A Manuscript Microscope 'Sentence Audit' of:

Adaptive divergence in shoot gravitropism creates hybrid sterility in an Australian wildflower

What is the Manuscript Microscope Sentence Audit?

The Manuscript Microscope Sentence Audit is a research paper introspection system that parses the text of your manuscript into minimal sentence components for faster, more accurate, enhanced proofreading.

Why use a Sentence Audit to proofread your manuscript?

- Accelerated Proofreading: Examine long technical texts in a fraction of the usual time.
- Superior Proofreading: Detect subtle errors that are invisible to traditional methods.
- Focused Proofreading: Inspect each individual sentence component in isolation.
- Reliable Proofreading: Ensure every single word of your manuscript is correct.
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Bonus 1: Improved Productivity: Rapidly refine rough drafts to polished papers.
Bonus 2: Improved Authorship: Cultivate a clear, concise, consistent, writing style.
Bonus 3: Improved Reputation: Become known for rigorously precise publications.

Manuscript Source: https://www.biorxiv.org/content/10.1101/845354v6

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Features of the Sentence Audit:

The Sentence Audit combines two complementary proofreading approaches:

1. Each sentence of your text is parsed and displayed in isolation for focused inspection.
2. Each individual sentence is further parsed into Minimal Sentence Components for a deeper review of the clarity, composition and consistency of the language you used.

The Minimal Sentence Components shown are the smallest coherent elements of each sentence of your text as derived from it's conjunctions, prepositions and selected punctuation symbols (i.e. commas, semicolons, round and square brackets).

The combined approaches ensure easier, faster, more effective proofreading.

Comments and Caveats:

• The sentence parsing is achieved using a prototype natural language processing pipeline written in Python and may include occasional errors in sentence segmentation.

• Depending on the source of the input text, the Sentence Audit may contain occasional html artefacts that are parsed as sentences (E.g. "Download figure. Open in new tab").

• Always consult the original research paper as the true reference source for the text.

Contact Information:

To get a Manuscript Microscope Sentence Audit of any other research paper, simply forward any copy of the text to John.James@OxfordResearchServices.com.

All queries, feedback or suggestions are also very welcome.

Research Paper Sections:

The sections of the research paper input text parsed in this audit.

Section No.	Headings	Sentences
Section: 1	Abstract	14
Section: 2	Introduction	13
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title **Adaptive divergence in shoot gravitropism creates hybrid sterility in an Australian wildflower**

S1 [001] **Abstract**

S1 [002] Natural selection is a significant driver of speciation.

Natural selection is a significant driver ...
... of speciation.

S1 [003] Yet it remains largely unknown whether local adaptation can drive speciation through the evolution of hybrid sterility between populations.

Yet it remains largely unknown ...
... whether local adaptation can drive speciation ...
... through the evolution ...
... of hybrid sterility ...
... between populations.

S1 [004] Here, we show that adaptive divergence in shoot gravitropism, the ability of a plant's shoot to bend upwards in response to the downward pull of gravity, contributes to the evolution of hybrid sterility in an Australian wildflower, Senecio lautus.

Here, ...
... we show ...
... that adaptive divergence ...
... in shoot gravitropism, ...
... the ability ...
... of a plant's shoot ...
... to bend upwards ...
... in response ...
... to the downward pull ...
... of gravity, ...
... contributes ...
... to the evolution ...
... of hybrid sterility ...
... in an Australian wildflower, ...
... Senecio lautus.

S1 [005] We find that shoot gravitropism has evolved multiple times in association with plant height between adjacent populations inhabiting contrasting environments, suggesting that these traits have evolved by natural selection.

We find ...
... that shoot gravitropism has evolved multiple times ...
... in association ...
... with plant height ...
... between adjacent populations inhabiting contrasting environments, ...
... suggesting ...

... that these traits have evolved ...

... by natural selection.

S1 [006] We directly tested this prediction using a hybrid population subjected to eight rounds of recombination and three rounds of selection in the field.

We directly tested this prediction ...

... using a hybrid population subjected ...

... to eight rounds ...

... of recombination ...

... and three rounds ...

... of selection ...

... in the field.

S1 [007] It revealed that shoot gravitropism responds to natural selection in the expected direction of the locally adapted population.

It revealed ...

... that shoot gravitropism responds ...

... to natural selection ...

... in the expected direction ...

... of the locally adapted population.

S1 [008] This provided an ideal platform to test whether genetic differences in gravitropism contribute to hybrid sterility in S. lautus.

This provided an ideal platform ...

... to test ...

... whether genetic differences ...

... in gravitropism contribute ...

... to hybrid sterility ...

... in S. lautus.

S1 [009] Using this advanced hybrid population, we discovered that crossing individuals with extreme differences in gravitropism reduce their ability to produce seed by 21%, providing strong evidence that this adaptive trait is genetically correlated with hybrid sterility.

Using this advanced hybrid population, ...

... we discovered ...

... that crossing individuals ...

... with extreme differences ...

... in gravitropism reduce their ability ...

... to produce seed ...

... by 21%, ...

... providing strong evidence ...

... that this adaptive trait is genetically correlated ...

... with hybrid sterility.

S1 [010] Our results suggest that natural selection can drive the evolution of locally adaptive traits that also create hybrid sterility, thus indicating an evolutionary connection between local adaptation and the origin of new species.

Our results suggest ...

... that natural selection can drive the evolution ...

... of locally adaptive traits ...
... that also create hybrid sterility, ...
... thus indicating an evolutionary connection ...
... between local adaptation ...
... and the origin ...
... of new species.

S1 [011] Significance statement New species originate as populations become reproductively isolated from one another.

Significance statement New species originate ...
... as populations become reproductively isolated ...
... from one another.

S1 [012] Despite recent progress in uncovering the genetic basis of reproductive isolation, it remains unclear whether intrinsic reproductive barriers, such as hybrid sterility, evolve as a by-product of local adaptation to contrasting environments or evolve through non-ecological processes, such as meiotic drive.

Despite recent progress ...
... in uncovering the genetic basis ...
... of reproductive isolation, ...
... it remains unclear ...
... whether intrinsic reproductive barriers, ...
... such as hybrid sterility, ...
... evolve ...
... as a by-product ...
... of local adaptation ...
... to contrasting environments ...
... or evolve ...
... through non-ecological processes, ...
... such as meiotic drive.

S1 [013] Here, we show that differences in a plant’s response to the pull of gravity have repeatedly evolved amongst coastal populations of an Australian wildflower, thus implicating a role of natural selection in their evolution.

Here, ...
... we show ...
... that differences ...
... in a plant’s response ...
... to the pull ...
... of gravity have repeatedly evolved amongst coastal populations ...
... of an Australian wildflower, ...
... thus implicating a role ...
... of natural selection ...
... in their evolution.

S1 [014] We found a strong genetic correlation between variation in this adaptive trait and hybrid sterility, suggesting that intrinsic reproductive barriers contribute to the origin of new species as populations adapt to heterogeneous environments.

We found a strong genetic correlation ...
... between variation ...

... in this adaptive trait ...
... and hybrid sterility, ...
... suggesting ...
... that intrinsic reproductive barriers contribute ...
... to the origin ...
... of new species ...
... as populations adapt ...
... to heterogeneous environments.

S2 [015] Introduction

S2 [016] Ever since Darwin's work on the origin of species by natural selection (1), researchers have sought to understand how natural selection creates reproductive barriers between populations (2).

Ever ...
... since Darwin's work ...
... on the origin ...
... of species ...
... by natural selection ...
... (1), ...
... researchers have sought ...
... to understand how natural selection creates reproductive barriers ...
... between populations ...
... (2).

S2 [017] On one hand, many studies have established that adaptation to contrasting environments often reduces migrant and hybrid fitness in the wild, a process commonly known as extrinsic reproductive isolation (3).

On one hand, ...
... many studies have established ...
... that adaptation ...
... to contrasting environments often reduces migrant ...
... and hybrid fitness ...
... in the wild, ...
... a process commonly known ...
... as extrinsic reproductive isolation ...
... (3).

S2 [018] These extrinsic barriers to reproduction can dramatically reduce gene flow between populations (4, 5); however, they only act in the local environment of populations and are therefore susceptible to changes in environmental conditions.

These extrinsic barriers ...
... to reproduction can dramatically reduce gene flow ...
... between populations ...
... (4, 5)...
... ; ...
... however, ...

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

To get the full audit of this text (or any other research paper),
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