

# Mediation: the story of just one number

Copernicus of Kraków

New eyes, new worlds, new words

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Kraków | Saturday 23<sup>rd</sup> November, 2019

“Words are the signs of ideas”

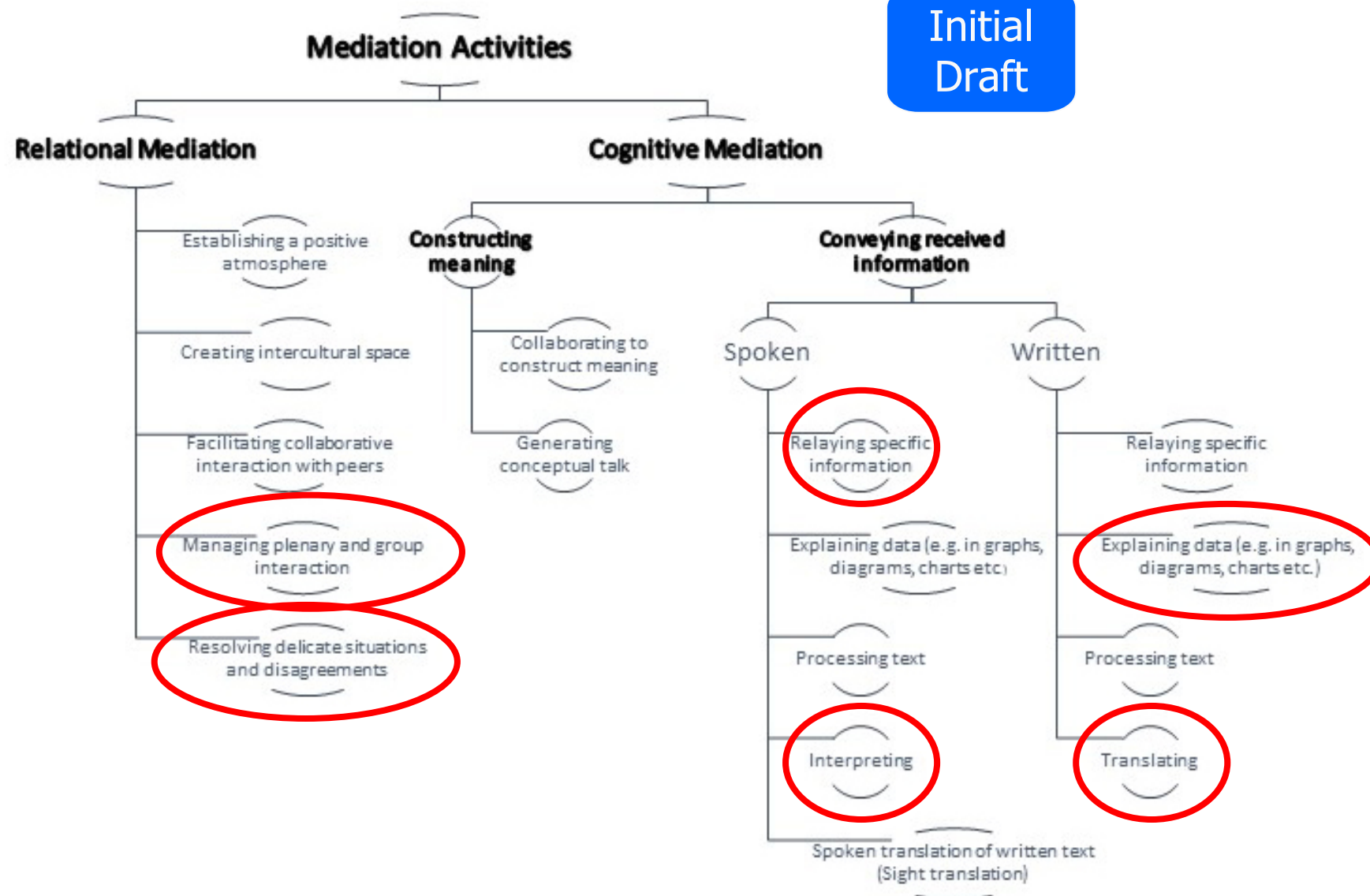
“The great consolation in life is to say  
what one thinks.”

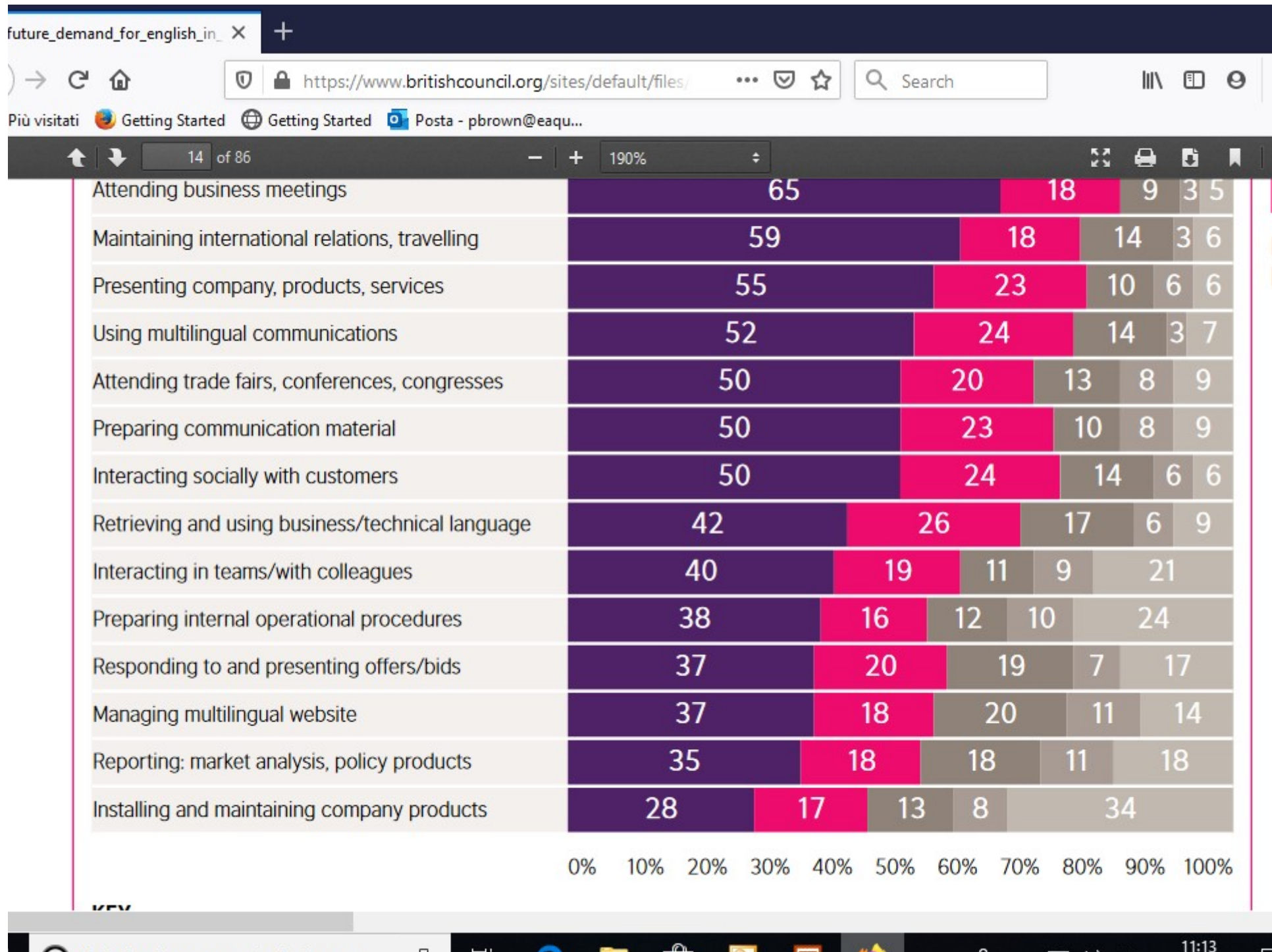
Voltaire (1765)

“Language is the light of reason.”

Dr. Johnson (1709-1784)

# CEFR Mediation – activities & strategies:









Petrarch  
1304 - 1374





EL MEZCO  
E CHAYNO  
DINO STRA  
VITA MUI  
TRO AMPE  
RVNA SEL  
VASCURA  
CHE LADIN  
TIA VLA  
AS MARI

ACANTA  
PICO ALE  
DE COSAD  
VPA QUG  
STASIVA  
SILVAGGI  
ASVIAET  
RUTEGH  
NEL PEN  
NEPUNO



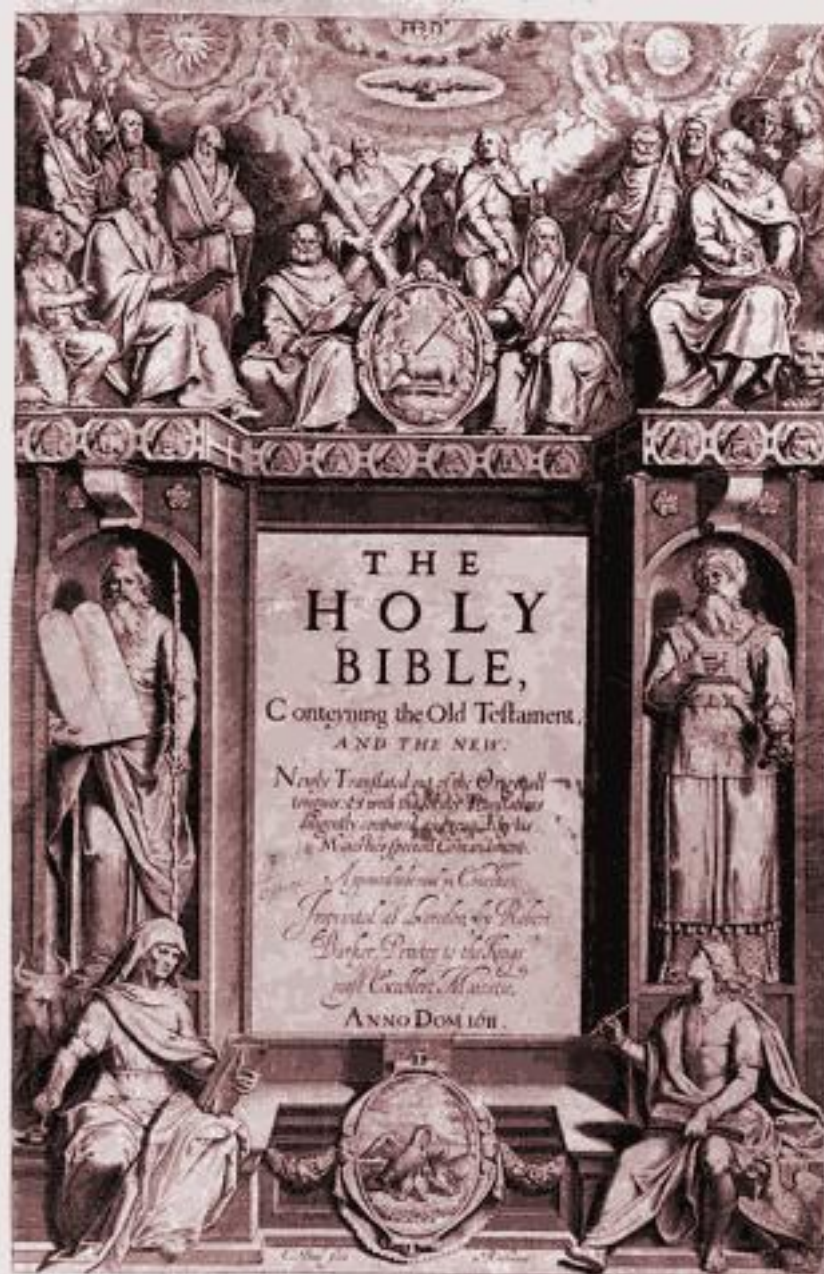
AP

his Gift  
the sores  
And gett  
been ent  
thine me  
my feet



# Shakespeare – forensic reconstruction





Polyphiloprogenitive ..  
(T.S. Eliot)

“Lost in Translation...”

**In the beginning was the Word**

In principio era il Verbo  
(from *logos...*)



# The Via Francigena

## The Pilgrim's path from England to Rome





A.D.1212





## Arabic numerals e.g. 1599 – and etymologies

- Algebra
- Arithmetic
- Alchemy, chemistry
- Algorithm
- Adobe, admiral, albatross, alcohol, alcove, alkali, apricot, arsenal, artichoke, assassin, aubergine, average, azimuth, azure ...



الحشوم ما زال في ذلك الموضع  
او ترا في المادود ما زال في ذلك الموضع  
الحشوم ولا تدرى او لا تدرى

# الاذوية الفخالة واضنا



بالقوية كان سميها او الميرور ويطور  
الاذوية الفخالة ما زال في ذلك الموضع  
وهو ذو اصل من السوم

# النذير العام







"Art is never finished, only  
abandoned."

"Sempre la pratica dev'essere edificata  
sopra la buona teorica."

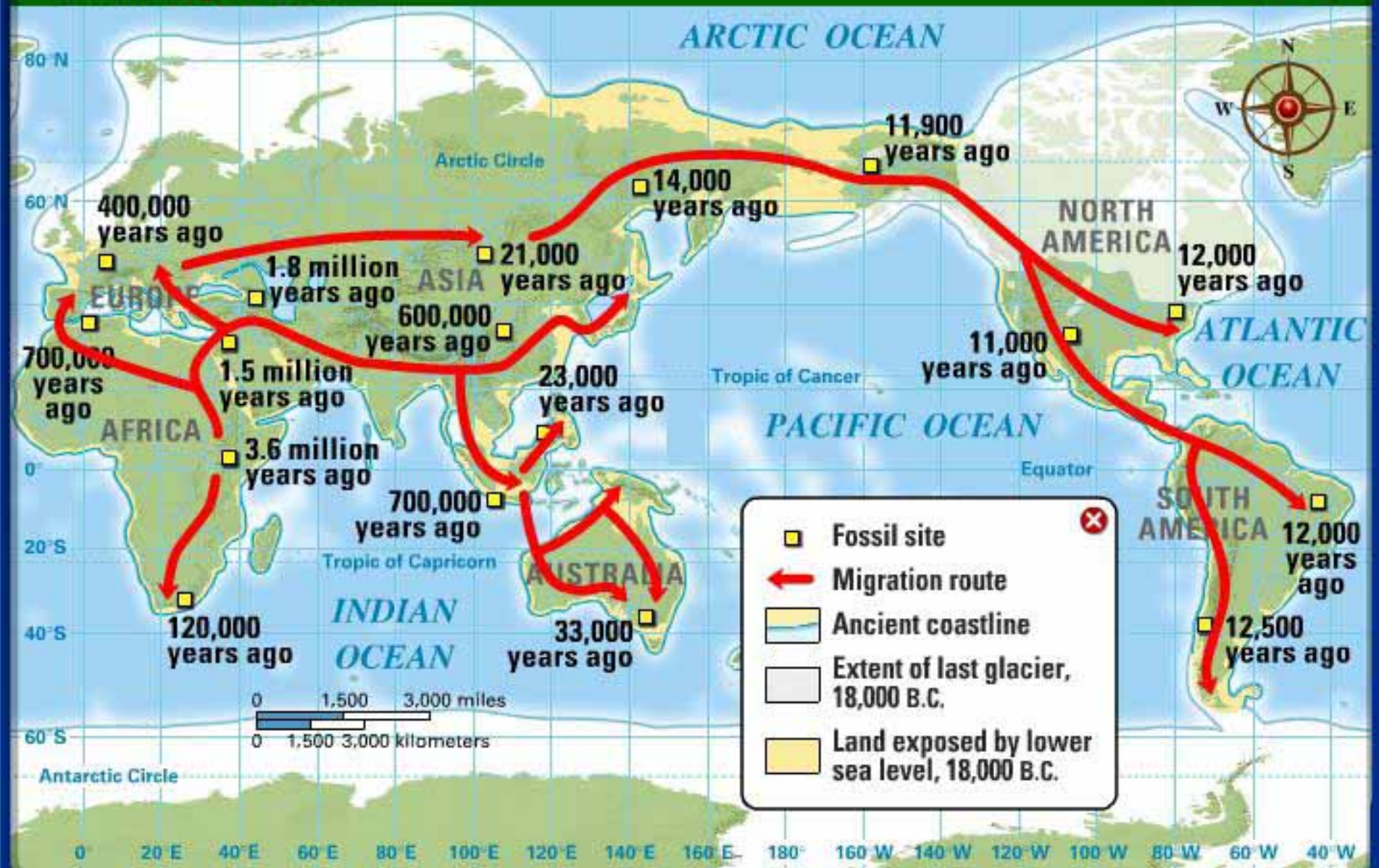
*Leonardo da Vinci*

# Gunpowder Plot – 5 November 1605



# Early Human Migration to 10,000 years ago

DIRECTIONS  KEY 

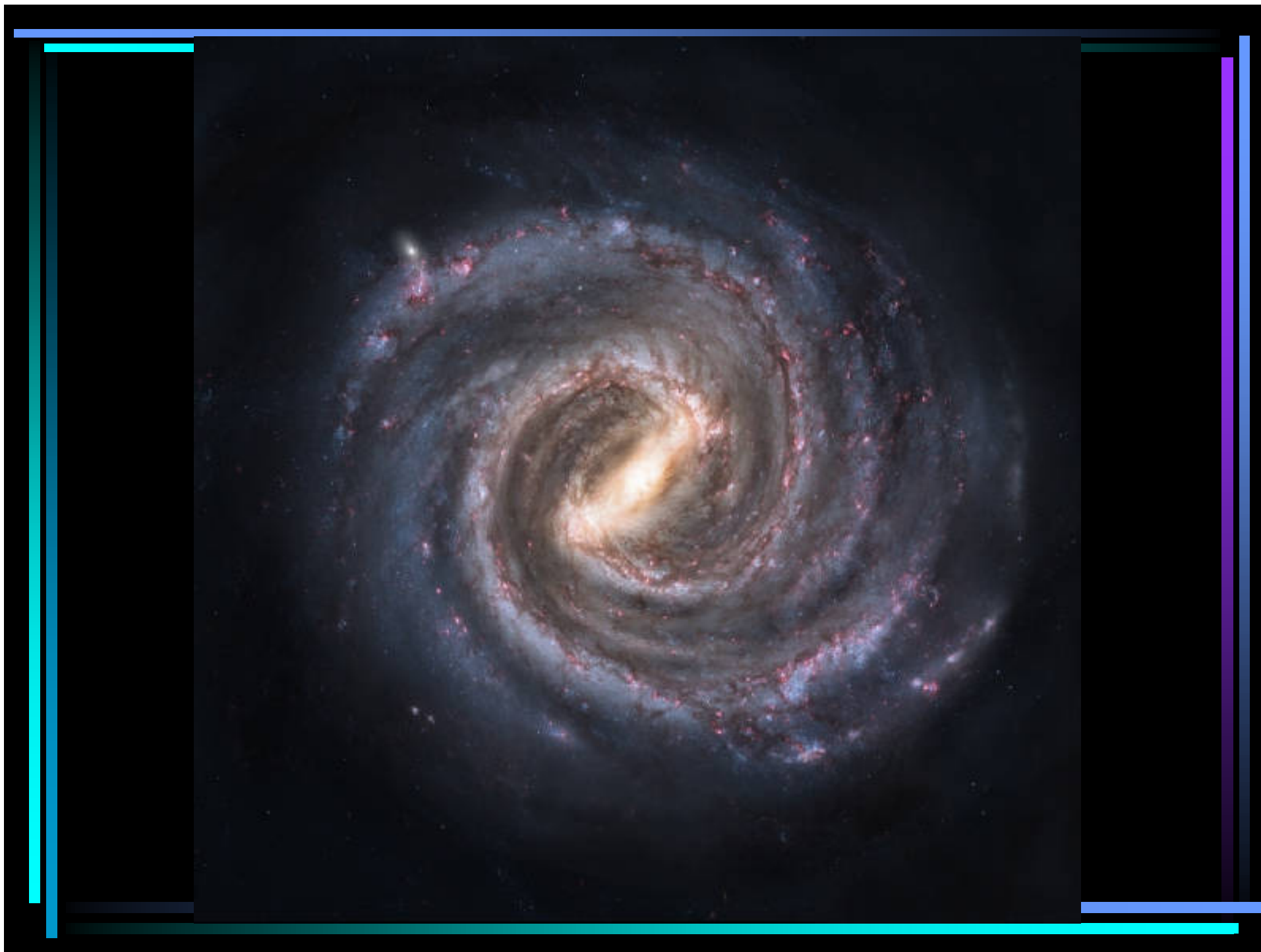




Similarity 3 spirals in the pineapple, which are adjacent numbers in the fibonacci series 5 8 13







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## KEY WORDS IN SCIENCE & TECHNOLOGY

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Bill Mascoll



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## Art & Architecture

- 1, 2, 3, 5, 8, 13, 21, 34, 55, ...
- **Fibonacci** sequence – called Fibonacci numbers
- Leonardo Bonacci – "the most talented Western mathematician of the Middle Ages" c 1175 – c 1250 (*cf* Dante b 1265)
- Renaissance concept (Fibonacci from Pisa)
- The sequence was already well-known in India - **Virahaṅka** (between a.d. 600 and 800)



1202 - ***Liber Abaci*** ("The Book of Calculation")  
is a historic book on arithmetic by Leonardo of  
Pisa, posthumously known as Fibonacci.





## 1202 - *Liber Abaci* ("The Book of Calculation")

- «Novem figure indorum he sunt 9 8 7 6 5 4 3 2 1. Cum his itaque novem figuris, et cum hoc signo 0, quod arabice *zephirum* appellatur, scribitur quilibet numerus, ut inferius demonstratur.»
- Leonardo Fibonacci, *Liber abaci*, beginning of Chapter I (2nd edition)



1202 - *Liber Abaci* ("The Book of Calculation")

- "The nine Indian figures are:
- 9 8 7 6 5 4 3 2 1
- With these nine figures, and with the sign 0 which the Arabs call *zephir* any number whatsoever is written.
- Leonardo Fibonacci, *Liber abaci*, beginning of Chapter I (2nd edition)

0123456789

• I V X 0 1 V A 9

I II III IV V VI VII VIII IX X

o 1 2 3 4 5 6 7 8 9

o 1 2 3 4 5 6 7 8 9

o 1 2 3 4 5 6 7 8 9

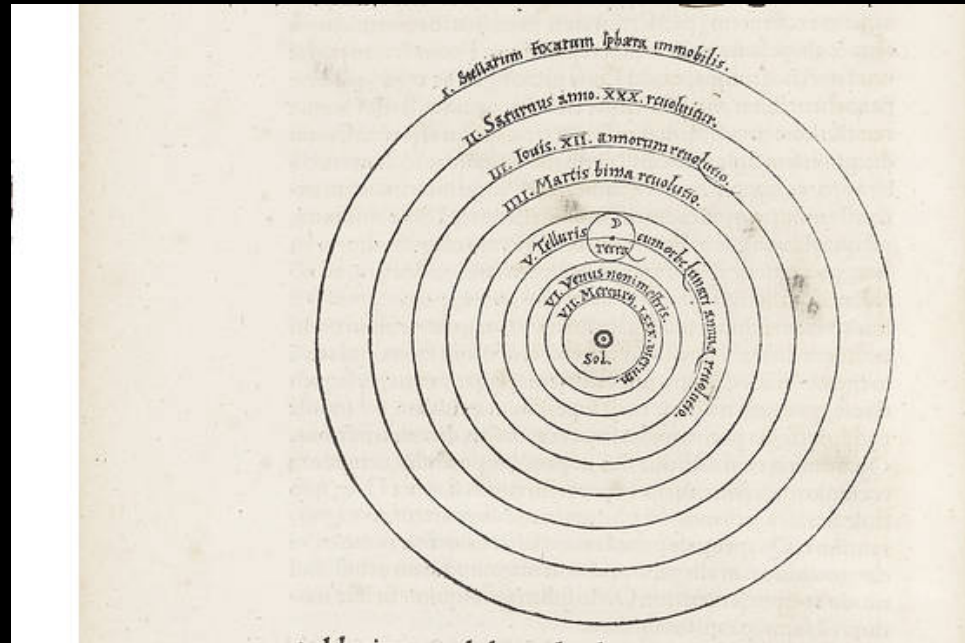
o 1 2 3 4 5 6 7 8 9

- **zero** (cf.)
- Sanskrit शून्य (*śūnya*),
- Arabic صفر (*sefr*),
- Hebrew עפס (*éfes*),
- Greek μηδέν – ‘miden’  
[to be understood as *nothing, null*]

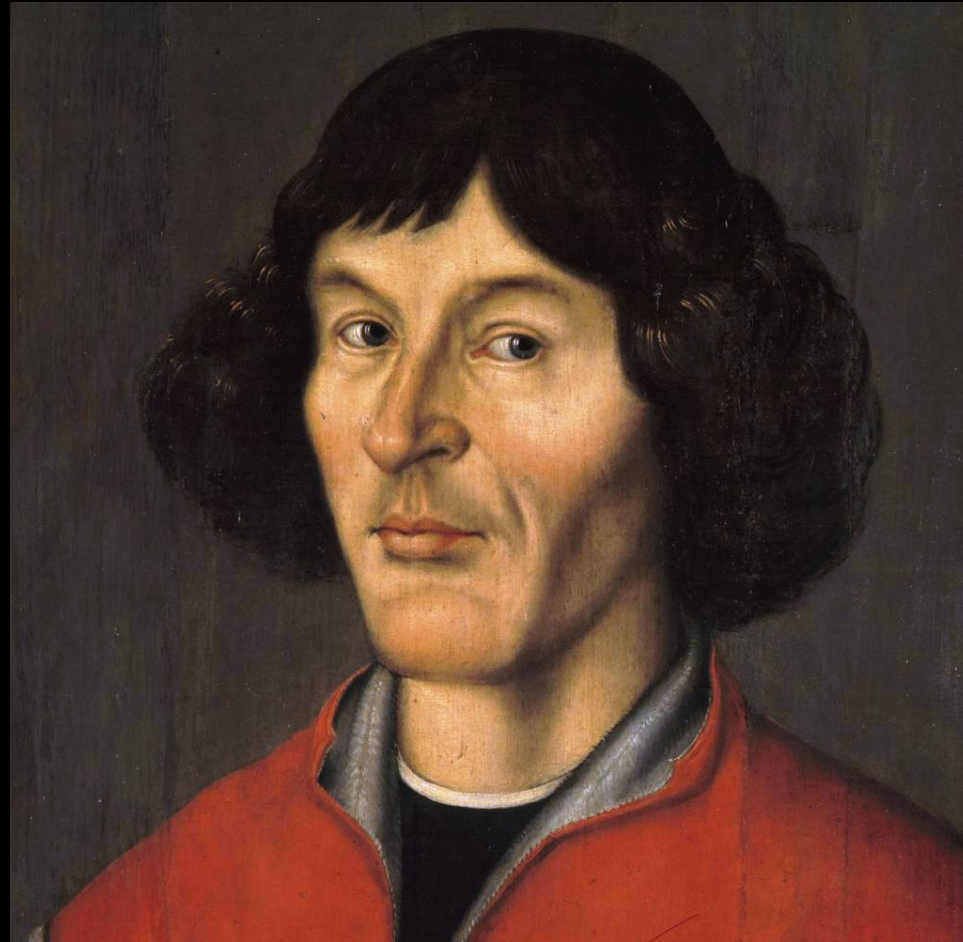


- The word *zero* came into the English language via French *zéro* from Italian *zero*, Italian contraction of Venetian *zevero* form of Italian *zefiro* via *şafira* or *şifr*.
- In pre-Islamic time the word *şifr* (Arabic صفر ) had the meaning "empty".
- *Sifr* evolved to mean zero when it was used to translate *śūnya* (Sanskrit: शून्य) from India.
- The first known English use of *zero* was in 1598.
- The Italian mathematician Fibonacci (c. 1170–1250), who grew up in North Africa and is credited with introducing the decimal system to Europe, used the term *zephyrum*.
- This became *zefiro* in Italian, and was then contracted to *zero* in Venetian. The Italian word *zefiro* was already in existence (meaning "west wind" from Latin and Greek *zephyrus*)...

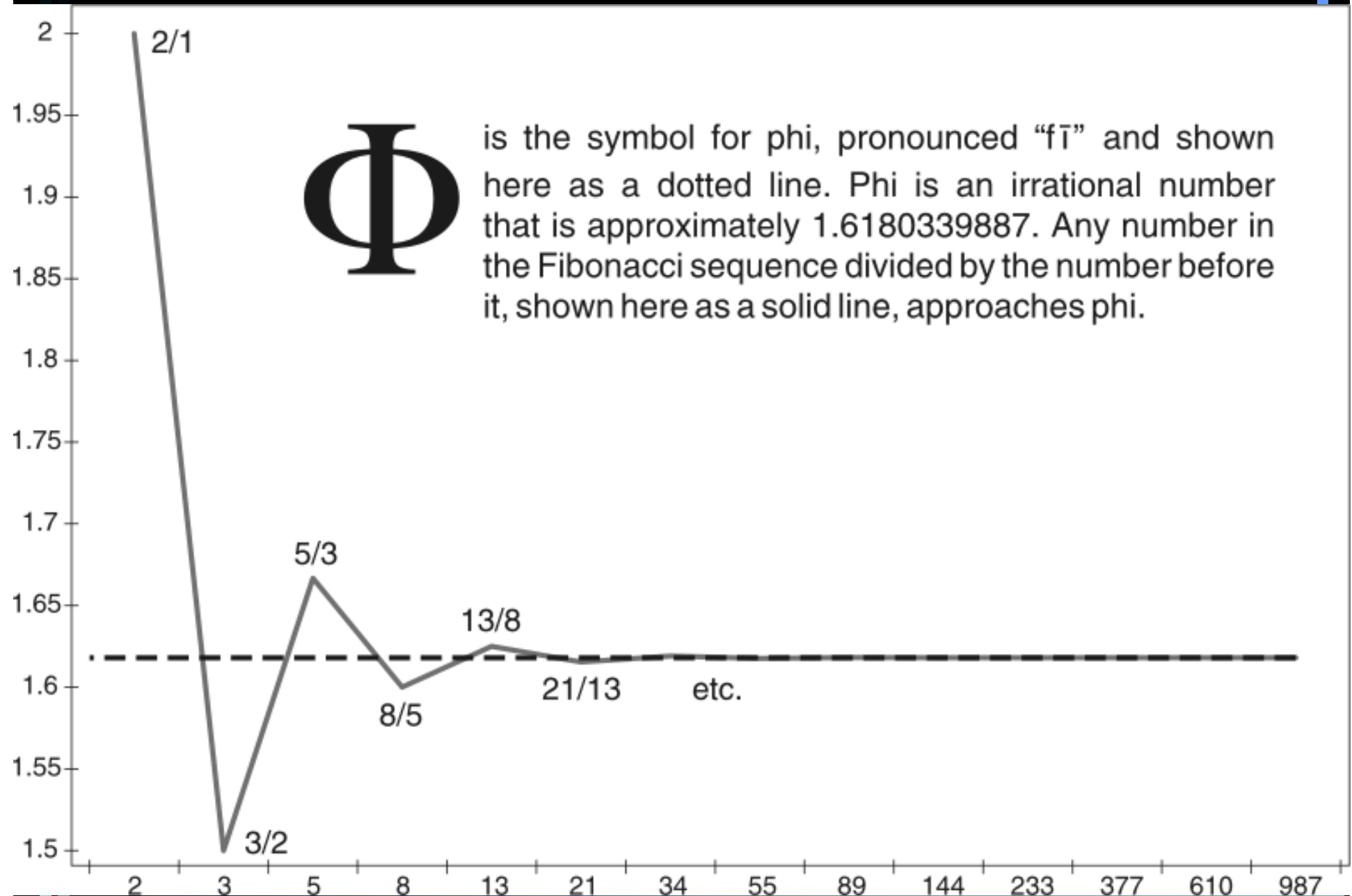
*De revolutionibus orbium coelestium*  
(*On the Revolutions of the Celestial Spheres*), published just before his death in 1543 ...

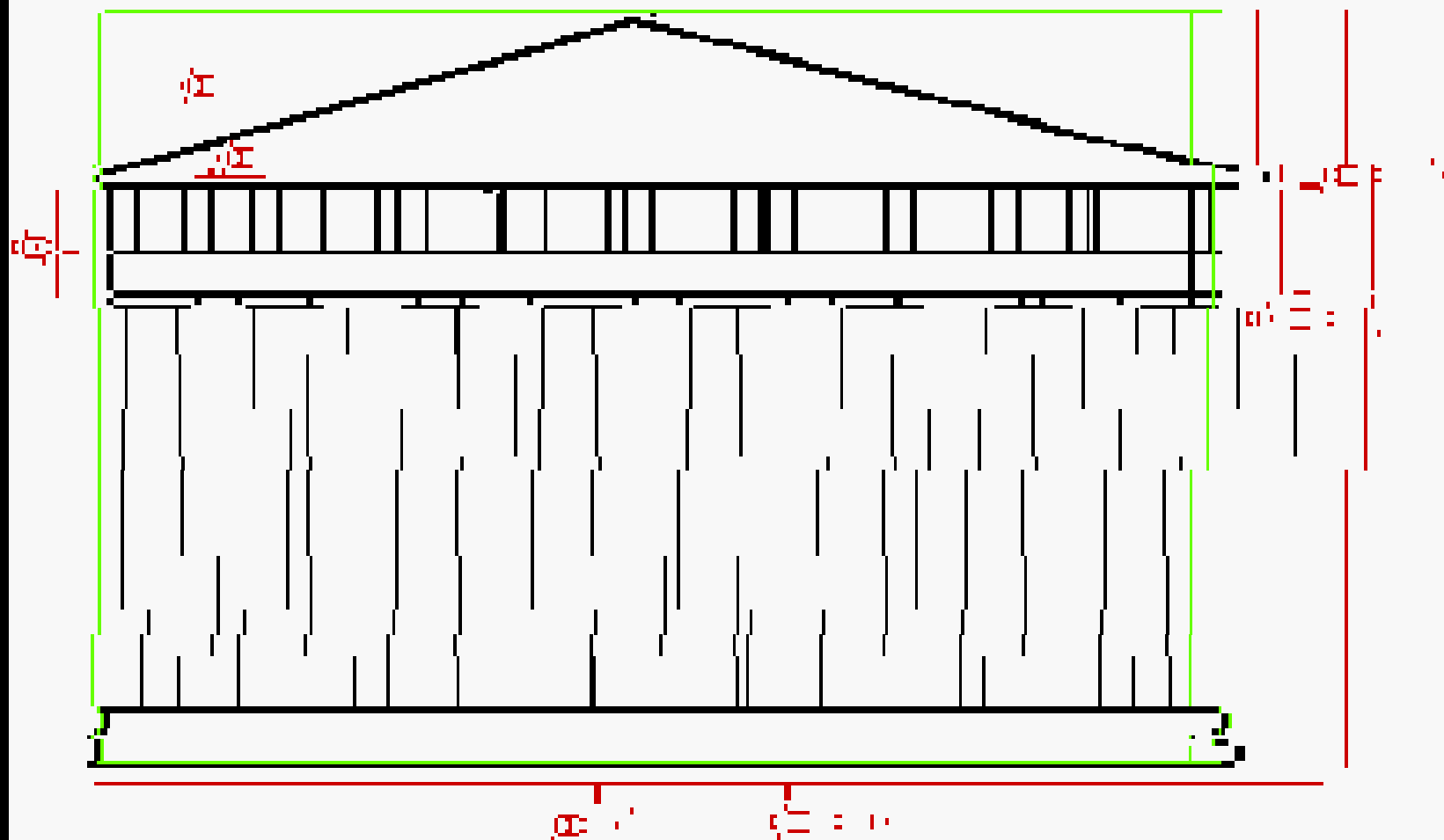


# Copernicus - "Torun portrait" (anonymous, c. 1580)







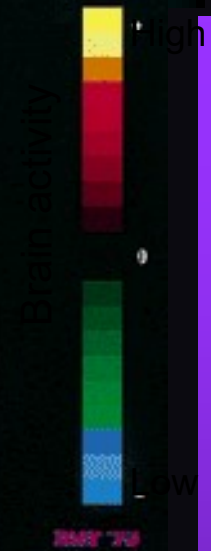
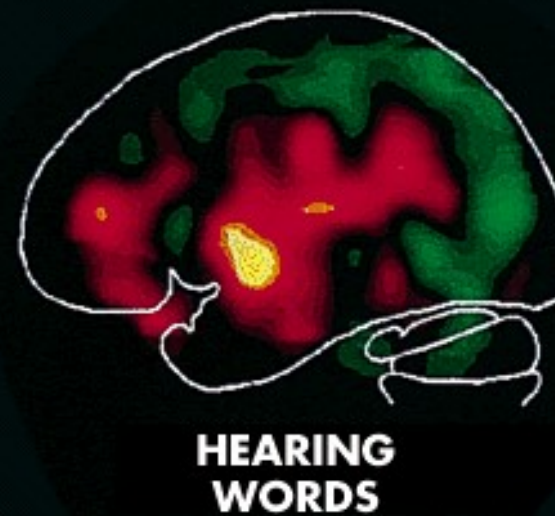
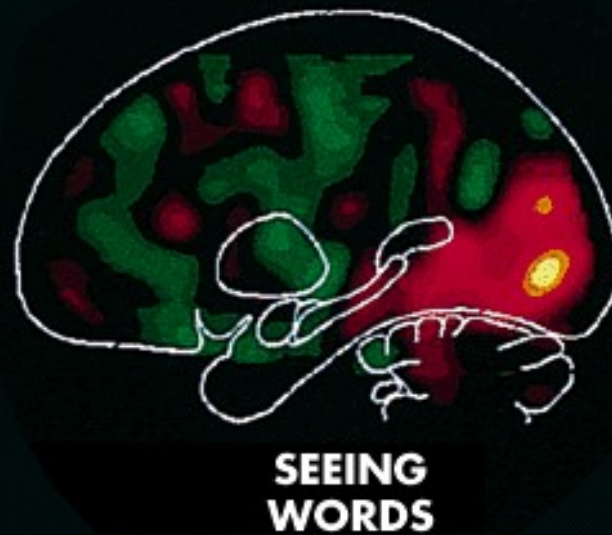


## Neologisms? – becoming everyday language

- barbecue
- tattoo
- zero
- saga
- cruise
- shampoo
- cravat
- penguin
- bistro
- mosquito
- Native Cuban
- Polynesian
- Arabic
- Icelandic
- Dutch
- Hindi
- Croatian
- Welsh
- Russian
- Spanish



Ra



Above: the result of experiments where people were confronted with simple reading (left picture) or simple listening (right picture) tasks. Amount of activity in different areas of the brain is shown by color shades. High activity is yellow, low activity is blue. Other colors mark a range of intermediate degrees of activity (see legend to the top right).

We can clearly see that different language activities are handled in different areas of the human brain.

What will happen if we present two tasks simultaneously?

M E Raichle M.D. Washington U  
School of Medicine St. Louis



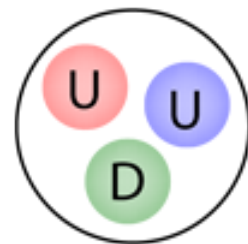
# Via del Pane Trieste





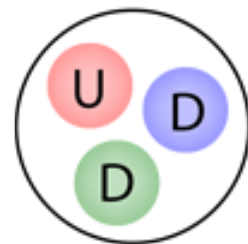
Three quarks for Muster Mark!  
Sure he has not got much of a  
bark  
And sure any he has it's all  
beside the mark.

James Joyce Finnegans Wake  
mediated by  
Murray Gell Mann



Proton

U = "up" quark  $+\frac{2}{3} e$   
D = "down" quark  $-\frac{1}{3} e$



Neutron

Eaquals

Kraków | 21-23 November, 2019

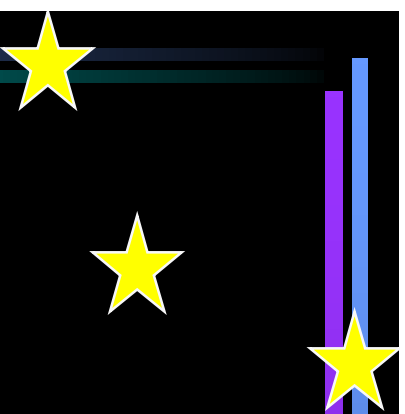
## Language is culture – telling a big truth

- “Language must shows a man  
Speak that I may see thee”

*Ben Jonson*

- The original meaning of Theatre
- ‘Darkness at Noon’ → ‘Midnight’s Children’
- “The historian speaks of what has  
happened, the poet of what *can* happen”

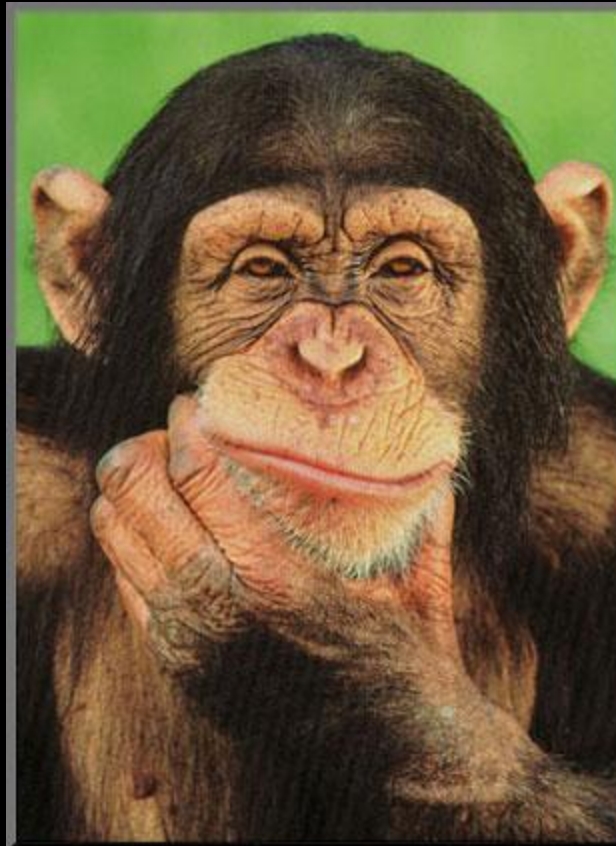
*Aristotle – Poetics*



As pine trees  
Hold the wind's imprint  
After the wind is gone, is no longer there  
So words  
Retain a man's imprint  
After the man is gone, is no longer there.

George Seferis (Greek Poet – 1966).





**Any  
questions?**



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