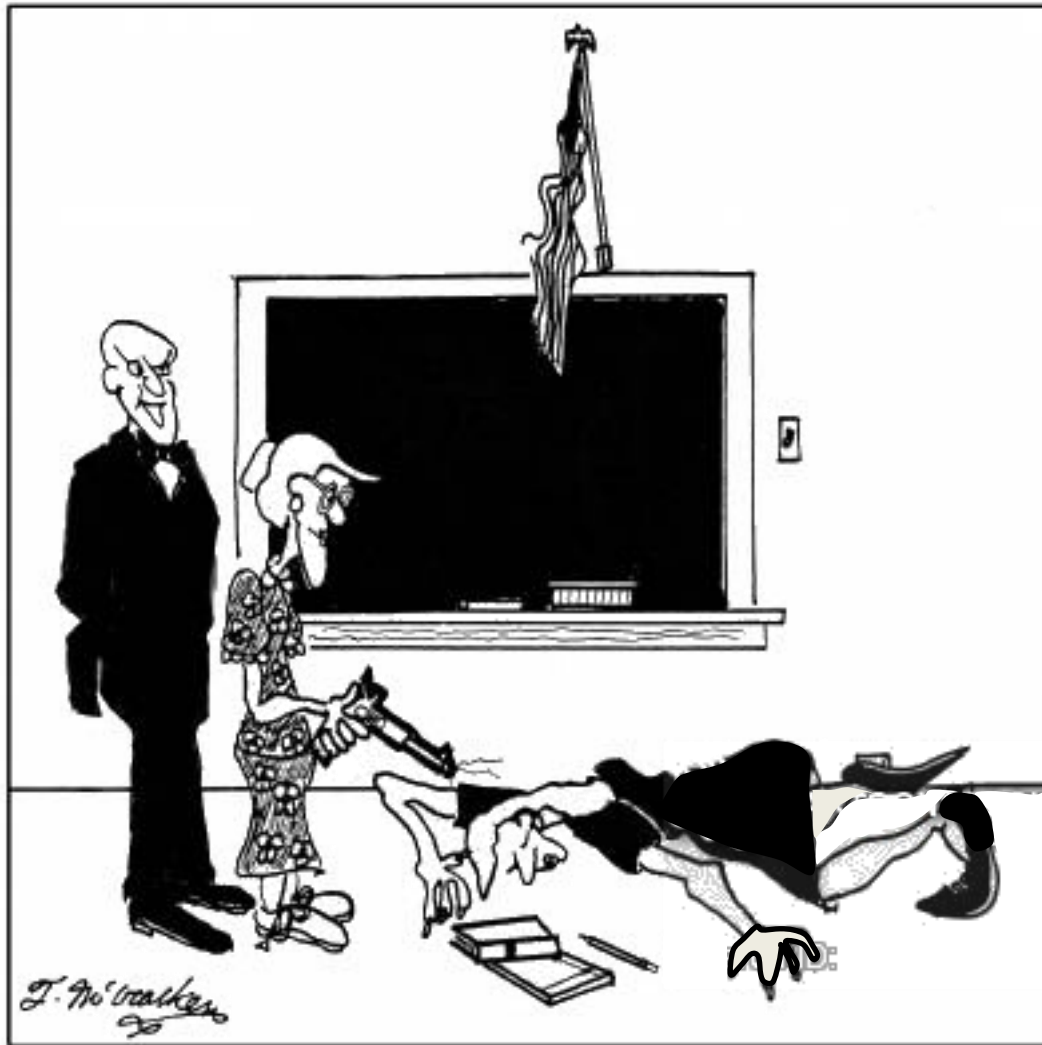


# How to Publish Without Perishing



“Enforcing the publish  
or perish rule, Dean McWit?”

Shobhana  
Narasimhan

Jawaharlal Nehru  
Centre for Advanced  
Scientific Research

Bangalore

Career Development  
Workshop for Women in  
Physics

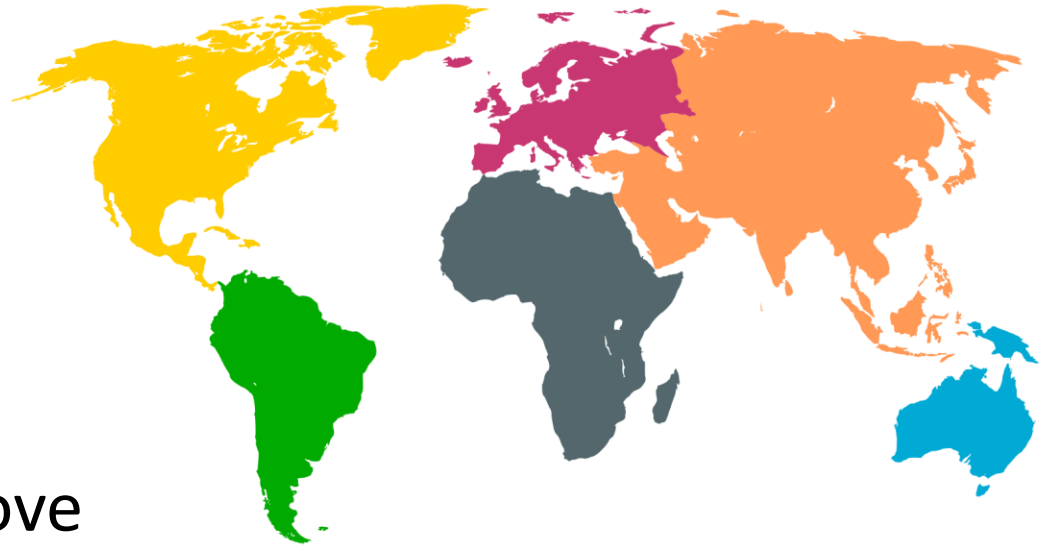
ICTP, Trieste  
October, 2017

1. **Login to the internet** if you haven't already done so, using your smartphone or laptop.
2. Using any web browser, go to <https://b.socrative.com/login/student>
3. Enter room number: **659414**

# Test Question:

## Which continent are you from?

- A. Africa
- B. Asia
- C. South America
- D. Europe
- E. None of the above



(Answer on [b.socrative.com/login/student](https://b.socrative.com/login/student))

Room No. 659414

# Why Do You Want to Publish Papers?

- A. To let people know your scientific findings
- B. To establish priority.
- C. To stay on in your job.
- D. To get promoted or get the next job.
- E. To get citations and improve your h-index.

Which of the above is most important to you?

Answer on socrative.

(Answer on  
[b.socrative.com/login/student](https://b.socrative.com/login/student))

Room No. 659414

# Ten Rules to Make Your Paper Better

1. Choose your journal carefully.
2. Be clear what your message is.
3. Construct a story.
4. Tailor your paper to your journal's audience.
5. Omit needless words.
6. No spelling mistakes or grammatical errors.
7. Make compelling figures.
8. Absolutely no plagiarism!
9. Stick to journal's style guidelines.
10. Select a good title.

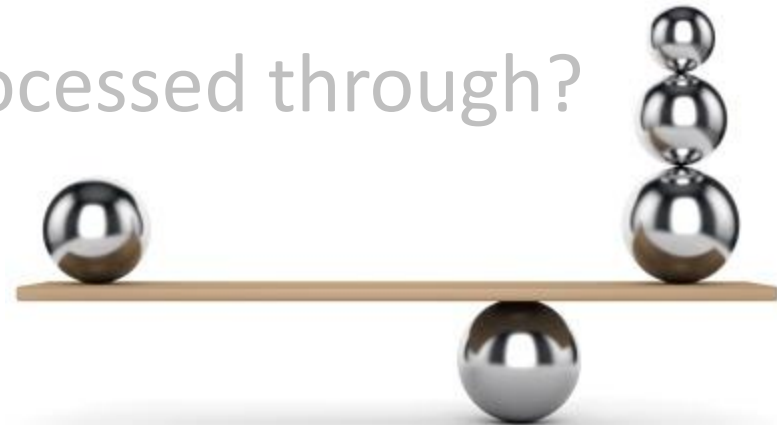
**Rule #1:  
Choose Your Journal Carefully**

# Choose Your Journal Carefully

- How large a readership does it have?
- How specialized a readership does it have?
- How difficult is it to get published in it?
- How prestigious is it?
- Do you have to pay to publish in it?
- How quickly are papers processed through?

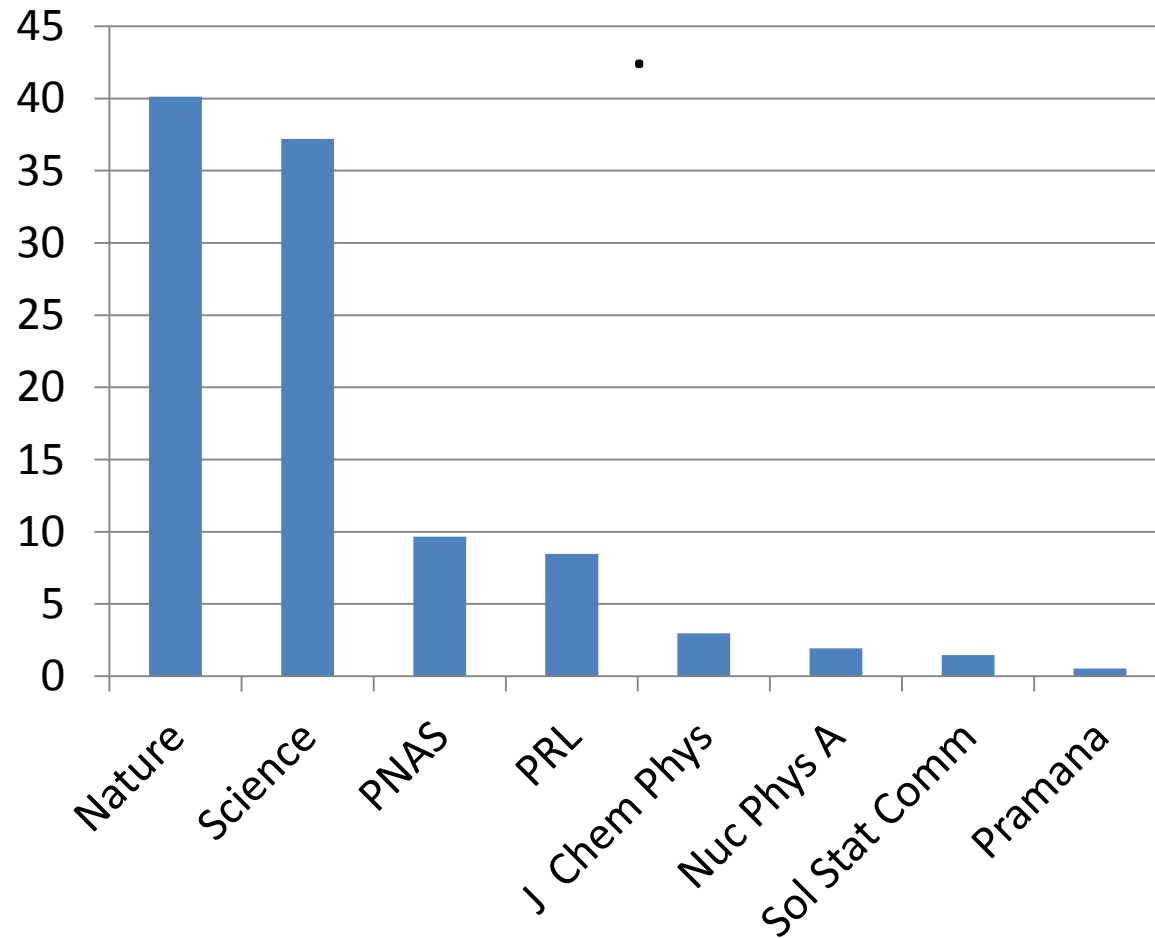
# Choose Your Journal Carefully

- How large a readership does it have?
- How specialized a readership does it have?
- How difficult is it to get published in it?
- How prestigious is it?
- Do you have to pay to publish in it?
- How quickly are papers processed through?





# Journal Impact Factors



# What About Invitations?

“Dear Prof. Shobhana Narasimhan,  
The journal **XXX** is a peer-reviewed international journal devoted to publishing timely, in-depth reviews and research articles on **YYY**.  
**XXX** welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence, and will publish: **Original Research Articles** and **(PhD) Reviews**.  
**XXX** is an open access journal, making all research results freely available online.  
**We are writing to invite you to consider submitting a proposal to edit a theme issue in a hot topic area.** Your proposal should contain Title, Aims and Scope statement, keywords, your Curriculum Vitae including a list of your publications, a list of possible contributing authors and their institutional affiliations. Please submit your proposals to **review@XXX**  
We eagerly look forward to receiving your positive response in this regard.”

What would YOU do??

# 'Predatory Publishers'

“International Journal on ZZZ

Calling papers for Volume X | Issue Y | September 2017

Scientific Journal Impact Factor (SJIF) Value for 2016 is **5.098**

Impact Factor (5.098)

Kindly send your paper / manuscript to us by mailing  
to **editor@zzz.org**

Manuscript Submission : **30 September 2017**

Acceptance Notification : **Within 7 days**

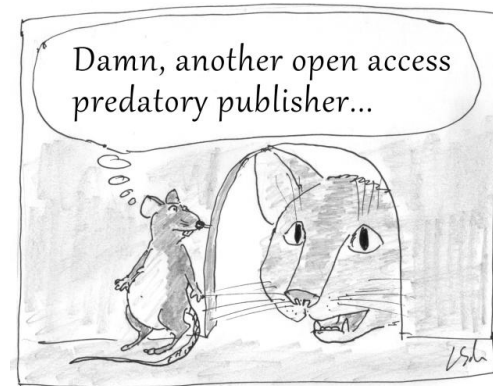
Manuscript Registration : **Within 7 days after Review**

Manuscript Publication : **Within 5 days after Registration**

Publication Charges

Indian Authors : **INR 2000**

Foreign Authors : **100 USD** ”



# Choose Your Journal Carefully



**Good try Dr Brown, but an editorial in your Chess-Club Newsletter is not what I would call a peer-reviewed journal publication...**

**Rule #2:**  
**Be Clear What Your Message Is**

# Rule #2: Be Clear What Your Message Is

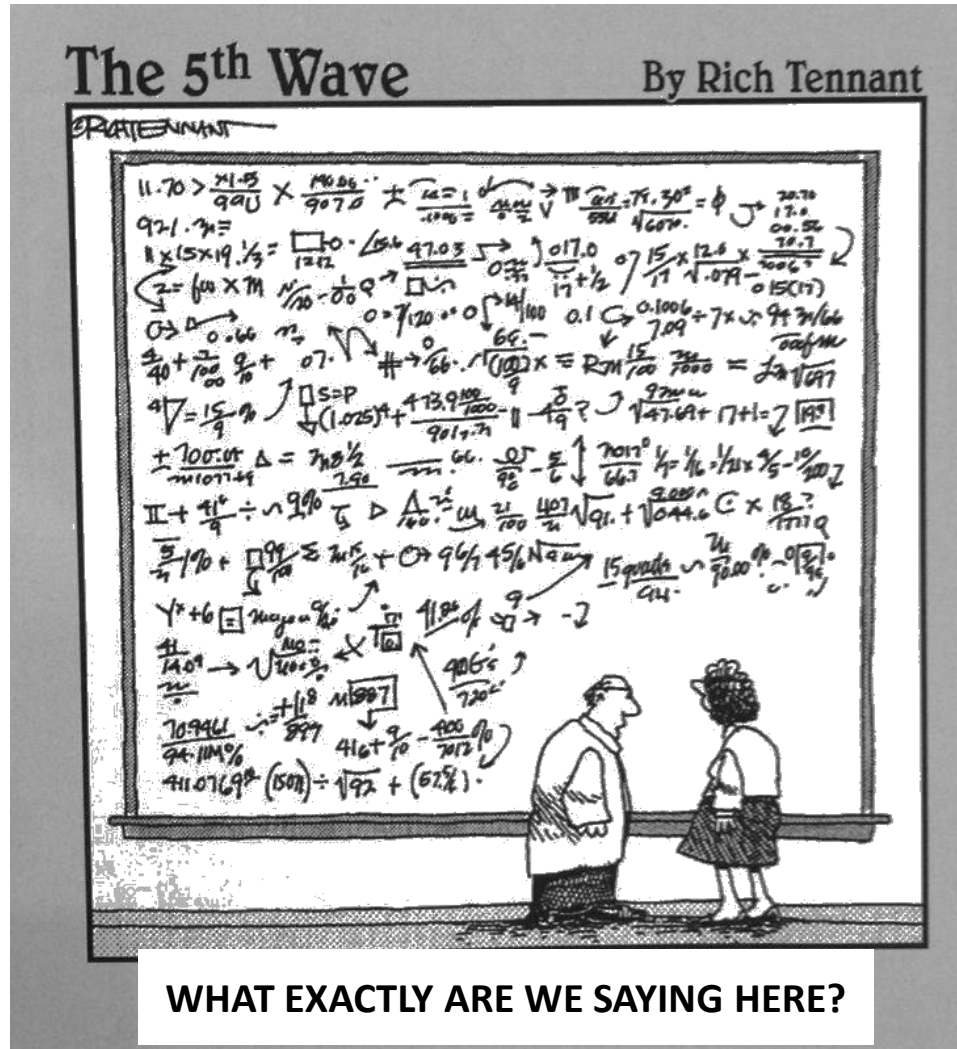
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"To make a long story short, what it all boils down to in the final analysis is that what you should take away from this is..."

# Rule #2: Be Clear What Your Message Is



WHAT EXACTLY ARE WE SAYING HERE?



## Rule #2: Be Clear What Your Message Is


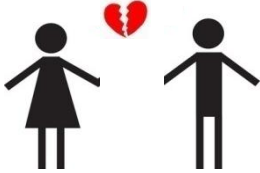
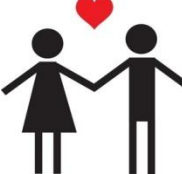


“There is no form of prose more difficult to understand and more tedious to read than the average scientific paper.”

-- *Francis Crick*



# Is The Message Obvious?

1. Boy Meets Girl. 
2. Boy Loses Girl. 
3. Boy Regains Girl. 

- Is all the interest in who the boy and girl are?
- Is the interest in knowing how it is going to end?
- Is the interest in how one got from (1) to (3)?

Rule #3:  
Construct A Story

# Rule #3: Construct A Story

“Constructing” a story

Is this the same as “invent (make up) a story”...

- In literature?
- In science?



# How To Construct A Story

- 1) Assemble all the material
- 2) Decide what to keep and what to discard
- 3) Arrange in a logical sequence

# Step1: Assembling Material

## Mind Maps

Better when you have one main concept.

Start from the centre.

## Concept Maps

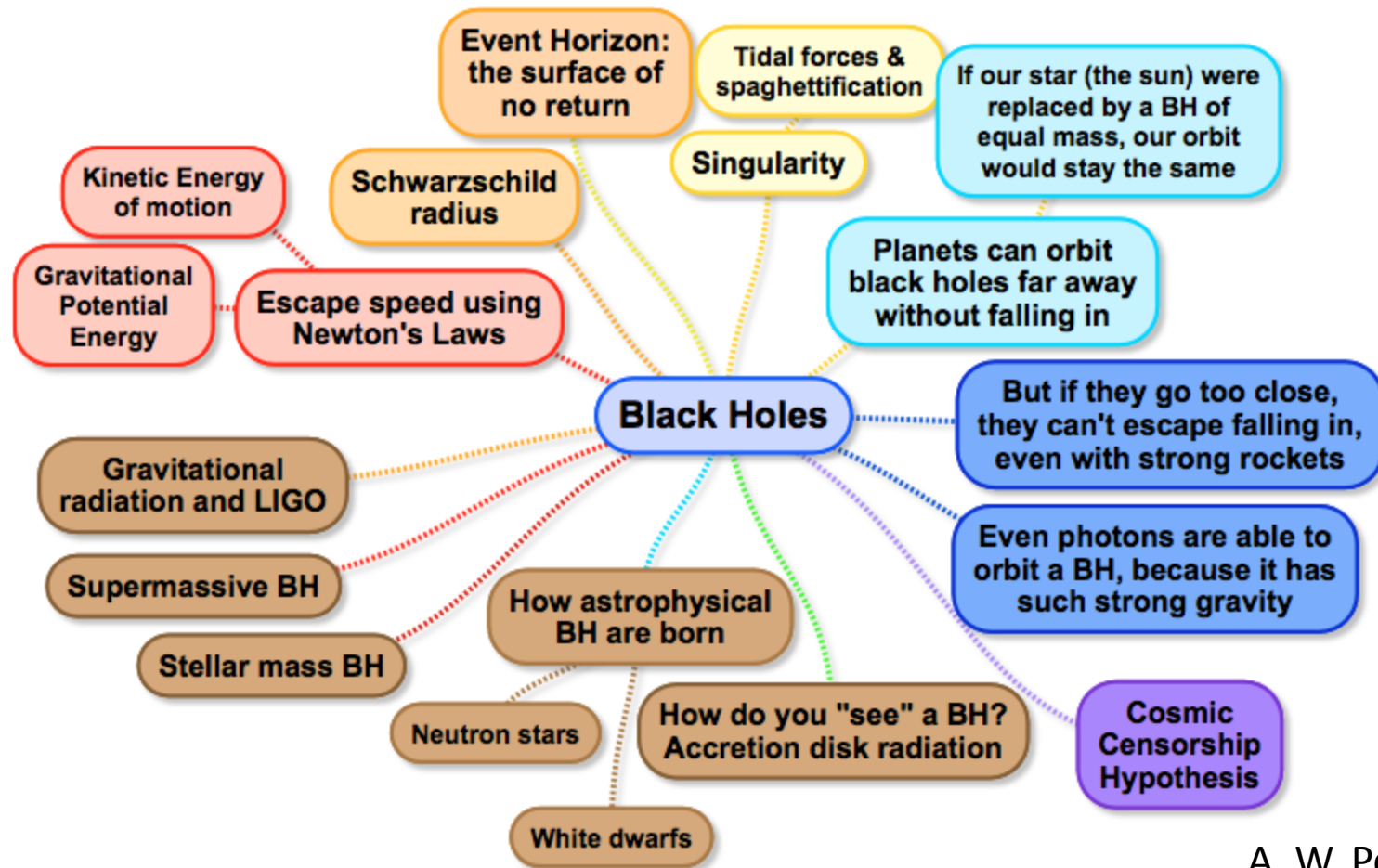
Better when you have several related concepts.

Start from the top.

## Timelines

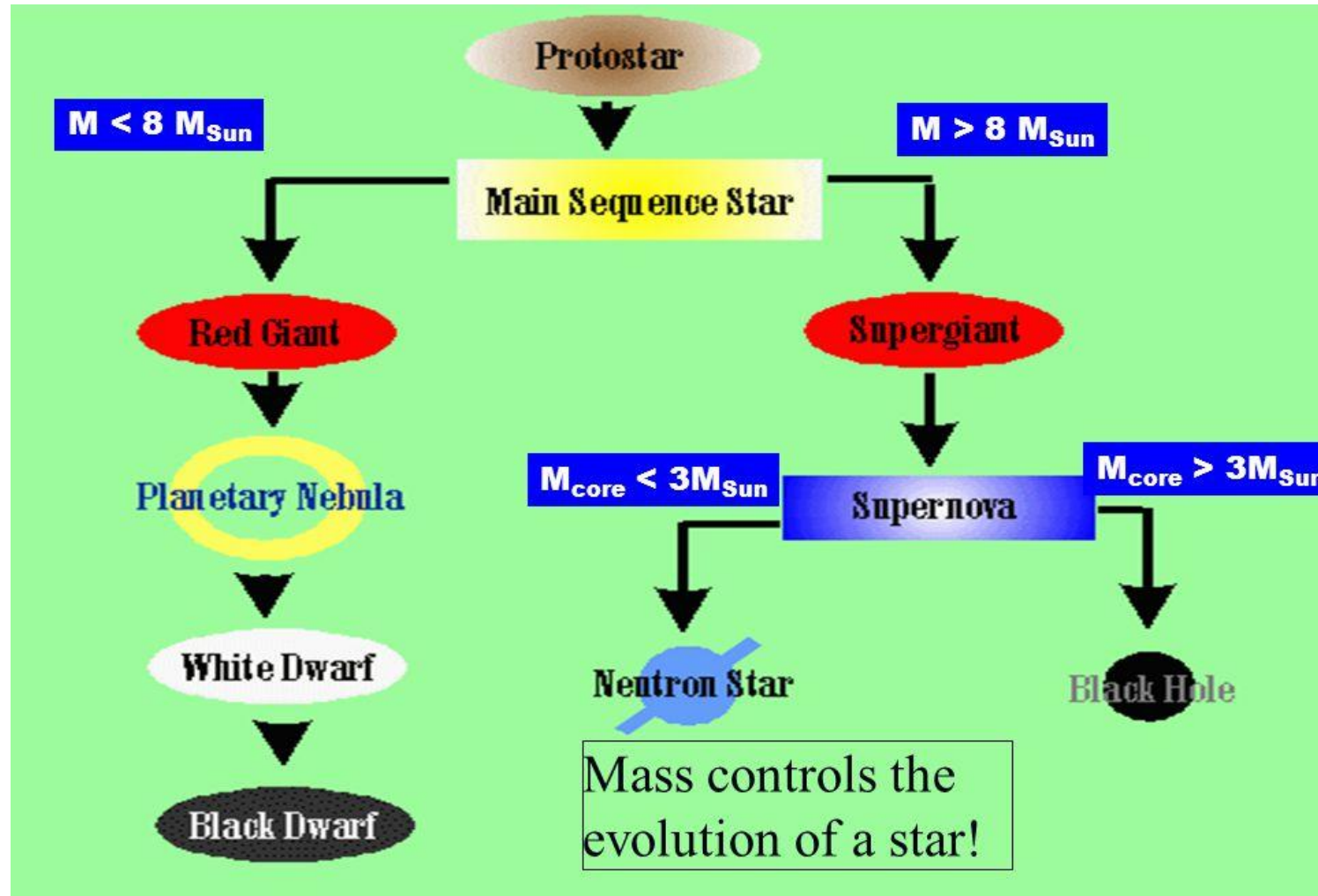
When you have one chronological sequence.

# Mind Map for Black Holes



A. W. Peet

# Concept Map for Stellar Evolution



From www

# Timeline for Black Holes

●

**1916**  
Einstein's general theory of relativity lays a framework for existence of black holes, with massive gravity. Information stays safely locked inside.

●

**1974-1976**  
Hawking shows that black holes evaporate over time. That means information inside disappears. Physicists are baffled.

●

**Late 1990s**  
Complementarity, proposed by physicist Leonard Susskind, temporarily solves the problem of information loss.

●

**2004**  
Hawking accepts Susskind and Juan Maldacena's assertion that black holes preserve information. General relativity and quantum mechanics are safe.

●

**2012**  
Polchinski *et al* say complementarity violates rules of quantum entanglement. Implication: a wall of fire at the event horizon.

●

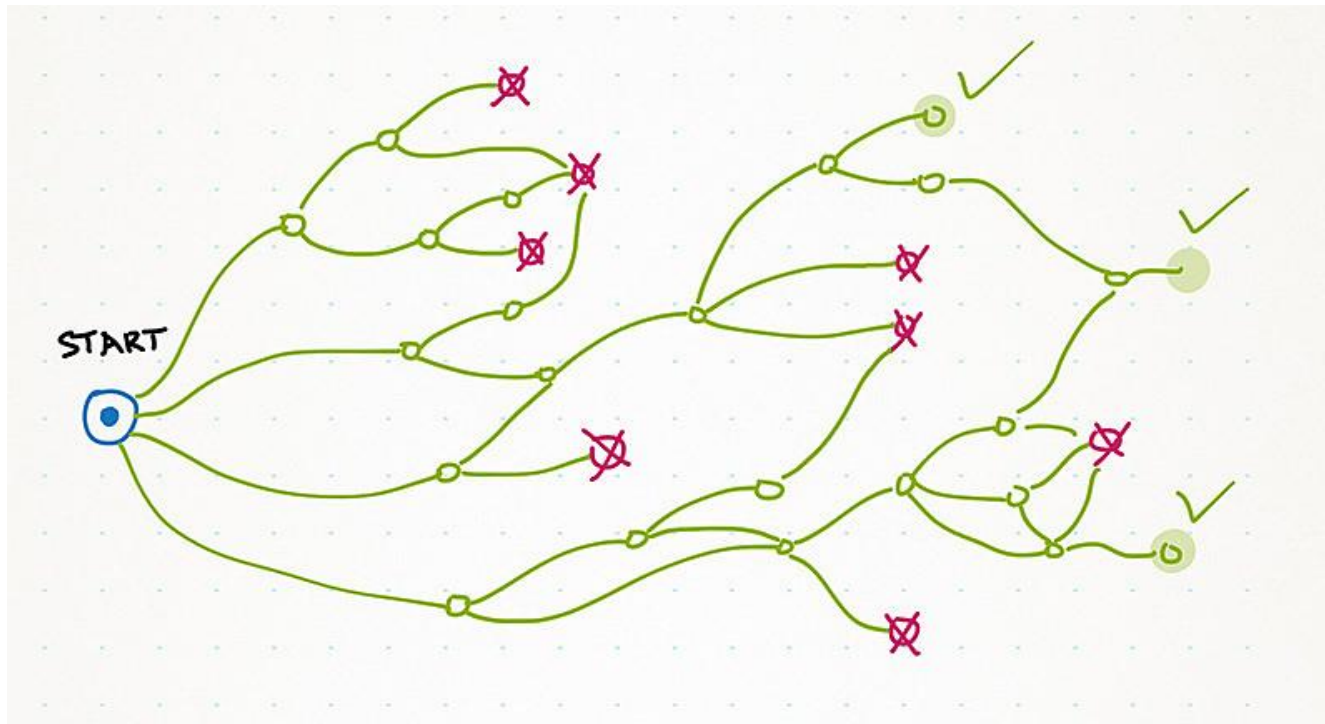
**2014**  
Solutions put forth include fuzzy event horizons, a new take on complementarity and wormholes.

Science News



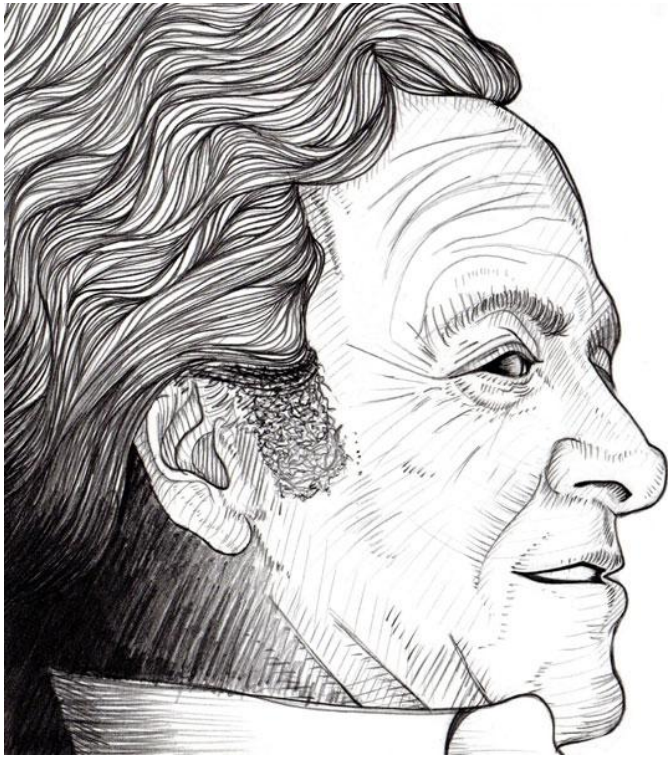
# Step 2: Keeping and Discarding Information

Should you describe everything?



The Path to Scientific Discovery

# Keeping & Discarding Information



“We have a habit in writing articles published in scientific journals to make the work as finished as possible, to cover up all the tracks, to not worry about the blind alleys or describe how you had the wrong idea first, and so on. So there isn’t any place to publish, in a dignified manner, what you actually did....”

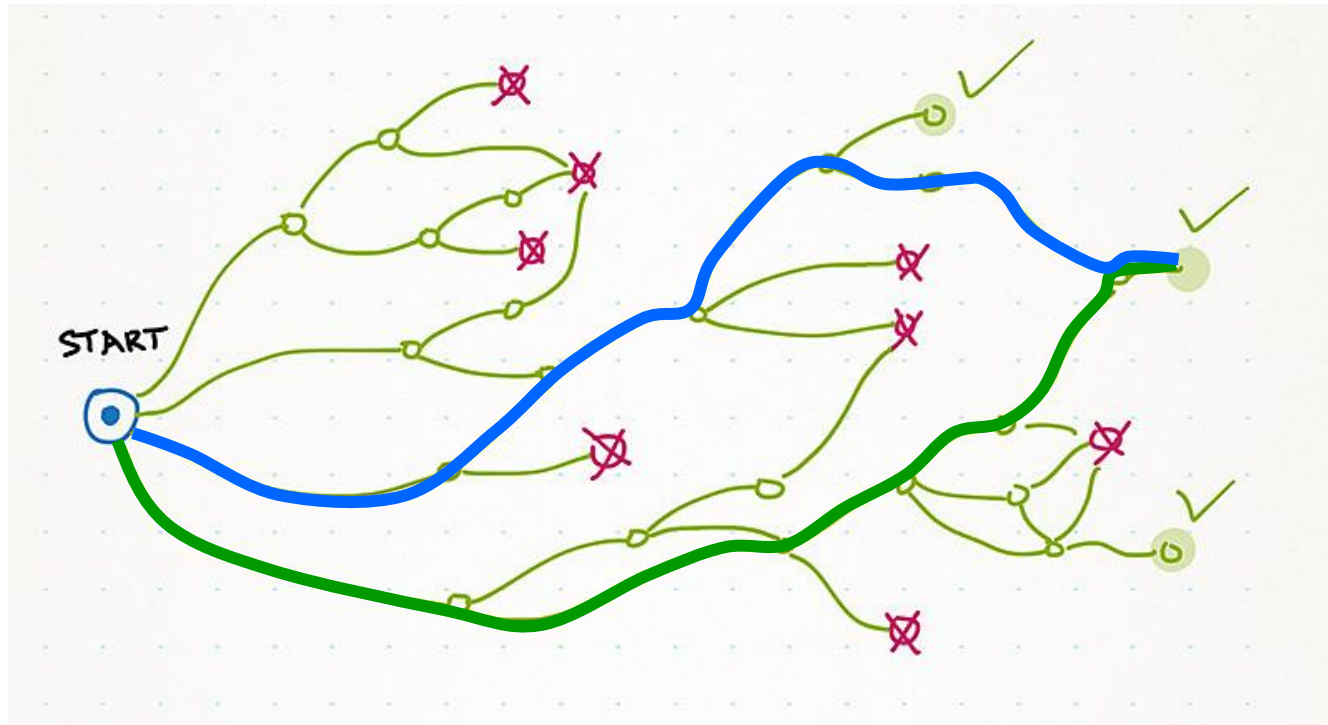
--Richard Feynman

# The Path to Scientific Discovery



Should we tell only **this story**?

# The Path to Scientific Discovery



Should we tell only **this story**?

...And what about **this story**??

# The Path to Scientific Discovery



Let's not forget the  
accidental  
discoveries!





# How to tell the story of an accidental discovery (for academic publication)?



A. “It has long been wondered whether one can travel west from Europe and reach India....To conclude, we found out that there is a hitherto ‘unknown’ continent to the west of Europe.”

B. “The aim of our journey was to discover a continent hitherto unknown to Europeans...To conclude, we succeeded in our goal.”

C. “It has long been wondered whether there are ‘undiscovered’ continents ....To conclude, we found out that there is a hitherto ‘unknown’ continent to the west of Europe. “

D. “It is generally believed that the only existing continents are Europe, Asia and Africa....To conclude, we have discovered a hitherto ‘unknown’ continent to the west of Europe.”

Which do you think is best? (Vote).

# How to tell the story of an accidental discovery (for academic publication)?



A. "It has long been wondered whether one can travel west from Europe and reach India....To conclude, we found out that there is a hitherto 'unknown' continent to the west of Europe."

Goal and conclusions do not match

B. "The aim of our journey was to discover a continent hitherto unknown to Europeans. We succeeded in our goal."

Untrue...but does that matter?

C. "It has long been wondered whether there are 'undiscovered' continents ...To conclude, we found out that there is a hitherto 'unknown' continent to the west of Europe. "

No lies told!

D. "It is generally believed that the only existing continents are Europe, Asia and Africa. We have discovered a hitherto 'unknown' continent to the west of Europe."

No lies told! More specific

# Step 3: Arrange in a Sequence

- The sequence can be **chronological** or **logical**.
- These need not be the same!
- In scientific papers: logical sequence usually better!



# Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened

Playing With

# Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened



# FLASHBACK

## Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened



# FLASHBACK

## Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened



# FLASHBACK

## Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened



# FLASHBACK

## Chronological Order

First this happened



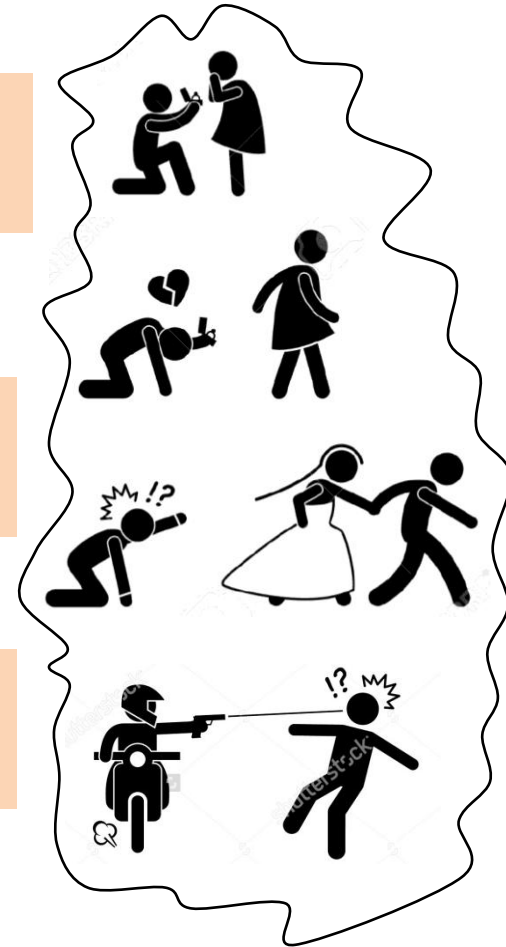
Then this happened



Then this happened



Finally this happened



# Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened



“I think playing with the chronological order by making use of the flashback made the story more interesting.”

Vote **T** or **F** online.



## Chronological Order

First this happened



Then this happened



Then this happened



Finally this happened

## Logical Order

First this



Therefore this



Therefore this

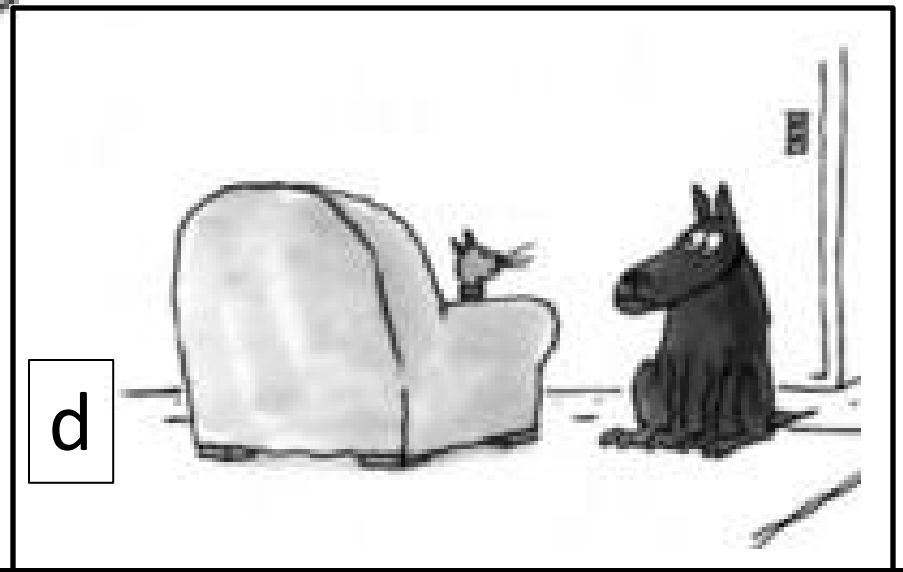


Finally this

# Exercise

- You are given 4 pictures.
- Construct a story by arranging them in what you think is a logical sequence (Note: there is no unique answer!)
- Write down the message of your story (omit needless words!)

# Arrange in a "Logical" Sequence



## Arrange in a Sequence



I think the logical sequence is:

A) a, b, c, d

B) a, c, d, b

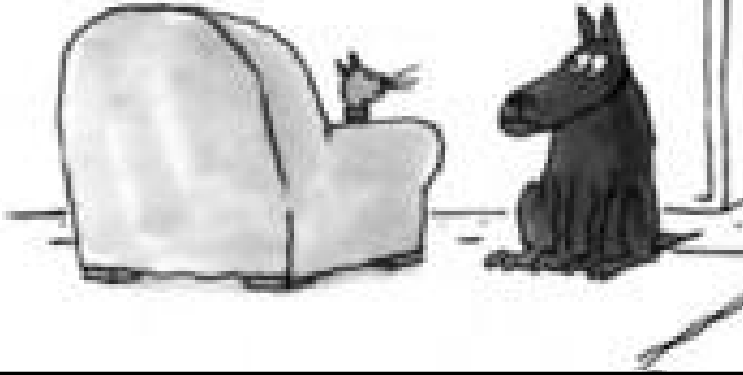
C) d, b, a, c

D) b, a, c, d

E) None of the above

# “Bullies will be bullied in their turn”

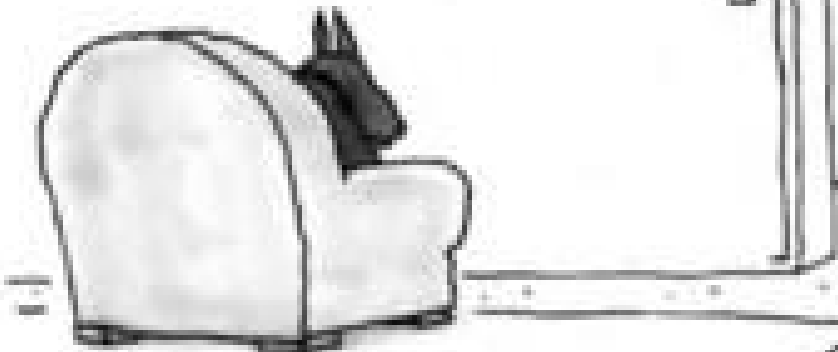
1



2



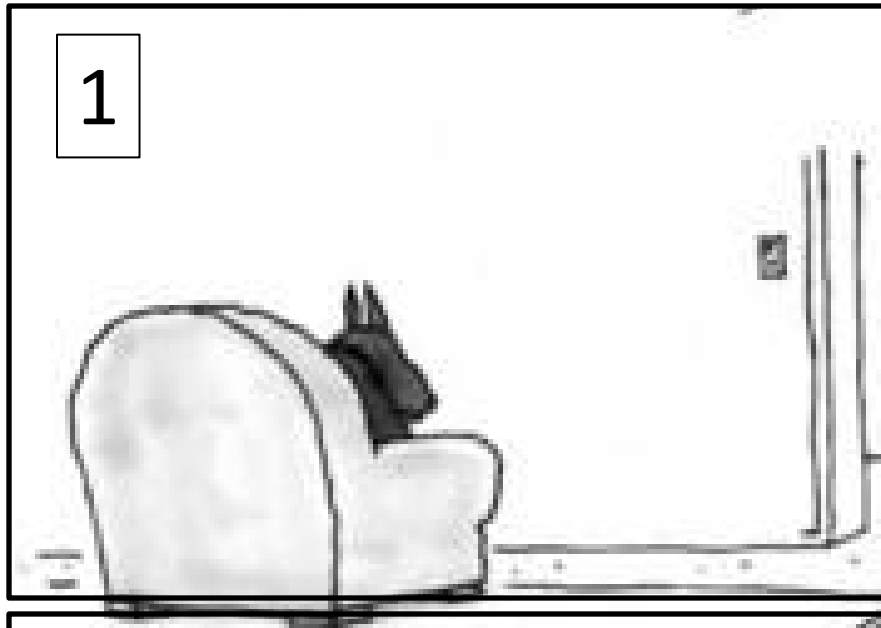
3



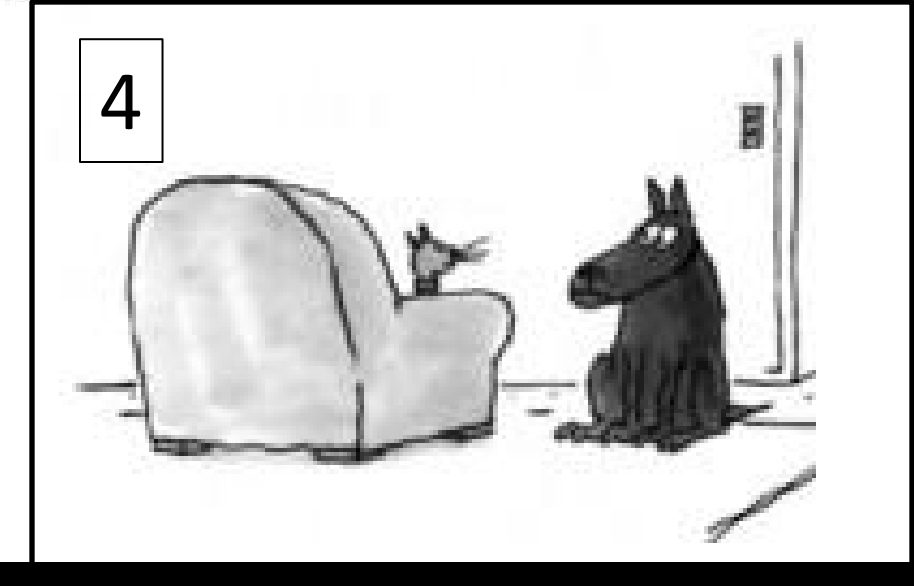
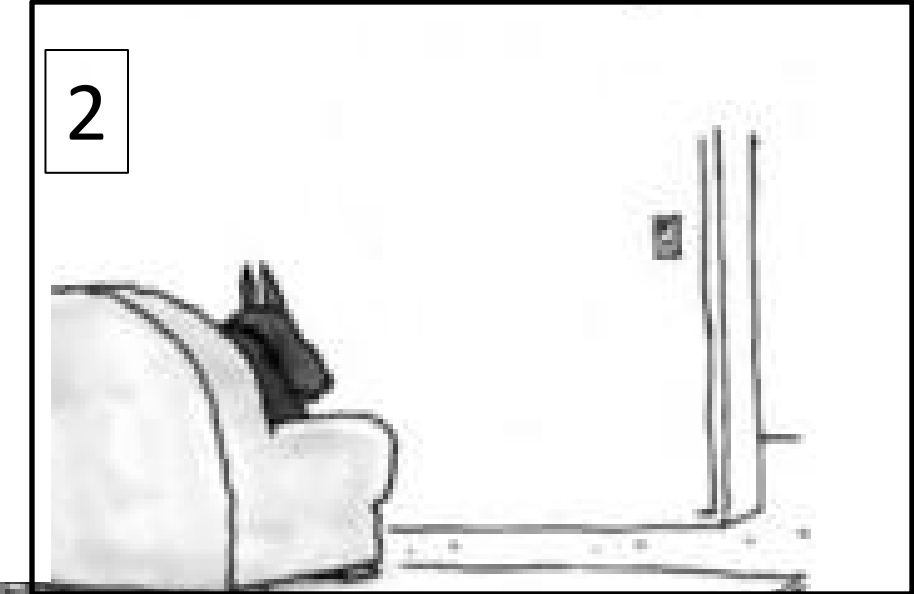
4



# “Why Evil is Perpetuated in the World”



“I used to be mean to others until someone was mean to me”

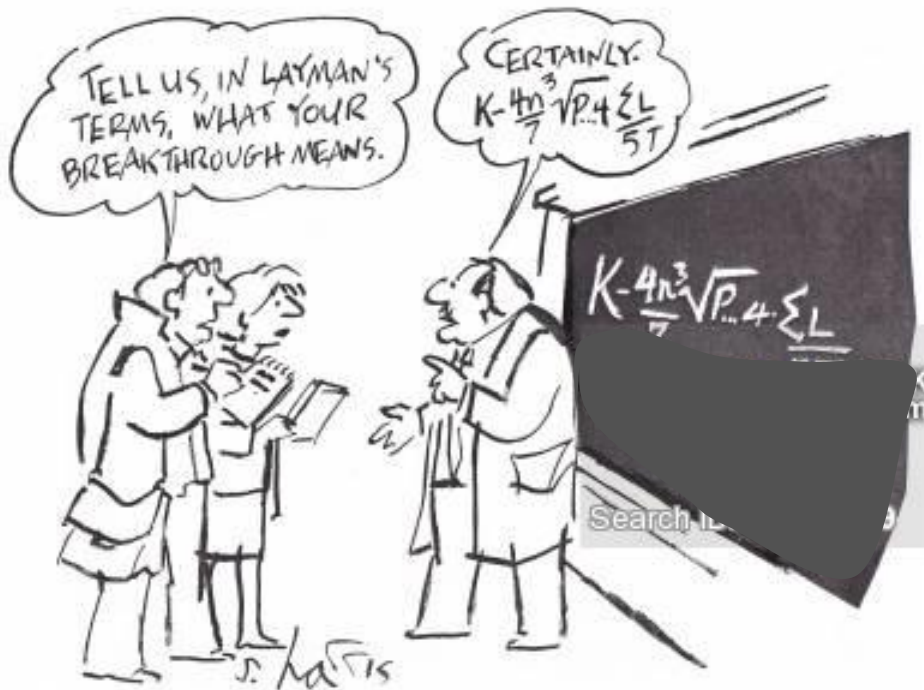


**Rule #4:  
Tailor Your Paper To Your Journal's  
Audience**



# Rule#4: Tailor Your Paper To Your Journal's Audience

- What information you provide
- What language you use



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"Listen, I know you're new, but you need to stop saying 'teensy-weensy.'"



# Big Words & Little Words

“...Big long words name little things.  
All big things have little names.  
Such as life and death, peace and war.  
Or dawn, day, night, hope, love, home.  
Learn to use little words in a big way.  
It is hard to do.  
But they say what you men.  
When you don't know what you mean, use big words.  
That often fools little people.”

*—A. Kudner, quoted in Saturday Review*

# Purple Prose

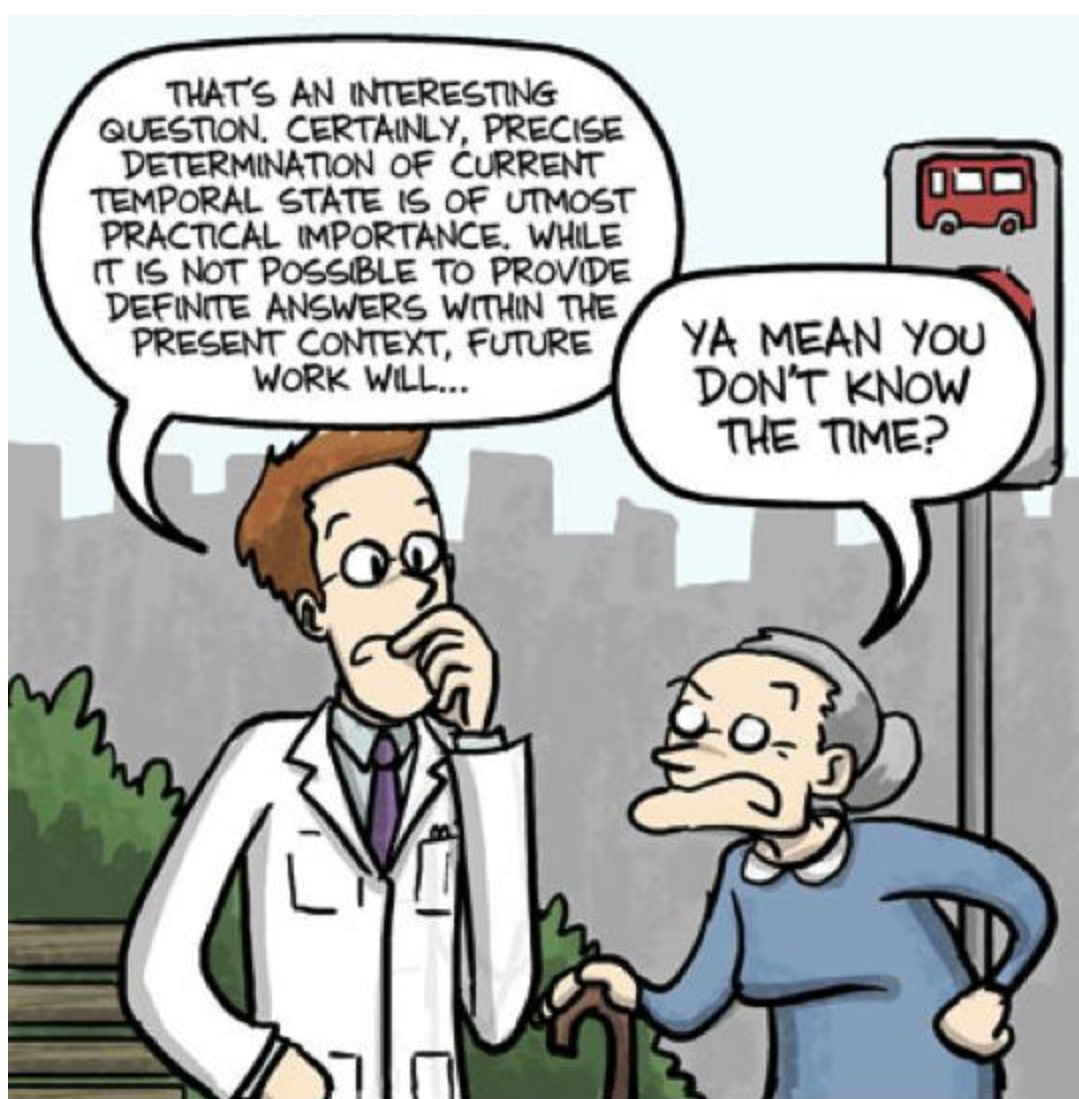
Prose that is too elaborate or ornate.

“Every substance that coruscates is not fashioned from the aureate metal.” -  
*Proverb*

# Rule #5: Omit Needless Words

“Elements of Style”, Strunk & White

## Rule #5: Omit needless words.





# Needed or needless detail?

A

The screenshot shows the homepage of LINGSCARS.com. At the top, there is a navigation bar with links for Home, Cars and Vans, How It Works, Price Lists, About Ling, Customers, Fun Stuff, and Quote/Order. A prominent banner advertises 'FREE "Ling" collector's badges' with a 'CLICK HERE' button. Below the navigation, there are sections for 'Business Customer Pricing' and 'Personal Customer Pricing'. A chat window is open, displaying a user's profile and a message: 'I'm online, LIVE + KICKING on twitter!'. A search bar contains the text 'Qashqai 1.6 Visia'. The page is filled with various advertisements, including one for 'ABARTH CAR LEASING' and another for 'ALFA ROMEO LEASE CARS'. A large banner at the bottom reads 'Hi! I am Ling from Dragons' Den. I lease cheap new cars!'. The overall layout is very busy and lacks clear visual hierarchy.

Ailsa Chibnall, Border7

Which website selling cars do you prefer?

Vote A or B on socrative.

# Needed or needless detail?

B


Cars home > Cars for sale

**AA Motoring**

## Need some new wheels?

Buy & Sell your car on  
AA Carfair

List your car for free



Search for new cars and used cars online. Whether you are selling a car, buying a car or just looking for advice on how to buy or sell a car, start your search with AA Carfair.


### Search for cars

Body type

Make

Model and/or keywords

Year



**Nissan Bluebird 1993**

278,738km

Silver 4 Door door Sedan – Petrol

Hawkes Bay

€ 1,500

More info

Private seller

der.co.nz/external/aacarfair/sell-your-car

Which website selling cars do you prefer? .  
Vote **A** or **B** on socrative.



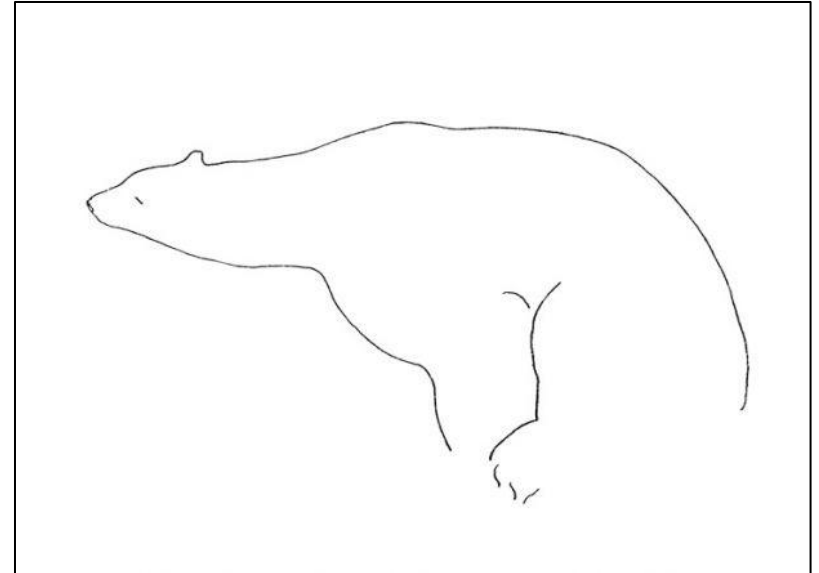
# Needed or needless detail?

A



Eric Wilson

B



I. Noguchi

Which artwork depicting a polar bear do you prefer?

Vote only A or B on 'socrative'.

# First sentence of a scientific paper

“We wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.).”  
- *Watson & Crick, Nature*

“I think this is a good first sentence for a scientific paper.”

Vote **T** or **F** on ‘socrative’.

# Purple Prose

Prose that is too elaborate or ornate.

“Fearing that the world might plunge back into the terrifying depths of sanity after *Kick* runs its course at the theatres, Chetan Bhagat decided to save the serial Facebook friend-request senders, photo-likers, blank callers and stalkers of all stripes from catching the depression bug.” –*Firstpost*

# Ernest Hemingway and the short short story



# Ernest Hemingway and the short short story



**"For sale:  
baby shoes,  
never worn."**

**Rule #6:**  
**No spelling mistakes or  
grammatical errors**

# Rule #6: No spelling mistakes or grammatical errors

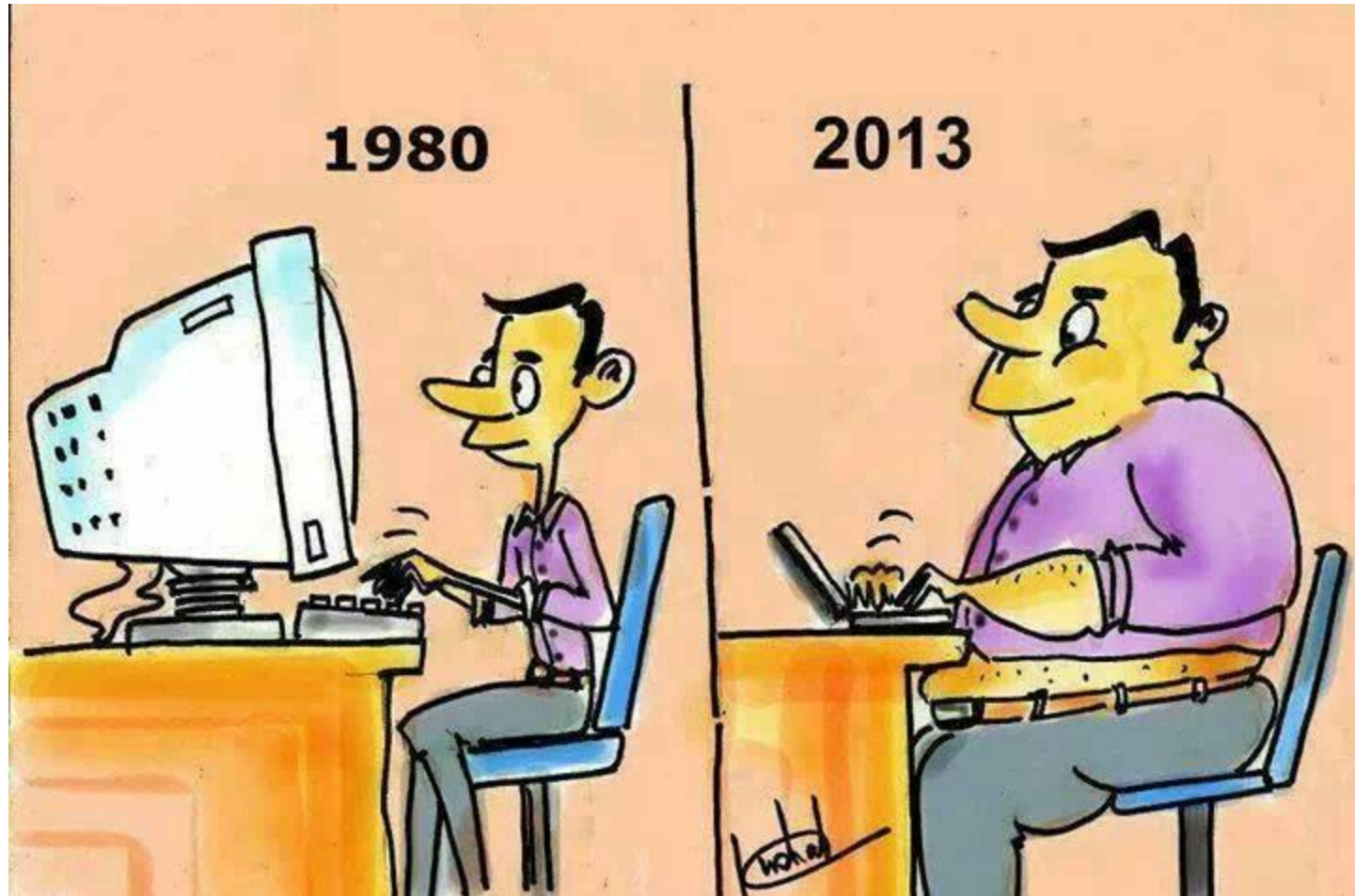
- Use spell check software
- You can try using software that corrects grammar
- Proofread! (Again and again and again)
- Consult lists of common errors



**Rule #7:  
Make Compelling Figures**

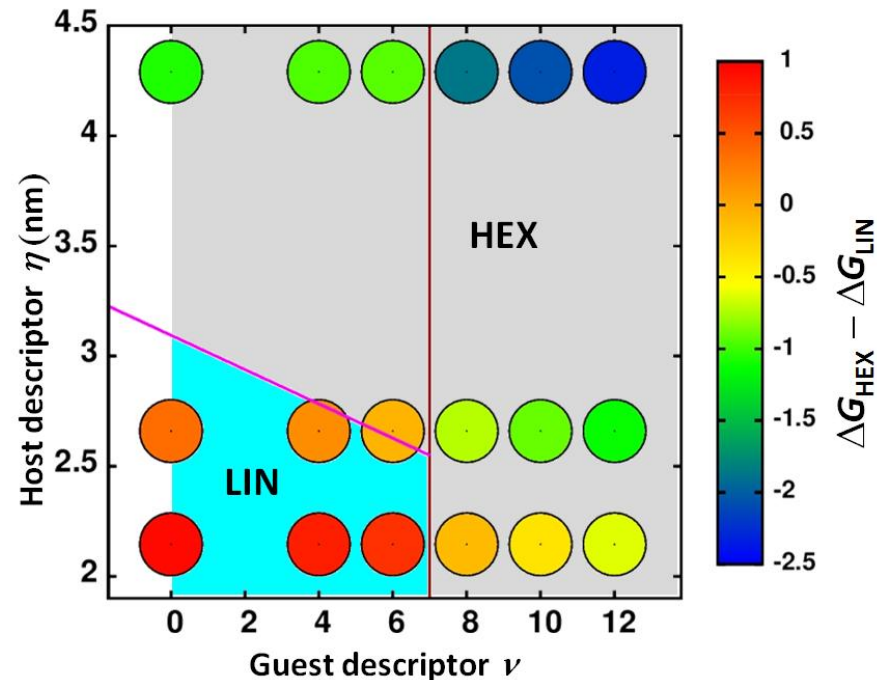
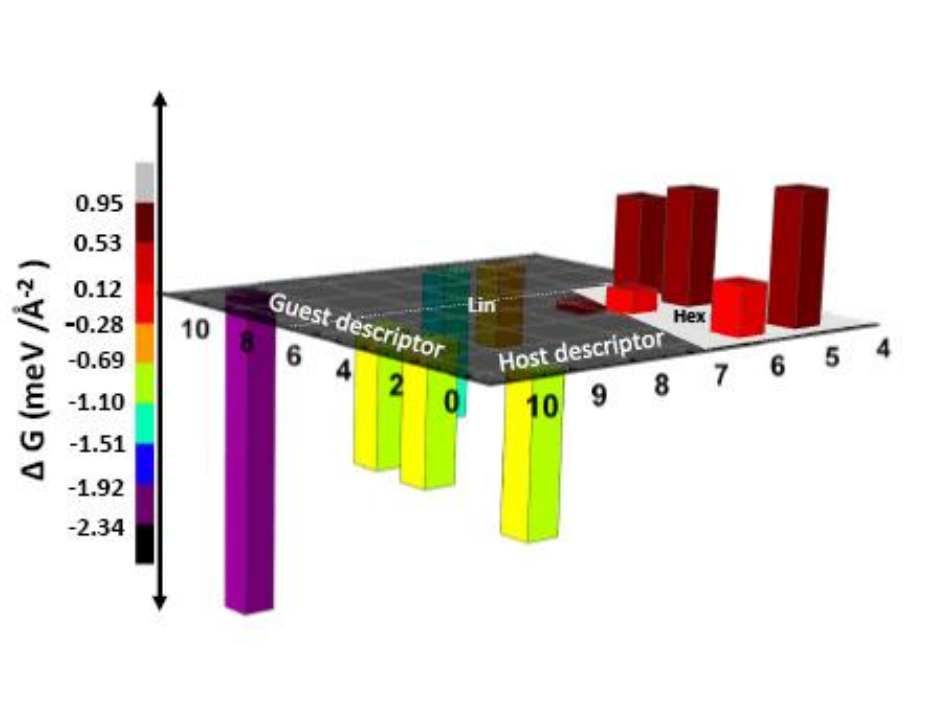


# “A Picture Is Worth A Thousand Words”



# Plots and Graphs

Two plots of the same data



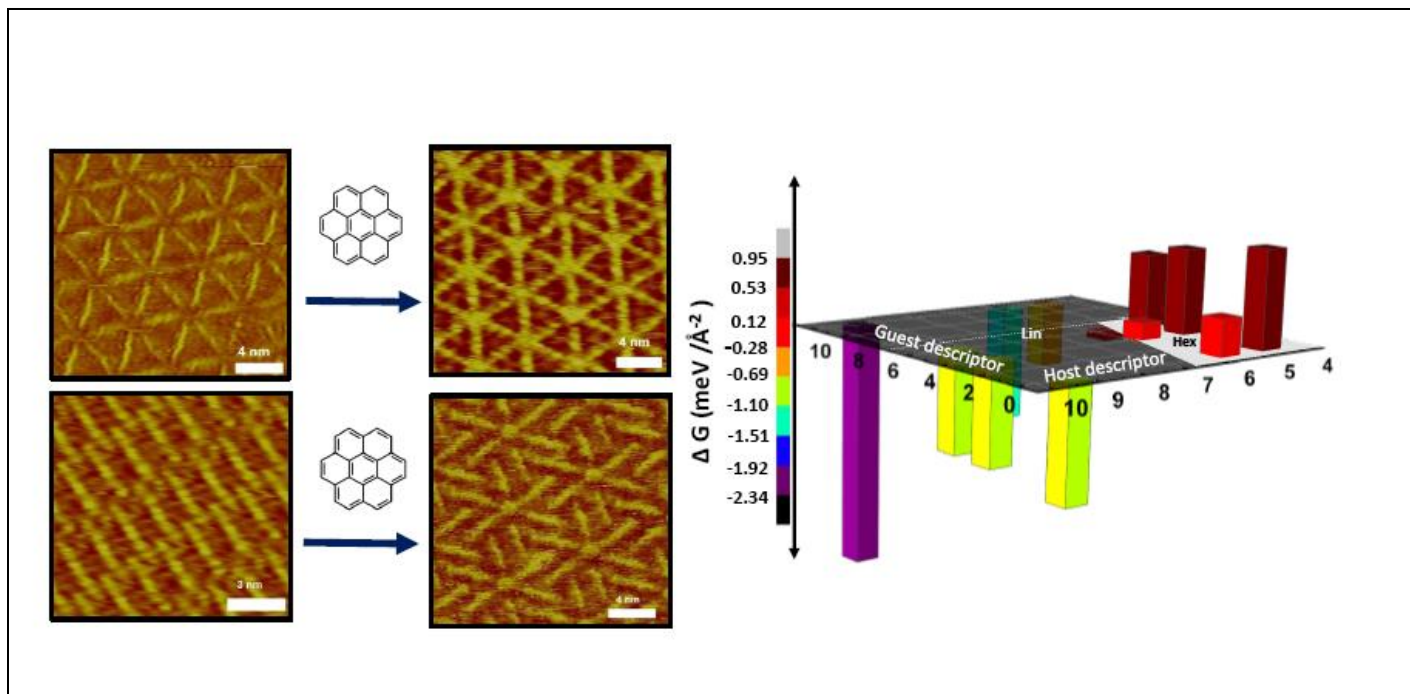
- A. I like the figure on the left better.
- B. I like the figure on the right better.

Answer on [b.socrative.com/login/student](https://b.socrative.com/login/student)) Room No. 659414

# “Graphical Abstracts”

Two graphical abstracts for the same paper

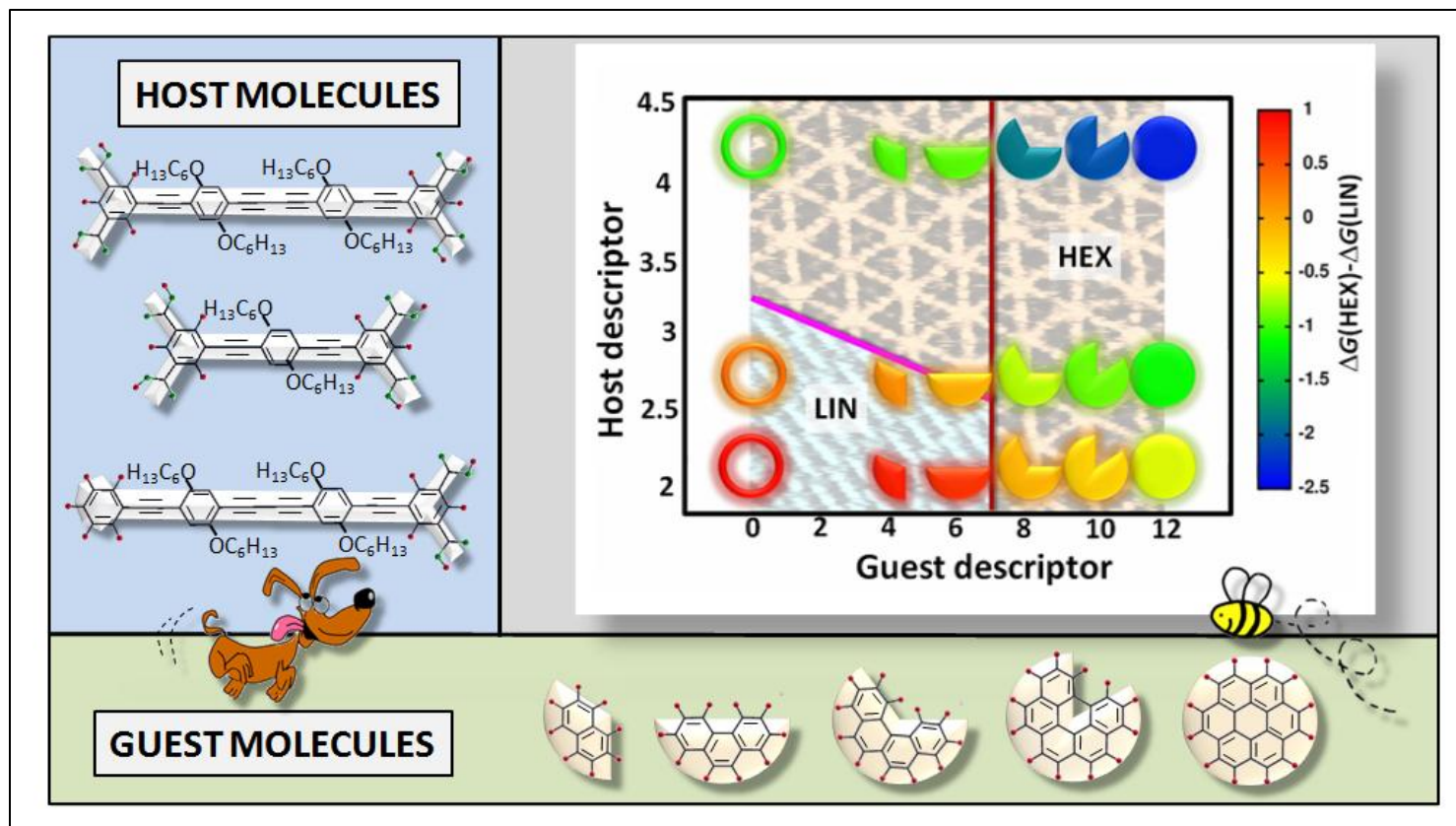
A



# “Graphical Abstracts”

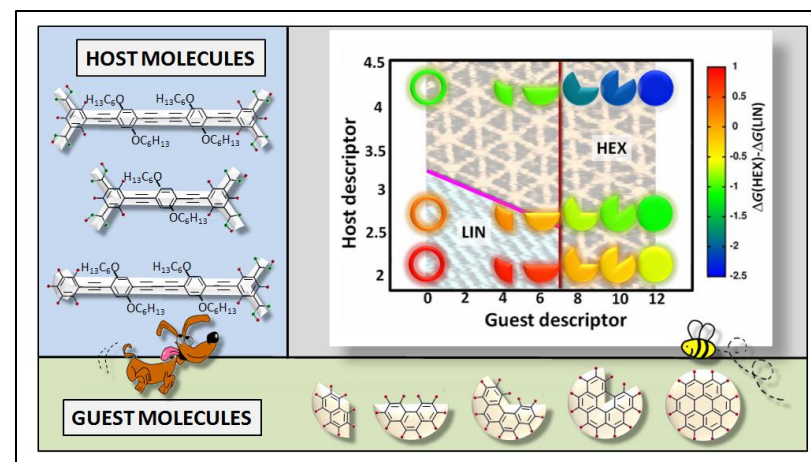
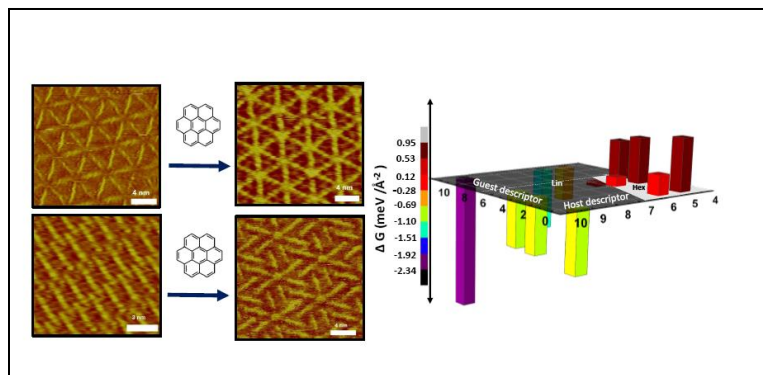
Two graphical abstracts for the same paper

B



# “Graphical Abstracts”

Two graphical abstracts for the same paper



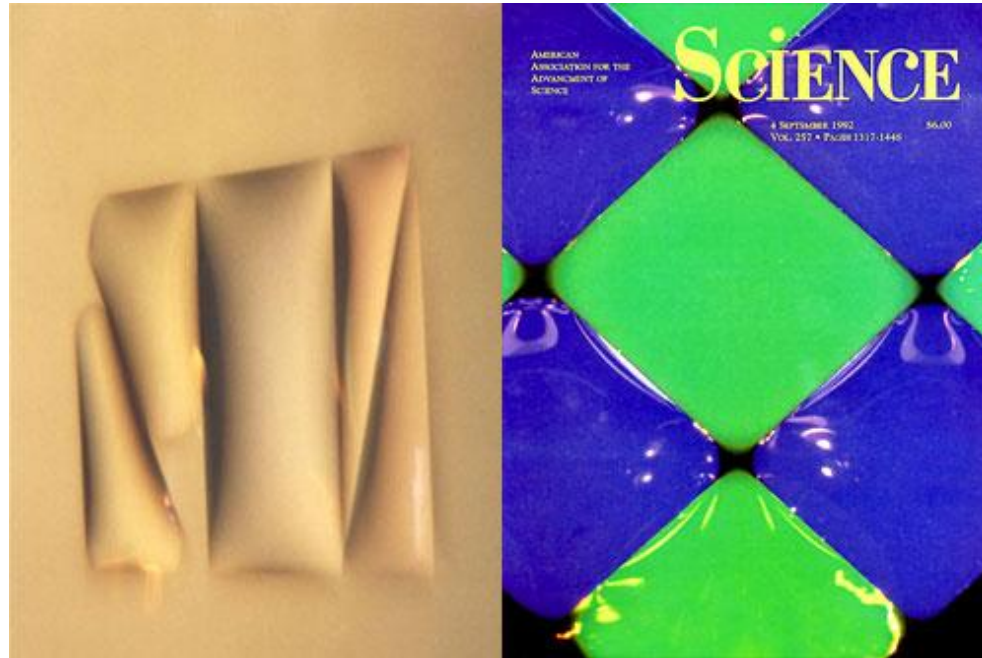
A. I like the figure on the left better.

B. I like the figure on the right better.

Answer on [b.socrative.com/login/student](https://b.socrative.com/login/student)) Room No. 659414



# Striking Figures



George Whitesides & Felice Frankel

- A. I like the figure on the left better, mostly because it is monochrome.
- B. I like the figure on the left better, mostly because the lines are asymmetric.
- C. I like the figure on the right better, mostly because of the colours.
- D. I like the figure on the right better, mostly because of the square patterns.
- E. I think the left is better for 'science' but the right is better for 'Science' cover page. (Answer on [b.socrative.com/login/student](https://www.b.socrative.com/login/student)) Room No. 659414

**Rule #8:  
Absolutely No Plagiarism!**

# Rule #8: Absolutely No Plagiarism





# Plagiarism

“It is of course wrong to copy results from another paper, but it is okay to copy sentences from other papers in the introduction to my paper.”

Vote **TRUE** or **FALSE** on socrative

# Self-Plagiarism

“It is wrong to copy sentences from someone else’s paper, but it is fine to copy sentences from my own published papers.”

Vote **TRUE** or **FALSE** on socrative

# Plagiarism & Self-Plagiarism

- “Authors may not present data and other results obtained by others as if they were their own.”
- “Nor may authors incorporate without attribution text from another work (by themselves or others), even when summarizing past results or background material.”
- “If a direct quotation is appropriate, the quotation should be clearly indicated as such and the original source should be properly cited.”

-Physical Review Journals, Editorial Policies & Practices

**Rule #9:  
Stick to Journal's Style Guidelines**

# Rule #9: Stick to Journal's Style Guidelines

On the journal's webpage, look for:

- “Instructions to authors”
- Style files
- Templates (in .doc, LaTeX)

# Instructions to Authors

An example:



**Medical Physics**  
The International Journal of Medical Physics Research and Practice

Home Issues Freely Available Content About ▼

## INSTRUCTIONS TO AUTHORS

Medical Physics publishes articles broadly concerned with the relationship of physics to medicine and biology. The articles may be experimental or theoretical.

### Article Types and Page Limits

Submissions may be in the form of a (1) Research Article, (2) Technical Note, (3) Medical Physics Letter, (4) Review Article or Future of Medical Physics (formerly Vision 20/20) Article, (5) Task Group Report, (6) Special Report, (7) Point/Counterpoint "Debate," (8) Correspondence, (9) Controversial Topic Article, (10) Editorial, (11) Ph.D. Thesis Abstract, (12) Erratum, (13) Medical Physics Dataset Article, or (14) Book Reviews. All submissions (except Ph.D. Thesis Abstracts) will undergo full peer review.

# Examples of Reference Styles

The same paper cited according to the conventions followed in three different journals:

<sup>9</sup>S. Narasimhan and D. Vanderbilt, *Phys. Rev. Lett.* **69**, 1564 (1992).

[240] S. Narasimhan, D. Vanderbilt, *Phys. Rev. Lett.* **69** (1992) 1564.

(28) Narasimhan, S.; Vanderbilt, D. *Phys. Rev. L.* **1992**, *69*, 1564.

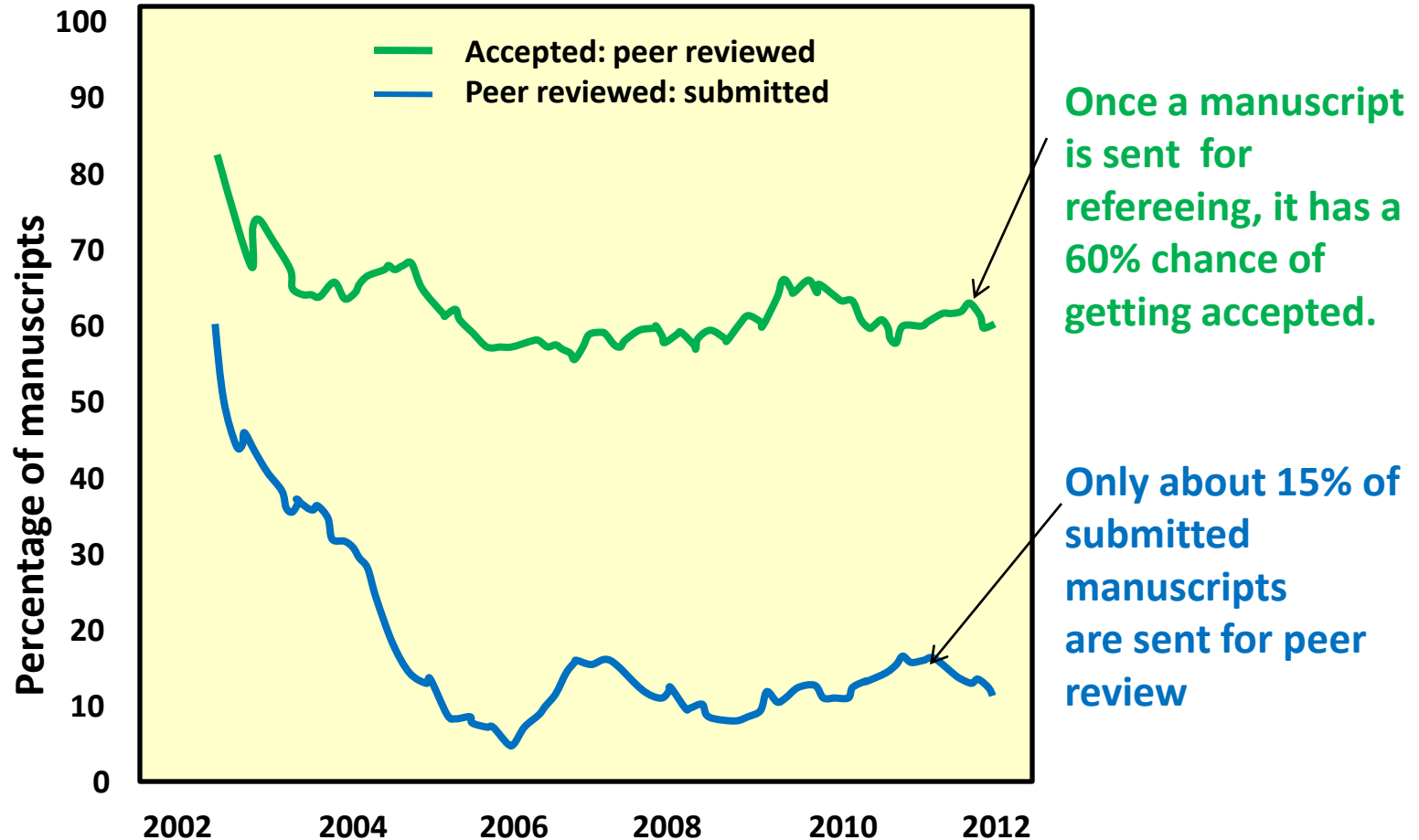
(Using packages like LaTeX and bibtex will take care of this automatically)

**Rule #10:  
Pick A Good Title**



# At What Stage are Papers Rejected?

e.g., Nature Materials:



Data from Nature Materials 11, 743 (2012).

# Let's Look at a Few Titles....

- “Observation of a rapidly pulsing radio source”
  - A Hewish, SJ Bell, JDH Pilkington, PF Scott, RA Collins, Nature, 1968
- “Discovery of Luminous Pulsed Hard X-Ray Emission from Anomalous X-Ray Pulsars 1RXS J1708–4009, 4U 0142+ 61, and 1E 2259+ 586 by INTEGRAL and RXTE”
  - L Kuiper et al., The Astrophysical Journal, 2006
- “Broken symmetries and the masses of gauge bosons”
  - P W Higgs, Physical Review Letters, 1964
- “Effects of charged Higgs bosons in the deep inelastic process  $\nu_{\tau} \mathcal{N} \rightarrow \tau^{-} \mathcal{X}$  and the possibility of detecting tau-neutrinos at cosmic neutrino detectors”
  - MI Pedraza-Morales, A Rosado & H Salazar, Pramana, 2008
- “A high performance cathode for the next generation of fuel cells”
  - Z Xhao, S M Haile, Nature, 2004
- “A new symmetric solid-oxide fuel cell with  $\text{La}_{0.8}\text{Sr}_{0.2}\text{Sc}_{0.2}\text{Mn}_{0.8}\text{O}_{3-\delta}$  perovskite oxide as both the anode and cathode.”
  - Y Zheng et al., Acta Materialia, 2009

# Write A Good Cover Letter!

2-4 paragraphs.

Ideally, not longer than 1 page.



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# A Cover Letter to JACS that 'worked'-1

Dear Editors,

We wish to submit our paper entitled "Tuning the Morphology of Au clusters by Substrate Doping" as a Communication to JACS. We believe that while our paper contains state-of-the-art computational results, it is very simple conceptually but has wide-ranging technological implications that would be of interest to a large community of chemists, physicists and chemical engineers.

One of the most exciting developments in the last two decades, where the areas of nanotechnology and catalysis have overlapped, has been the discovery that nanoparticles of gold can act as catalysts, even though bulk gold is famously inert. The papers that have shown the catalytic properties of gold have been of wide general interest, and have been published in high-profile journals. One goal here is to control catalytic activity by controlling the shape of small clusters. This is of interest not just for nanocatalysis but also for possible applications in electronics and nanomagnetism.

# A Cover Letter to JACS that ‘worked’-2

In a series of landmark papers that were published in JACS and Phys. Rev. Lett., previous authors showed that 20-atom Au clusters could be coaxed into assuming a planar shape by either depositing them on ultrathin oxide layers on a metal substrate, or placing the entire system in a very high electric field. While this was of considerable fundamental interest, these earlier approaches did not easily lend themselves to practical application. In the present work, we suggest that a similar effect can be achieved in a conceptually elegant yet technologically much simpler way, viz. by doping the MgO substrate with Al atoms. Our calculations confirm that indeed this method results in a planar cluster shape being favored over a tetrahedral shape, by an energy difference that varies linearly with dopant concentration. We are confident that our results will be of interest to a wide readership, and therefore feel our paper is suitable for publication in JACS.

+ information about referees.



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