

Academic Writings and Presentations

Language Usage

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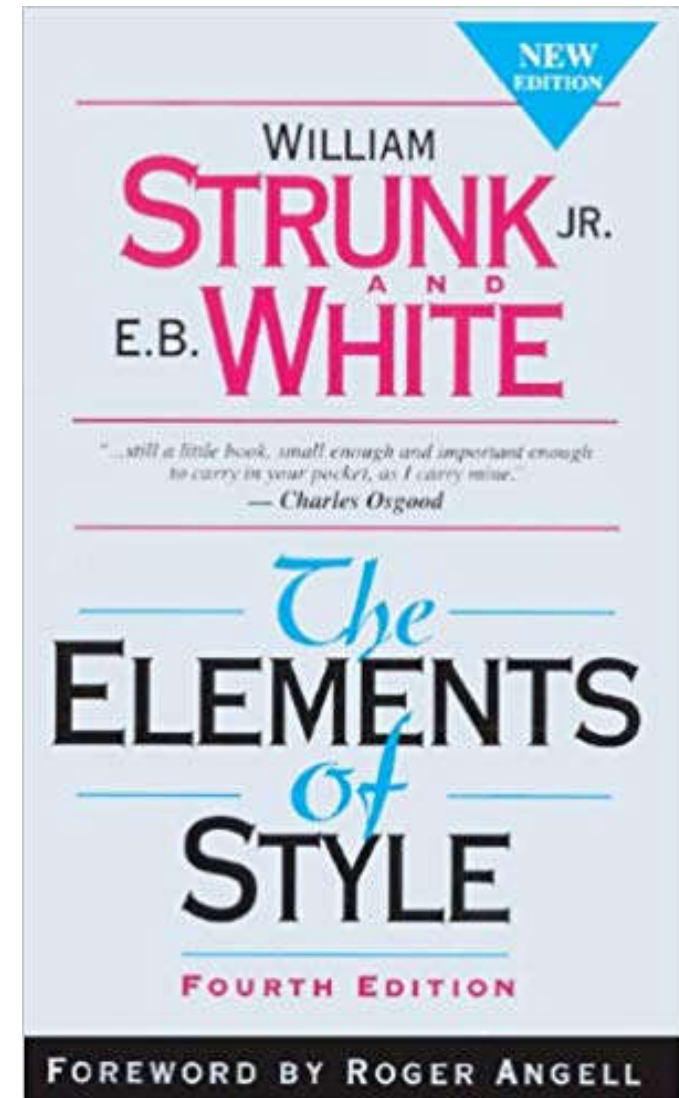


Syllabus

- Introduction
- Useful tools
- **Academic writing**
 - **Critical thinking / Logic**
 - **Language usage: words, sentences, paragraphs, ...**
 - **Construct a research paper**
 - **Peer review process**
 - **Proposals, E-mails, etc.**
- Presentation
- Practices, discussions, and exams

References

- **The Elements of Style**
 - **by Strunk and White**



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Words

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a / an ?

- ___ hour / ___ one-hour flight
- ___ umbrella / ___ university / ___ ultraviolet laser
- ___ European country / ___ equation
- ___ Au wire / ___ Fe wire
- ___ LED display / ___ USB drive
- ___ SO₂ gas sensor / ___ SEM image
- ___ 1064 nm laser / ___ 810 nm laser

a / the / X ?

- The surface is covered by thin film. film is made of silicon.
- last conference was held in 1993.
- price of gold fluctuates.
- Both of experiments were unsuccessful.
- Doppler effect
- Ohm's law, Maxwell's equations

a / the / _X_ ?

___ new generation of ___ cheaper and more efficient hydrogen fuel cells may bring ___ environmentalists' dream of affordable, green cars one step closer to ___ reality. ___ cells are being developed by ___ PolyFuel in Mountain View, California, US, using ___ type of membrane made from ___ hydrocarbon polymer instead of ___ traditional Teflon-based perfluorinated membrane. ___ membrane is crucial in ___ fuel cells as it serves ___ dual role of splitting hydrogen into ___ protons and ___ electrons, and then only allowing ___ protons to cross ___ membrane. ___ electrons are then sent through ___ wire to combust with ___ oxygen and ___ newly separated protons, creating ___ power and ___ single by-product: water.

a / the / _X_ ?

A new generation of **_X_** cheaper and more efficient hydrogen fuel cells may bring **_the_** environmentalists' dream of affordable, green cars one step closer to **_X_** reality. **_The_** cells are being developed by **_X_** PolyFuel in Mountain View, California, US, using **_a_** type of membrane made from **_a_** hydrocarbon polymer instead of **_the_** traditional Teflon-based perfluorinated membrane. **_The_** membrane is crucial in **_X_** fuel cells as it serves **_a_** dual role of splitting hydrogen into **_X_** protons and **_X_** electrons, and then only allowing **_the_** protons to cross **_the_** membrane. **_The_** electrons are then sent through **_a_** wire to combust with **_X_** oxygen and **_the_** newly separated protons, creating **_X_** power and **_a_** single by-product: water.

is / are ?

- A total of 10 students ___ recruited for this study.
- A group of students ___ working in the room.
- A group of samples ___ selected to compare with the other group.
- Only a small number of students ___ able to do it.
- The small number of students taking the class ___ attributed to the limited time.

is / are ?

- A total of 10 students **is** recruited for this study.
- A group of students **are** working in the room.
- A group of samples **is** selected to compare with the other group.
- Only a small number of students **are** able to do it.
- The small number of students taking the class **is** attributed to the limited time.

There is / are ?

- There a boy in the park.
- There a boy and a girl in the park.
- There a boy and two girls in the park.
- There two girls and a boy in the park.

There is / are ?

- There **is** a boy in the park.
- There **is** a boy and a girl in the park.
- There **is** a boy and two girls in the park.
- There **are** two girls and a boy in the park.

Countability

- **countable**
 - device, proposal, project, problem, ...
- **non-countable**
 - money, information, energy, ...
- **double nouns**
 - **Diamond** is made of carbon.
 - She is wearing a ring with **a diamond**.

 - **Voltage** is measured by the multimeter.
 - The battery supplies **a voltage** of 3 V.

Singular / Plural ?

- one, half, two, one and a half (**year / years ?**)
- 1, 2, 1.5, 1.0001, 0.1, 0 (**gram / grams ?**)
- one, two, zero (**dimension / dimensions ?**)
- one A, two A ?
- one S, two S ?

Prepositions

- As shown Figure 1, ...
- As predicted the model, ...
- As reported the previous page, ...
- As defined the introduction, ...
- As demonstrated materials this type, ...

Prepositions

- As shown **_in_** Figure 1, ...
- As predicted **_by_** the model, ...
- As reported **_on_** the previous page, ...
- As defined **_in_** the introduction, ...
- As demonstrated **_for_** materials **_of_** this type, ...

This / That ?

- In China, 70% of the electricity is produced from coal. situation has created severe environmental issues.
- In China, producing 70% of the electricity from coal becomes a situation has created severe environmental issues.

Definitions

- Helium is a gas. **This** gas has an atomic number of 2
- Helium is a gas, has an atomic number of 2
- Helium is a gas has an atomic number of 2
- Helium is a gas an atomic number of 2

Definitions

- **A theater is a building. This building is specifically designed for dramatic performances**

Q: re-write it?

Definitions

- A theater is a building. This building is specifically designed for dramatic performances
- A theater is a building, **which** is specifically designed for dramatic performances
- A theater is a building **that** is specifically designed for dramatic performances
- A theater is a building specifically designed for dramatic performances

Definitions

- **Recently, the performance of LEDs has been greatly improved. This has led to broad applications in lighting and display.**
- **Electricity is mostly produced by fossil fuels. This causes severe environmental issues.**
- **Scientists have announced the observation of gravitational waves. This is consistent with Einstein's theoretical predictions.**

Abbreviations

- **For capitalized letters (acronyms)**
 - **very few are standard, like DNA, IBM, BMW, ...**
 - **for most acronyms, provide the full explanation the first time when using it in the article**

Artificial intelligence (AI) is an emerging research field. Recently, many applications have been realized based on **AI** ...

Abbreviations

- **For contractions, avoid using them**
 - **don't -> do not**
 - **can't -> cannot**
 - **it's -> it is**
 - **the sample's properties -> properties of the sample**

Words to Avoid

■ Almost NEVER use

- never
- happy, sad, excited, ...
- good, bad, pretty, great, clever, smart, ...
- really, always, sometimes
- ...

■ Rarely use

- yes, no
- very
- ...

Q: alternative words to "very"?

Alternatives to "very"

- **greatly**
- **highly**
- **largely**
- ...

- **significantly**
- **tremendously**
- **considerably**
- **substantially**
- **critically**
- ...

'We' or 'I' ?

- Prefer to use 'we', even for single author papers

PHYSICAL REVIEW A **93**, 043817 (2016)

One-dimensional Bose-Einstein condensation of photons in a microtube

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This paper introduces a quasiequilibrium one-dimensional Bose-Einstein condensation of photons trapped in a microtube. Light modes with a cutoff frequency (a photon's "mass") interact through different processes of absorption, emission, and scattering on molecules and atoms. In this paper we study the conditions for the one-dimensional condensation of light and the role of photon-photon interactions in the system. The technique in use is the Matsubara Green's functions formalism modified for the quasiequilibrium system under study.

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Connectors

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Definitions

- **is, are, mean, ...**
- **be named / called / ...**
- **be known / defined as ...**
- **be denoted by ...**
- **refer to ...**

Explanation

- **Namely**
- **That is (i.e.), ...**
- **In fact / As a matter of fact**
- **Simply speaking / In simpler terms**
- **In other words**

Addition

- **Then / Also**
- **In addition / Additionally**
- **Moreover / Furthermore**
- **Besides, Likewise**
- **First, second, third, ...**
- **Not only ... but also ...**

Similarity

- **Equally / Similarly / Similar to**
- **Not only ..., but also ...**
- **As / Like / The same / In the same way**
- **... as well**
- **Likewise, ...**
- **Correspondingly**

Compare

- **Alternatively**
- **In parallel to**
- **While / Whereas**
- **On the other hand**

Contrast

- **In contrast to / By contrast**
- **Instead / Instead of**
- **Conversely / On the contrary**
- **Rather than**
- **Paradoxically**

Contradiction

- **Although / Though / Even if / Even though**
- **Not / But / Yet / However**
- **While / Whereas / Meanwhile**
- **Despite / In spite of / Notwithstanding**
- **Nevertheless / Nonetheless**
- **Admittedly / Unfortunately**

Emphasis

- **Typically / Especially / Specifically**
- **Actually / Notably / Undoubtedly / Indeed**
- **Surprisingly / Interestingly / Intriguingly / Strikingly**
- **Clearly / Obviously / Apparently**
- **Particularly / In particular**
- **In fact / As a matter of fact**

Example

- **For example / Take ... for example**
- **For instance**
- **such as / like / including**
- **to name a few**

Possibility

- **Likely / Most likely**
- **Probably**
- **Presumably**
- **Possibly**
- **Perhaps**
- **Maybe / May / Might / Could / Would / ...**

Cause

- **Owing to / Due to**
- **Because of / Thanks to**
- **Since / Because**
- **As / For the reason that ...**

Effect

- **So / Then**
- **Accordingly / Correspondingly**
- **Consequently / As a consequence**
- **It follows that ...**
- **As a result / Therefore**
- **Thus / Hence / Thereby**

... the challenges

- **Overcome**
- **Surmount**
- **Conquer**

- **Bypass**
- **Avoid**

- **Eliminate**

for the future

- **Envisage**
- **Envision**
- **Anticipate**
- **Hope**
- **Expect**

Conclusion

- **To summarize / In summary / Overall / In a word**
- **On the whole / To sum up / In brief / In short**
- **To conclude / In conclusion / It can be concluded that ...**
- **Given the above / As described / Together**
- **Ultimately / Collectively / Finally / Eventually**

Connectors - Practice 1

___ most major companies provide their employees with email accounts as well as internet access, many of these companies are concerned about potential abuse and monitor their employees' use of these media. ___, more than 75% of all major corporations report that they monitor their employees' use of email and internet use. Businesses have many reasons for monitoring email and internet use. ___, they may be concerned about protecting sensitive company information. ___, they are concerned about cyberslacking.

Connectors - Practice 1

Although most major companies provide their employees with email accounts as well as internet access, many of these companies are concerned about potential abuse and monitor their employees' use of these media. **In fact**, more than 75% of all major corporations report that they monitor their employees' use of email and internet use. Businesses have many reasons for monitoring email and internet use. **For example**, they may be concerned about protecting sensitive company information. **In other words**, they are concerned about cyberslacking.

Connectors - Practice 2

Lasers have found widespread applications in medicine. ___, lasers play an important role in the treatment of eye diseases. The eye is ideally suited for laser surgery, ___ most of the eye tissue is transparent. ___, the laser beam can be adjusted according to the tissue absorption, ___ the beam cuts inside the eye with minimal damage. ___, the interaction between laser light and eye tissue is not fully understood.

Connectors - Practice 2

Lasers have found widespread applications in medicine. **In particular**, lasers play an important role in the treatment of eye diseases. The eye is ideally suited for laser surgery, **because** most of the eye tissue is transparent. **Therefore**, the laser beam can be adjusted according to the tissue absorption, **so that** the beam cuts inside the eye with minimal damage. **However**, the interaction between laser light and eye tissue is not fully understood.