

same concept—doing so makes readers wonder if the second word has a slightly different meaning.

The components of a paper (Rules 5–8)

The individual parts of a paper—abstract, introduction, results, and discussion—have different objectives, and thus they each apply the C-C-C structure a little differently in order to achieve their objectives. We will discuss these specialized structures in this section and summarize them in [Fig 1](#).

Rule 5: Tell a complete story in the abstract

The abstract is, for most readers, the only part of the paper that will be read. This means that the abstract must convey the entire message of the paper effectively. To serve this purpose, the abstract's structure is highly conserved. Each of the C-C-C elements is detailed below.

The context must communicate to the reader what gap the paper will fill. The first sentence orients the reader by introducing the broader field in which the particular research is situated. Then, this context is narrowed until it lands on the open question that the research answered. A successful context section sets the stage for distinguishing the paper's contributions from the current state of the art by communicating what is missing in the literature (i.e., the specific gap) and why that matters (i.e., the connection between the specific gap and the broader context that the paper opened with).

The content ("Here we") first describes the novel method or approach that you used to fill the gap or question. Then you present the meat—your executive summary of the results.

Finally, the conclusion interprets the results to answer the question that was posed at the end of the context section. There is often a second part to the conclusion section that highlights how this conclusion moves the broader field forward (i.e., "broader significance"). This is particularly true for more "general" journals with a broad readership.

This structure helps you avoid the most common mistake with the abstract, which is to talk about results before the reader is ready to understand them. Good abstracts usually take many iterations of refinement to make sure the results fill the gap like a key fits its lock. The broad-narrow-broad structure allows you to communicate with a wider readership (through breadth) while maintaining the credibility of your claim (which is always based on a finite or narrow set of results).

Rule 6: Communicate why the paper matters in the introduction

The introduction highlights the gap that exists in current knowledge or methods and why it is important. This is usually done by a set of progressively more specific paragraphs that culminate in a clear exposition of what is lacking in the literature, followed by a paragraph summarizing what the paper does to fill that gap.

As an example of the progression of gaps, a first paragraph may explain why understanding cell differentiation is an important topic and that the field has not yet solved what triggers it (a field gap). A second paragraph may explain what is unknown about the differentiation of a specific cell type, such as astrocytes (a subfield gap). A third may provide clues that a particular gene might drive astrocytic differentiation and then state that this hypothesis is untested (the gap within the subfield that you will fill). The gap statement sets the reader's expectation for what the paper will deliver.

The structure of each introduction paragraph (except the last) serves the goal of developing the gap. Each paragraph first orients the reader to the topic (a context sentence or two) and then explains the "knowns" in the relevant literature (content) before landing on the