Improving Information Order and Connectivity

Revise this sentence to better fit each context.

Familiar information	Important new information
↓	↓

1. Removal of potassium perchlorate was achieved by centrifugation of the supernatant liquid at 1400 X g for 10 min.

Important new information	Familiar information
↓	↓

2. Removal of potassium perchlorate was achieved by centrifugation of the supernatant liquid at 1400 X g for 10 min.

Revise to improve information order and connectivity. These sentences appear in a section about sorting numbers. Trees are a familiar concept. The new concept here is heaps.

3. A **heap** is a tree in which each parent is greater than its children. A heap can be used to sort a list of numbers.

4. Read "Sample Paragraph with Revision" on the back of "Are there gaps in the rationals? Version #." Pay attention to how improving connectivity is simplified by identifying the main point of the paragraph.

Read the paragraph below. First identify 2 or 3 gaps in connectivity. Then revise to improve the connectivity. (I recommend fixing the last gaps first.)

5. *Show that every infinite subset of* [0, 1] X [0, 1] *has a limit point.*
    Let K = [0, 1] X [0, 1] and let S be an infinite subset of K. Assume for the sake of contradiction that S has no limit points. Then for each $p \in K$, there exists some ball around p that contains no points of S, except perhaps for p itself. Finitely many of these balls cover K, and this cover also covers S. Thus, S is finite because it can be covered by finitely many balls. We have reached a contradiction, so S must have a limit point.

Sample Paragraph with Revision

The following text is a paragraph taken from the middle of a paper's first draft. It's OK if you aren't familiar with the topic: pay attention to the connectivity.

Original paragraph:
The permutation groups are presented to us by a set of generators. We first implement basic operations on permutations such as composition and inversion. We then implement the Stripping algorithm of Sims to replace the original given set of generators by a small 'stripped' set (that generates the same group) which will ensure efficient computation of other properties of the group structure. Using the orbit structure of the group and Schreier's Theorem, we present an algorithm which computes the order of the permutation group.

Notice that there is very little connectivity between sentences. To someone familiar with the content, the lack of connectivity is not an issue. But to someone new to the content, this paragraph is difficult to read.

To revise a paragraph that is this disconnected, it usually helps to first identify the main point of the paragraph. In this case, the point was determined to be that a stripped set of generators can be created, and that this stripped set can be used to obtain information about the group. Once the point of the paragraph is identified, the paragraph can be structured in such a way that it builds to and supports that point. (BTW, the following revision mentions S, X, and G. These were introduced in the preceding paragraph in the paper, so they are familiar to the audience.)

Revised text:
We generate the permutation group G from S by implementing basic operations on permutations such as composition and inversion. The same group G can be generated by a variety of different sets S; we can identify a "stripped" set S by implementing the Stripping algorithm of Sims. This stripped set can be used to efficiently compute other properties of the group structure. For example, the stripped set of generators for the stabilizer of an element X can be used to compute the order of G.

Notice that this paragraph has much better connectivity between sentences.

It's difficult for authors to identify problems with connectivity on their own because the ideas are not new to the author, so the author is unlikely to notice when the concepts aren't explained clearly. One way an author can identify problem text is by asking a friend to review the text.