

Scientific communication

in the XXI^e century

Mathieu Lagrange 



Writing

- ✎ is mandatory in science
- ✎ as it closes the loop of the scientific method
- ✎ can be tedious and boring
- ✎ need to stay focused

Writing

- ✍ is mandatory in science
- ✍ as it closes the loop of the scientific method
- ✍ can be tedious and boring
- ✍ need to stay focused

Writing

- ✍ is mandatory in science
- ✍ as it closes the loop of the scientific method
- ✍ can be tedious and boring
- ✍ need to stay focused

Writing

- ✍ is mandatory in science
- ✍ as it closes the loop of the scientific method
- ✍ can be tedious and boring
- ✍ need to stay focused

Writing

- ✍ is mandatory in science
- ✍ as it closes the loop of the scientific method
- ✍ can be tedious and boring
- ✍ need to stay focused

Outline

- ① Audience
- ② Structure
- ③ Process
- ④ Diffusion
- ⑤ Reproducible research

Outline

① Audience

② Structure

③ Process

④ Diffusion

⑤ Reproducible research

Outline

① Audience

② Structure

③ Process

④ Diffusion

⑤ Reproducible research

Outline

- ① Audience
- ② Structure
- ③ Process
- ④ Diffusion
- ⑤ Reproducible research

Outline

- ① Audience
- ② Structure
- ③ Process
- ④ Diffusion
- ⑤ Reproducible research

Audience

Know your message, and stay on message (Michael Ernst)

- ✎ The goal of writing a paper is to change people's behavior : for instance, to change the way they think about a research problem or to convince them to use a new approach.
- ✎ Determine your goal (also known as your thesis), and focus the paper around that goal.

Know your message, and stay on message (Michael Ernst)

- ✚ The goal of writing a paper is to change people's behavior : for instance, to change the way they think about a research problem or to convince them to use a new approach.
- ✚ Determine your goal (also known as your thesis), and focus the paper around that goal.

Know your message, and stay on message (Michael Ernst)

- ✚ The goal of writing a paper is to change people's behavior : for instance, to change the way they think about a research problem or to convince them to use a new approach.
- ✚ Determine your goal (also known as your thesis), and focus the paper around that goal.

Goals

As a general rule, your paper needs to convince the audience of three key points :

- ✎ that the problem is interesting,
- ✎ that it is hard,
- ✎ that you solved it.

Goals

As a general rule, your paper needs to convince the audience of three key points :

- ✧ that the problem is interesting,
- ✧ that it is hard,
- ✧ that you solved it.

Goals

As a general rule, your paper needs to convince the audience of three key points :

- ✧ that the problem is interesting,
- ✧ that it is hard,
- ✧ that you solved it.

Goals

As a general rule, your paper needs to convince the audience of three key points :

- ✧ that the problem is interesting,
- ✧ that it is hard,
- ✧ that you solved it.

Novelty

- ✎ You'll also need to convince your readers that your contributions are novel.
- ✎ When expressing this, it may be helpful to explain why no one else thought of your approach before
- ✎ and also to keep in mind how you expect the behavior of readers to change once they appreciate your contributions.

Novelty

- ✚ You'll also need to convince your readers that your contributions are novel.
- ✚ When expressing this, it may be helpful to explain why no one else thought of your approach before
- ✚ and also to keep in mind how you expect the behavior of readers to change once they appreciate your contributions.

Novelty

- ✚ You'll also need to convince your readers that your contributions are novel.
- ✚ When expressing this, it may be helpful to explain why no one else thought of your approach before
- ✚ and also to keep in mind how you expect the behavior of readers to change once they appreciate your contributions.

Novelty

- ✚ You'll also need to convince your readers that your contributions are novel.
- ✚ When expressing this, it may be helpful to explain why no one else thought of your approach before
- ✚ and also to keep in mind how you expect the behavior of readers to change once they appreciate your contributions.

Audience

Before you write your paper, you need to understand your audience.

- ⌘ Who will read your paper ?
- ⌘ What are their backgrounds, motivations, interests, and beliefs ?
- ⌘ What are the key points you want a reader person to take away from your paper ?

Audience

Before you write your paper, you need to understand your audience.

- ✚ Who will read your paper ?
- ✚ What are their backgrounds, motivations, interests, and beliefs ?
- ✚ What are the key points you want a reader person to take away from your paper ?

Audience

Before you write your paper, you need to understand your audience.

- ✚ Who will read your paper ?
- ✚ What are their backgrounds, motivations, interests, and beliefs ?
- ✚ What are the key points you want a reader person to take away from your paper ?

Audience

Before you write your paper, you need to understand your audience.

- ⌘ Who will read your paper ?
- ⌘ What are their backgrounds, motivations, interests, and beliefs ?
- ⌘ What are the key points you want a reader person to take away from your paper ?

Guiding the reader

For each point in your paper, you need to explain both what and why.

- ⌘ Start with what
- ⌘ But don't omit why.
- ⌘ It is not enough to state how an algorithm works ; you should explain why it works in that way, or why another way of solving the problem would be different.
- ⌘ Similarly, it is not sufficient to present a figure and merely help the reader understand what the figure says. You must also ensure that reader understands the significance or implications of the figure and what parts of it are most important.

Guiding the reader

For each point in your paper, you need to explain both what and why.

- ✚ Start with what
- ✚ But don't omit why.
- ✚ It is not enough to state how an algorithm works ; you should explain why it works in that way, or why another way of solving the problem would be different.
- ✚ Similarly, it is not sufficient to present a figure and merely help the reader understand what the figure says. You must also ensure that reader understands the significance or implications of the figure and what parts of it are most important.

Guiding the reader

For each point in your paper, you need to explain both what and why.

- ⌘ Start with what
- ⌘ But don't omit why.
- ⌘ It is not enough to state how an algorithm works ; you should explain why it works in that way, or why another way of solving the problem would be different.
- ⌘ Similarly, it is not sufficient to present a figure and merely help the reader understand what the figure says. You must also ensure that reader understands the significance or implications of the figure and what parts of it are most important.

Guiding the reader

For each point in your paper, you need to explain both what and why.

- ✧ Start with what
- ✧ But don't omit why.
- ✧ It is not enough to state how an algorithm works ; you should explain why it works in that way, or why another way of solving the problem would be different.
- ✧ Similarly, it is not sufficient to present a figure and merely help the reader understand what the figure says. You must also ensure that reader understands the significance or implications of the figure and what parts of it are most important.

Guiding the reader

For each point in your paper, you need to explain both what and why.

- ✧ Start with what
- ✧ But don't omit why.
- ✧ It is not enough to state how an algorithm works ; you should explain why it works in that way, or why another way of solving the problem would be different.
- ✧ Similarly, it is not sufficient to present a figure and merely help the reader understand what the figure says. You must also ensure that reader understands the significance or implications of the figure and what parts of it are most important.

Keep things nice and clean

"By focusing on clarity in your writing, you will inevitably gain clarity in your thinking."

Michael Ernst

Structure

Canonical structure (Jennifer Widom)

- ✍ Title
- ✍ Abstract
- ✍ Introduction
- ✍ Related work
- ✍ Body
- ✍ Experiments
- ✍ Conclusion
- ✍ Future Work
- ✍ The Acknowledgements
- ✍ Citations

Canonical structure (Jennifer Widom)

- ✍ Title
- ✍ Abstract
- ✍ Introduction
- ✍ Related work
- ✍ Body
- ✍ Experiments
- ✍ Conclusion
- ✍ Future Work
- ✍ The Acknowledgements
- ✍ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Canonical structure (Jennifer Widom)

- ⌘ Title
- ⌘ Abstract
- ⌘ Introduction
- ⌘ Related work
- ⌘ Body
- ⌘ Experiments
- ⌘ Conclusion
- ⌘ Future Work
- ⌘ The Acknowledgements
- ⌘ Citations

Paper Title

- ✎ Titles can be long and descriptive : "Linear-Time External Multipass Sorting with Approximation Guarantees"
- ✎ Or short and sweet : "Approximate External Sort"
- ✎ Or something in between, plus a cute name that sticks in people's minds : "Floosh : A Linear-Time Algorithm for Approximate External Sort"

Paper Title

- ✎ Titles can be long and descriptive : "Linear-Time External Multipass Sorting with Approximation Guarantees"
- ✎ Or short and sweet : "Approximate External Sort"
- ✎ Or something in between, plus a cute name that sticks in people's minds : "Floosh : A Linear-Time Algorithm for Approximate External Sort"

Paper Title

- ✎ Titles can be long and descriptive : "Linear-Time External Multipass Sorting with Approximation Guarantees"
- ✎ Or short and sweet : "Approximate External Sort"
- ✎ Or something in between, plus a cute name that sticks in people's minds : "Floosh : A Linear-Time Algorithm for Approximate External Sort"

Paper Title

- ✧ Titles can be long and descriptive : "Linear-Time External Multipass Sorting with Approximation Guarantees"
- ✧ Or short and sweet : "Approximate External Sort"
- ✧ Or something in between, plus a cute name that sticks in people's minds : "Floosh : A Linear-Time Algorithm for Approximate External Sort"

The Abstract

- ✍ State the problem, your approach and solution, and the main contributions of the paper.
- ✍ Include little if any background and motivation.
- ✍ Be factual but comprehensive.
- ✍ The material in the abstract should not be repeated later word for word in the paper.

The Abstract

- ✚ State the problem, your approach and solution, and the main contributions of the paper.
- ✚ Include little if any background and motivation.
- ✚ Be factual but comprehensive.
- ✚ The material in the abstract should not be repeated later word for word in the paper.

The Abstract

- ✚ State the problem, your approach and solution, and the main contributions of the paper.
- ✚ Include little if any background and motivation.
- ✚ Be factual but comprehensive.
- ✚ The material in the abstract should not be repeated later word for word in the paper.

The Abstract

- ⌘ State the problem, your approach and solution, and the main contributions of the paper.
- ⌘ Include little if any background and motivation.
- ⌘ Be factual but comprehensive.
- ⌘ The material in the abstract should not be repeated later word for word in the paper.

The Abstract

- ⌘ State the problem, your approach and solution, and the main contributions of the paper.
- ⌘ Include little if any background and motivation.
- ⌘ Be factual but comprehensive.
- ⌘ The material in the abstract should not be repeated later word for word in the paper.

The Introduction

- ✎ The Introduction is crucially important.
- ✎ **to the reviewer** : by the time a referee has finished the Introduction, he's probably made an initial decision about whether to accept or reject the paper – he'll read the rest of the paper looking for evidence to support his decision.
- ✎ **to the reader** : who will continue on if the Introduction captivated him, and will set the paper aside otherwise.

The Introduction

- ✚ The Introduction is crucially important.
- ✚ to the reviewer : by the time a referee has finished the Introduction, he's probably made an initial decision about whether to accept or reject the paper – he'll read the rest of the paper looking for evidence to support his decision.
- ✚ to the reader : who will continue on if the Introduction captivated him, and will set the paper aside otherwise.

The Introduction

- ✚ The Introduction is crucially important.
- ✚ **to the reviewer** : by the time a referee has finished the Introduction, he's probably made an initial decision about whether to accept or reject the paper – he'll read the rest of the paper looking for evidence to support his decision.
- ✚ **to the reader** : who will continue on if the Introduction captivated him, and will set the paper aside otherwise.

The Introduction

- ⌘ The Introduction is crucially important.
- ⌘ **to the reviewer** : by the time a referee has finished the Introduction, he's probably made an initial decision about whether to accept or reject the paper – he'll read the rest of the paper looking for evidence to support his decision.
- ⌘ **to the reader** : who will continue on if the Introduction captivated him, and will set the paper aside otherwise.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Structure of the Introduction

- ⌘ What is the problem ?
- ⌘ Why is it interesting and important ?
- ⌘ Why is it hard ? (E.g., why do naive approaches fail ?)
- ⌘ Why hasn't it been solved before ? (Or, what's wrong with previous proposed solutions ? How does mine differ ?)
- ⌘ What are the key components of my approach and results ? Also include any specific limitations.
- ⌘ End with a summary of contributions, mentioning in which sections they can be found.

Related Work

- ⌘ Should related work be covered near the beginning of the paper or near the end?
- ⌘ **At the beginning** if it can be short yet detailed enough, or if it's critical to take a strong defensive stance about previous work right away. In this case Related Work can be either a subsection at the end of the Introduction, or its own Section 2.
- ⌘ **At the end** if it can be summarized quickly early on (in the Introduction or Preliminaries), or if sufficient comparisons require the technical content of the paper. In this case Related Work should appear just before the Conclusions, possibly in a more general section "Discussion and Related Work".

Related Work

- ✚ Should related work be covered near the beginning of the paper or near the end?
- ✚ At the beginning if it can be short yet detailed enough, or if it's critical to take a strong defensive stance about previous work right away. In this case Related Work can be either a subsection at the end of the Introduction, or its own Section 2.
- ✚ At the end if it can be summarized quickly early on (in the Introduction or Preliminaries), or if sufficient comparisons require the technical content of the paper. In this case Related Work should appear just before the Conclusions, possibly in a more general section "Discussion and Related Work".

Related Work

- ⌘ Should related work be covered near the beginning of the paper or near the end?
- ⌘ **At the beginning** if it can be short yet detailed enough, or if it's critical to take a strong defensive stance about previous work right away. In this case Related Work can be either a subsection at the end of the Introduction, or its own Section 2.
- ⌘ **At the end** if it can be summarized quickly early on (in the Introduction or Preliminaries), or if sufficient comparisons require the technical content of the paper. In this case Related Work should appear just before the Conclusions, possibly in a more general section "Discussion and Related Work".

Related Work

- ⌘ Should related work be covered near the beginning of the paper or near the end?
- ⌘ **At the beginning** if it can be short yet detailed enough, or if it's critical to take a strong defensive stance about previous work right away. In this case Related Work can be either a subsection at the end of the Introduction, or its own Section 2.
- ⌘ **At the end** if it can be summarized quickly early on (in the Introduction or Preliminaries), or if sufficient comparisons require the technical content of the paper. In this case Related Work should appear just before the Conclusions, possibly in a more general section "Discussion and Related Work".

The Body

- ⌘ A clear new important technical contribution should have been articulated by the time the reader finishes a quarter of the paper.
- ⌘ Every section of the paper should tell a story. and just tell the story of the results themselves.
- ⌘ The story should be linear, keeping the reader engaged at every step and looking forward to the next step.
- ⌘ There should be no significant interruptions – those can go in the Appendix.

The Body

- ✎ A clear new important technical contribution should have been articulated by the time the reader finishes a quarter of the paper.
- ✎ Every section of the paper should tell a story. and just tell the story of the results themselves.
- ✎ The story should be linear, keeping the reader engaged at every step and looking forward to the next step.
- ✎ There should be no significant interruptions – those can go in the Appendix.

The Body

- ⌘ A clear new important technical contribution should have been articulated by the time the reader finishes a quarter of the paper.
- ⌘ Every section of the paper should tell a story. and just tell the story of the results themselves.
- ⌘ The story should be linear, keeping the reader engaged at every step and looking forward to the next step.
- ⌘ There should be no significant interruptions – those can go in the Appendix.

The Body

- ⌘ A clear new important technical contribution should have been articulated by the time the reader finishes a quarter of the paper.
- ⌘ Every section of the paper should tell a story. and just tell the story of the results themselves.
- ⌘ The story should be linear, keeping the reader engaged at every step and looking forward to the next step.
- ⌘ There should be no significant interruptions – those can go in the Appendix.

The Body

- ⌘ A clear new important technical contribution should have been articulated by the time the reader finishes a quarter of the paper.
- ⌘ Every section of the paper should tell a story. and just tell the story of the results themselves.
- ⌘ The story should be linear, keeping the reader engaged at every step and looking forward to the next step.
- ⌘ There should be no significant interruptions – those can go in the Appendix.

Experiments

- ⌘ Absolute performance (i.e., it's acceptable/usable)
- ⌘ Relative performance to naive approaches
- ⌘ Relative performance to previous approaches
- ⌘ Relative performance among different proposed approaches

Experiments

- ⌘ Absolute performance (i.e., it's acceptable/usable)
- ⌘ Relative performance to naive approaches
- ⌘ Relative performance to previous approaches
- ⌘ Relative performance among different proposed approaches

Experiments

- ⌘ Absolute performance (i.e., it's acceptable/usable)
- ⌘ Relative performance to naive approaches
- ⌘ Relative performance to previous approaches
- ⌘ Relative performance among different proposed approaches

Experiments

- ⌘ Absolute performance (i.e., it's acceptable/usable)
- ⌘ Relative performance to naive approaches
- ⌘ Relative performance to previous approaches
- ⌘ Relative performance among different proposed approaches

Experiments

- ⌘ Absolute performance (i.e., it's acceptable/usable)
- ⌘ Relative performance to naive approaches
- ⌘ Relative performance to previous approaches
- ⌘ Relative performance among different proposed approaches

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

The Closing

- ⌘ Conclusion : make claims more concrete by referring to experimental results.
- ⌘ Future work : part of the value of a paper is showing how the work sets new research directions
- ⌘ The Acknowledgements : always nice, but ask them first
- ⌘ Citations : make sure that all citations are complete and consistent
- ⌘ Appendices : should contain all material that most readers would not be interested in that is not necessary for understanding the contributions of the paper

Process

Principles (Norman Ramsey)

- ✎ **Correctness** Write correct English.
- ✎ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✎ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✎ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✎ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✎ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✚ **Correctness** Write correct English.
- ✚ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✚ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✚ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✚ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✚ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✎ **Correctness** Write correct English.
- ✎ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✎ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✎ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✎ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✎ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✚ **Correctness** Write correct English.
- ✚ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✚ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✚ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✚ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✚ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✎ **Correctness** Write correct English.
- ✎ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✎ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✎ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✎ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✎ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✎ **Correctness** Write correct English.
- ✎ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✎ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✎ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✎ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✎ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Principles (Norman Ramsey)

- ✧ **Correctness** Write correct English.
- ✧ **Consistent names** Refer to each character (algorithm, concept, language) using the same word everywhere. Give a significant new character a proper name.
- ✧ **Subjects and verbs** Put your important characters in subjects, and join each subject to a verb that expresses a significant action.
- ✧ **Information flow** In each sentence, move your reader from familiar information to new information.
- ✧ **Emphasis** For material you want to carry weight or be remembered, use the end of a sentence.
- ✧ **Coherence** In a coherent passage, choose subjects that refer to a consistent set of related concepts.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✎ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✎ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✎ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✎ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✎ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✎ **Cut** Plan a revision session in which your only goal is to cut.

Practices (Norman Ramsey)

- ✍ **Write in brief daily sessions** Ignore the common myth that successful writing requires large, uninterrupted blocks of time — instead, practice writing in brief, daily sessions.
- ✍ **Focus on the process, not the product** Don't worry about the size or quality of your output ; instead, reward yourself for the consistency and regularity of your input.
- ✍ **Prewrite** Don't be afraid to think before you write, or even jot down notes, diagrams, and so on.
- ✍ **Write a "Shitty First Draft"** Value a first draft not because it's great but because it's there.
- ✍ **Don't worry about page limits** Write the paper you want, then cut it down to size.
- ✍ **Cut** Plan a revision session in which your only goal is to cut.

A 10 steps method

- ✍ from Laboratory in Visual Cognition at MIT
- ✍ supposed to get you away from the fear of the white page
- ✍ once you get started, go as you like
- ✍ If you disagree with some of the advices, that is good,
- ✍ It means you have confidence in your writing skills.

A 10 steps method

- ✍ from Laboratory in Visual Cognition at MIT
- ✍ supposed to get you away from the fear of the white page
- ✍ once you get started, go as you like
- ✍ If you disagree with some of the advices, that is good,
- ✍ It means you have confidence in your writing skills.

A 10 steps method

- ✎ from Laboratory in Visual Cognition at MIT
- ✎ supposed to get you away from the fear of the white page
- ✎ once you get started, go as you like
- ✎ If you disagree with some of the advices, that is good,
- ✎ It means you have confidence in your writing skills.

A 10 steps method

- ✍ from Laboratory in Visual Cognition at MIT
- ✍ supposed to get you away from the fear of the white page
- ✍ once you get started, go as you like
- ✍ If you disagree with some of the advices, that is good,
- ✍ It means you have confidence in your writing skills.

A 10 steps method

- ✍ from Laboratory in Visual Cognition at MIT
- ✍ supposed to get you away from the fear of the white page
- ✍ once you get started, go as you like
- ✍ If you disagree with some of the advices, that is good,
- ✍ It means you have confidence in your writing skills.

A 10 steps method

- ✍ from Laboratory in Visual Cognition at MIT
- ✍ supposed to get you away from the fear of the white page
- ✍ once you get started, go as you like
- ✍ If you disagree with some of the advices, that is good,
- ✍ It means you have confidence in your writing skills.

Step 0

- ✍ Organize your working environment
- ✍ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
- ✍ be in a place you like working
- ✍ have all your papers (for citations) with you
- ✍ choose a gift you will offer to you after you are done with the first draft of the paper

Step 0

- ✚ Organize your working environment
 - ✚ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
 - ✚ be in a place you like working
 - ✚ have all your papers (for citations) with you
 - ✚ choose a gift you will offer to you after you are done with the first draft of the paper

Step 0

- ✚ Organize your working environment
- ✚ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
- ✚ be in a place you like working
- ✚ have all your papers (for citations) with you
- ✚ choose a gift you will offer to you after you are done with the first draft of the paper

Step 0

- ✚ Organize your working environment
- ✚ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
- ✚ be in a place you like working
- ✚ have all your papers (for citations) with you
- ✚ choose a gift you will offer to you after you are done with the first draft of the paper

Step 0

- ✚ Organize your working environment
- ✚ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
- ✚ be in a place you like working
- ✚ have all your papers (for citations) with you
- ✚ choose a gift you will offer to you after you are done with the first draft of the paper

Step 0

- ✚ Organize your working environment
- ✚ Be sure you have a minimum of 2 hours (4 hours is good) in front of you, without any interruption (close your email box and so on)
- ✚ be in a place you like working
- ✚ have all your papers (for citations) with you
- ✚ choose a gift you will offer to you after you are done with the first draft of the paper

Step 1 : Filling the white document fast

- ✎ If you have made a talk or a poster, start by copying/pasting the talk/poster into a document
- ✎ Make very nice and clear graphs and/or tables for the different sections
- ✎ The figures represent the storyboard of your paper : readers should be able to understand your paper by looking at the set of figures and reading only the captions.

Step 1 : Filling the white document fast

- ✚ If you have made a talk or a poster, start by copying/pasting the talk/poster into a document
- ✚ Make very nice and clear graphs and/or tables for the different sections
- ✚ The figures represent the storyboard of your paper : readers should be able to understand your paper by looking at the set of figures and reading only the captions.

Step 1 : Filling the white document fast

- ✚ If you have made a talk or a poster, start by copying/pasting the talk/poster into a document
- ✚ Make very nice and clear graphs and/or tables for the different sections
- ✚ The figures represent the storyboard of your paper : readers should be able to understand your paper by looking at the set of figures and reading only the captions.

Step 1 : Filling the white document fast

- ✍ If you have made a talk or a poster, start by copying/pasting the talk/poster into a document
- ✍ Make very nice and clear graphs and/or tables for the different sections
- ✍ The figures represent the storyboard of your paper : readers should be able to understand your paper by looking at the set of figures and reading only the captions.

Step 2 : Make the document pretty

- ✎ Write a title (not the final title, as the title is often changed after writing the paper)
- ✎ Write your name (+ co-authors), and affiliation
- ✎ Write the title of the sections and subsections needed :
Abstract, Introduction, Methods (participants, design, procedure), Results, Interpretation, Discussion, References

Step 2 : Make the document pretty

- ✍ Write a title (not the final title, as the title is often changed after writing the paper)
- ✍ Write your name (+ co-authors), and affiliation
- ✍ Write the title of the sections and subsections needed :
Abstract, Introduction, Methods (participants, design, procedure), Results, Interpretation, Discussion, References

Step 2 : Make the document pretty

- ✎ Write a title (not the final title, as the title is often changed after writing the paper)
- ✎ Write your name (+ co-authors), and affiliation
- ✎ Write the title of the sections and subsections needed :
Abstract, Introduction, Methods (participants, design, procedure), Results, Interpretation, Discussion, References

Step 2 : Make the document pretty

- ✍ Write a title (not the final title, as the title is often changed after writing the paper)
- ✍ Write your name (+ co-authors), and affiliation
- ✍ Write the title of the sections and subsections needed :
Abstract, Introduction, Methods (participants, design, procedure), Results, Interpretation, Discussion, References

Step 3 : Start by the very easy part

- ✎ References : most of the time, you know the papers you will quote, so put them in references now (in the right format)
- ✎ What do you know for sure ? The method.
- ✎ Start by filling up the whole method section

Step 3 : Start by the very easy part

- ✎ References : most of the time, you know the papers you will quote, so put them in references now (in the right format)
- ✎ What do you know for sure ? The method.
- ✎ Start by filling up the whole method section

Step 3 : Start by the very easy part

- ⌘ References : most of the time, you know the papers you will quote, so put them in references now (in the right format)
- ⌘ What do you know for sure ? The method.
- ⌘ Start by filling up the whole method section

Step 3 : Start by the very easy part

- ☞ References : most of the time, you know the papers you will quote, so put them in references now (in the right format)
- ☞ What do you know for sure ? The method.
- ☞ Start by filling up the whole method section

Step 4 : Continue with descriptive part

- ⌘ Then, as you already have your graphs/figures : add the captions of the figures/tables
- ⌘ Write a first draft of the results (and a little bit of interpretation) part and add the statistics
- ⌘ Take a long break

Step 4 : Continue with descriptive part

- ⌘ Then, as you already have your graphs/figures : add the captions of the figures/tables
- ⌘ Write a first draft of the results (and a little bit of interpretation) part and add the statistics
- ⌘ Take a long break

Step 4 : Continue with descriptive part

- ⌘ Then, as you already have your graphs/figures : add the captions of the figures/tables
- ⌘ Write a first draft of the results (and a little bit of interpretation) part and add the statistics
- ⌘ Take a long break

Step 4 : Continue with descriptive part

- ⌘ Then, as you already have your graphs/figures : add the captions of the figures/tables
- ⌘ Write a first draft of the results (and a little bit of interpretation) part and add the statistics
- ⌘ Take a long break

Step 5 : more descriptive part

- ✎ Revise your writing of the results and interpretation sections.
- ✎ Check out/rewrite the hypotheses (at the end of the introduction) and come back to the results description, then hypotheses again : make the two coherent. You do not change your hypotheses, but you revise them to emphasize important aspects of the results (or absence of results).
- ✎ Write/Revise the 2 sentences at the end intro/beginning method about your main and important finding.

Step 5 : more descriptive part

- ✎ **Revise your writing of the results and interpretation sections.**
- ✎ Check out/rewrite the hypotheses (at the end of the introduction) and come back to the results description, then hypotheses again : make the two coherent. You do not change your hypotheses, but you revise them to emphasize important aspects of the results (or absence of results).
- ✎ Write/Revise the 2 sentences at the end intro/beginning method about your main and important finding.

Step 5 : more descriptive part

- ✎ Revise your writing of the results and interpretation sections.
- ✎ Check out/rewrite the hypotheses (at the end of the introduction) and come back to the results description, then hypotheses again : make the two coherent. You do not change your hypotheses, but you revise them to emphasize important aspects of the results (or absence of results).
- ✎ Write/Revise the 2 sentences at the end intro/beginning method about your main and important finding.

Step 5 : more descriptive part

- ✍ Revise your writing of the results and interpretation sections.
- ✍ Check out/rewrite the hypotheses (at the end of the introduction) and come back to the results description, then hypotheses again : make the two coherent. You do not change your hypotheses, but you revise them to emphasize important aspects of the results (or absence of results).
- ✍ Write/Revise the 2 sentences at the end intro/beginning method about your main and important finding.

Step 6 : the triple burger stage

- ✍ Take a good break
- ✍ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ✍ Take a break
- ✍ Write the discussion
- ✍ Look again at your introduction
- ✍ Again the discussion
- ✍ Take a break
- ✍ Revise the discussion
- ✍ Revise the introduction
- ✍ Take a break

Step 6 : the triple burger stage

- ✍ Take a good break
- ✍ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ✍ Take a break
- ✍ Write the discussion
- ✍ Look again at your introduction
- ✍ Again the discussion
- ✍ Take a break
- ✍ Revise the discussion
- ✍ Revise the introduction
- ✍ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ✍ Take a good break
- ✍ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ✍ Take a break
- ✍ Write the discussion
- ✍ Look again at your introduction
- ✍ Again the discussion
- ✍ Take a break
- ✍ Revise the discussion
- ✍ Revise the introduction
- ✍ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 6 : the triple burger stage

- ☞ Take a good break
- ☞ Write the introduction (and sometimes fill up part of the discussion, particularly if you are referring to the same articles in the discussion)
- ☞ Take a break
- ☞ Write the discussion
- ☞ Look again at your introduction
- ☞ Again the discussion
- ☞ Take a break
- ☞ Revise the discussion
- ☞ Revise the introduction
- ☞ Take a break

Step 7

Do not work on the paper for 1 or 2 days

Step 8 : The summary

- ⌘ Read *everything*, make local corrections, details
- ⌘ Write the abstract one time (cf. tips about how to write the abstract).
- ⌘ Revise the abstract a second time
- ⌘ Revise the abstract a third time
- ⌘ Revise the abstract a 4rth time ...

Step 8 : The summary

- ✚ Read *everything*, make local corrections, details
- ✚ Write the abstract one time (cf. tips about how to write the abstract).
- ✚ Revise the abstract a second time
- ✚ Revise the abstract a third time
- ✚ Revise the abstract a 4rth time ...

Step 8 : The summary

- ⌘ Read *everything*, make local corrections, details
- ⌘ Write the abstract one time (cf. tips about how to write the abstract).
- ⌘ Revise the abstract a second time
- ⌘ Revise the abstract a third time
- ⌘ Revise the abstract a 4rth time ...

Step 8 : The summary

- ⌘ Read *everything*, make local corrections, details
- ⌘ Write the abstract one time (cf. tips about how to write the abstract).
- ⌘ Revise the abstract a second time
- ⌘ Revise the abstract a third time
- ⌘ Revise the abstract a 4rth time ...

Step 8 : The summary

- ⌘ Read *everything*, make local corrections, details
- ⌘ Write the abstract one time (cf. tips about how to write the abstract).
- ⌘ Revise the abstract a second time
- ⌘ Revise the abstract a third time
- ⌘ Revise the abstract a 4rth time ...

Step 8 : The summary

- ⌘ Read *everything*, make local corrections, details
- ⌘ Write the abstract one time (cf. tips about how to write the abstract).
- ⌘ Revise the abstract a second time
- ⌘ Revise the abstract a third time
- ⌘ Revise the abstract a 4rth time ...

Step 9 : The last reading

- ✎ Read everything and make additional changes and corrections (you are so happy that the figures captions and the references are done)
- ✎ Check the format (APA style, format of title)
- ✎ Often, you will redo some of the figures because you are a perfectionist

Step 9 : The last reading

- ✚ Read everything and make additional changes and corrections (you are so happy that the figures captions and the references are done)
- ✚ Check the format (APA style, format of title)
- ✚ Often, you will redo some of the figures because you are a perfectionist

Step 9 : The last reading

- ⌘ Read everything and make additional changes and corrections (you are so happy that the figures captions and the references are done)
- ⌘ Check the format (APA style, format of title)
- ⌘ Often, you will redo some of the figures because you are a perfectionist

Step 9 : The last reading

- ⌘ Read everything and make additional changes and corrections (you are so happy that the figures captions and the references are done)
- ⌘ Check the format (APA style, format of title)
- ⌘ Often, you will redo some of the figures because you are a perfectionist

Step 10 : Let it goes

- ✍ Give the article to the instructor or to other people for comments.
- ✍ Get your gift
- ✍ If you are in graduate school (or you are a professor), go back to Step 5 and loop steps 5-10 at least three times
- ✍ Eventually : 1 page (single spaced) 10 hours of work.

Step 10 : Let it goes

- ✚ Give the article to the instructor or to other people for comments.
- ✚ Get your gift
- ✚ If you are in graduate school (or you are a professor), go back to Step 5 and loop steps 5-10 at least three times
- ✚ Eventually : 1 page (single spaced) 10 hours of work.

Step 10 : Let it goes

- ✍ Give the article to the instructor or to other people for comments.
- ✍ Get your gift
- ✍ If you are in graduate school (or you are a professor), go back to Step 5 and loop steps 5-10 at least three times
- ✍ Eventually : 1 page (single spaced) 10 hours of work.

Step 10 : Let it goes

- ✚ Give the article to the instructor or to other people for comments.
- ✚ Get your gift
- ✚ If you are in graduate school (or you are a professor), go back to Step 5 and loop steps 5-10 at least three times
- ✚ Eventually : 1 page (single spaced) 10 hours of work.

Step 10 : Let it goes

- ✚ Give the article to the instructor or to other people for comments.
- ✚ Get your gift
- ✚ If you are in graduate school (or you are a professor), go back to Step 5 and loop steps 5-10 at least three times
- ✚ Eventually : 1 page (single spaced) 10 hours of work.

Diffusion

Publication

Publication means

- ⌘ being acknowledged by representative of a target community (peer reviewing)
- ⌘ being read by people from the target community
- ⌘ or from others

Publication

Publication means

- ⌘ being acknowledged by representative of a target community (peer reviewing)
- ⌘ being read by people from the target community
- ⌘ or from others

Publication

Publication means

- ⌘ being acknowledged by representative of a target community (peer reviewing)
- ⌘ being read by people from the target community
- ⌘ or from others

Publication

Publication means

- ⌘ being acknowledged by representative of a target community (peer reviewing)
- ⌘ being read by people from the target community
- ⌘ or from others

The "Larousse" approach

- ⌘ "Je sème à tout vent"
- ⌘ Once I have something written that give a new piece of knowledge in a self-satisfying way
- ⌘ It is online.

The "Larousse" approach

- ⌘ "Je sème à tout vent"
- ⌘ Once I have something written that give a new piece of knowledge in a self-satisfying way
- ⌘ It is online.

The "Larousse" approach

- ⌘ "Je sème à tout vent"
- ⌘ Once I have something written that give a new piece of knowledge in a self-satisfying way
- ⌘ It is online.

The "Larousse" approach

- ⌘ "Je sème à tout vent"
- ⌘ Once I have something written that give a new piece of knowledge in a self-satisfying way
- ⌘ It is online.

Pros. and Cons.

- ⌘ Pros : avoid delays in diffusion, proof of belonging
- ⌘ Cons : secrecy may be a good option under specific circumstances
- ⌘ If you have coauthors, discuss the matter with them **before**

Pros. and Cons.

- ⌘ Pros : avoid delays in diffusion, proof of belonging
- ⌘ Cons : secrecy may be a good option under specific circumstances
- ⌘ If you have coauthors, discuss the matter with them **before**

Pros. and Cons.

- ⌘ Pros : avoid delays in diffusion, proof of belonging
- ⌘ Cons : secrecy may be a good option under specific circumstances
- ⌘ If you have coauthors, discuss the matter with them **before**

Pros. and Cons.

- ⌘ Pros : avoid delays in diffusion, proof of belonging
- ⌘ Cons : secrecy may be a good option under specific circumstances
- ⌘ If you have coauthors, discuss the matter with them **before**

Versioning

Use whatever versioning system you are confident with

- ✍ Yours, Dropbox, git, mercurial
- ✍ and timestamp every major version of your paper

Versioning

Use whatever versioning system you are confident with

- ✉ Yours, Dropbox, git, mercurial
- ✉ and timestamp every major version of your paper

Versioning

Use whatever versioning system you are confident with

- ✉ Yours, Dropbox, git, mercurial
- ✉ and timestamp every major version of your paper

Publish as a technical report

- ✍ HaL : <https://hal.archives-ouvertes.fr>
- ✍ arXiv : <https://arxiv.org>
- ✍ gitHub : <https://github.com> great to get feedback and publish code and web demonstrations along with paper
- ✍ then link to it from project or personal web page

Publish as a technical report

- ✍ HaL : <https://hal.archives-ouvertes.fr>
- ✍ arXiv : <https://arxiv.org>
- ✍ gitHub : <https://github.com> great to get feedback and publish code and web demonstrations along with paper
- ✍ then link to it from project or personal web page

Publish as a technical report

- ✍ HaL : <https://hal.archives-ouvertes.fr>
- ✍ arXiv : <https://arxiv.org>
- ✍ gitHub : <https://github.com> great to get feedback and publish code and web demonstrations along with paper
- ✍ then link to it from project or personal web page

Publish as a technical report

- ⌘ HaL : <https://hal.archives-ouvertes.fr>
- ⌘ arXiv : <https://arxiv.org>
- ⌘ gitHub : <https://github.com> great to get feedback and publish code and web demonstrations along with paper
- ⌘ then link to it from project or personal web page

Publish as a technical report

- ⌘ HaL : <https://hal.archives-ouvertes.fr>
- ⌘ arXiv : <https://arxiv.org>
- ⌘ gitHub : <https://github.com> great to get feedback and publish code and web demonstrations along with paper
- ⌘ then link to it from project or personal web page

Next

- ⌘ Solicit peer-review
- ⌘ Get published
- ⌘ Track audience (google scholar, researchgate, ...)

Next

- ✚ Solicit peer-review
- ✚ Get published
- ✚ Track audience (google scholar, researchgate, ...)

Next

- ✚ Solicit peer-review
- ✚ Get published
- ✚ Track audience (google scholar, researchgate, ...)

Next

- ⌘ Solicit peer-review
- ⌘ Get published
- ⌘ Track audience (google scholar, researchgate, ...)

Reproducible research

What is RR ?

- ⌘ An article about computational science in a scientific publication is not the scholarship itself,
- ⌘ it is merely advertising of the scholarship.
- ⌘ The actual scholarship is the complete software development environment
- ⌘ and the complete set of instructions which generated the figures.

D. Donoho

What is RR ?

- ⌘ An article about computational science in a scientific publication is not the scholarship itself,
- ⌘ it is merely advertising of the scholarship.
- ⌘ The actual scholarship is the complete software development environment
- ⌘ and the complete set of instructions which generated the figures.

D. Donoho

What is RR ?

- ⌘ An article about computational science in a scientific publication is not the scholarship itself,
- ⌘ it is merely advertising of the scholarship.
- ⌘ The actual scholarship is the complete software development environment
- ⌘ and the complete set of instructions which generated the figures.

D. Donoho

What is RR ?

- ⌘ An article about computational science in a scientific publication is not the scholarship itself,
- ⌘ it is merely advertising of the scholarship.
- ⌘ The actual scholarship is the complete software development environment
- ⌘ and the complete set of instructions which generated the figures.

D. Donoho

What is RR ?

- ⌘ An article about computational science in a scientific publication is not the scholarship itself,
- ⌘ it is merely advertising of the scholarship.
- ⌘ The actual scholarship is the complete software development environment
- ⌘ and the complete set of instructions which generated the figures.

D. Donoho

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✎ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✎ and more than half have failed to reproduce their own experiments.
- ✎ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✎ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✎ and most say they still trust the published literature.

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✉ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✉ and more than half have failed to reproduce their own experiments.
- ✉ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✉ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✉ and most say they still trust the published literature.

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✎ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✎ and more than half have failed to reproduce their own experiments.
- ✎ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✎ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✎ and most say they still trust the published literature.

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✎ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✎ and more than half have failed to reproduce their own experiments.
- ✎ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✎ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✎ and most say they still trust the published literature.

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✎ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✎ and more than half have failed to reproduce their own experiments.
- ✎ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✎ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✎ and most say they still trust the published literature.

Reproducibility crisis

Nature conducted a survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.

According to the survey,

- ✎ more than 70% of researchers have tried and failed to reproduce another scientist's experiments,
- ✎ and more than half have failed to reproduce their own experiments.
- ✎ "Although 52% of those surveyed agree there is a significant 'crisis' of reproducibility,
- ✎ less than 31% think failure to reproduce published results means the result is probably wrong,
- ✎ and most say they still trust the published literature.

Reproducibility ?

A study can be truly reproducible when it satisfies at least the following three criteria :

- ✎ All methods are fully reported.
- ✎ All data and files used for the analysis are (publicly) available.
- ✎ The process of analyzing raw data is well reported and preserved.

Therefore : Same data + Same script = Same results

Reproducibility ?

A study can be truly reproducible when it satisfies at least the following three criteria :

- ✎ All methods are fully reported.
- ✎ All data and files used for the analysis are (publicly) available.
- ✎ The process of analyzing raw data is well reported and preserved.

Therefore : Same data + Same script = Same results

Reproducibility ?

A study can be truly reproducible when it satisfies at least the following three criteria :

- ✚ All methods are fully reported.
- ✚ All data and files used for the analysis are (publicly) available.
- ✚ The process of analyzing raw data is well reported and preserved.

Therefore : Same data + Same script = Same results

Reproducibility ?

A study can be truly reproducible when it satisfies at least the following three criteria :

- ⌘ All methods are fully reported.
- ⌘ All data and files used for the analysis are (publicly) available.
- ⌘ The process of analyzing raw data is well reported and preserved.

Therefore : Same data + Same script = Same results

Reproducible Spectrum

advertising:
text & final
results only



science:
text, code &
data available,
linked & licensed



Adapted with permission from Kathrin Griesler & Peter Lopuski (2014). Clinically reproducible: not just a code. *Endocrinology*, 155(1), 1-11. <http://doi.org/10.1093/endo/bet211>.
See also: Thomas, S. (2014). Computational Reproducibility in Archaeological Research: Basic Principles and a Case Study of Their Implementation. *Journal of Archaeological Method and Theory*, 21(2), 1-17. <http://dx.doi.org/10.1007/s10816-013-9127-0>. This figure is CC-BY.

Beneficiaries

Quoting Schwab and Claerbout :

- ✉ It takes some effort to organize your research to be reproducible.
- ✉ We found that although the effort seems to be directed to helping other people stand up on your shoulders, the principal beneficiary is generally the author herself.
- ✉ This is because time turns each one of us into another person, and by making effort to communicate with strangers, we help ourselves to communicate with our future selves.

Beneficiaries

Quoting Schwab and Claerbout :

- ✉ It takes some effort to organize your research to be reproducible.
- ✉ We found that although the effort seems to be directed to helping other people stand up on your shoulders, the principal beneficiary is generally the author herself.
- ✉ This is because time turns each one of us into another person, and by making effort to communicate with strangers, we help ourselves to communicate with our future selves.

Beneficiaries

Quoting Schwab and Claerbout :

- ✉ It takes some effort to organize your research to be reproducible.
- ✉ We found that although the effort seems to be directed to helping other people stand up on your shoulders, the principal beneficiary is generally the author herself.
- ✉ This is because time turns each one of us into another person, and by making effort to communicate with strangers, we help ourselves to communicate with our future selves.

Beneficiaries

Quoting Schwab and Claerbout :

- ✧ It takes some effort to organize your research to be reproducible.
- ✧ We found that although the effort seems to be directed to helping other people stand up on your shoulders, the principal beneficiary is generally the author herself.
- ✧ This is because time turns each one of us into another person, and by making effort to communicate with strangers, we help ourselves to communicate with our future selves.