

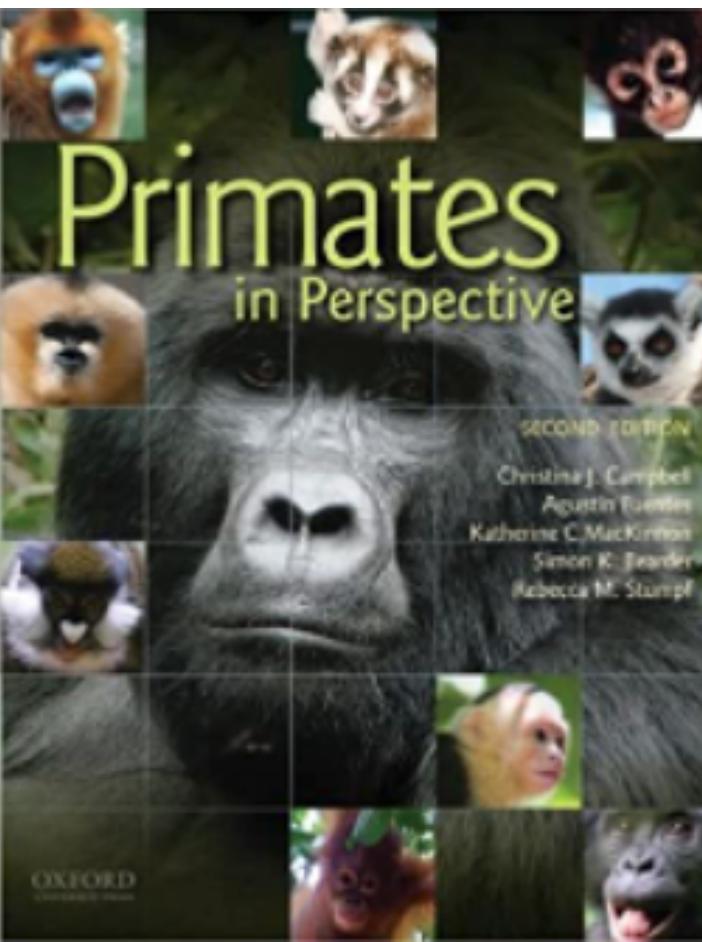
Scientific Writing in the EAS Dept

Writing effectively, giving & receiving feedback, general admin...

Day 1; 01 June 2022

Scientific Writing

The writing of science for scientific audiences



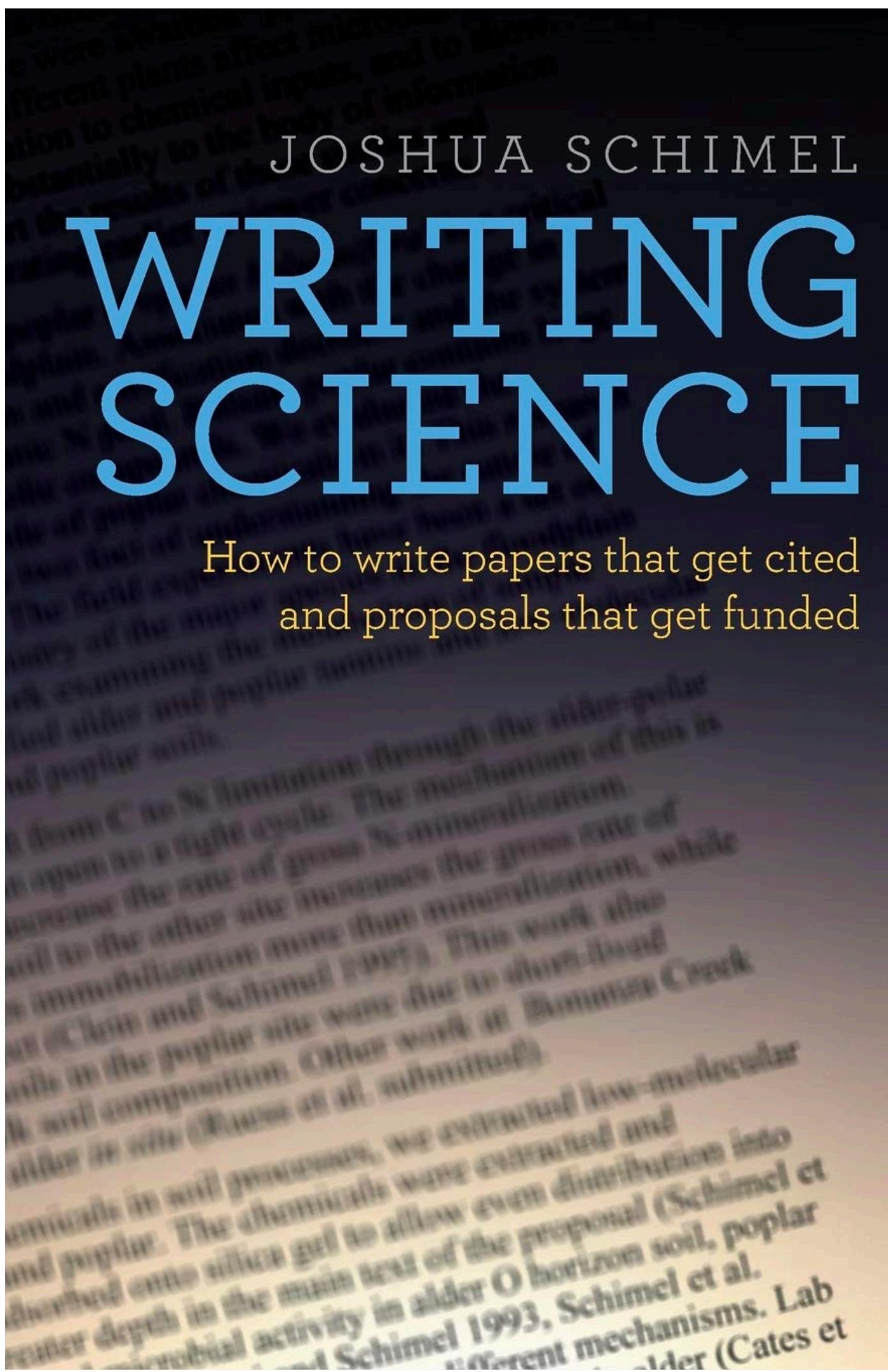
DFG Deutsche
Forschungsgemeinschaft

 Swiss National
Science Foundation



#SciComm
the communication
of science to
general audiences

Some sources



academic life histories

BLOG TABLE OF CONTENTS CAREER STAGE CONTRIBUTORS ABOUT US

Welcome to academic life histories!

Written by Damien @DamienFarine

LIMNOLOGY AND OCEANOGRAPHY Letters

ASLO Open Access

Limnology and Oceanography Letters 5, 2020, 379–383
© 2020 The Author. *Limnology and Oceanography Letters* published by Wiley Periodicals, Inc.
on behalf of Association for the Sciences of Limnology and Oceanography.
doi: 10.1002/ol2.10165

ESSAY

Simple rules for concise scientific writing

Scott Hotaling *

School of Biological Sciences, Washington State University, Pullman, Washington

“As a scientist, you are a professional writer.”

Joshua Schimel, *Writing Science*

Overarching objectives

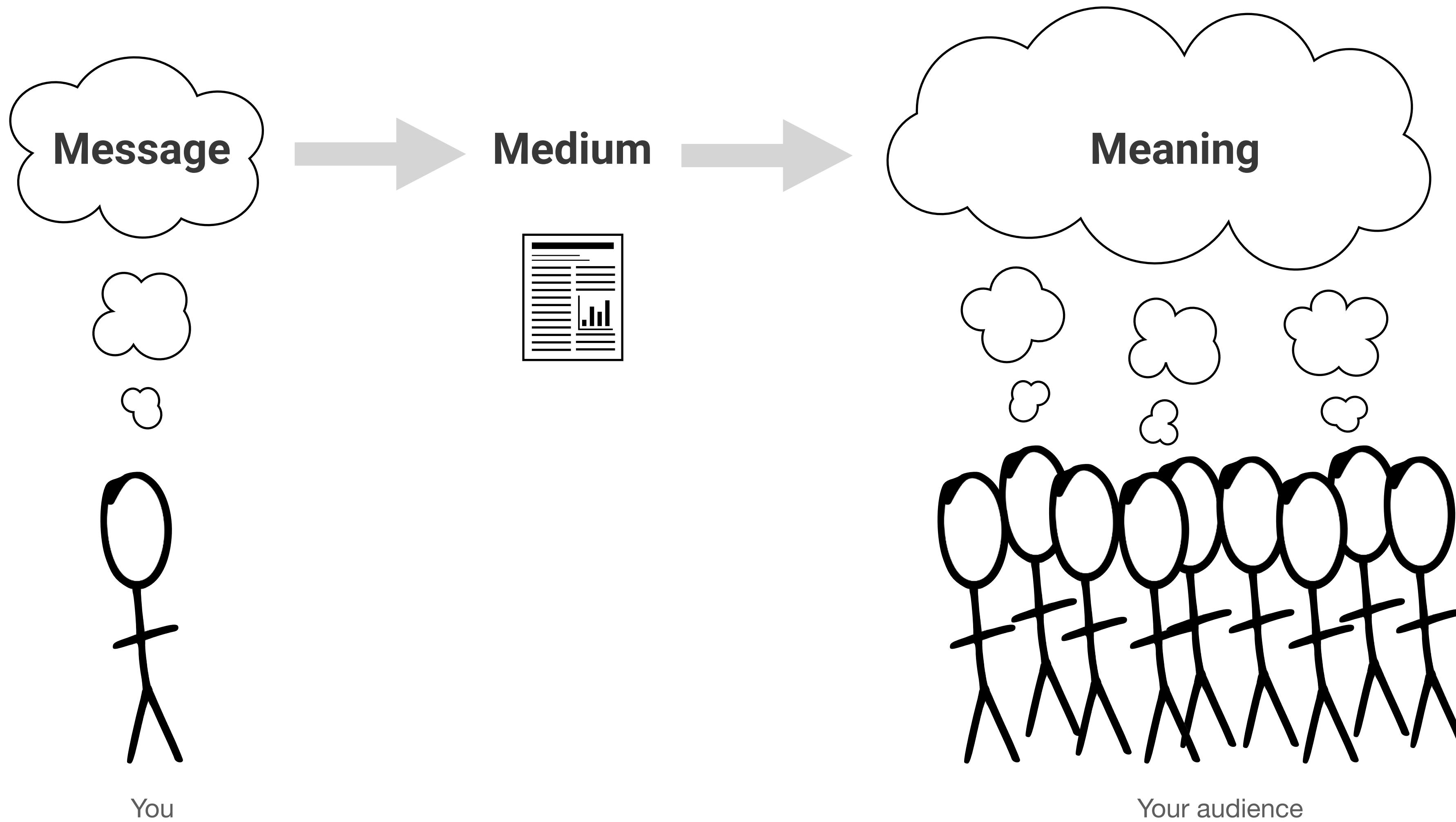
Our papers are written effectively

We habitually exchange feedback on written work

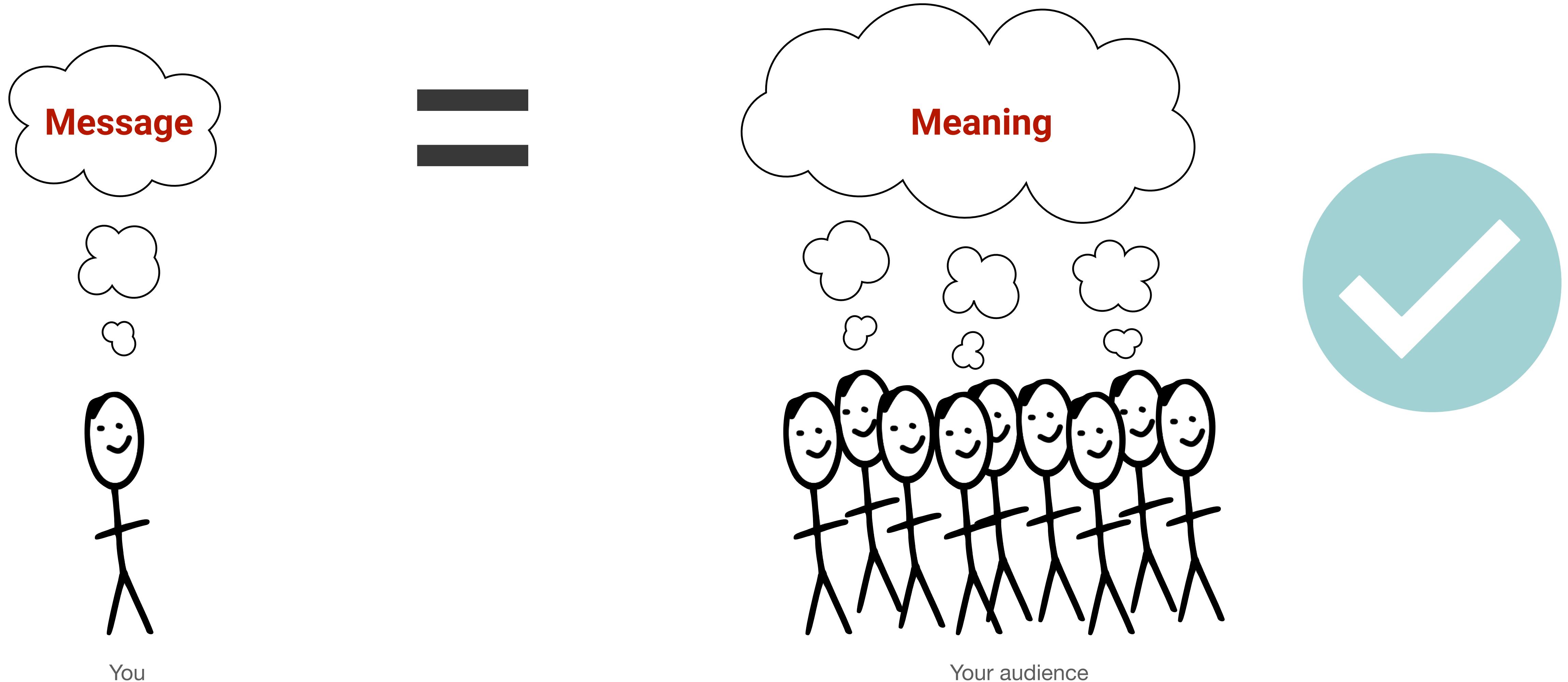
We have a shared set of guidelines for basic publishing admin

Our papers are written
effectively

What constitutes effective scientific writing?

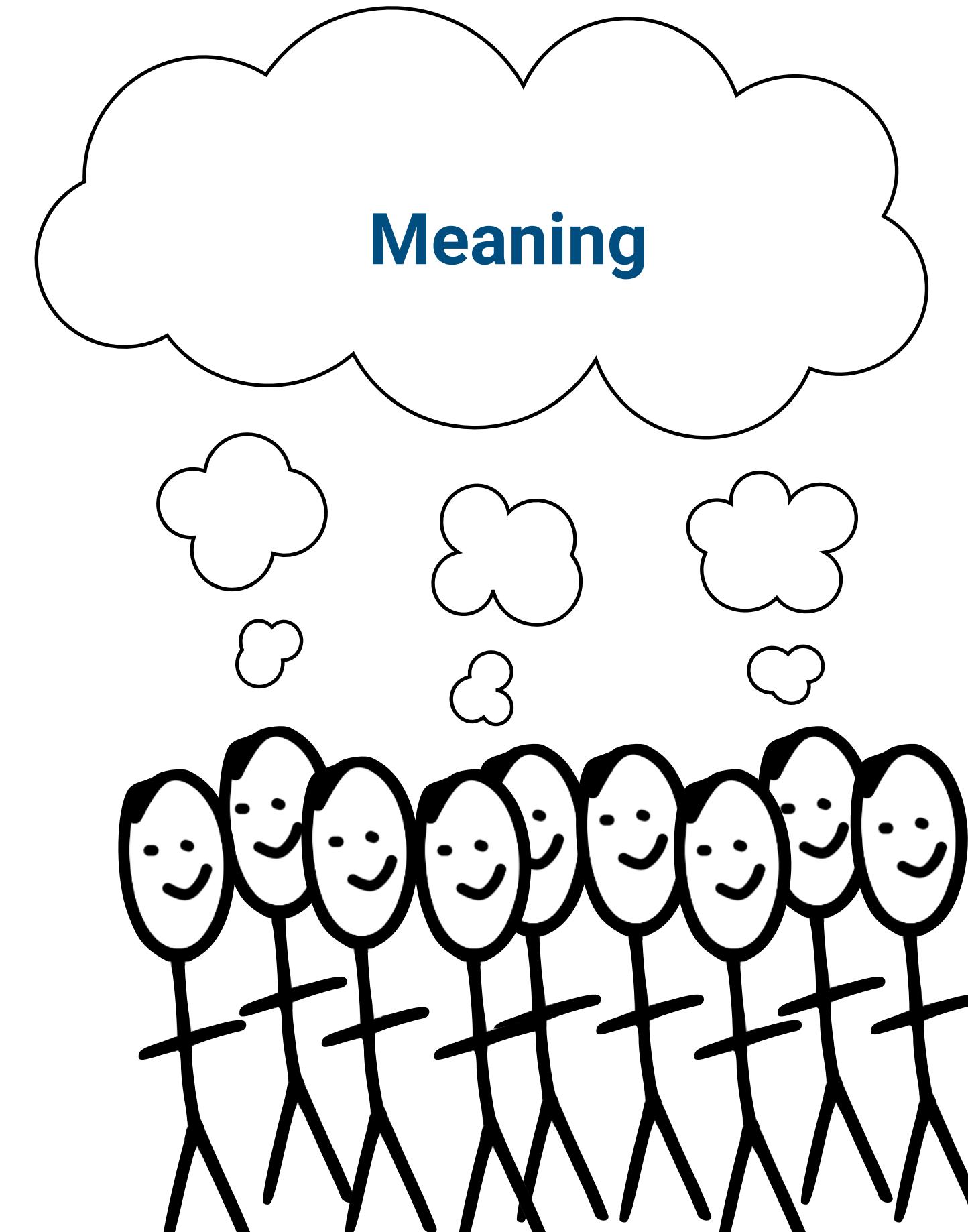
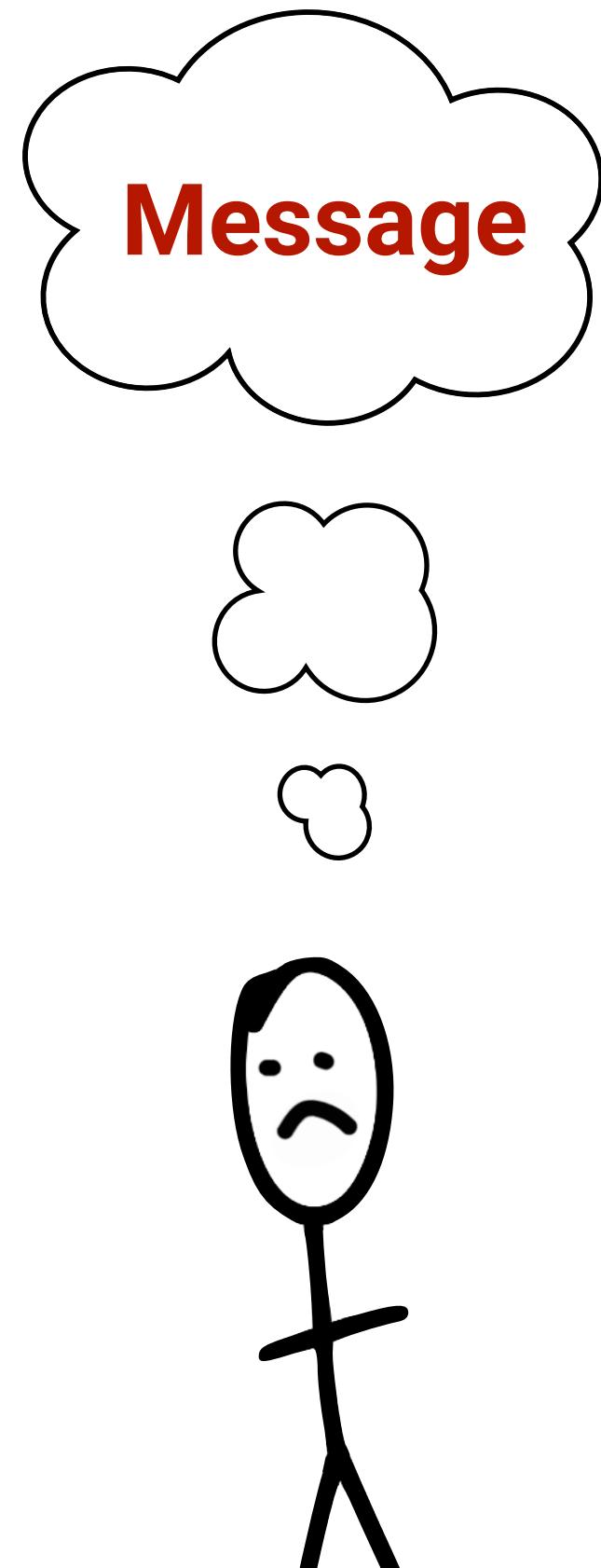


What constitutes effective scientific writing?



If your audience can easily understand your message, you have written effectively.

What constitutes effective scientific writing?

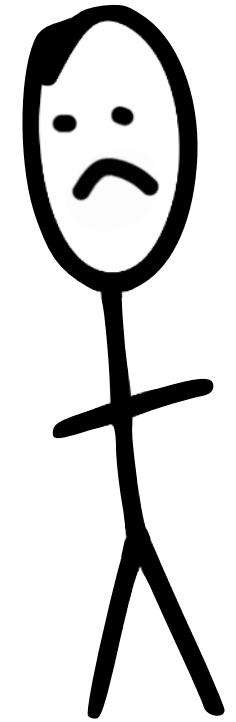


You

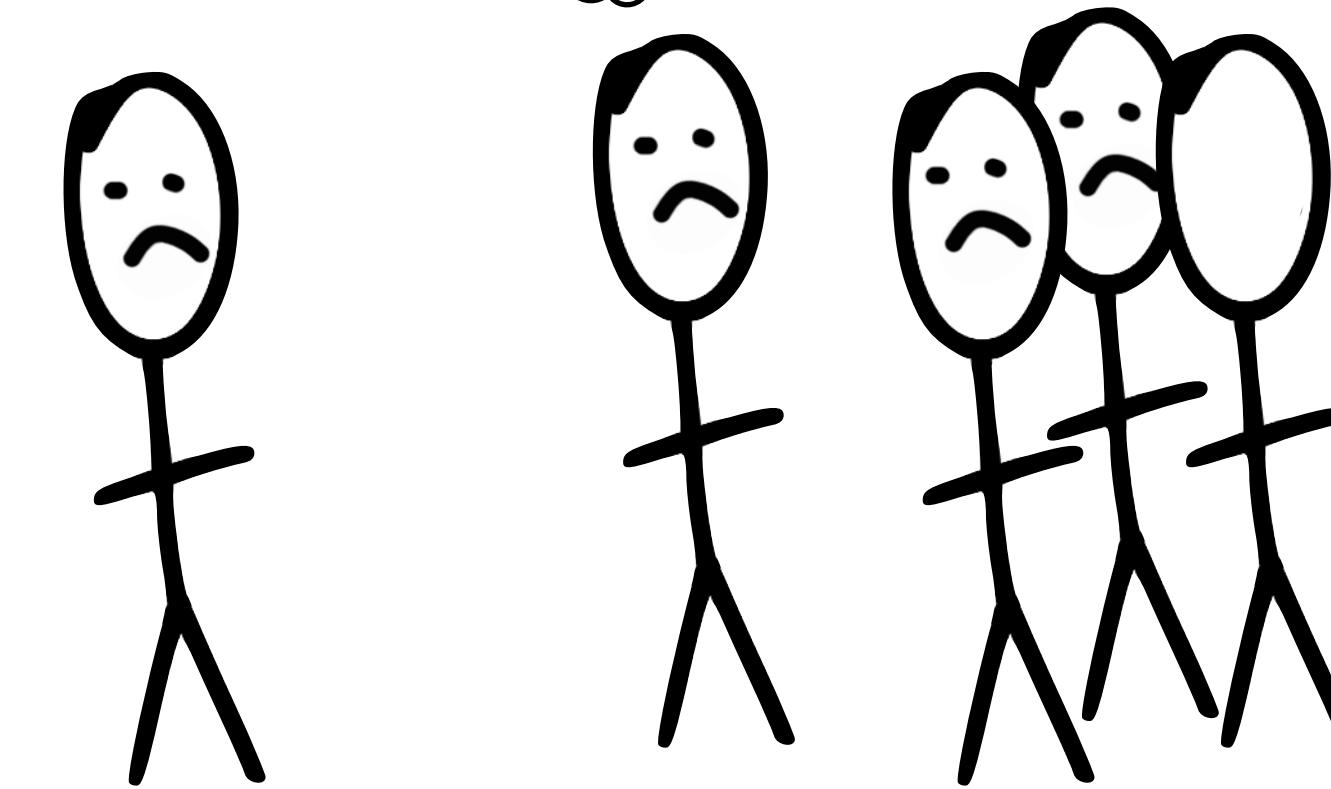
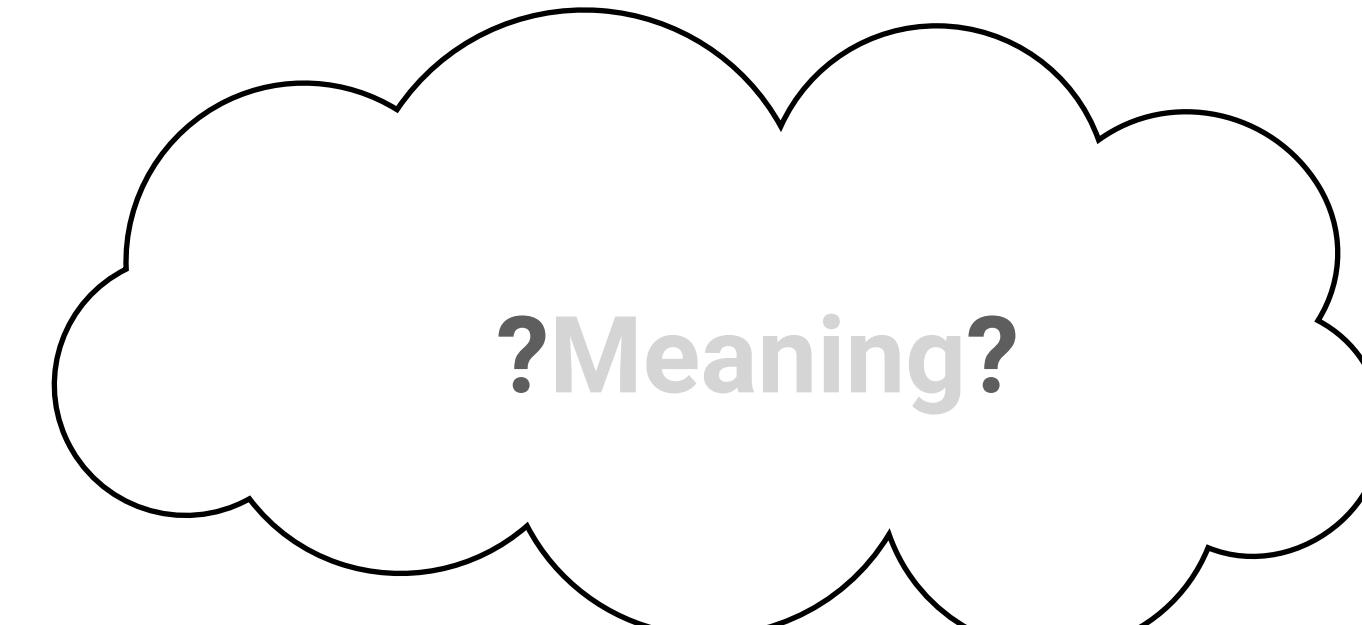
Your audience

If your audience misunderstands your message, you have a problem.

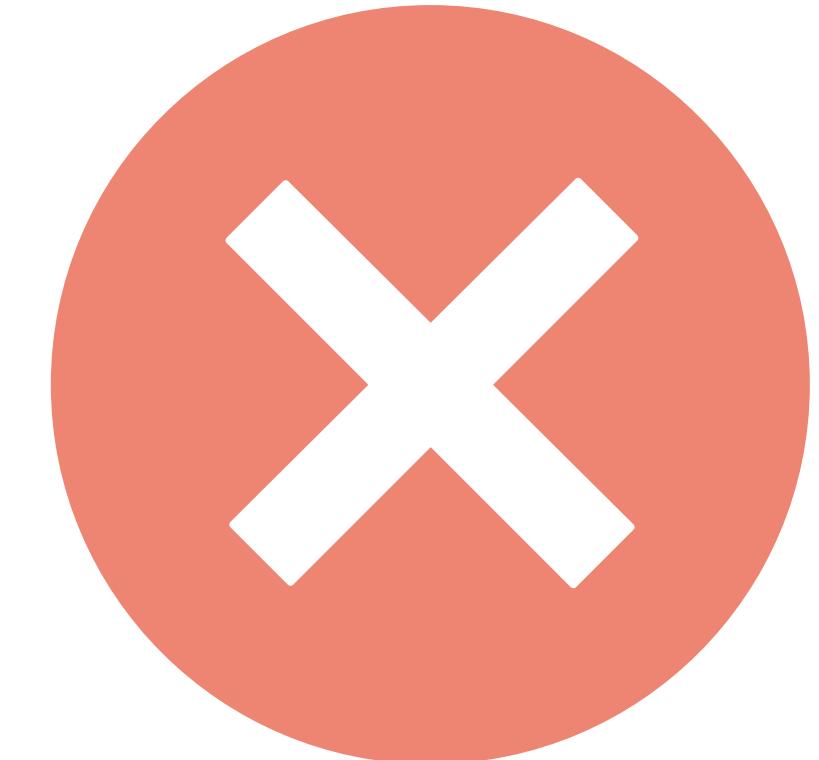
What constitutes effective scientific writing?



You

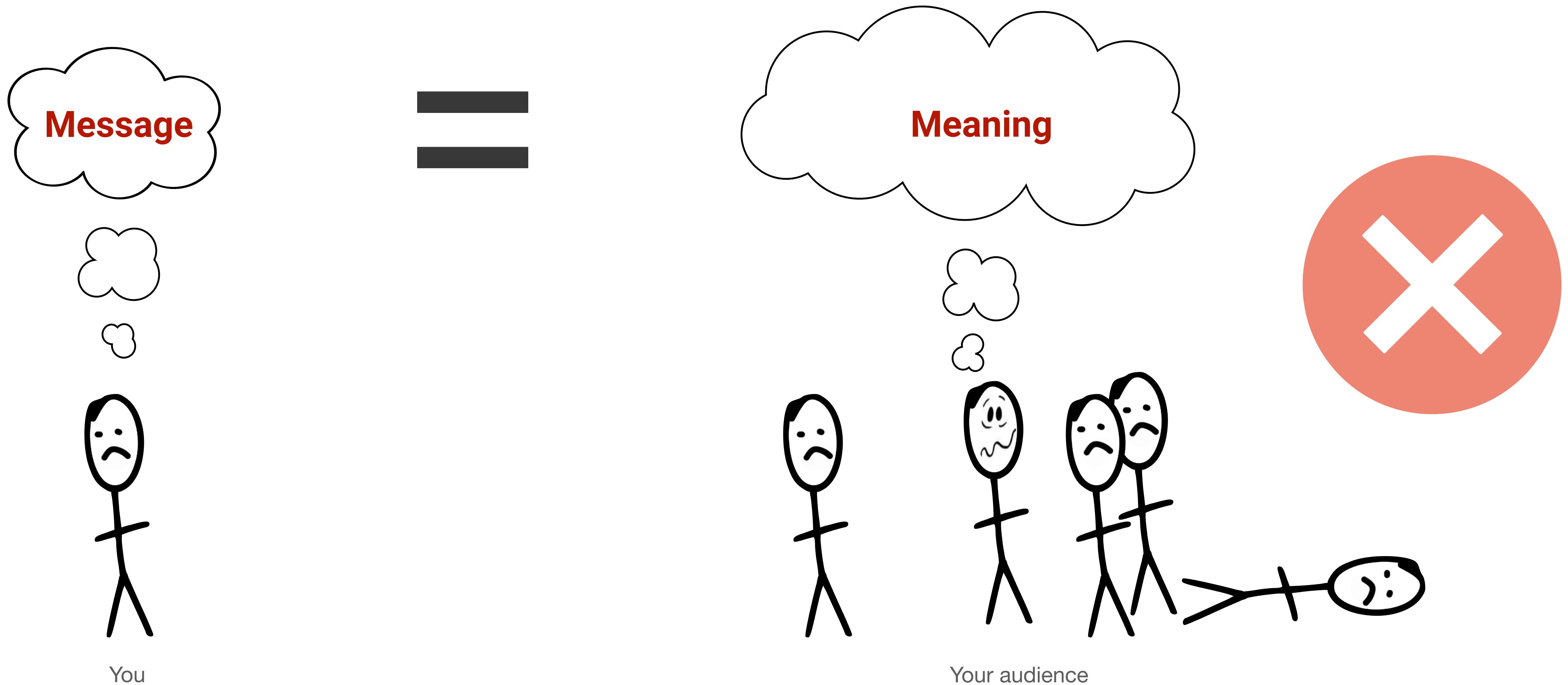


Your audience



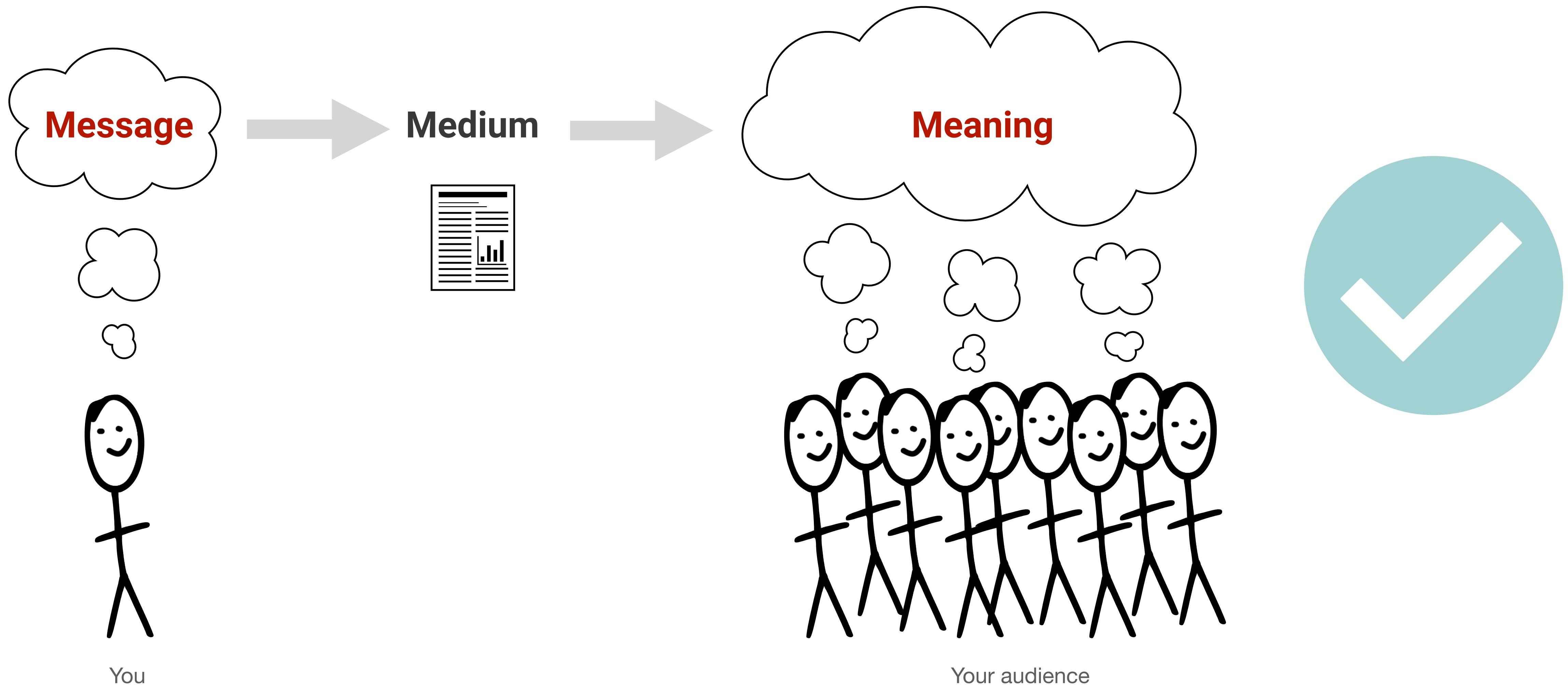
If your audience just can't understand your message, you have a problem.

What constitutes effective scientific writing?



If you only a small proportion of your audience can understand your message, you have a problem.

What constitutes effective scientific writing?

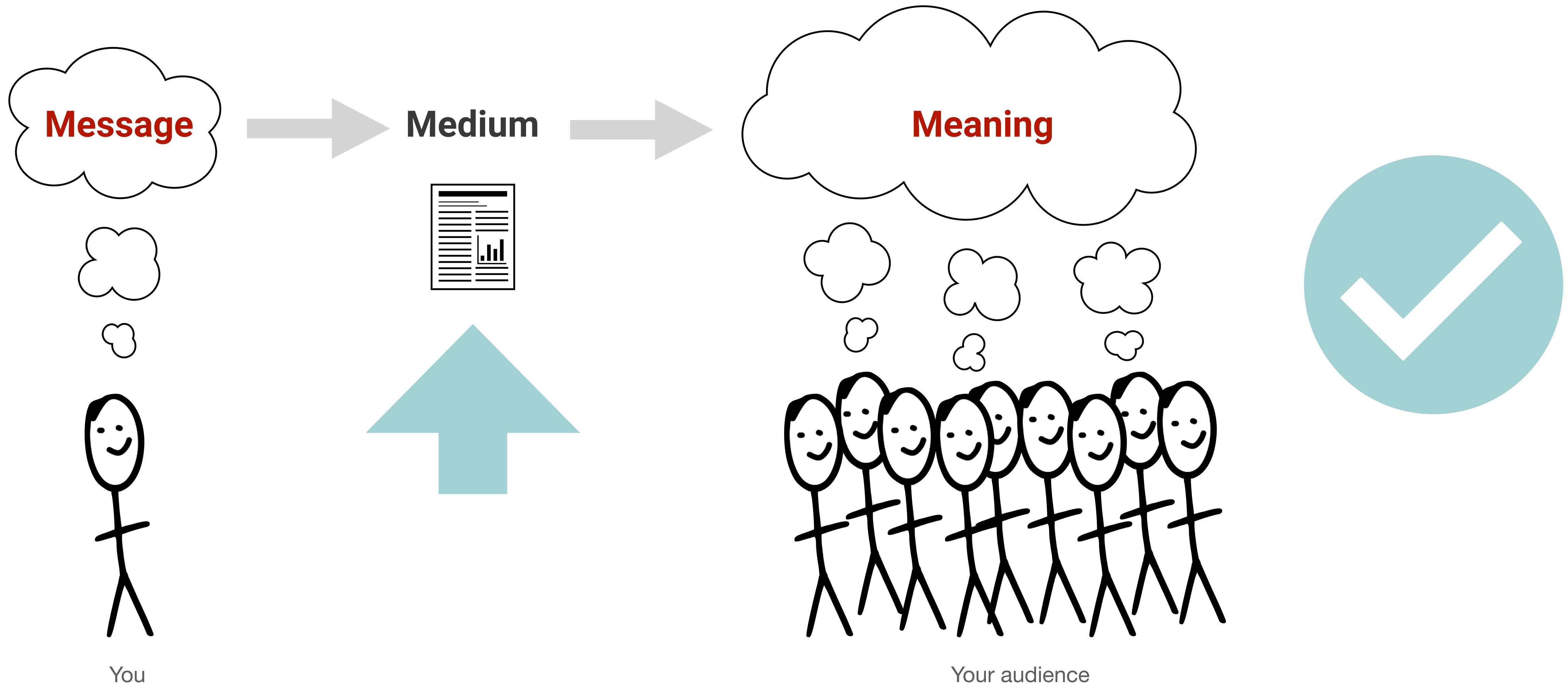


If your audience can easily understand your message, you have written effectively.

**“It is the author’s job to
make the reader’s job easy.”**

Joshua Schimel, *Writing Science*

What constitutes effective scientific writing?



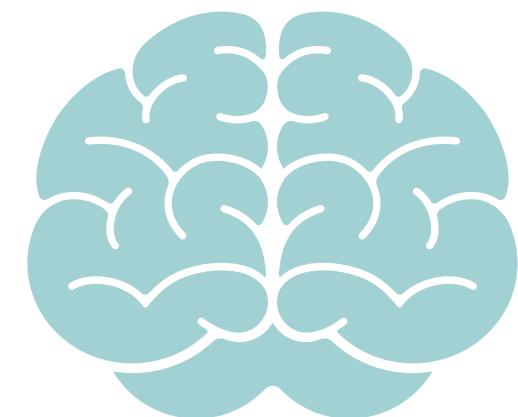
If your audience can easily understand your message, you have written effectively.

Two aspects of effective writing



The mechanics of effective writing

- Content
- Structure
- Language

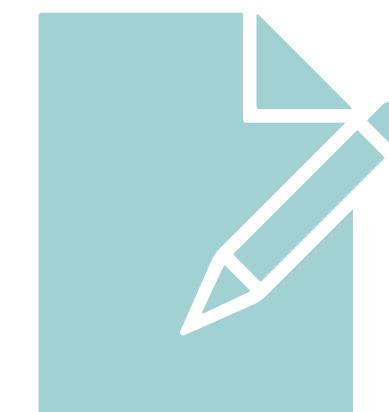


The mentality of effective writing

- Mindset
- Approach
- Workflow

The mechanics of effective scientific writing

- Content
 - Structure
 - Language
-
- What makes a paper easy to follow & read?
 - What makes a paper difficult to read & understand?
 - What do ‘good’ scientific authors do (or not do) in their writing?
 - What are common errors in scientific writing?



Add your thoughts on google slide #1

Content

Stick to your message [Hotaling 2020]

- “Every paragraph and sentence should [serve] your overarching goal.”

Do not repeat yourself (too often) [Hotaling 2020]

- “Once you state something, it only needs to be repeated to add key information.”
- If you find yourself being repetitive - consider the structure of your text

Fully integrate figures and tables

- Build your results around figures and tables
- Refer to specific details/numbers in text

Structure

One topic per paragraph

- Paragraphs are the basic building blocks of text, 1 paragraph = 1 point
- Summarise the topic of each paragraph in 5 words or less

Maintain parallel structures

- Keep the same order of topics/subtopics throughout a paper

(Intro)

After the smoke has cleared: Extended low fruit productivity...
— are coupled with significant physiological changes, including the catabolism of muscle tissue (O'Connell *et al.* 2021). These behavioral and physiological changes underlie the significant changes in their socio-ecology which occurred during this period of in-characteristically long fruit scarcity.

We observed that mothers and their weaned immatures were less likely to spend time in association and in proximity with each other during the post-fire period when fruit was scarce. When association did occur, the amount of time spent in association was not reduced, but the rate of aggression from mothers towards weaned offspring tended towards being higher, especially when FAI was particularly low. Where association did occur and mothers and their weaned immatures co-foraged, the time spent co-foraging was actually highest during the extreme scarcity period. This suggests that a reduced probability of association between mothers and their weaned immature offspring during prolonged scarcity may be driven by passive avoidance resulting from the distribution of food sources, with only minimal active social intolerance.

This reduction in time spent in association with their mothers could have lasting effects on weaned immature orangutans. Among chimpanzees, weaned immatures who experienced low levels of maternal effect (i.e., limited physical support, physical development, later age at first reproduction, lower overall reproductive success, higher risk of mortality, and/or lower overall survival (Suzuki *et al.* 2020; Crookston *et al.* 2020; Stanton *et al.* 2020)). Similar effects of maternal loss post-weaning, but prior to the onset of sexual maturity, have been observed in red deer (*Cervus elaphus*; Andrus *et al.* 2019), bongo antelope (*Papoecetes papo*; Tung *et al.* 2016), and orangutans (*Pongo abelii*; Wiersma *et al.* 2020). Such losses reduce both maternal presence and thus maternal association, even in the absence of direct maternal investment — clearly serves some vital function(s) for weaned offspring. These long-term effects may be driven by deficits experienced by weaned immatures who do not have (access to) their mothers, i.e., that have fewer opportunities for learning and social bonding, reduced social protection against predators, and resilience, and the absence of a post-weaning food source (and so, no source accounting from their mothers (van Noordwijk *et al.* 2009)). This provides evidence that the reduction in association with mothers experienced by weaned immatures at Tuanan during the post-fire period had long-lasting effects on their development.

An additional consideration is that the post-fire period was a period of high fruit availability (O'Connell *et al.* 2021). This was a period of increased fruit availability, but the rate of fruit availability was still relatively low, and the time spent in proximity with mothers did not increase. This suggests that the reduction in the probability of social interaction between related females and their weaned immatures may have been driven by a lack of opportunity to do so, rather than a lack of motivation.

Hyp/Aim #1
Hyp/Aim #2
Hyp/Aim #3

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(Methods)

normal (pre-fire) conditions, while social patterns between related and unrelated females generally returned to those exhibited under normal seasonal fruiting conditions.

Orangutan live activity data from the pre-fire period have previously been described as employing a “switching strategy” (Knoft *et al.* 2010). The habitat's available fruit as much as possible, alternating between feeding with increasing FAI, daily travel distance and active period length increasing, while time spent feeding decreasing. This pattern of behavior has been described as “switching” (Knoft *et al.* 2010). We found that the “switching strategy” was maintained during the post-fire period, with mothers and their weaned immatures switching between fruit availability and active period length, and the rate of fruit availability and active period or daily travel distance during the post-fire period, and what little effect there was for these latter two variables was in the opposite direction to that predicted based on previous studies (e.g., Vogel *et al.* 2016).

Statistical analysis of test #1

Statistical analysis of test #2

Statistical analysis of test #3

A. M. Ashbury *et al.*

After the smoke has cleared: Extended low fruit productivity...
related adult females during the pre-fire period was essentially constant across FAI values, indicating that — under normal seasonal conditions, and at least within the group of bachelors and mothers with their weaned immatures — association patterns were not significantly affected by FAI. This contrasts with the observations made by Knoft *et al.* (2010), who found that the probability of association decreased as FAI increased. This suggests that the benefits of such associations (e.g., play and learning opportunities) for related females during the post-fire period, beyond that which could be explained by the immediate effects of FAI on diet, are an active process.

That the probability of association increased as FAI increased after normal, seasonal conditions (i.e., pre-fire) is interesting, given that the probability of association is known to decrease as FAI increases (Knoft *et al.* 2010). This suggests that the benefits of such associations (e.g., play and learning opportunities) for related females during the post-fire period, beyond that which could be explained by the immediate effects of FAI on diet, are an active process.

Result #1
Result #2
Result #3

A. M. Ashbury *et al.*

Discussion of result #1
Discussion of result #2
Discussion of result #3

After the smoke has cleared: Extended low fruit productivity...
When controlling for offspring age, the probability of mothers and their weaned immatures co-foraging was predicted by the amount of time that mothers spent feeding, when mothers spent more time feeding there was a higher probability of co-foraging. When co-foraging did occur, the time spent co-foraging in this behavior was significantly higher than the time spent co-foraging in the behavior of mothers and their weaned immatures feeding alone. The probability of co-foraging increased as fruit availability increased during the pre-fire period, but decreased as FAI increased during the post-fire period. The probability of co-foraging increased as the time spent feeding increased, however, this trend was not significant.

The large increase in the probability of co-foraging during the post-fire period is probably not typical of orangutans, as it is probably typical of matrilines of orangutans to co-forage. In the case of this matriline, however, it may be that these females offer an opportunity to compare associations among female relatives with those among nonrelatives. It is possible that, in the absence of other opportunities for social bonding, the females in this matriline are more inclined to associate with related females, the differences that we see between related and unrelated female social patterns would be less pronounced, disappear, or even be reversed. We expect, however, that similar patterns would be observed, as previous studies from orangutans have shown.

Related adult female sociality

The probability of a female spending any time in association or in proximity with another female and female with her offspring was predicted by maternal and offspring FAI and proximity. $\beta = -0.67$, 95% CI [-1.10, -0.10], Fig. S1: proximity, $\beta = -0.58$, 95% CI [-1.04, -0.11], Fig. S1b: with the

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(Results)

After the smoke has cleared: Extended low fruit productivity...
Statistical analysis of test #1

Statistical analysis of test #2

Statistical analysis of test #3

A. M. Ashbury *et al.*

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Result #2
Result #3

A. M. Ashbury *et al.*

Discussion of result #1
Discussion of result #2
Discussion of result #3

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(Discussion)

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A. M. Ashbury *et al.*

Discussion of result #1
Discussion of result #2
Discussion of result #3

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Structure

One topic per paragraph

- Paragraphs are the basic building blocks of text, 1 paragraph = 1 point
- Summarise the topic of each paragraph in 5 words or less

Maintain parallel structures

- Keep the same order of topics/subtopics throughout a paper

Think carefully about where everything goes

- Keep methods and results contained - don't let info that belongs here creep into other sections [Hotaling 2020]
- Keep interpretation of results in the discussion

Language

Use first-person, active voice

[Hotaling 2020]

- When speaking about what you +/ co-authors did, use active voice

Data **were** collected....

We collected data....

Associations **were** categorised using....

We categorised associations using....

Behavioral categories **were** classified using...

We classified behavioural categories using...

A Bayesian statistical approach **was** used...

We used a Bayesian statistical approach...

- Some passive is usually ok - with proper/ obvious actor attribution

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

3 common types that I see...

1) Citation reference

In a recent study, Kalbitzer & Chapman (2021) showed that female red colobus monkeys do not form stable social relationships.

Female red colobus monkeys do not form stable social relationships ([Kalbitzer & Chapman 2021](#)).

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

3 common types that I see...

- 1) Citation reference
- 2) Table/figure reference

In table 4, we show that Camp Leakey had the highest proportion of males at birth.

Camp Leakey had the highest proportion of males at birth ([Table 4](#)).

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

3 common types that I see...

- 1) Citation reference
- 2) Table/figure reference
- 3) Superfluous postulation

It has been established that female orangutans are philopatric ([all of the citations]).

Female orangutans are philopatric ([all of the citations]).

Much research has been devoted to the study of orangutan dispersal patterns.

[Just write about the relevant aspects of that research and cite it.]

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

Remove unnecessary words

[Hotaling 2020]

Simplify your language

[Hotaling 2020]

- Use the simplest word/phrase that does the job

In order to

To

Utilize

Use

What found to be

Was/is

Has been shown to be

Is/was

Substantially more

Greater

In spite of the fact

Although

There is no doubt

Clearly

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

Remove unnecessary words

[Hotaling 2020]

- Use the simplest word/phrase that does the job
- Don’t overuse qualifiers

Actually, basically, traditionally,
extremely, fairly, kind of, quite,
rather, really, sort of, very

Simplify your language

[Hotaling 2020]

Language

Use first-person, active voice

[Hotaling 2020]

Avoid unnecessary and inefficient “lead-ins”

[Hotaling 2020]

Remove unnecessary words

[Hotaling 2020]

Simplify your language

[Hotaling 2020]

Put actions into verbs

- When possible, keep verbs in their active form

This study is an **investigation** of orangutan movement patterns.

Here, we **investigate** orangutan movement patterns.

There is **variation** in social organization across species.

Social organisation **varies** across species.

There is an **influence** of forest type on movement patterns.

Forest type **influences** movement patterns.

The **integration** of high-resolution GPS and accelerometry data allows for the **investigation** of the **effects** of sleep spot choice on sleep quality.

By **integrating** high-resolution GPS and accelerometry data, we can **investigate** how sleep spot choice **affects** sleep quality.

- Beware of starting sentence with “There is...” or “There are...”

Titles

- Ideally, a clear statement of your major result(s)
- “Avoid jargon, political puns, and misleading statements”

academic life histories



Written by James and Damien

Interaction location outweighs the competitive advantage of numerical superiority in *Cebus capucinus* intergroup contests

Margaret C. Crofoot^{*†}, Ian C. Gilby^{*}, Martin C. Wikelski[‡], and Roland W. Kays[§]

Shared decision-making drives collective movement in wild baboons

Ariana Strandburg-Peshkin,^{1,*†} Damien R. Farine,^{2,3,4,*†}
Iain D. Couzin,^{1,5,6} Margaret C. Crofoot^{2,3*}