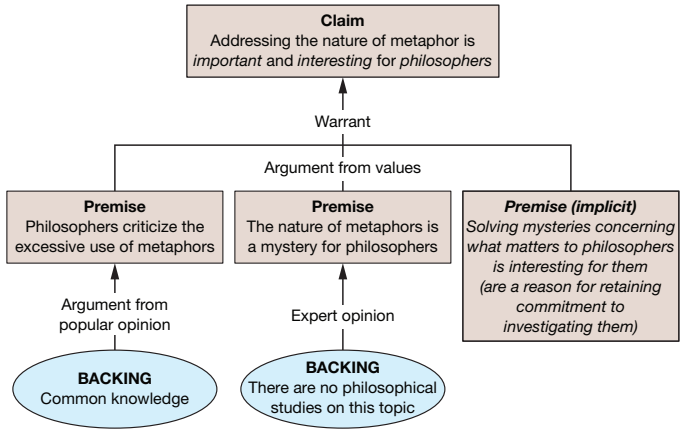
The argumentative strategy used by Black in Example 2.5 can be made more abstract and represented as a diagram, in which the conclusion is the point we want to prove — that our issue is important and worth investigating. The argumentative structure of defending the importance of an issue can be represented as follows:

**Figure 2.4 Argumentative Structure of the Issue**



The conclusion of this type of reasoning is that the issue under consideration is important for the specific community that we address. To support the premise, different types of backings can be used; among the possible ones (in dotted lines), the authors usually chose the type of evidence that they consider stronger or more available to them (in solid line). Black, in his introduction, backs his premises through examples, but he could have used different strategies. We can represent in Figure 2.5 the argument that Black provides in favor of the importance of metaphors:

**Figure 2.5 Argumentative Structure of the Issue in Example 2.5**




Black's conclusion is grounded on arguments based on the value that philosophers are committed to pursuing knowledge (and, therefore, investigating and solving mysteries). This is a typical type of argument that authors use in the introduction in support of their issue. However, other arguments can be used. Moreover, Black does not need to provide much evidence in support of his premises; he only implicitly refers to what is commonly accepted (what is common knowledge). To make his premise stronger, he could have used stronger types of backings, such as appeal to experts who confirmed the lack of studies on the nature of metaphors.

***Further practice:*** *To practice how to identify the argumentative structure of an issue, go to Exercise 2.1 in the Appendix.*

### 2.4.3 The Arguments of the Issue – Importance and Interest

The different types of argument that can support the importance of the issue can be conceived as *argumentation schemes* (Macagno & Walton, 2015; Walton, Reed, & Macagno, 2008), i.e., forms of argument that are widely used in everyday conversational argumentation, and in other contexts such as legal and scientific argumentation (Walton, 2008). For the most part, these arguments do not correspond to the deductive forms of reasoning of the kind familiar in classical logic or as statistical inferences based on the

standard Bayesian account of probability. They represent the defeasible premise-conclusion structure of an argument and can be assessed based on sets of critical questions. Such questions address the potentially critical aspects of the argument. For example, an appeal to the authority of an expert for supporting a viewpoint (Proposition *X* is true because Nobel Prize winner *Y* said so) depends on some crucial aspects of the use of expertise, such as the following: Is the expert a real expert? Is his or her expertise in the field of proposition *X*? What did *Y* claim and in what context? These questions have been shown to be fundamental instruments for guiding writers through a critical assessment of their arguments, improving the quality of their works (Song & Ferretti, 2013).

In the aforementioned argumentative structure of the support of an issue, it is possible to distinguish between argument from values and "practical" arguments. Practical arguments are aimed at bringing to light the relationship between a means and a possible goal (practical reasoning, discussed below) and between a circumstance and a possible consequence (argument from consequences). Arguments from values are characterized by a link between a value that is shared by a community (such as improving education or avoiding confusion in academic contexts) and the specific instantiation of such a value, which is how the issue is presented. The corresponding argumentation scheme is the following (Walton et al., 2008, p. 321):

**Argumentation Scheme 1: Argument from Values**

| | |
|---|---|
| **Premise 1** | Value *V* is positive (negative) as judged by agent *A*. |
| **Premise 2** | The fact that value *V* is positive (negative) affects the interpretation and therefore the evaluation of the action/state of affairs *C* instantiating it. (If value *V* is good [bad], it supports [deters] commitment to *C*.) |
| **Conclusion** | *V* is a reason for retaining commitment to *C*. |

We can find an example of this argument in Example 2.5 above. The author presents the need to solve the unknown nature of metaphor (the "mystery") as a value for his audience (a reason to act) and thus triggers the commitment, which philosophers cannot deny, to finding an explanation of how metaphors work.

The argument from values is strictly related to classification. If we want to show that an issue represents a value or rather falls under a more generic topic that is acknowledged already as important or interesting, it is necessary to show that it can be in fact classified under it. In Example 2.5 above, the author justifies that metaphors are a "mystery" based on the fact that their *nature is unclear*, and the definitional principle that "objects whose nature is unclear are mysterious." We can represent the classification of a state of affairs (Walton & Macagno, 2009, 2010) as an argumentation scheme (Walton, Reed & Macagno, 2008, p. 319):

**Argumentation Scheme 2: Argument from Classification**

| | |
|---|---|
| **Premise 1** | If some particular thing *a* can be classified as falling under verbal category *P*, then *a* has property *Q* (in virtue of such a classification). |
| **Premise 2** | *a* can be classified as falling under verbal category *P*. |
| **Conclusion** | *a* has property *Q*. |

This strategy can be easily used when the issue can be classified under a topic that can be taken for granted as interesting. The possible weakness arises when the classification is not accepted, or not argued for.

The other strategy for pointing out the importance of the issue is to underscore its practical dimension, that is, the practical implications that its investigation has. Instead of presenting the issue as interesting because it falls under an important value, it is possible to argue in favor of its importance by considering the consequences of addressing it. This type of reasoning is expressed by the scheme from consequences to an evaluation (Macagno & Walton, 2018, p. 17):

**Argumentation Scheme 3: Argument from Consequences to Evaluation**

| | |
|---|---|
| **Premise 1** | If agent *A* brings about (doesn't bring about) *B*, then *C* will occur. |
| **Consequence premise** | *C* is a good (bad) outcome ( from the point of view of *A*'s goals). |
| **Evaluation premise** | That whose production is good is itself also good, and vice versa; that whose destruction is bad is itself also good, and vice versa *(De Topicis Differentiis*, 1190A 7–1190B 1). |
| **Conclusion** | Therefore, *B* is good (bad). |

An illustration of the use of this argument can be found by adapting Example 2.5 above. The author could have stated that the investigation of the nature of *metaphors* can lead to understanding when they can be used and when they result in confusion. Since this is a valuable consequence, the issue is interesting and important.

There is another strategy that focuses on the practical dimension of the issue, which is the counterpart of argument from consequences. This argument, called "practical reasoning," starts from the goals that are considered as relevant within a specific community and shows that the issue is a means to address such a goal. For example, in Example 2.5 the author could have taken into account the goal to achieve clarity and avoid misunderstandings. He could have argued then that one of the less investigated ways to pursue this goal is to analyze why metaphors can result in confusion and when they are instruments of clarity. Clearly, this strategy presupposes that the audience shares the goal; in our example, this strategy would have been probably very unsuccessful if the author sent the paper to a philosophy journal (not so much concerned with style), but very successful in a communication or discourse study journal. This scheme can be represented as follows (Walton et al., 2008, pp. 94–95):

**Argumentation Scheme 4: Practical Reasoning**

| | |
|---|---|
| **Premise 1** | Agent *A* has a goal *G*. |
| **Premise 2** | Carrying out this action *B* is a means to realize *G*. |
| **Conclusion** | Therefore, *A* should bring about action *B*. |

The premise supporting the importance of the issue can thus vary depending on the type of argumentative strategy chosen. The premise can be the chosen value, or the fact that the issue instantiates such a value; it can correspond to the importance of a consequence, or to the fact that the issue leads to such a consequence; it can represent an important goal, or the fact that the issue is a means to such a goal. Depending on what is shared within the reference community, the premises can vary.

### 2.4.4 The Arguments of the Issue – Backing up the Premises

As we have seen in Section 2.3 above, in some cases the premises need to be supported by further arguments, which we called "backings." We can divide backings in two general categories, the backings based on the opinion of others (experts or the public), and backings based on some properties of our subject matter of discussion.

The first type of backing is the use of popular opinion. A value or a goal is presented as socially relevant when it is possible to claim that it is commonly considered as such. This argument is usually expressed in terms of statistics, showing for example that "trust in the media has reduced noticeably in the last five years," and thus the goal of improving media reliability is crucial. This type of reasoning is expressed as follows (Walton et al., 2008, p. 311):

**Argumentation Scheme 5: Argument from Popular Opinion**

| | |
|---|---|
| **General acceptance premise** | *A* is generally accepted as true. |
| **Preseumption premise** | If *A* is generally accepted as true, that gives a reason in favor of *A*. |
| **Conclusion** | There is a reason in favor of *A*. |

In Example 2.5, the author refers continuously to the common opinion that his audience (philosophers in general) has on metaphors. He refers to what philosophers think of the importance of metaphors:

> To draw attention to a philosopher's metaphors is to belittle him — like praising a logician for his beautiful handwriting. Addiction to metaphor is held to be illicit, on the principle that whereof one can speak only metaphorically, thereof one ought not to speak at all.

Here, the popular opinion backs the common view that metaphors are not important, and even problematic, in philosophy.

An alternative strategy is the appeal to the authority of a source acknowledged in the reference field, such as an important study or book. Example 2.5 can be easily modified (introducing references invented by us) to illustrate this type of argument:

> *As Prof. X claimed (X, 1999)*, philosophers consider metaphors as offenses, as drawing attention to a philosopher's metaphors is to belittle him — like praising a logician for his beautiful handwriting.

The authority identified in italics provides a reason to accept the premise. Her knowledge in the subject matter is a backing that allows the author to ground his argument on a solid basis. The structure of this type of support is the following (Walton et al., 2008, p. 19):

**Argumentation Scheme 6: Argument from Expert Opinion**

| | |
|---|---|
| **Premise 1** | Source *E* is an expert in subject domain *S* containing proposition *A*. |
| **Premise 2** | *E* asserts that proposition *A* (in domain *S*) is true ( false). |
| **Conditional premise** | If source *E* is an expert in a subject domain *S* containing proposition *A*, and *E* asserts that proposition *A* is true ( false), then *A* may plausibly be taken to be true ( false). |
| **Conclusion** | *A* may plausibly be taken to be true ( false). |

The important aspect of the use of this scheme is determining what counts as "expertise," and more precisely what is to be a reference in a domain or field. This topic will be developed in Chapter 8. A distinct use of authority is the appeal to guidelines or directives, which act as orders that need to be followed by the public.

As mentioned above, the use of external sources (what an expert says or everyone thinks) is not the only means to support our premises. Three types of backings that are based on findings and inferential relations between concepts can also be used, namely argument from ignorance, argument from example, and argument from sign.

Argument from ignorance can be introduced by going back to Example 2.5, in which the author claims the following:

> Yet the nature of the offence is *unclear*. I should like to do something to dispel the mystery that invests the topic; but since philosophers ( for all their notorious interest in language) have *so neglected the subject*, I must get what help I can from the literary critics.

In this excerpt, the author points out that philosophers have neglected the issue of metaphors, and thus the nature of metaphors is mysterious. This type of argument is based on what the author knows, namely his "database" of philosophers. Since no work on metaphors is found in this database, he concludes that the subject matter is unclear and mysterious. The argument can be represented as follows:

**Argumentation Scheme 7: Argument from Ignorance**

| | |
|---|---|
| **Major premise** | If *A* were true, then *A* would be known to be true. |
| **Minor premise** | It is not the case that *A* is known to be true. |
| **Conclusion** | Therefore, *A* is not true. |

This argument can be presented in a more sophisticated way, by collecting evidence that a specific problem has not been addressed.

A distinct argument is the argument from example, which consists in using one or more emblematic cases to support a premise. For example, in order to support the premise that metaphors can lead to misunderstanding, it is possible to give an example of a work that is confusing because of the metaphors used. The use of this example can lead to a generalization or to an application to a different subject matter. This scheme can be represented as follows (Walton et al., 2008, p. 314):

**Argumentation Scheme 8: Argument from Example**

| | |
|---|---|
| **Major premise** | In this particular (prototypical) case, the individual a has property *F* and also property *G*. |
| **Conclusion** | Therefore, generally, if *x* has property *F*, then it also has property *G*. |

This scheme is commonly evaluated through a set of critical questions, which guide the construction of our argument:

1. Is the proposition claimed in the premise in fact true?
2. Does the example cited support the generalization it is supposed to be an instance of?

3. Is the example typical of the kinds of cases the generalization covers?
4. How strong is the generalization?
5. Do special circumstances of the example impair its generalizability?

We can immediately observe that the force of this type of reasoning lies in the selection of the example (critical question 3). This scheme appears to be a type of fallacious generalization, where we observe a specific case and then draw a general rule that applies to all. This risk occurs when what we claim to be an "example" is not an example, but a randomly selected case. An example is something different; it can be defined as the prototypical instance. A prototypical instance is the representative case, the one that we will choose if we want to describe what it represents (an entity, an idea, a principle). For example, when we want to describe a bird, we will use a robin as an example, not a penguin. Applied to our writing goals, the examples are the works or authors that best represent the field or the studies on a specific subject matter.

A possible use of the argument from example can be provided by modifying Example 2.5 as follows:

> Metaphor are neglected and despised by philosophers. *As Prof. X claimed (X, 1999)*, to draw attention to a philosopher's metaphors is to belittle him — like praising a logician for his beautiful handwriting. *Another great philosopher, Prof. Y*, holds addiction to metaphor to be illicit, on the principle, *set out by Prof. Z*, that whereof one can speak only metaphorically, thereof one ought not to speak at all.

Here, the author provides examples of philosophers that despised metaphors and pointed out their limited use for philosophy. The author constructs a series of examples, in which the authors are considered as the most representative in the field (Prof. *X* is a philosopher, and claims that *metaphors are useless*; Prof. *Y* is a philosopher, and claims that *metaphors are useless*; Prof. *Z* is a philosopher, and claims that *metaphors are useless*) and that what they said is similar. Therefore, a conclusion that can be drawn is that *Philosophers claim that metaphors are useless*.

The third type of backing is the argument from sign. Argument from sign relies on a cause-effect relation but presupposes it in order to draw (abduce) a possible cause from an observed event. For example, it is possible to claim that argumentative approaches are becoming acknowledged (and thus important for a particular field or journal) by showing that they have been used by several authors, or by important ones. Even though these authors *do not expressly state* that argumentative approaches are important (that would be an argument from expert opinion), the simple fact that they use or cite them can be considered as a sign that they have been acknowledged and they are becoming important. The argument from sign can be represented as follows (Walton, 2002, p. 42):

**Argumentation Scheme 9: Argument from Sign**

| | |
|---|---|
| **Major premise** | Generally, if this type of indicator is found in a given case, it means that such-and-such a type of event has occurred, or that the presence of such-and-such a property may be inferred. |
| **Minor premise** | This type of indicator has been found in this case. |
| **Conclusion** | Such-and-such a type of event has occurred, or the presence of such-and-such a property may be inferred, in this case. |

To illustrate how these arguments are used for supporting the importance of a specific topic, some different strategies used in the introductory paragraphs of some well-known papers will be shown in the next section.

### 2.4.5 Argumentative Strategies of the Issue

The most common strategy of pointing out the importance of the issue is to refer to studies that stress the relevance of a specific topic for the discipline. However, when this is not possible, it is necessary to link our issue to what is considered important in the area that we target. To present this relation, an author can (1) classify the issue as a specific instance of a general topic that is already considered as important in a certain field or (2) show that the analysis of the issue can have consequences considered as relevant in the target discipline. These are the main strategies of Example 2.6, drawn from a theoretical paper that introduces a special issue. The goal of this paper is to stress the purpose of the special issue, consisting of presenting argumentation methods used in education. However, since argumentation cannot be taken for granted to be important and interesting for academics working in education, the importance of the issue had to be argued for. The arguments are indicated with numbers, and the conclusions in bold.

**Example 2.6: Issue Defended through Practical Arguments**

(1) Arguing in education **has been defined in many ways**: as a way of thinking (Kuhn, 1992, 2010), as a way of teaching (Driver, Newton, & Osborne, 2000; Kuhn, 1993), as a way of learning (Andriessen, Baker, & Suthers, 2003; Asterhan & Schwarz, 2009), or even as a way of collaborating (Baker, 2003; Felton, Garcia-Mila, Villarroel, & Gilabert, 2015; Nussbaum, 2008). (2) However perceived, its crucial **importance** for the development of the critical and democratic thinking of citizens **has been widely underlined in the literature** (Muller-Mirza & Perret-Clermont, 2009; Kuhn, 2010). (3) Especially in education, **a growing number of scholars** is focusing **on the strategies for implementing argumentative tasks** in classroom and analyzing and/or assessing their effects. In particular, **argumentation — and more precisely classroom arguing activities — has been found to affect two fundamental dimensions of learning**: the students´ capacity to argue in different learning contexts, and the students' capacity to learn different curricular contents. (Rapanta & Macagno, 2016, p. 142)

The authors use a complex argumentation, characterized by three different and independent arguments. Argument (1) pursues the first strategy mentioned above, that is, showing how the issue is part of a general topic already acknowledged as important. Arguments (2) and (3) are instances of the second strategy, in which the importance of the topic is established through practical arguments.

Argument (1) is an argument from classification, in which three different topics whose importance cannot be denied in education (thinking, teaching, learning, and collaborating) are presented as general categories under which argumentation falls. Therefore, if such topics are important for education, the more specific topic (argumentation in education) also needs to be acknowledged as interesting. The potentially controversial premise is the classification, and for this reason it is backed by references, namely appeals to the most representative authorities in the field.

Argument (2) in Example 2.6 is an argument from consequences, as argumentation is claimed to lead to the development of critical thinking in democratic societies, which is a shared societal challenge for education. The fact that argumentation can indeed lead to such an effect needs to be backed by evidence, which is provided as an argument from authority (a reference to a well-acknowledged edited volume and a reference to a key author in education). This argument is similar to argument (3), which takes into account a specific application of argumentation — the use of argumentative tasks in classroom — and underscores its consequences (its effects on learning). The backing is an appeal to popular opinion, of experts in this case (a growing number). The reference to key works has been omitted as this line of research has been taken for granted to be known by the readers.

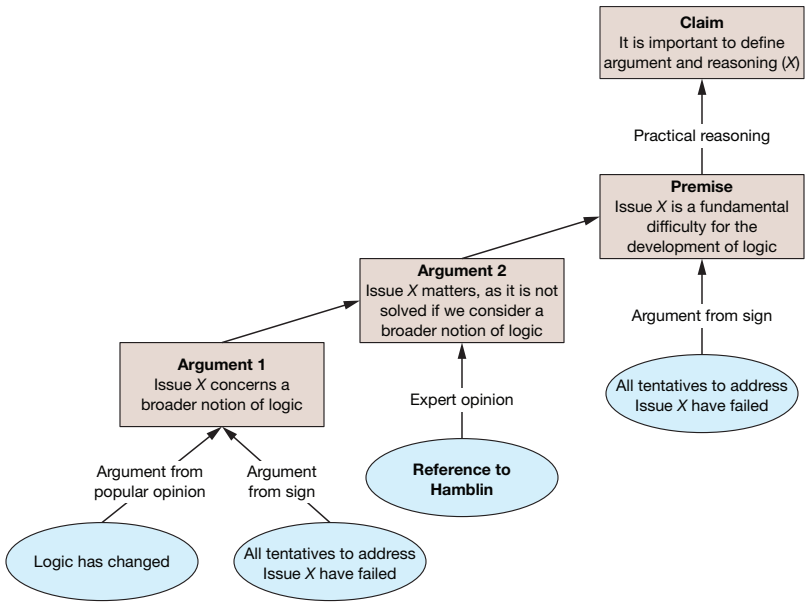
The importance of an issue can also be argued for by using refutational strategies combined with arguments. In some cases, the issue is commonly regarded in some fields as not important, or not interesting — in these cases, the challenge that authors need to fact is not the lack of knowledge (the issue is not known to be interesting), but a contrary viewpoint (the issue is considered to be uninteresting). In Example 2.6 above, the goal is to address lack of knowledge concerning the relationship between argumentation and education. A different goal is demonstrated in Example 2.7, in which the author needs to show that even though argumentation and argument are concepts commonly poorly investigated in logic, they are indeed relevant. The author here needs to address first the challenge that argument and argumentation are commonly not regarded as matters that can concern logic. Only then can he argue in favor of the interestingness of the issue, i.e., a definition of argument and reasoning. Again, we have indicated the arguments with numbers and stressed in bold the conclusion.

**Example 2.7: Issue Defended through Different Arguments**

(1) These are changing times for logic, as the subject is studied and taught in philosophy departments. In recent years, there has been the advent of informal logic as a growing phenomenon in teaching logic, the demand for critical thinking in education, and increased questioning of the role and usefulness of formal logic. There has also been the remarkable growth of the newly founded interdisciplinary field of argumentation. (2) In light of these developments, it has become questionable whether **there are any longer clear and appropriate definitions of the key terms 'reasoning' and 'argument' with which we can work**. Charles Hamblin's pioneering chapter seven, "The Concept of Argument," articulated the nature and importance of the problem with foresight. But as he clearly stated, Hamblin chose to circumvent attempting to address it directly, confining his treatment to the question of what a good (successful) or a bad (fallacious) argument is: "There is little to be gained by making a frontal assault on the question of what an argument is. Instead, let us approach it indirectly by discussing how arguments are appraised and evaluated (ibid., p. 231)." (3) Although there have been significant developments in the area of informal logic since 1970, the failure to arrive at any clear agreement on, or analysis of, the meaning of the concepts of argument and reasoning is a **fundamental difficulty**. (Walton, 1990, p. 399)

In argument (1), the author needs to establish the point that the notion of argument and the studies in argumentation should be considered as concerning the area of logic. To this purpose, he points out that logic has changed over the years, and it has broadened. Then, the author needs to argue that the notions of argument and reasoning are not defined. Therefore, in argument (2), he appeals to the authority of a known logician. Finally, he has to stress that clarifying the concepts of argument and reasoning is a fundamental difficulty. Therefore, in argument (3), he mentions as a backing that many studies have attempted to do that, but they have all failed. These arguments support a premise that can be regarded as indicating the issue as a means to an end: if logic wants to be developed outside the boundaries of formal logic, it is necessary to address the issue. This argumentative structure can be represented as in Figure 2.6:

**Figure 2.6 Argumentative Structure of Example 2.7**




The argumentative structure of the issue, and the net of arguments that can be developed to support the point that the author intends to make can be applied to the other dimensions of a theoretical paper.

## 2.5 The Argumentative Structure of the Problem

The issue is the subject matter, characterized by interestingness, relevance, and possibility of discussing it with the methods used in a specific community. The issue can be regarded as the background of the *problem*, which is the research question. Issue and problem are interrelated, as a problem is a question that arises within the analysis of

an issue. After establishing that the topic is in fact interesting and relevant — that it is an issue — it is necessary to advance the second component of a paper, namely that the question that the paper intends to answer to is a problem. Showing that a research question is a problem is not always obvious, as a problem is not a simple interrogative sentence.

To bring to light what a problem is, it is useful to go back to the origin of this concept. Aristotle focused his dialectical theory starting from the analysis of the problems, and showing how they need to contribute to making a choice, based on what is good or bad or preferable, or improving knowledge:

> A dialectical problem is a subject of inquiry that contributes either to choice and avoidance, or to truth and knowledge, and does that either by itself, or as a help to the solution of some other such problem. It must, moreover, be something on which either people hold no opinion either way, or most people hold a contrary opinion to the wise, or the wise to most people, or each of them among themselves. (Aristotle, *Topics* 104b1–5)

A problem is related to either an improvement of knowledge (a theoretical problem) or a decision-making process (a practical problem or an underlying ethical one). Therefore, it needs to address a need, which in case of academic papers is a doubt that is important to the targeted community. *Doubt* and *importance* are the two crucial dimensions of a problem: the former represents the dimension of knowledge (i.e., the epistemic aspect of the problem), while the latter the evaluative one (how we judge this specific lack of knowledge or controversial knowledge). We will analyze in detail the characteristics of these two dimensions in Section 3.5 below; here, we present their general argumentative implications.

A doubt can be caused by the lack of an opinion (e.g., Bob does not know whether palm oil is unhealthy), or by a conflict of opinions. In both cases, a doubt results from the lack of knowledge: the available information may be not enough for making a judgment (i.e., having a grounded opinion), or it may be not sufficient for being sure about a specific position (other different opinions seem to be equally valid).

The easiest scenario for showing the importance of the problem and its novelty to the field is the context in which there are no studies addressing it. We saw in Example 2.5 how the importance of the issue can be established by negative evidence, that is, the absence of studies on a specific topic. This is the easiest scenario for proving that a problem has never been solved: since there are no studies on the whole topic, all research questions are new. In Example 2.8, which is a continuation from the excerpt in Example 2.5, we can see how the author implements this strategy (emphasis added):

**Example 2.8: Problem Defended through Argument from Ignorance**

> I should like to do something to dispel the mystery that invests the topic; but since philosophers ( for all their notorious interest in language) have so neglected the subject, I must get what help I can from the literary critics. […] The questions I should like to see answered **concern the "logical grammar" of "metaphor" and words having related meanings**. It would be satisfactory to have convincing answers to the questions: "How do we recognize a case of metaphor?," "Are

> there any criteria for the detection of metaphors?," "Can metaphors be translated into literal expressions?," "Is metaphor properly regarded as a decoration upon 'plain sense' ?," "What are the relations between metaphor and simile?," "In what sense, if any, is a metaphor 'creative'?," "What is the point of using a metaphor?." (**Or, more briefly, "What do we mean by 'metaphor'?"**). (Black, 1955, p. 2)

This excerpt shows the strategy of "negative evidence" — or argument from ignorance — for showing the importance of the issue, and thus of the problem. The author points out that there are no studies in philosophy on metaphor, and thus there are several open problems that need to be addressed.

However, the majority of the issues that we analyze and the research questions that we ask have been already addressed. Typically, most of the possible problems have a "majority" view, an explanation that the community considers as the "best one." In this case, in order to have a problem, it is necessary to introduce a doubt, that is, to challenge the majority view. Only after showing that this explanation is not the best one is it possible to have a problem to solve.

The dimension of doubt is closely related to another dimension of the problem: relevance. To contribute to knowledge or choice, a problem needs to be relevant to a goal that is regarded as such by the targeted community. Therefore, as mentioned above, a problem cannot be something obvious to the majority (and thus useless), nor an idle question, leading to no further implications. As Aristotle put it:

> Not every problem, nor every thesis, should be examined, but only one which might puzzle one of those who need argument, not punishment or perception. For people who are puzzled to know whether one ought to honour the gods and love one's parents or not need punishment, while those who are puzzled to know whether snow is white or not need perception. The subjects should not border too closely upon the sphere of demonstration, nor yet be too far removed from it; for the former cases admit of no doubt, while the latter involve difficulties too great for the art of the trainer. (Aristotle, *Topics* 105a3–105a9)

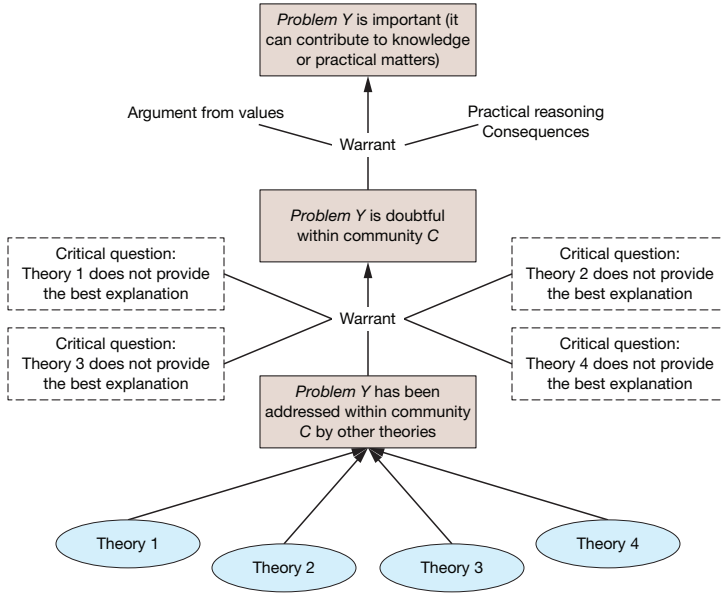
To summarize, a problem needs to have the following characteristics:

1. The problem is open to discussion — more specifically, that there is (or should be) no agreement among experts on it;
2. The problem is relevant, as it can solve further problems, contributing to knowledge or decisions.

The argumentative structure of the problem can be represented as in Figure 2.7.

The diagram represents the two dimensions of the problem: the importance (the relation between the top box and the middle box), and the doubt (the relation between the middle box and the bottom box). The argumentative dimension of the importance is similar to the one of the issue, but more specific as it needs to point out how the solution of the problem can advance knowledge or solve further crucial challenges. The problematic aspect is the doubt, as the author needs to acknowledge what has been done in a specific field related to his or her research question (otherwise it would not be debatable) and show how the solutions given are not accepted or acceptable. This type of argumentation is aimed at defining the range of discussion and improvement

**Figure 2.7 Argumentative Structure of the Problem**




and consists in evidencing the weaknesses of or the disagreements between the existing solutions to the problem.

The core of this type of argumentation is the notion of best explanation. The solutions to a problem are explanations, hypotheses that are presented as better than the alternative ones. The structure of this type of reasoning can be represented as follows (Fodor, 1983; Harman, 1965; Harman, 1992; Walton, 2002, p. 44; Walton et al., 2008, p. 171):

**Argumentation Scheme 10: Argument from Best Explanation**

| | |
|---|---|
| **Premise 1** | $F$ (a fact, a concept, an event) is observed. |
| **Premise 2** | $E_1$ is a satisfactory description of $F$. |
| **Premise 3** | No alternative explanation $E_{2...n}$ given so far is as satisfactory as $E_1$. |
| **Conclusion** | Therefore, $E_1$ is a plausible hypothesis, based on what is known so far. |

To defend the existence of the problem proposed, the author needs to provide reasons for concluding that the available solutions are not satisfactory. To underscore the limitations of the theories proposed in the literature, or simply their incompatibility, a set of critical questions is associated with this pattern:

$CQ_1$: How satisfactory is $E_1$ as an explanation of $F$, apart from the alternative explanations $E_{2...n}$ available so far in the literature?

$CQ_2$: How much better an explanation is $E_1$ than the alternative explanations $E_{2...n}$ available so far in the literature?

$CQ_3$: How thorough has the investigation of the problem been?

$CQ_4$: Would it be better to continue the investigation of the problem further, instead of accepting the available solutions?

An example of this argumentative structure is given in the paper from which Example 2.7 (p. 29, Issue Defended through Different Arguments) was drawn (emphasis added):

**Example 2.9: Problem Defended through Practical Reasoning**

> Grootendorst proposes viewing fallacies as bad arguments in the sense of being Gricean failures of co-operation which violate rules of a critical discussion. [...] But, of course, none of this makes any sense unless we can say, in general, what the difference is between argument and reasoning. Internalists, like Gilbert Harman, have portrayed reasoning as a mental, psychological, or internal process, "a procedure for changing one's view" (ibid., p. 107). Externalists, like Jim Mackenzie, have portrayed reasoning as a process of linguistic interaction that appears to be more sociological than psychological. Argument has stereotypically been portrayed by logic textbooks as an externally manifested set of propositions "designated" as premises and conclusion. But often, at least in initially describing what an argument is, the texts do some hand waving to the effect that the conclusion is a "claim" based on "reasons" given in the premises (but little is made of this subsequently, in many of the texts). [...] According to [a] much broader approach, an argument is more than just a set of propositions. It comprises many kinds of speech acts, evaluated in a goal-directed, normative model of dialogue.
>
> Given these various points of view, which now seem to be on the brink of changing new developments in logic and the study of reasoning and argument generally, **it is problematic to see how reasoning is related to argument**. Are reasoning and argument essentially the same thing? Or is one a proper subpart of the other? Or can you have reasoning that is not in argument? Or could you have argument without reasoning? It seems hard to know where to begin replying to these questions. (Walton, 1990, p. 400)

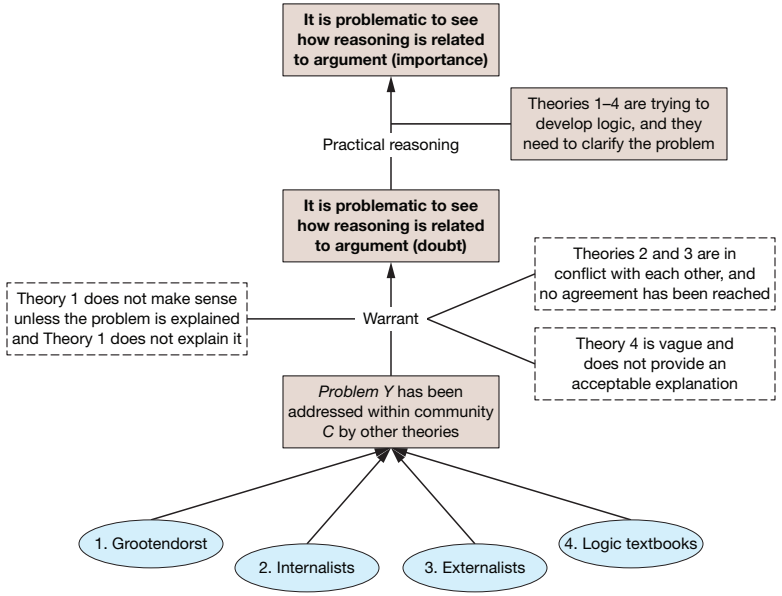
In this excerpt, the author intends to support the conclusion, "it is problematic to see how reasoning is related to argument." His strategy can be analyzed as supporting two interrelated conclusions: (1) the problem is doubtful; and (2) the problem is a crucial challenge in the development of logic and related areas. This argumentation can be represented as in Figure 2.8 (p. 35).

A problem can be also a debate between two theories, and an author may choose to present the alternative explanations as the starting point of the paper. In that case, the research question is narrowed to an existing conflict of explanations, instead of being aimed at finding new and alternative solutions. An example is the following (emphasis added):

**Example 2.10: Problem Defended through the Absence of a Best Explanation**

> Racial epithets are derogatory expressions, understood to convey contempt and hatred toward their targets. **But what do they actually mean, if anything?** There are two competing strategies for explaining how epithets work, one semantic and

**Figure 2.8 Argumentative Structure of Example 2.9**




> the other pragmatic. According to the semantic strategy, their derogatory content is fundamentally part of their literal meaning, and thus gets expressed in every context of utterance. This strategy honors the intuition that epithets literally say bad things, regardless of how they are used. According to the pragmatic strategy, their derogatory content is fundamentally part of how they are used, and results from features of the individual contexts surrounding their utterance. This strategy honors the intuition that epithets can be used for a variety of purposes, and that this complexity surrounding epithets precludes a univocal, context-independent explanation for how they work. Neither view is without difficulty, although to many the pragmatic strategy is prima facie more attractive. I shall argue, however, that the semantic strategy actually fares better on a number of criteria. In doing so, I shall motivate a particular semantic account of epithets that I call combinatorial externalism. The account has significant implications on theoretical, as well as, practical dimensions (Hom, 2008, p. 416)

The problem, "What do racial epithets actually mean, if anything?," is the conclusion of an argumentative strategy that focuses only on the doubtfulness of the question. The author illustrates two alternative theories, neither of which has been proved thus far to be the most satisfactory. The problem arises out of a discussion between two approaches and is narrowed to establishing which approach can be considered as more satisfactory.

***Further practice:*** *To practice how to identify the argumentative structure of a problem, go to Exercises 2.2, 2.3, and 2.4 in the Appendix.*

## 2.6 The Argumentative Structure of the Solution

A solution of a theoretical problem can be considered to be the best explanation of the problem. The notion of "best explanation" is, however, extremely complex. As indicated in the discussion of critical questions above, to determine whether an explanation of a problem is the "best one" it is necessary to determine whether it is more satisfactory and better than the alternatives, and whether it is sufficient for solving the problem at hand considering the further goals. The first three critical questions — whether the proposition claimed in the premise is in fact true; whether the example cited supports the generalization; whether the example is typical of the kinds of cases the generalization covers — can be specified further, highlighting the aspects that can be useful for assessing the quality of an explanation. These aspects can be expressed by the notion of "explanatory power," which in turn has different dimensions (see also Ylikoski & Kuorikoski, 2010):

1. Number of facts or observations that can be explained (or conversely, number of exceptions that resist the explanation).
2. Precision, or number of characteristics and details of an observation that can be explained.
3. Predictive power, or accuracy in anticipating what is going to occur or what is not going to occur in the future, and the details thereof.
4. Simplicity, or the presupposition of the lowest possible number of necessary assumptions.
5. Sensitivity, or context dependence. A theory is nonsensitive when it holds in all the possible counterfactual (imagined) scenarios, and not only in a particular circumstance.

These five dimensions are usually assessed using different strategies. The first dimension is commonly evaluated considering the available cases (real or fictitious) or observations. Often these cases are the ones addressed by authors that tried to explain the same phenomenon; however, this type of strategy leads to contextual dependence (only the usual contexts or situations are considered). For this reason, the use of corpora (in addition to or instead of "textbook" cases) are more effective.

Precision is perhaps the most problematic dimension, as for theoretical papers it depends on the characteristics of the *explanandum*. A common and effective method for assessing the precision of an explanation is to make explicit the characteristics, and then use them for determining the most precise explanation. For example, in his paper "Pejoratives," the author defines from the beginning eight characteristics of what is considered as pejorative (expressive force, historical variability, etc.), and then shows how the theories presented thus far failed to explain one or more features.

Predictive power is usually a characteristic of scientific theories, which allow anticipating what can occur in the future or determining what is not known or observed yet. In theoretical papers, it corresponds to the correspondence between experience and the outcome of the application of the theory to a case. Predictive power is essentially related to precision, as without pointing out the characteristics of an explanation it is impossible to justify a prediction. A theoretical prediction consists in determining whether a

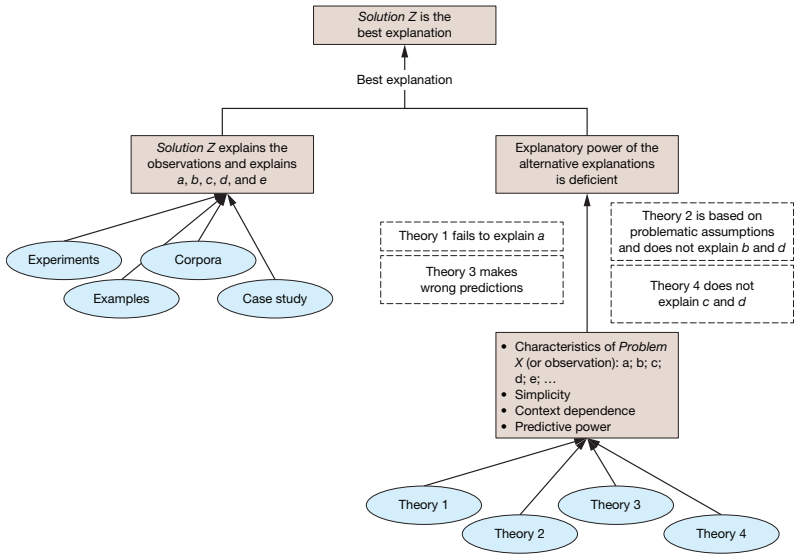
theory can tell whether a specific, imagined, or new observation ( for example, a word) can be explained correctly according to the theory, and does not lead to a result that is contrary to the experience, or contradictory, or absurd. For example, an explanation of emotive language needs to tell whether and why in a specific context a word that is commonly considered as emotive is also emotive according to the theory.

Simplicity is a crucial characteristic of a good explanation. A simple explanation relies on what is evident or already established, and on the fewest additional assumptions. An assumption, unlike evidence or a proved proposition, is a premise that is introduced by the author and necessary for developing his or her theory without being proved. An assumption can be merely stipulated, or based on the authority of experts, or grounded on other arguments. However, it is not universally valid or generally accepted. Therefore, it limits a theory, as in case or in the circumstances an assumption is found not to be acceptable, the theory does not apply. Moreover, if an assumption is not accepted, the theory cannot be accepted.

Sensitivity is related to contexts. Usually explanations work perfectly well in stereotypical contexts, deprived of many features. However, when real corpora or different corpora are taken into account, explanations may fail to provide an answer. This dimension can be used for testing whether explanations are useful for practical purposes, or showing that an explanation is better than others because it is the result of or is backed by empirical observations.

The argumentative structure of the solution can be represented as follows:

**Figure 2.9 Argumentative Structure of the Solution**




The strategy used for arguing in favor of a solution of a problem is the core of a paper. As an example, we summarize the solution defended in the paper "Pejoratives" (Hom, 2010).

The first step of this paper, as mentioned above, is to list and explain the eight characteristics of a pejorative:

1. Expressive force. The essential and most evident characteristic is that pejoratives express the speaker's negative, psychological attitudes toward the state of affairs referred to (the target).
2. Force variability. The derogatory force of distinct pejoratives varies in strength, type, and intensity of the emotion expressed.
3. Taboo. Pejoratives are usually forbidden, taboo words.
4. Historical variability. The force of pejorative terms varies over time, and is sensitive to the relevant social facts.
5. Syntactic variability. Pejoratives can occur in a variety of different syntactic positions.
6. Verifiable contribution. No literal, truth-conditional contribution to the proposition is expressed.
7. Infixation. While the infixation of pejoratives is acceptable, the infixation of non-pejorative modifiers is not acceptable.
8. Content-dichotomy puzzle. Pejoratives can be used in an orthodox and nonorthodox way, having different properties.

Each of these eight features is argued for based on the evidence taken from examples acknowledged by the community, and on key references. These backings make his analysis extremely hard to challenge.

Then, the author takes into account the theories that tackled the problem of pejoratives, and groups them in the following categories:

A. nominalism
B. contextualism
C. inferentialism
D. presupposition approach
E. conventional implicature

Each group of theories is assessed based on the aforementioned eight parameters:

A. Nominalism satisfies three criteria: (1) expressive force, part of (6) no literal, truth-conditional contribution, and (7) infixation. Backing for each criterion is provided. However, nominalism does not explain part of (6) and variabilities (2), (4), and (5). The backing consists in different examples taken from the literature (acknowledged cases).
B. Contextualism tells that pejoratives vary with the context. However, since it does not tell how, it cannot make predictions. For this reason, it is useless to apply the precision criteria.
C. Inferentialism satisfies (1) and part of (6). However, it does not explain satisfactorily variabilities (2), (4), and (5), nor (8) content-dichotomy puzzle.

Moreover, inferentialism makes assumptions that are not required considering the experience (simplicity).

D. Presupposition approach makes an assumption that leads to a contradiction with the observed characteristics of pejoratives. Therefore, further assessments are not necessary.

E. Conventional implicature approach satisfies (6), (7), and part of (8). However, it does not explain some aspects of (8); fails to explain satisfactorily variability (2), (4), and (5); and makes assumptions made in contradiction with the observed behavior of pejoratives (wrong prediction).

After analyzing in this fashion the existing theories, the author proposes his own view, which he defends in the same way, showing that it satisfies the first five characteristics. However, he anticipates that this theory has some drawbacks, as it fails to explain the last three characteristics. The author then considers the explanatory power of the competing theories and evaluates the proposed approach as the "best explanation" available at present.

The "Pejoratives" paper summarizes and outlines clearly how the notion of explanatory power can be used for establishing the best explanation. Other theoretical papers pursue different strategies. In the theoretical paper "What is Reasoning? What Is an Argument?," the author's strategy is much simpler, because the features characterizing the problem (reasoning and argument) are the goal of the paper (see Example 2.9 above). The method used in this paper is different, as the focus of the assessment of the available theories is placed on their predictive power, or their precision. To this purpose, the author compares what according to the different theories can be considered as reasoning, and the nature of the characteristics that they consider. He excludes then the theories that provide negative characterizations (as they can make some predictions, but do not explain the phenomenon), and the ones that make incorrect predictions. Then, he draws from the uses of the concept of reasoning its common characteristics and provides a definition.

***Further practice:*** *To practice how to identify the argumentative structure of a solution, go to Exercise 2.5 in the Appendix.*

## 2.7 The Argumentative Structure of the Defense

A solution to a problem is a step in a discussion. For this reason, the author needs to consider the possible objections that can be brought against the weaknesses of the explanation presented. Authors can hardly address the attacks of their readers after the paper is published, either because responding to criticisms is not an easy task (responses are not frequent in journals and require writing another paper) or, more commonly, because they are not expressed in writing, as most of the readers are not interested in sharing their concerns about a paper that they consider as weak or problematic. For this reason, the anticipation of criticisms and attacks is extremely important.

Aristotle highlighted the importance of being critical toward one's own arguments, as it makes the author an impartial contributor to an open discussion (Aristotle, *Topics*, 156b17–19):

> It is a good rule also, occasionally to bring an objection against oneself; for answerers are put off their guard against those who appear to be arguing impartially.

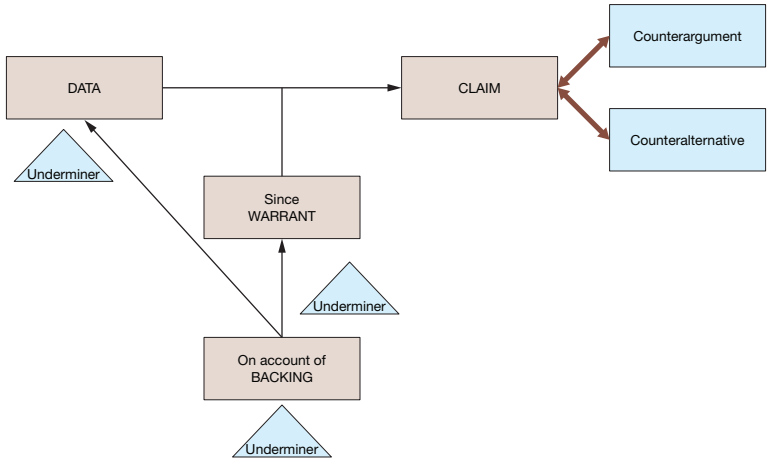
By anticipating the possible objections, and bringing to light the weaknesses of a solution, the author achieves two immediate effects. On the one hand, the solution is treated like the competing ones, thus placing a new proposal (which has not been accepted as such yet) as already established. The author treats it as worth discussing and assessing, and therefore takes it for granted that the theory can be considered at the same level as the alternatives. On the other hand, it confuses the roles of the author and the readers (or critics). Since the author has already acted as a critical reader (in fact, as the best critic as he knows his own theory better than anyone else), a further criticism becomes useless. Critics need to show that the weaknesses detected by the author are not enough, or not well explained, before advancing their own objections. An anticipation results in a burden of proof that makes further attacks more complex.

The anticipation of objections can be used strategically for making the solution even stronger. First, by anticipating possible objections, the author can explain why the solution advanced is important despite such drawbacks, even more if the weaknesses are shown to be only possible, or solvable. This anticipation allows the author to prevent conclusions too hastily drawn (the solution has problems; therefore, it is not good enough). Second, anticipation can be used as a proposal of further developments, which makes further attacks ineffective and useless. The author can acknowledge the weaknesses, but also claim that research is going to be developed for solving them.

An anticipation can also have a last strategic function, that is, weakening the objections. This function is a purely argumentative function, consisting in showing how the attacks can be neutralized or in turn shown to be problematic. To illustrate how an attack can be weakened, it is useful to start from analyzing what kinds of attacks can be made (Macagno, Mayweg-Paus, & Kuhn, 2015). An objection can target the conclusion or its grounds. The conclusion can be attacked either by showing that it is not acceptable, based on reasons, or that an alternative is better, based on reasons. In this latter case, the conclusion is not defeated, but simply shown to be not good enough. We call the first strategy *counterargument*, and the second *counteralternative*. The attacks to the grounds of an argument are different, as they cancel or weaken noticeably the force of the conclusion without directly addressing it. The grounds of an argument are three: the data (premise), the warrant, and the backing. The critic can show that the evidence is not acceptable (backing), or that its interpretation is not correct (data), or that the conclusion does not follow from the premises (warrant). This type of attack is called an *underminer* (Pollock, 1995). The attacks can be represented as in Figure 2.10.

The three types of attacks have different degrees of complexity. When we advance a counterargument or a counteralternative, we propose conclusions incompatible with the one proposed by the speaker (or the author). Our proposed conclusions can be subject, in turn, to criticisms. Therefore, our attacks need to be backed by reasons, i.e., arguments, and satisfy a burden of proof.

**Figure 2.10 Structure of the Attacks to an Argument**




In contrast, underminers do not have to be arguments. They can consist only of evidence contrary to the backing provided, or a counterexample or some pieces of evidence countering the generalization of the warrant, or an interpretation of the backing that refutes the one indicated in the premise. The attacking party can provide further support to his underminer through reasons and arguments (e.g., the evidence used by the author is not acceptable because…), but he does not have to. He can simply cite contrary evidence, and leave it up to the author to defend his argument. Moreover, an underminer can be used to draw a further conclusion (e.g., the overall conclusion is not acceptable because it is based on a controversial generalization, and the other reasons are very weak…), or can be simply advanced as a criticism against the grounds of the author's argument.

We can distinguish between two general methods of defending against criticisms: anticipating attacks and hedging the conclusions (or narrowing their scope). The first method consists in acknowledging the most problematic underminers or counters that can jeopardize the conclusion. By merely acknowledging the weaknesses of the very foundations of the paper, the author can avoid the criticism that they are used to draw too strong conclusions. For example, we consider the strategy used by Hom in his paper "Pejoratives":

**Example 2.11: Defense against Underminers**

While the extended version of TSE [the theory proposed by the author] offers a plausible explanation of most of the features of described in section I, there are three major concerns that face this view. First, TSE (like inferentialism) postulates complex semantic contents for pejoratives, and (like inferentialism) this appears to conflict with a typical speaker's linguistic competence with expressives. Second, because TSE is fundamentally a truth-functional, semantic account of pejorative content, it appears to violate the balanced construction and infixation

> constraints (features 2.8 and 2.9). Third, non-displaceability (or 'wide-scoping') seems problematic for any truth-conditional semantic theory of pejoratives. (Hom, 2010, p. 182)

The author puts his own theory through a careful scrutiny, as if it were advanced by another philosopher. He plays the role of an unbiased critic, which allows him to highlight the merits of the theory through describing its drawbacks. He introduces the attacks by acknowledging that the theory fulfills most of the requirements that he introduced for assessment purposes. Then, he compares the problems of his own theory with the ones of the alternative theories, indicating how the concerns raised are common to other proposals (such as inferentialism and alternative truth-conditional semantic theories).

This twofold strategy allows him to control the inferences that the reader can draw from the paper. The anticipation of attacks and criticisms is not aimed at presenting his theory as the solution of the problem, but as the best among the ones developed thus far. The weaknesses that he discusses do not undermine the conclusion that he wants to defend, as he never claimed that he wanted to solve a problem, but only assess the approaches to its solution. Instead, they are used as further premises in the reasoning from best explanation. They allow the comparison between the proposed and the alternative theories, indicating to the reader the (relative) merits of the proposal.

A different strategy consists in defusing the possible criticisms. The author shows that the attacks are irrelevant to the point that the paper intends to make, so that they cannot be used for undermining it. A clear example is the defense strategy used by Walton in "What Is Reasoning? What Is an Argument?" The author expects that his interpretation of ancient texts to be criticized by experts in ancient philosophy and logic, and for this reason he argues as follows:

**Example 2.12: Defense of Irrelevance**

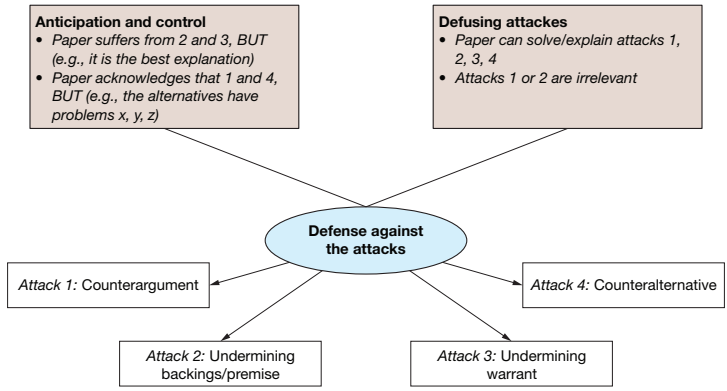
> Without trying to interpret definitively what Aristotle really meant to say — a task best left to the specialists in Greek philosophy — it is interesting to see that there was an Aristotelian tradition of understanding argument and reasoning which is not that dissimilar in broad outline from the apparently radical framework proposed above. While our new definitions of these old terms may certainly seem radical from a viewpoint of established twentieth-century preconceptions in logic, they do not seem at all out of place in relation to general perspectives on argument and reasoning in ancient writings on argumentation, and notably in Aristotle. (Walton, 1990, p. 417)

Here, the author anticipates the attacks by defusing them, and more precisely by showing that they are irrelevant considering the goal of the paper. To this purpose, he clarifies what the paper is *not* about, thus excluding concerns related to philological accuracy, and narrowing the actual scope of the paper, distinguishing it from the established works in logic. Moreover, he limits even more his claims relative to the interpretation of ancient texts, indicating that the actual point was to show that there was a traditional view of argument and reasoning that is compatible with the one advocated. This limitation allows him to increase the burden of criticism, as the critics need to prove that the

Aristotelian approach to argument was indeed incompatible with the author's, and that author's theory is indeed out of place in the tradition of logic.

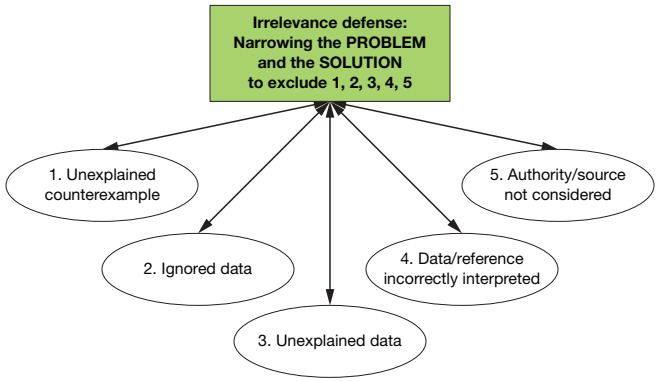
We can summarize the defense strategies as follows:

**Figure 2.11 Structure of the Defense Strategies**




The irrelevance defense will be investigated in Chapter 7 in the discussion on hedging. For the purpose of this chapter, the general structure can be represented as follows:

**Figure 2.12 Structure of the Irrelevance Defense**




The observations developed thus far can be used for proposing some tips for drafting a theoretical paper.

***Further practice:*** *To practice how to identify the argumentative structure of a defense, go to Exercise 2.6 in the Appendix.*

## 2.8 Some Useful Tips

The starting point of a theoretical paper is the problem, namely the research question. The problem needs to be interesting for your readers, and possible for you to solve through an original idea. These tips can be considered as general indications on how to find a problem, and how to address it.

- **Tip 1: Issue.** As mentioned above, a research question concerns an issue, which is characterized by the interest for a specific audience. In order to find out whether the issue of your paper can be interesting, you can follow some possible hints:
  a. Read the studies in your field or concerning the topic, and see whether your issue has been addressed before.
  b. Look for societal challenges defined by national or international organizations.
  c. Consider the challenges and the issues that the most important papers in your field indicate as fundamental. You can also relate the issue you have chosen to these challenges, thus proving their relevance.
  d. Take into account the focus of academic discussions or debates.
- **Tip 2: Problem.** Find your problem, and see whether it is actually a problem. The problem needs to be an open question, to which no final answer has been given thus far. To this purpose:
  a. Look up works in your field or in the related fields, and see whether they have addressed your problem.
  b. Find evidence that the problem has not been solved yet.
  c. Find what the existing and most important studies acknowledge as unsolved challenges.
  d. Find what the existing and most important studies did not manage to solve.
  e. Find studies attacking the existing solutions given to a problem.
  f. Find the limits or the drawbacks of the existing solutions given to a problem.
- **Tip 3: Originality and literature review.** Read the literature in your area on your question, and how others have addressed it. This tip depends on the concept of "others," the relevant colleagues or authors in the area that you have chosen. Note that an area of study is not necessarily a field of study, as it can be an interdisciplinary study. Within your chosen area, you need to select the studies that are relevant, namely that (a) address your question or are related to it; (b) are considered as important; and (c) can provide ideas for developing your idea or backing for supporting it. In case you are addressing a new research question or a new topic, these indications can be useful:
  a. Define the keywords that allow you to identify the relevant research.
  b. Look up on the major indexes (e.g., Scopus, Web of Science) the studies related to your research question.

c. Start by reading the most cited and the most recent works.
d. Read the studies referenced to by the major studies.
e. Read the replies and criticisms.

- **Tip 4: Solution.** Propose your solution honestly. An honest solution needs to be original, based on the authorities, clear, and transparent. To this purpose, the following indications can be useful:
  a. Originality. Distinguish your solution from the solutions proposed by others, providing an exhaustive literature review and reporting the others' views correctly.
  b. Honesty. Acknowledge the most important studies from which you have developed your own original idea. Cite all the sources that provide the foundations on which your idea is based or that support the idea you are defending. Avoid using irrelevant citations just to please friends.
- **Tip 5: Clarity.** Clarity is essentially related to honesty, as confusion leads to the possibility of avoiding criticisms or defending against them, but also to the impossibility of using and applying a proposal.
  a. Define the words you are using, and use them consistently throughout the paper. Do not use words that can have different technical meanings without making explicit from the beginning the meaning they have in the paper. If a term already exists, use it with its original meaning and acknowledge the author that introduced it.
  b. Do not multiply entities without necessity. Do not introduce new words or new definitions unless you can prove that the new definition or word is necessary. Avoid the dishonest strategy of puzzling the reader to prevent him from attacking your proposal. Avoid introducing new words only for making your ideas less accessible to the larger audience, and escaping comparisons with other theories. Mystification is a strategy for avoiding a challenge, not for solving it.
  c. New words. If you want to introduce a new concept, ask:
     - Is it really necessary?
     - Is there anything similar I can work on or modify?
     - Can I support the necessity of this new word?
     - Does the new concept cause confusion?
- **Tip 6: Cohesion.** If a reader cannot follow your paper, he will be confused, and confusion can hardly go hand in hand with persuasion. Therefore, try to express your arguments in a way that requires the least possible effort from the reader. Here are some hints:
  a. Present the structure of your paper in the introduction.
  b. Use clear headings. The headings should summarize the whole section or subsection, so that the reader knows your strategy from the beginning.

c. Connect the sections clearly, showing how one section leads to the other.
d. Summarize your argument in the conclusion.

These hints will be developed further in the following chapters.

***Further practice:*** *To practice how to improve the overall argumentative structure of a paper, go to Exercises 2.7, 2.8, and 2.9 in the Appendix.*