

Theory of Science & Free Thinking

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The Road to Knowledge? Simple:
Err, and Err, and Err again
But Less, and Less, and Less

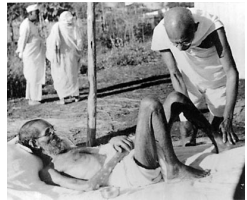


The Father of Nonviolent Resistance: Mahatma Gandhi

I really do like Your Christ - but dislike Your Christians
Why can't Your Christians be more like Your Christ?



LORD WILLINGDON'S DILEMMA



Quem leva brincadeira somente por brincadeira
E sério somente sério. De fato, desentendeu ambos - *Piet Hein*



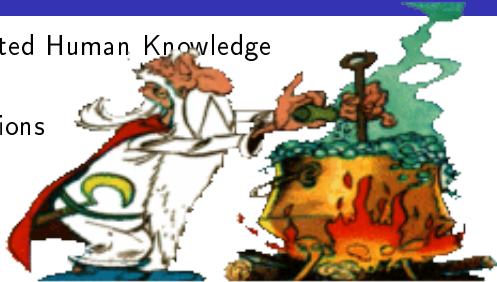
I'm so Free

- ▶ Copenhagen, 11/01/1964
- ▶ Expulso de 3 escolas...
- ▶ Math desde sempre
- ▶ 1a Programa, 1980
- ▶ Viagens, 1986: Personal Convergence
- ▶ Ms. in Engeneering, 1990
- ▶ Programação, 1991
- ▶ PhD in Math, 1996
- ▶ Systems Administrator, 1991
- ▶ Brasil, 2002-...
- ▶ UEG - Prefeitura - FAI
Professor + Coord. de Informática
- ▶ Prof. Adjunto, IME, UFG, 2009-...



Ciência

- ▶ Science: Accumulated Human Knowledge
- ▶ Knowledge:
 - Facts & Explanations
 - Incontestables
 - Reproduzables
- ▶ Objectivity
- ▶ Fundamentals:
 - Human – Exact – Social: Exact & Human
- ▶ Universal Sciences:
 - Philosophy – Mathematics – Computer Science
- ▶ Axioms - Dogmas - Paradigms
- ▶ Definitions - Theorems (Consequences)



Logic

- ▶ George Boole
- ▶ Boolean: 1 ou 0 - V ou F
- ▶ Proposição, P : *Ole da palestre de calsa comprido*
- ▶ Opposite: $\neg P$
- ▶ Proposição Composto: OR (\vee), AND (\wedge), XOR, XAND
- ▶ Truth Tables
- ▶ $[P \Rightarrow Q] := [\neg P \vee Q]$
- ▶ *Se quem está batendo na porta for uma mulher, ela carrega uma bolsa*

P	Q	$P \vee Q$	$P \wedge Q$	$\neg P$	$P \Rightarrow Q$
0	0	0	0	1	1
0	1	1	0	1	1
1	0	1	0	0	0
1	1	1	1	0	1



Scientific Reasonings

- ▶ Deduction:
 - Logical Arguments
 - Math: Never needed to redoing
 - Computer Science?
- ▶ Induction:
 - Conclusion by Repeated Verification
 - Hypothesis \rightarrow Theory
 - Tradition: Explanation - *never* Argument!!!
- ▶ Abduction:
 - Conclusion to most *plausible*
 - Cheese evaporizes at $T = 25.03^\circ C$, $p = 1.047$ atm....



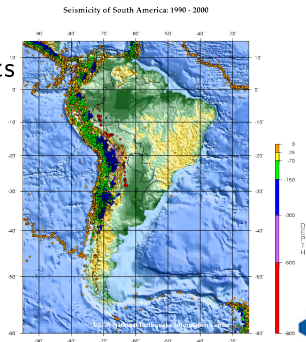
Scientific Methods

- ▶ Deductive
 - Axioms
 - Definitions
 - Theorems (consequences)
- ▶ Experimental
 - Hypothesis
 - Theory: Repeatedly Verified Hypotheses
 - Vary one Factor at a Time
 - Trial & Error
 - Reproducible
- ▶ Statistical
 - One, Two, Many (∞)
 - Médias



Axiom of Euclides

- ▶ \parallel Lines never Intersects
- ▶ Lines: Geodesics
Minimum distance between points
- ▶ Earth: Lines \sim Big Circles
 \parallel Geodesics Intersects at Poles
- ▶ Non-euclidean Geometry
 \smile *Not* Contradictory!!!
- ▶ Projective Geometry:
 \parallel Lines Intersects at Infinity
- ▶ Fractals: Auto-repetitive



Assessment of Hypothesis

- ▶ Assymmetric
- ▶ Plausability
- ▶ Simplicity - Economia de Pensamento
- ▶ Consistency
- ▶ Conservatismo - Princípio de Cautela
- ▶ Profoundness
- ▶ Versatility
- ▶ Integration
- ▶ Fertility

Science Conservative - Paradigms
Questionability - Free Science



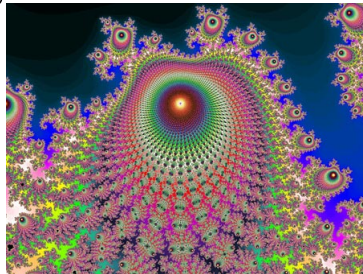
Philosophy

- ▶ Base of Human Sciences
- ▶ Qualitative
- ▶ Argumentative
- ▶ Reflective
- ▶ **Ethics of Human Affairs:**
 - Technology
 - Environmental
 - Social
- ▶ Education for Improved Life Quality:
 - Study Humans & Exacts!
- ▶ How to do Qualitative Research?
- ▶ **Free** Thinking ⇐



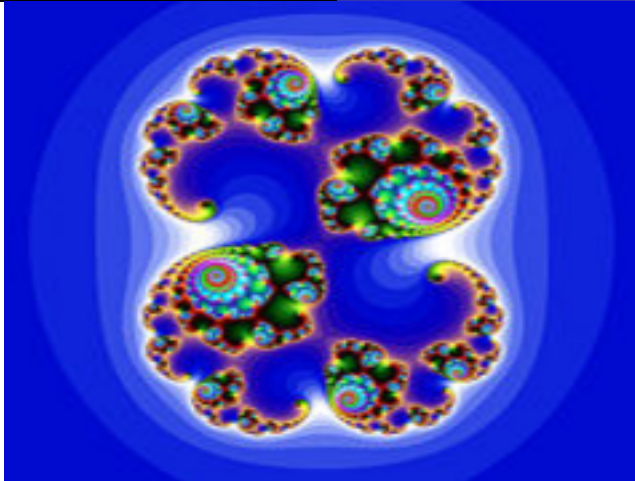
Mathematics

- ▶ Base of all Exact Science & Technology
 - ▶ Logical
 - ▶ Axiomatic
 - ▶ Deductive
 - ▶ Exact - Rigorous
 - ▶ Never needed to *revise* itself
 - ▶ Makes me believe in some divine force
- ...
- But doubt any religious dogmas...

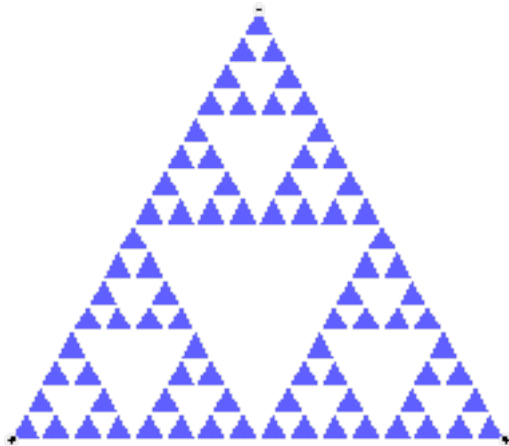




Mandelbrot - Fractal Geometry



Julia Set



Sierpinsky

Computer Science

- ▶ The Lastborn..
- ▶ **Fundamental:**
Applied by all other Sciences
- ▶ Communication:
Democracy Fundamental
- ▶ Automation of **Repetitive** Tasks
- ▶ What You Ask...
Isn't Always what You Want!
- ▶ Ultimate Logical Test
- ▶ **Fascinated** by Perl: **Free** Programming
I'm so Free...



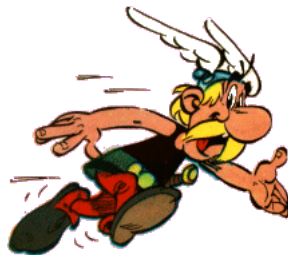
Ethics of Science

- ▶ Responsibility
- ▶ Exemplos:
 - Einstein - Hiroshima
 - Placebo
 - Generic Medicine
 - Lifewests: Nazis
 - Genetics
 - Private vs. Public Research
- ▶ Use Science for the *Good*
What is Good?????



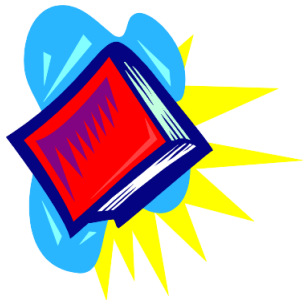
Humans. I Believe that:

- ▶ Humans are Good at the Bottom
Too bad they're Bottomless
When they Have theirs...
- ▶ Otherwise, they're **not** Good
- ▶ Humans: Intelligent Beasts
Or Darwin *are* all Wrong?
» Ideas are Immortal
- ▶ Instincts - Reflexes
- ▶ Genetical - Social
- ▶ Humans are Lazy
Invents for their Lazyness



Society

- ▶ Theories or Dogmas?
Socialism - Capitalism - Democracy
- ▶ UN *not* Democratic - Why????
History - Traditions...
- ▶ What's the Alternatives to:
Democracy - Free Press
We **Must** Read!
- ▶ Youngsters - Actives - Elders
- ▶ Government: Generate Life Quality
Environment - Education - Health
- ▶ A Society may be Assessed by the way
It Treats it's Minorities... *Gandhi*



Free Thinking

- ▶ Freedom
- ▶ Free Thinking
- ▶ Law:
Govern Relations *between* People
Peaceful Coexistence
- ▶ Isonomy: Alle er Ens for Loven
- ▶ Who am I to Judge?
- ▶ Formynderi: Tutelage - Custody
Seat Belt
Babe take Drugs... (Lou Reed)
- ▶ Worst Problems First...
- ▶ Governments: People's Responsibility



Exclusion vs. Inclusion

- ▶ Exclusion: Benefits Whom?
Included Individuals Contributes
- ▶ Education:
Seed - Semente - Semilla
- ▶ Harvest Happens *after* Seeding
- ▶ Exclusion Harms Society
- ▶ Inclusion Benefits Society
- ▶ Respect Generates Respect
- ▶ Humans - Conflicts - Instincts
- ▶ Us & Them: WWII - Ruanda - Iugoslavia
- ▶ Free People - Free Society \cap Environment



Quasimodo



Free Software

- ▶ **Free** to: Use - See - Modify - Redistribute
- ▶ Scientific Software
 - Reproduzability \Rightarrow **Open** Source
- ▶ **Free** Movements: Inclusion
- ▶ Anti-Monopolies
 - Closed** Knowledge is Science?
 - Free** Education
- ▶ Scientific Programming - **Free**+**Open**
- ▶ Individual Economical Systems
 - \mapsto Geographically Hierarchical
- ▶ We *must* Believe in Change
- ▶ Obligations First - then Rights



Mik-Mik...



Free

- ▶ Why the **Free** in SL?
- ▶ What is it to be **Free**?
- ▶ Socially - Filosofically
- ▶ **Free**:
Thinking - Science - Education
- ▶ **Free** Press
- ▶ Natural Selection
- ▶ Environment & Recycling
- ▶ **Nothing more Fertile than Ideas**
- ▶ Appeal to the Non-beast
- ▶ **Freedom** under Responsibility



Conclusion

- ▶ Informática - Universal \Rightarrow Resposta Interdisciplinaridade
- ▶ Software Livre \Rightarrow Pensamento Livre \Rightarrow Sociedade Livre
- ▶ ASL-GO - PSL-GO
SLOG - Anapolivre - GULOGO
- ▶ Flisol
- ▶ FGSL: 10-11/12/2010, GYN
- ▶ FISLOG, Jaúpaci-GO, 04/12/2010
SL Off Road - Beira Rio
- ▶ Dogmas
- ▶ Mentos inmaturos e lavagem cerebral
- ▶ Possível Evitar???



Associação Software Livre de Goiás
ASL-GO

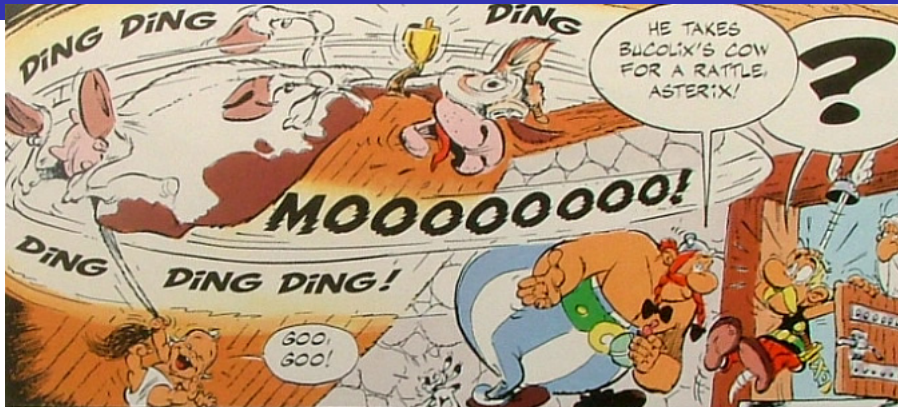


Conclusion

- ▶ Tudo Depende dos Olhos que Verem
- ▶ Lua Sempre Cheia
- ▶ Lado Iluminado - Sombrado
- ▶ Fé Prerequisita de Mudança
- ▶ Administrar Inteligência
- ▶ Administrar Sucesso
- ▶ Brincar
- ▶ Ler
- ▶ Seja Critica Construtivamente



Thanks



Life Sure is a Mystery to be Lived
Not a Problem to be Solved

