

**AUT TACE,  
AUT LOQUERE MELIORA  
SILENTIO (AND THE LIKES)**

Alfonso Pierantonio  
Università degli Studi dell'Aquila



Philosophy  
about 1645, Salvator Rosa  
National Gallery, room 31

- the talk reflects my personal experience at the beginning of my career and later as the mentor of students and postdocs
- it explores the major sources of interior and exterior **sources of conflicts** and **problems**
- it is not systematic
- it is intended for
  - phd students
  - post-docs
  - young mentors

# What is research

- what is research
- what is a phd

# What is research

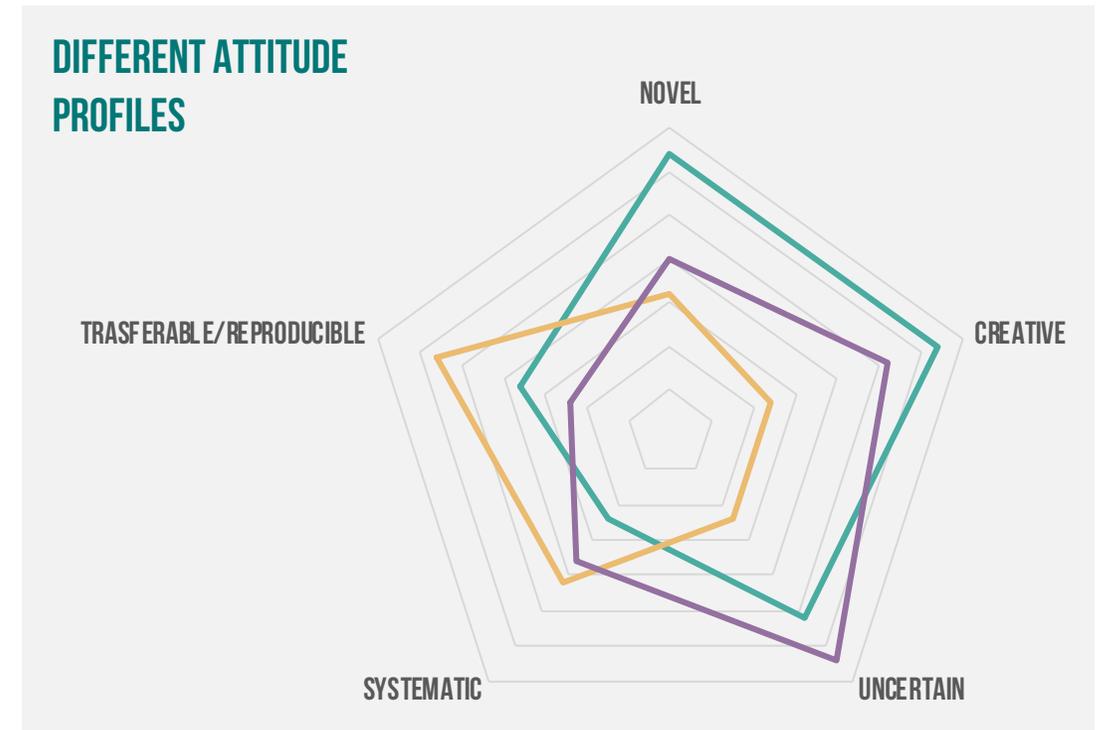
- research comprises creative and systematic work undertaken in order to increase the stock of **knowledge** and to devise new applications of available knowledge
- the research activity must be:
  - novel
  - creative
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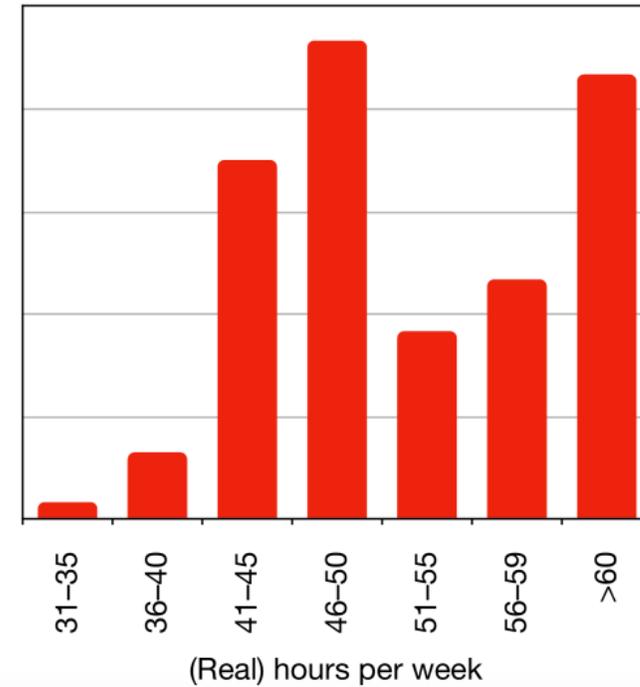
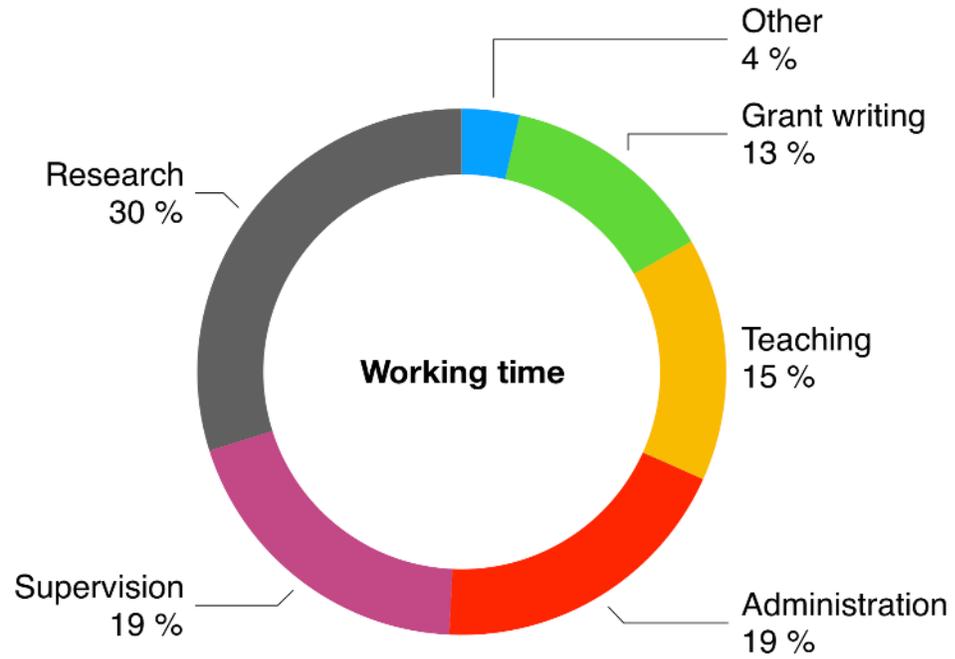


# What is reseach

- highly competitive environments, career uncertainties are costly
- conducting excellent research might no longer be sufficient for obtaining tenured positions
- challenges
  - lack of time,
  - securing a permanent position,
  - obtaining funding,
  - excessive administration

'I'll work on it over the weekend': high workload and other pressures faced by early-career researchers, Nature, Jul 2019

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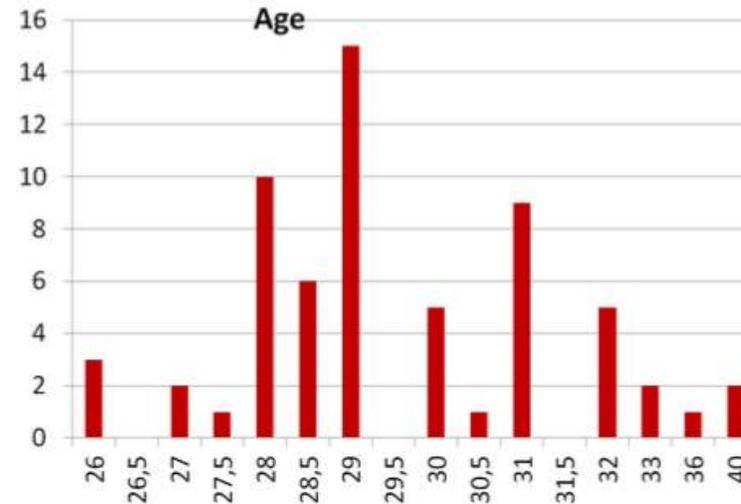
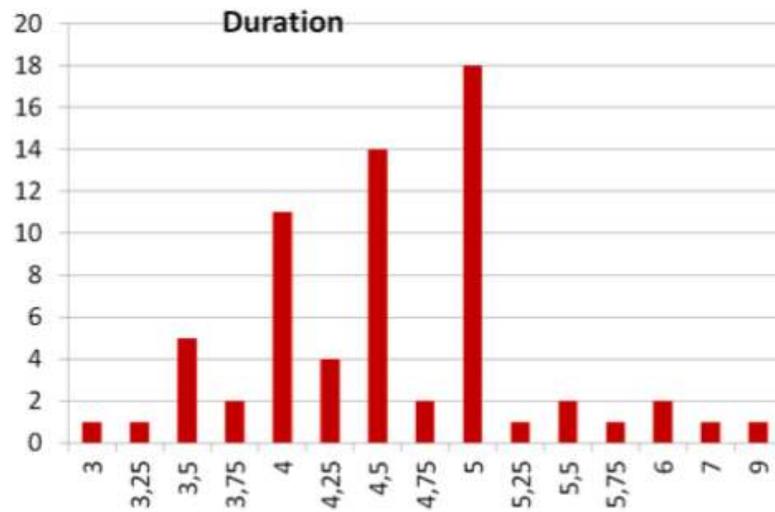
Toma Susi. Young Academy of Europe Members+ Survey 2018. Initial analysis

# What is a phd

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*The most frequent concern for counseling center clients was **anxiety** (58.9%), followed by depression (48.0%), stress (46.9%), specific relationship problems (29.5%), family concerns (29.0%), suicidal thoughts (28.4%), academic performance difficulties (28.2%), sleep disturbance (19.1%), social isolation / loneliness (18.5%), significant previous mental health treatment history (16.5%), and adjustment to a new environment (15.8%) – **career** concerns only 12.2%.*

The Association for University and  
College Counseling Center Directors  
Annual Survey – Public Version 2018

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happiness is not much investigated

reasons to be happy	reasons to be unhappy
<ul style="list-style-type: none"><li>- supportive and competent mentor</li><li>- supportive lab mates that form a social circle</li><li>- (adviser's) opportunities and grants</li><li>- being able to pursue curiosity on a daily basis</li></ul>	<ul style="list-style-type: none"><li>- living just about at the poverty line</li><li>- &gt; 50 hours per week to maintain adequate progress</li><li>- dealing with bureaucracy</li><li>- self doubt</li><li>- occasional sense of 'missing out' on real-world solutions to problems</li></ul>

# What is a phd

## Interesting readings

1. My Top 25 Tips for PhD students  
<https://medium.com/asecuritysite-when-bob-met-alice/as-a-phd-examiner-my-top-25-tips-for-phd-students-4ecb76a307e7>
2. Dear New PhD Student – a letter from your supervisor  
<https://anniebruton.wordpress.com/2013/09/21/dear-new-phd-student/>
3. Five things successful PhD students refuse to do  
Isaiah Hankel, The Guardian, May 2014
4. It's OK to quit your Ph.D.  
Katie Langin, Science Magazin, 2019
5. In the tough academic job market, two principles can help you maximize your chances  
Jay J. Van Bavel , Neil A. Lewis, Jr., William A. Cunningham, Science Magazin, 2019
6. The human cost of the pressures of postdoctoral research  
Pete Etchells, The Guardian, Aug 2017
7. 'I'll work on it over the weekend': high workload and other pressures faced by early-career researchers, Nature, Jul 2019

# Perfect reasoning

- comparative reasoning
  - the rat race
  - bibliometric indicators
- social vs market norms (in mentoring)

# Perfect reasoning

- the assumption that we are all rational implies that, in everyday life, we compute the value of all the options we face and then follow the **best possible** path of action

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human irrationality is about our distance from perfection

- it is not effective, it **procrastinates** the delivery
- **failure** is highly possible

# Comparative reasoning

## Decision-making behind our behavior

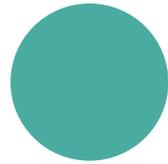
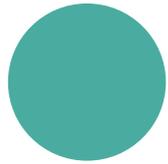
- understanding the decision-making processes that are behind our behavior is not easy
- most people don't know what they want unless they see it in context; the **context** provides them with the baseline
- we focus on the **relative advantage** of one thing over another, and estimate **value** accordingly

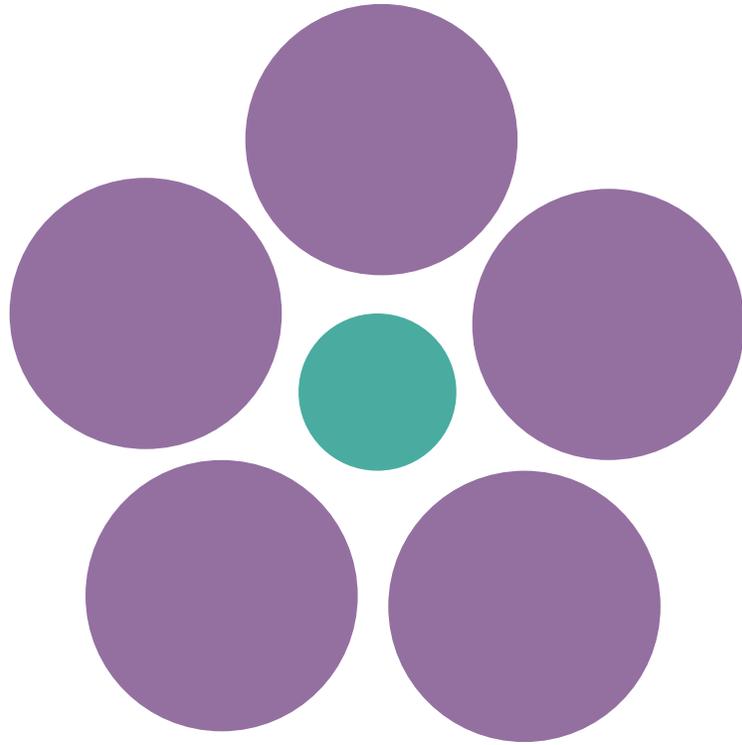
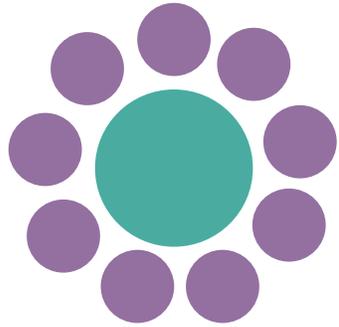
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humans rarely choose things in absolute terms







 Chateau Lafite Rothschild 1956



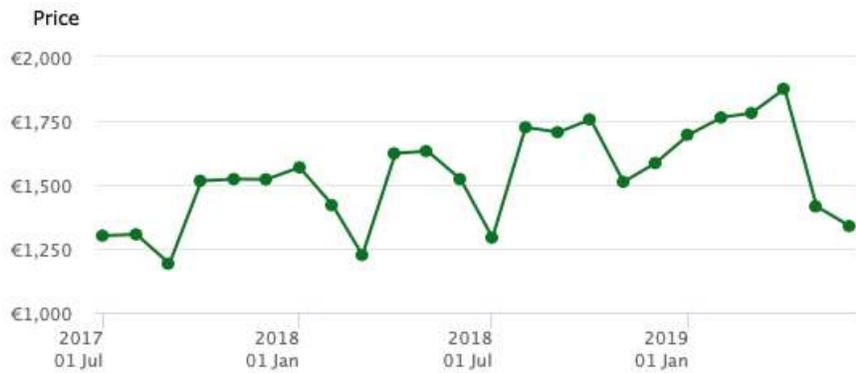
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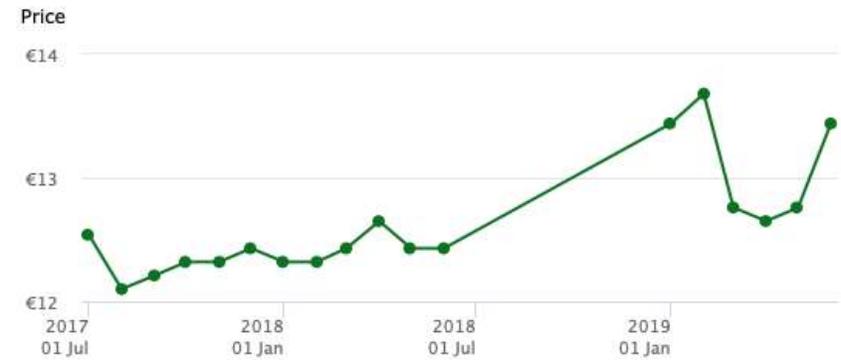
 Wijngoed Thorn Riesling 2016



 Chateau Lafite Rothschild 1956



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36-inch LG  
**\$ 690**

**BIG  
SALE**  
ONLY TODAY



36-inch LG  
**\$ 690**



42-inch Samsung  
**\$ 850**



50-inch Philips  
**\$ 1,480**

$$\left( \frac{850 - 690}{42 - 36} = 26,7 \right)$$

$$\left( \frac{1,480 - 850}{50 - 42} = 78,75 \right)$$

# Comparative reasoning

- The **context** is what naturally emerges as the baseline for our implicit or explicit comparisons

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	Tutte	Dal 2014
Citazioni	22858	9608
Indice H	58	49
i10-index	142	119

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# The rat race

- how relevant are bibliometric indicators for the analysis of research performance?
- typical indicators
  - number of publications
  - citations
  - h-index

# Ex: “Abilitazione Scientifica Nazionale 2018 – 2020”

- preliminary bibliometric indicator thresholds (median values) considered for the ‘scientific habilitation’ in Italy
- qualitative assessment takes place once indicators are fulfilled

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How much this has to do with excellence?

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Bar chart showing citation counts from 2015 to 2019. The y-axis is labeled 'cm' and ranges from 0 to 2000. The bars show a steady increase in citations over the period.

# The rat race

- bibliometrics
  - measure of output **not quality** of the work
  - difficult for early career researchers to show their output, metrics take time
  - metrics can be gamed
- San Francisco Declaration on Research Assessment 2012
  - impact factor introduces bias and inaccuracies when appraising research
  - impact factor is not to be used as a “measure of the quality of individual research article, or in hiring, promotion, or funding decisions”

# Promote yourself but be savvy

- improve visibility
  - being found and read = more citations
  - institutional repositories, peer networks
  - utilise social bookmarking with Zotero, Mendeley, etc
  - presentations/posters at conferences
  - submit articles to the highest-ranking journals
    - top 36% cited articles in the top 5% of journals
    - it measures the quality/value of an article
    - it has an impact of the researcher reputation
- keep track of your research impact
  - check your h-index
  - set up citation alerts in google scholar, scopus, etc

The screenshot shows a Google Scholar profile for Krzysztof Czarnecki. The profile includes a photo, name, title (Professor of Electrical and Computer Engineering), and a list of research areas: Software Engineering, Model-Driven Engineering, Software Product Lines, and Variability Engineering. A table of publications is displayed with columns for title, citation count, and year. A bar chart shows the number of citations from 2015 to 2019. A yellow ruler is overlaid on the page for scale.

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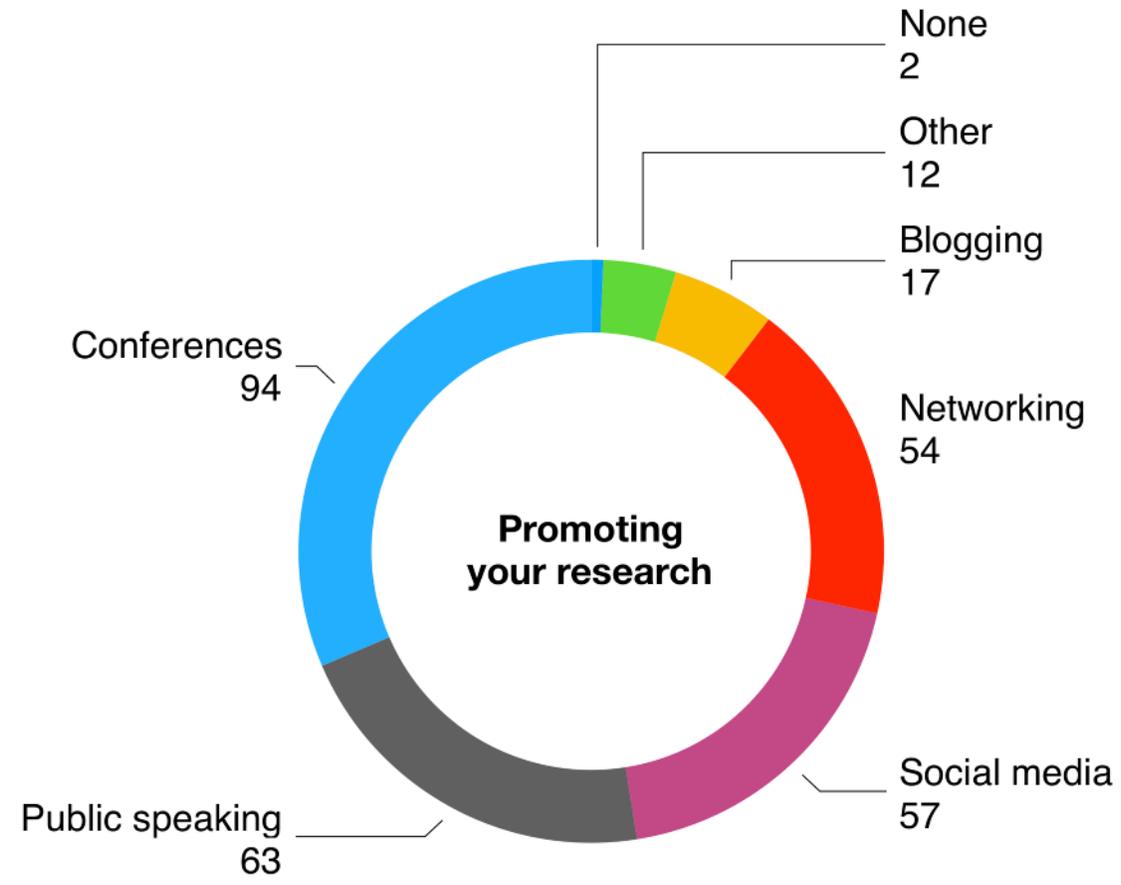
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<a href="#">Software engineering for automated vehicles: addressing the needs of cars that run on software and data</a> K Czarnecki Proceedings of the 41st International Conference on Software Engineering ...	1	2019
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# Perfect reasoning

- comparative reasoning
  - the rat race
  - bibliometric indicators
- social vs market norms (in mentoring)

# Social vs market norms (in mentoring)

- we live simultaneously in two different worlds: one where **social** norms prevail, and another where **contractual** or **market** norms dominate

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**“THE MOST EXPENSIVE SEX IS FREE SEX”  
— WOODY ALLEN**

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social norms	market norms
warm and fuzzy no instant payback family and friends no money involved	cold and clear immediate exchange of equal value business transactions money involved

# Social vs market norms (in mentoring)

- we live simultaneously in two different worlds: one where **social** norms prevail, and another where **contractual** or **market** norms dominate
- when social and contractual norms collide, then troubles sets in
- my experience is that adopting
  - only social norms will surely cause problems and disappointment
  - only market norms makes the mentoring less effective, prevent people from sharing the same mission

# Social vs market norms (in mentoring)

- people can be better **motivated** when they work for a **cause** under non monetary social norms
  - your best friend will help move your coach on Sunday morning without expecting an immediate compensation and will do it on the ground of mutual pleasure

# Social vs market norms (in mentoring)

- people can be better **motivated** when they work for a **cause** under non monetary social norms
  - your best friend will help move your coach on Sunday morning without expecting an immediate compensation and will do it on the ground of mutual pleasure
- **switching to contractual norms into social exchanges, violates the social norms and hurts the relationships**
  - recovering trust is difficult, because when a social norm collides with a contractual norm, the social norm goes away for a long time

# Being a good mentor

- the primary motivation is the natural **human desire to share knowledge and experience**
- there is no single formula for good mentoring
  - an effective mentoring relationship is characterized by mutual respect, trust, and understanding
  - empathy is paramount, but not easy to achieve because it has to be genuine

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**each student is different, each requires a different attention**

*«[..] I am not your sister, nor your mother, nor am I your counsellor – I am not even your friend. Some supervisors regularly socialise with their students. I do not. I am really not that interested in the minutiae of your life. I understand life events will impact on your work, and I will be very sympathetic and talk through practical solutions. But I am not your emotional support – that's what family and real friends are for»*

Dear New PhD Student – a letter from your supervisor,  
Anne Bruton

<https://anniebruton.wordpress.com/2013/09/21/dear-new-phd-student/>

# Being a good mentor

- a good mentor is a good listener
  - through careful listening, one conveys empathy for the student and understanding of a student's challenges
  - when a student feels this empathy, the way is open for clear communication and more-effective mentoring

# Empiricism

# Empiricism makes science democratic

- science is an empirical endeavor
- anyone, **including a new student**, might come up with alternative theories, as long as she found empirical ways to test these theories
  - coming up with empirical experiments is not easy
  - empirical research focuses on observable phenomena
- learn and use tools to produce, collect, and analyze data for consolidating evidence: the best way to convince a mentor who is a doubting Thomas!

# Communication problems

- language barriers
- personal (communication) skills

# Language barriers

- academics assume that students come to them fully formed
- many native English speakers view language barriers as a minor problem, however students' lack of ability to speak clearly in English is often perceived as a lack of ability to think clearly about science
- people who grow up speaking a language other than English are at a real competitive **disadvantage** when it comes to science
- simply learning a new vocabulary won't be enough to help them to succeed, they need real mentorship, and they need it in their own language
- many haven't been exposed to the process and culture of science

# Language barrier

- accept that sometimes you cannot be perfect when communicating in English, don't be afraid and do so anyway
- what you can do? be **motivated** !
  - read books and watch television in English
  - write all lab reports and conduct meetings in English
  - ask your institute to offer English-language training
  - ask your lab head to pay for a stay in a lab in another country during your PhD, or collaborate with other labs and move around
- travelling will improve your English, help you to understand other countries and ways of living, and open your mind

# Communication problems

- language barriers
- personal (communication) skills

**AUT TACE,  
AUT LOQUERE MELIORA  
SILENTIO (AND THE LIKES)**



# **silence** *noun*

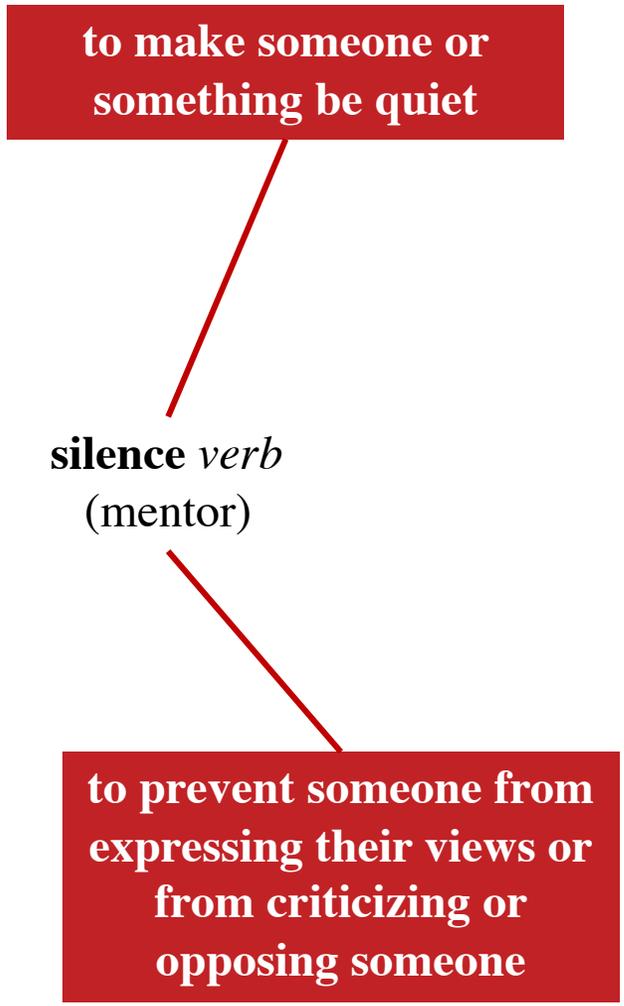
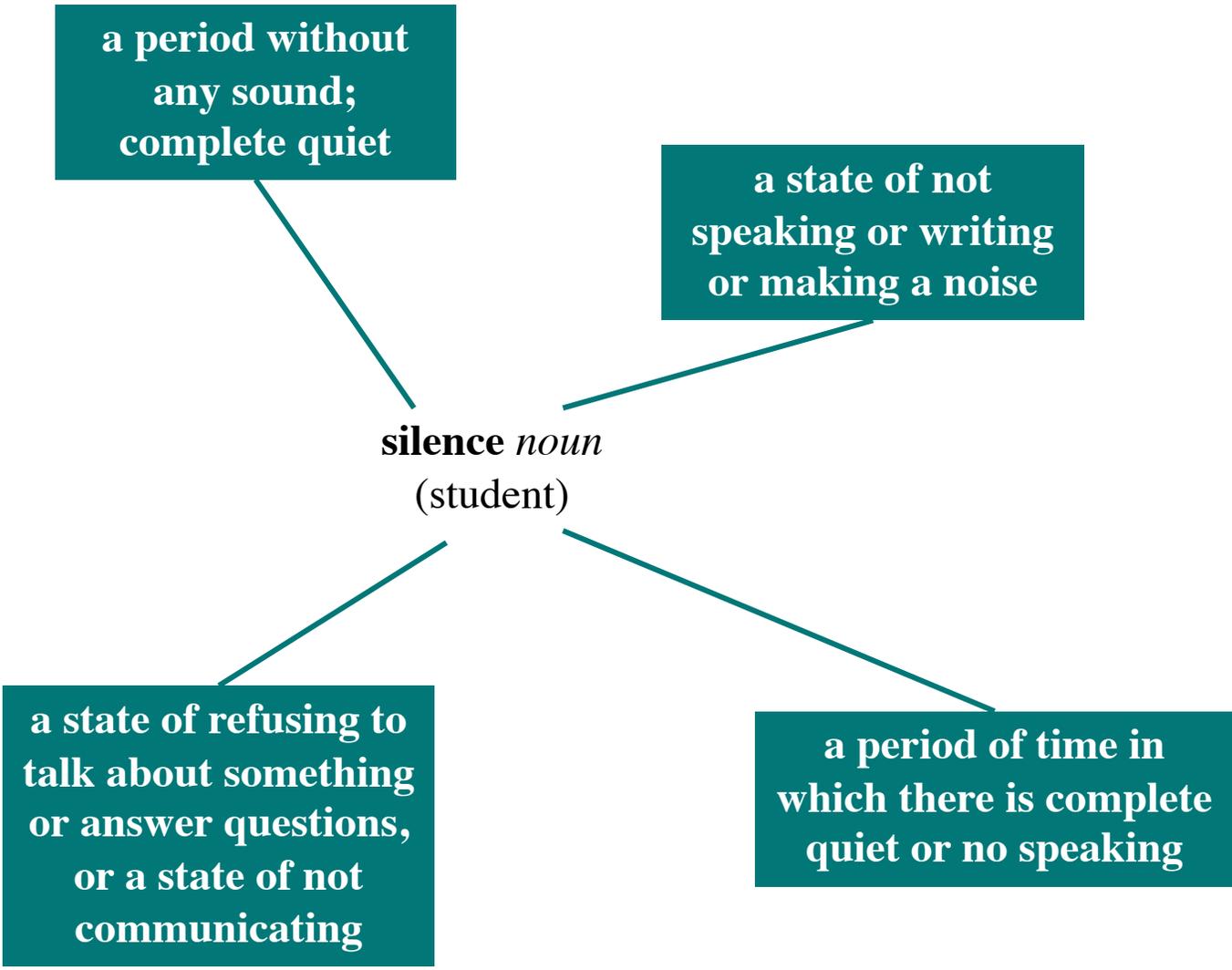
- 1. a period without any sound; complete quiet (uncountable)**
- 2. a state of not speaking or writing or making a noise (uncountable)**
- 3. a period of time in which there is complete quiet or no speaking (countable)**
- 4. a state of refusing to talk about something or answer questions, or a state of not communicating (un/countable)**

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## **silence** *verb*

- 1. to make someone or something be quiet**
- 2. to prevent someone from expressing their views or from criticizing or opposing someone**



**Thank you!**