Writing a Survey
Outline

• Global structure
• Section/Paragraph structure (moves)
Overall Structure

Larger width means broader concepts and ideas, which are usually accessible to a larger audience.

From *Write Like a Scientist*
Overall Structure

- Title
- Abstract

Introduction

- Fundamentals
- Proofs + Context

Open Questions, Discussion

- Acknowledgements
- Literature cited

Draw the reader’s interest from something you are pretty sure they are interested in, to your subject. Explain why this subject connects to things the reader cares about.

From Write Like a Scientist
Overall Structure

Introduce notation. Define classes. Follow up on important ideas and concepts about the class with more technical details.
Proofs should be clearly written. Also discuss why these are important proofs for understanding the class.
A lot of surveys list open questions, and discuss what the consequences would be of answering those questions.
Outline

- Global structure
- Section/Paragraph structure (moves)
Moves

<table>
<thead>
<tr>
<th>Statement</th>
<th>Move (purpose)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A man gets into a car accident and breaks his wrist.</td>
<td>Setting the context of the joke.</td>
</tr>
<tr>
<td>He goes to the hospital, where a doctor puts him in a cast.</td>
<td>Introduces comedic foil</td>
</tr>
<tr>
<td>Before he leaves, the man asks the doctor, “Hey, when this is all better, will I be able to play the piano?”</td>
<td>Setting up the punchline, sets expectation that man plays the piano</td>
</tr>
<tr>
<td>“Sure!,” the doctor says. “You’ll be fine in just a few weeks.”</td>
<td>Encourages identification with foil view</td>
</tr>
<tr>
<td>“Cool! I’ve always wanted to play an instrument.”</td>
<td>Punchline violates expectations</td>
</tr>
</tbody>
</table>

Each sentence should have a purpose!

From Write Like a Scientist
What are the moves?

[1] Every NP-complete problem can be solved by exhaustive search. [2] Unfortunately, when the size of the instances grows the running time for exhaustive search soon becomes forbiddingly large, even for instances of fairly small size. [3] For some problems it is possible to design algorithms that are significantly faster than exhaustive search, though still not polynomial time. [4] This survey deals with such fast, super-polynomial time algorithms that solve NP-complete problems to optimality.

From introduction to Exact Algorithms for NP-Hard Problems, a Survey
Typical Abstract Moves

1. Describe what your project was about
   i. Identify the broad area of your research and its importance
   ii. Identify the gap(s) you address in your project
   iii. Describe the purpose of your project

2. Identify the methods used

3. Summarize your results
   i. Report the principal findings of your project
   ii. Make a concluding statement about your results

From Writing Like a Scientist
Typical Introduction Moves

1. Describe the background of your study
   i. Introduce the general area of research
   ii. Establish the importance of this area of research
   iii. Identify critical evidence from the literature

2. Identify the gap(s)

3. Fill the gap(s)
   i. Introduce what this work did to address the gap
   ii. Summarize your key findings

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From *Writing Like a Scientist*

Expanded version of the abstract!
Gap in a survey?
Moves

We should be able to identify your moves at the paragraph level, and the sentence level within a paragraph.
For more

• See examples on website.

• ~10 pages