

# On Writing Research Papers

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*Style: Toward Clarity and Grace*

by Joseph Williams

thanks to: William Cook & Richard Gabriel

What's the most important part of your paper?

# Focus

Research Writing

Abstract & Introduction

# Meat

What's in an abstract?

# What's in an abstract?

Contribution

Result

“This paper introduces a new context-sensitive and control-flow sensitive pointer alias analysis. We show that it is one hundred times faster than the prior state of the art.”

# Abstract & Introduction

Problem statement

Contribution

Result

Meaning

# Is this abstract better?

“Precise flow and context sensitive pointer analysis is currently limited to programs with 100,000 or fewer lines of code. Pointer analysis clients, such as verification and testing, are consequently limited to small programs because they need high precision. This paper introduces a new context-sensitive and control-flow sensitive pointer alias analysis. We show that it is one hundred times faster than prior algorithms and can analyze programs up to 1 million lines of code. Future work should investigate its effects on the precision and scalability of client analysis.”

# Is this abstract better?

## It is more precise

“Precise flow and context sensitive pointer analysis is currently limited to programs with 100,000 or fewer lines of code. Pointer analysis clients, such as verification and testing, are consequently limited to small programs because they need high precision. This paper introduces a new context-sensitive and control-flow sensitive pointer alias analysis. Our key insight is many pointers have the same aliases, and we show how to find and exploit this equivalence. We show that it is one hundred times faster than prior algorithms and can analyze programs up to 1 million lines of code. Future work should investigate its effects on the precision and scalability of client analysis.”



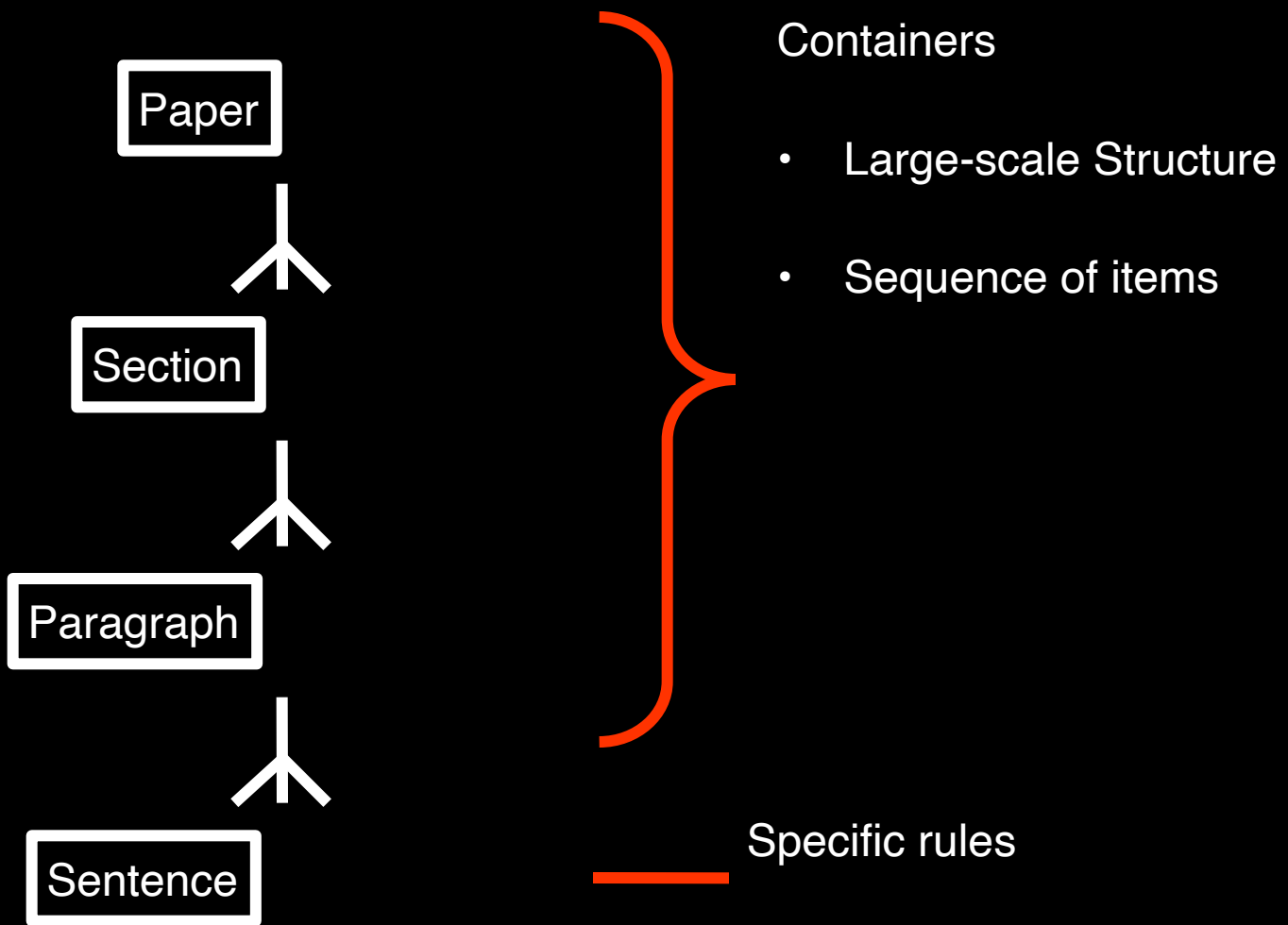
# Meat

Tell a Story

Put Related Work First

Link Sentences

Emphasis



# Section Titles

First sentence

(or the point)

must include section title

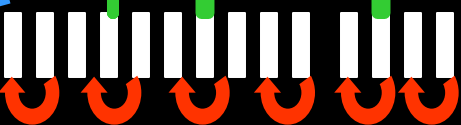
(except the introduction or conclusion)

paper

Intro

Discussion

paragraphs



sentences

sections

Intro

Disc

Intro

Disc

paragraphs



paragraphs



sentences

# Linking Sentences

**subject**

- ideas already mentioned
- familiar ideas

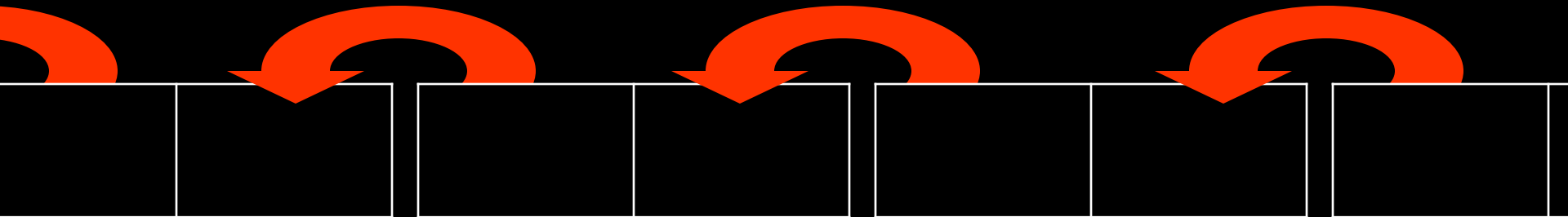
**verb**

- action

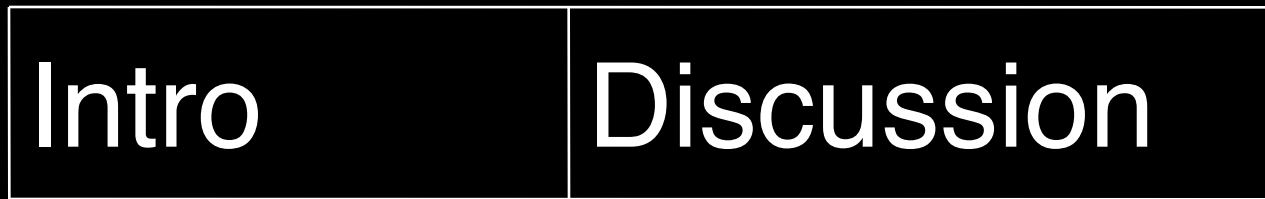
**object**

- new ideas

Topics form a logical  
sequence of ideas



# The Point



The point  
(best)

...or here  
(intro para.)

# Emphasis

Put important things at the end

sentence	final words
paragraph	last sent.
section	last para.



# Improving an Abstract

Interview the writer: understand the

- Problem statement
- Contribution
- Result
- Meaning

Top down sentence improvements

- Subject-action-object
- Link to next sentence

Questions?