

Psychology and/of the Architect

Gavin Potgieter

Background and Disclaimer

- Gavin Potgieter
- Senior Architect at Dariel Solutions
- This presentation is in my personal capacity
- I am not a Psychologist
- Statistics used in this presentation have biases

Questions

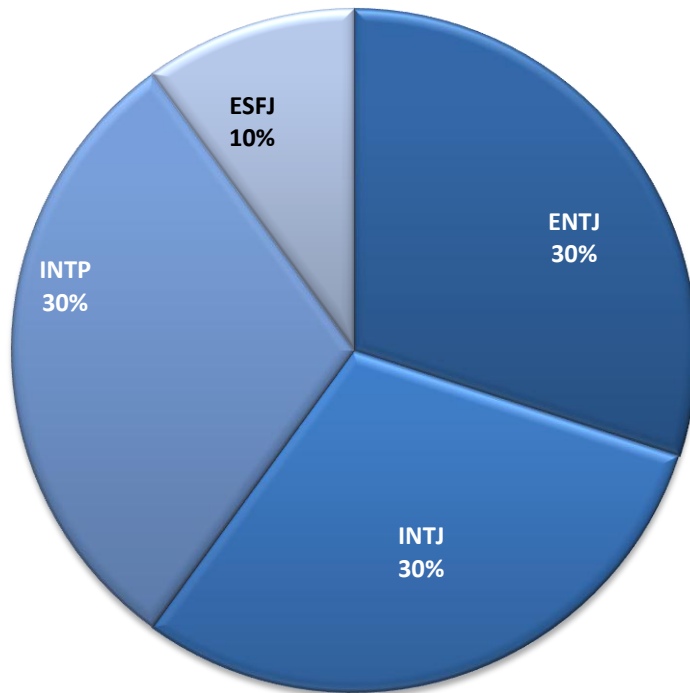
Why is software not engineered?

Why won't (some) programmers follow my architecture and design?

Why it so difficult to understand software requirements?

MBTI™ – Dariel Solutions Volunteers

Company Personality Mix



- 10 volunteers of 20 asked
 - 4 architects
 - 3 business analysts
 - 3 project managers
- ENTJ – Fieldmarshal
- INTJ – Mastermind
- ENTP – Architect
- ESFJ – Provider

- 90% NT/Rational

NT - Rational

ENTJ

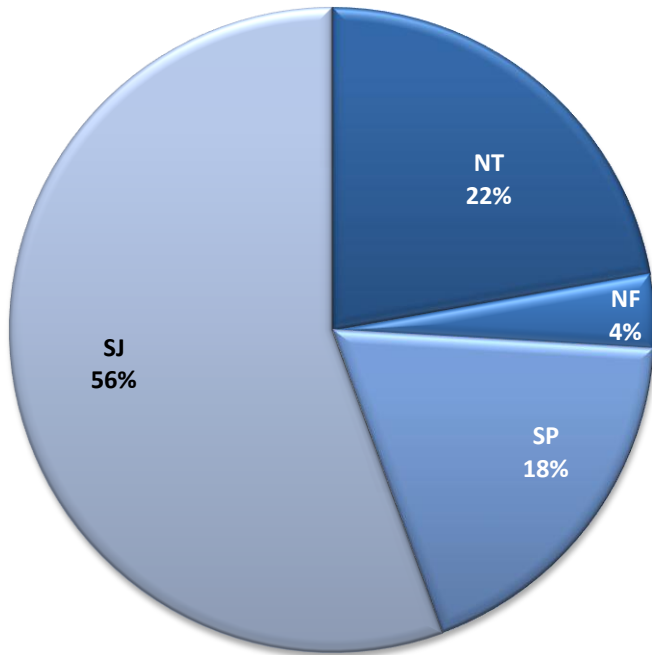
decisive, fearless, planner, thrill seeker, engaged, social, self centered, comfortable around others, image conscious, likes to be center of attention, adventurous, outgoing, manipulative, emotionally stable, leader, ambitious, hard working, dominant, prepared, hates to be bored, confident, opinionated, analytical, prepares for worst case scenarios, organized, orderly, clean, driven, resourceful, finishes most things they start, achieving, risk taker, desires fame/acclaim, image focused, narcissistic, arrogant, perfectionist, driven, academic, scientific, critical, avoids giving in to others, does not like to compromise, skeptical

INTJ

loner, more interested in intellectual pursuits than relationships or family, not very altruistic, not very complimentary, would rather be friendless than jobless, observer, values solitude, perfectionist, detached, private, not much fun, hidden, skeptical, does not tend to like most people, socially uncomfortable, not physically affectionate, unhappy, does not talk about feelings, hard to impress, analytical, likes esoteric things, tends to be pessimistic, not spontaneous, prone to discontentment, guarded, does not think they are weird but others do, responsible, can be insensitive or ambivalent to the misfortunes of others, orderly, clean, organized, familiar with darkside, tends not to value organized religion, suspicious of others, can be lonely, rarely shows anger, punctual, finisher, prepared

MBTI™ – Study by Chang and Chang

M.Eng Electrical Personality Matrix



- NT – Rational
 - NF – Idealist
 - SP – Artisan
 - SJ – Guardian
-
- SJ considered Good Students of EE, but unable to speculate invent and improve

SJ

ESTJ

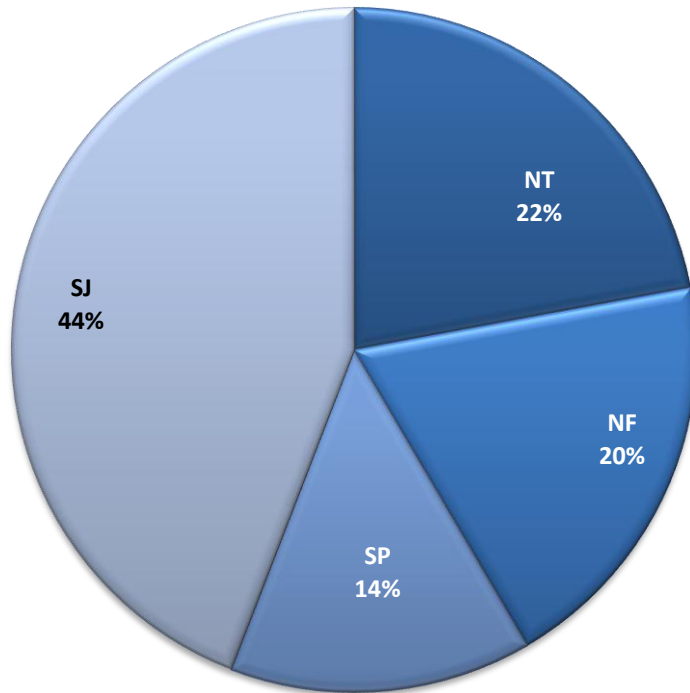
organized, group oriented, focused, conventional, leader, emotionally stable, anal, attention seeking, planner, realistic, fearless, responsible, finisher, decisive, norm following, respects authority, punctual, hard working, stiff, self confident, thinks rules and regulations are important, follows the rules, clean, outgoing, social, content, does not like being alone, normal, regular, does not like weird or strange people / things - intolerant of differences, strict, disciplined, aggressive, assertive, content, happy, proper, formal, strict with self, meticulous, strong sense of purpose

ISTJ

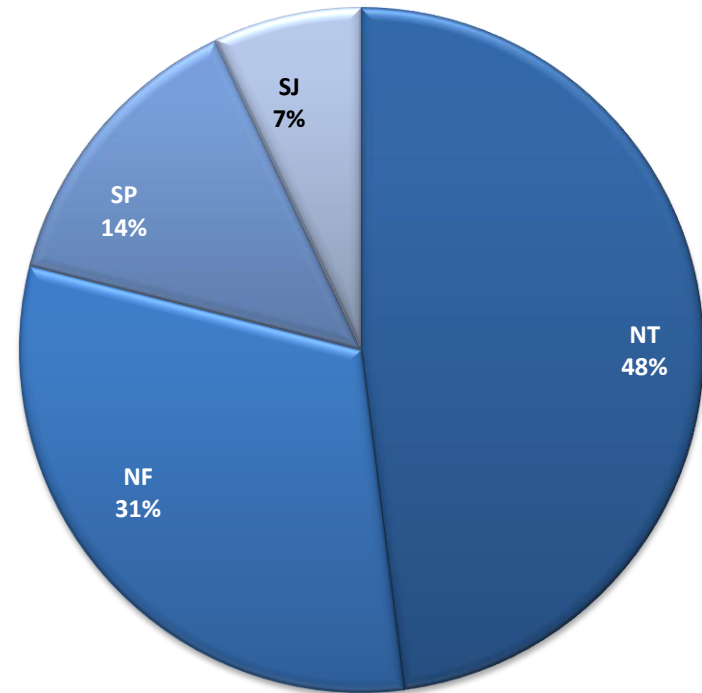
responsible, planner, private, loner tendencies, perfectionist, organized, detail oriented, organized, would rather be friendless than jobless, realistic, observer, clean, focused, does not talk about feelings, finisher, punctual, private, does not appreciate strangeness, not adventurous, not spontaneous, follows the rules, dutiful, avoids mistakes, conventional, likes solitude, insensitive to the hardships of others, prepared, anti-tattoos, thinks rules are important, cautious, security seeking, prepares for worst case scenarios, logical, analytical, does not accept apologies easily, hard working

MBTI™ – Study by Shen and Prior, et al

Mechanical Engineering Students



Design Students



(Partial) Answers

Why is software not engineered?

- Because majority of the people who develop software aren't engineers
- and this is desirable!

Why won't (some) programmers follow my architecture and design?

- Because they get no personal fulfilment from doing so

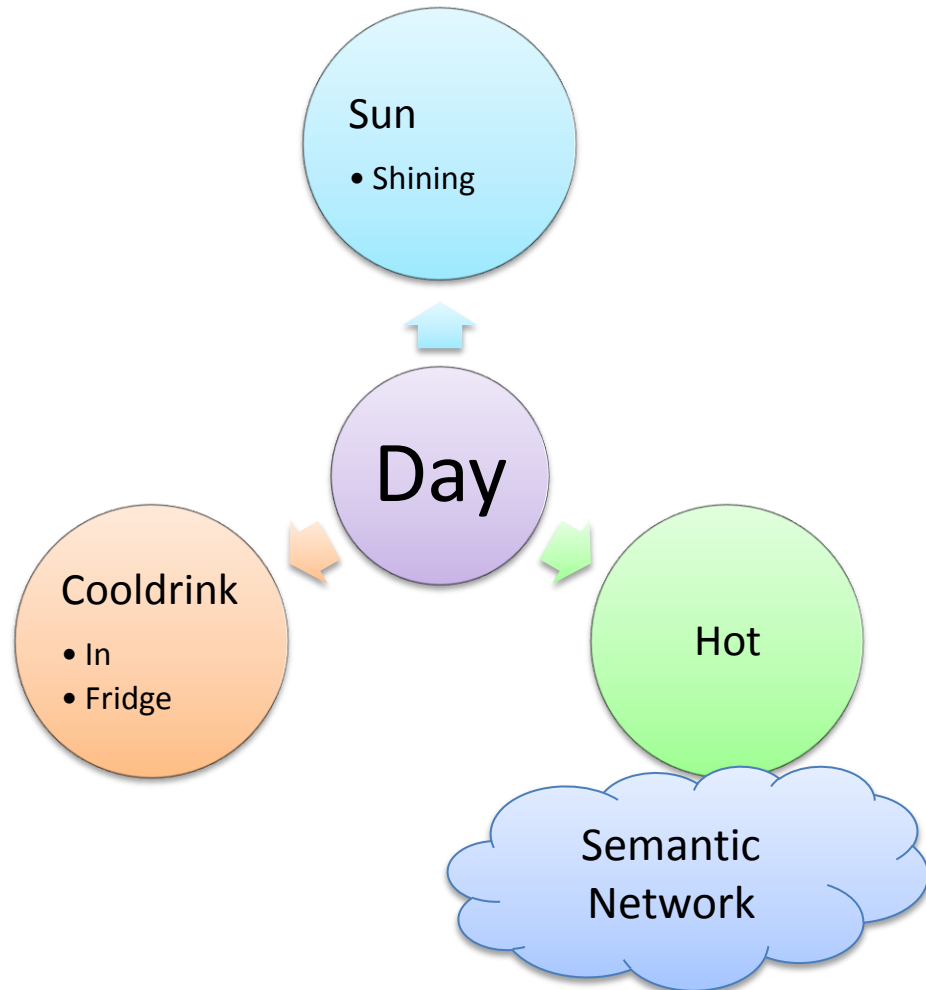
Why it so difficult to understand software requirements?

An urban myth

According to research at Cambridge University, it doesn't matter what order the letters in a word are, the only important thing is that the first and last letters are at the right place. The rest can be a total mess and you can still read it without a problem. This is because we do not read every letter by itself but the word as a whole

Mental Imagery: Pylyshyn vs Kosslyn

- Shining(sun)
- Hot(day)
- In(Cooldrink, Fridge)



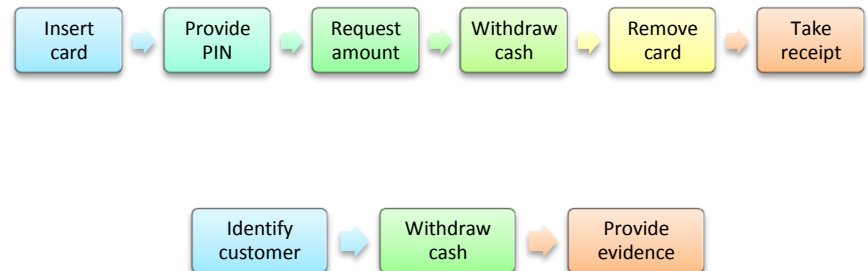
Propositional
Calculus

Other Factors

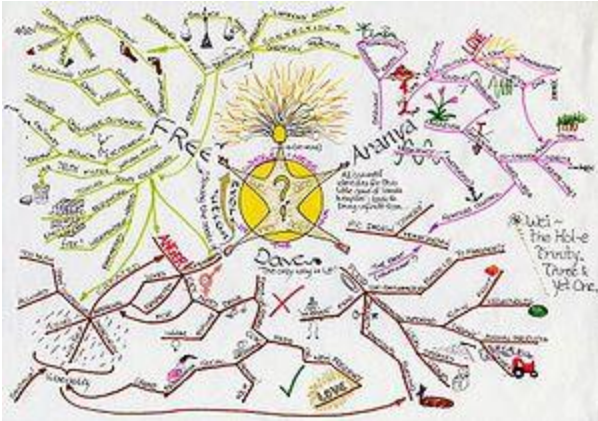
- Sapir-Whorf Hypothesis
- Immersed Experiencer Framework
- Email: The Dark Side

Text vs. Diagrams

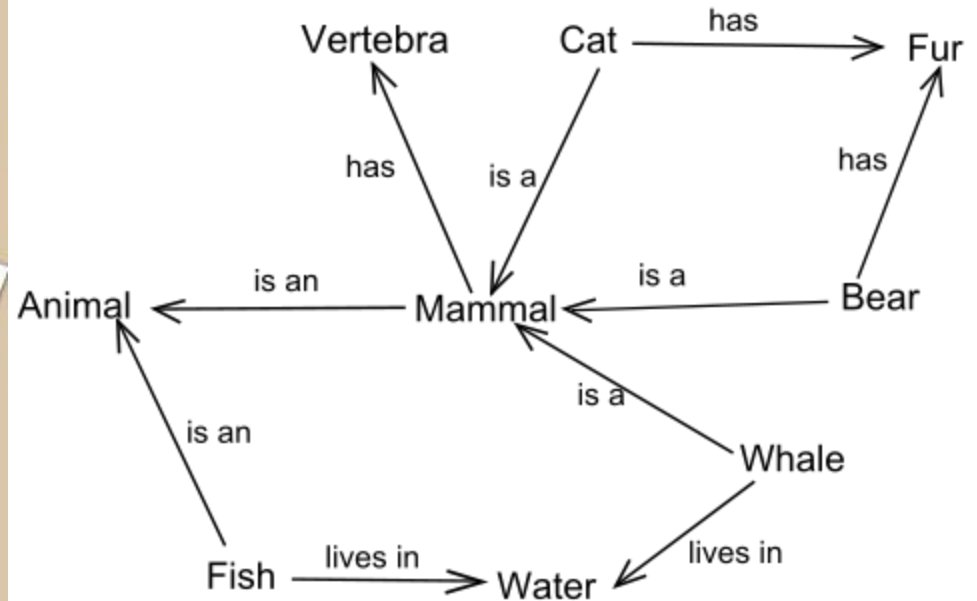
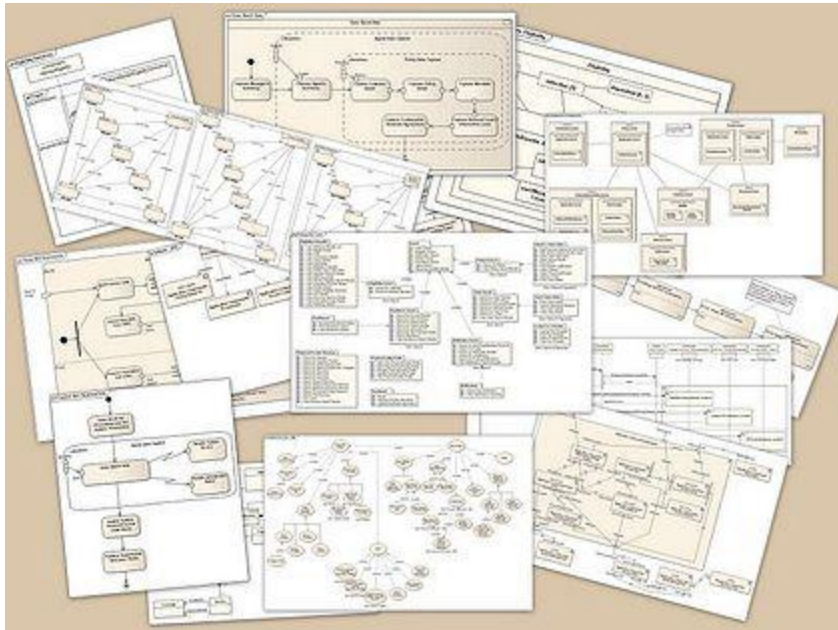
The customer inserts his card into the ATM machine. The ATM machine asks the customer to provide his PIN. The PIN must be a 5 digit number. If the PIN is entered incorrectly then the customer is given another chance... Blah, blah, blah, blah...



Relevant Diagrams



- Mind Maps
- UML + colour
- Semantic Network



(Partial) Answers

Why is software not engineered?

- Because majority of the people who develop software aren't engineers
- and this is desirable!

Why won't (some) programmers follow my architecture and design?

- Because they get no personal fulfilment from doing so

Why it so difficult to understand software requirements?

- Because text is a poor conveyer of information in comparison to other means

Useful Resources

- Similar Minds, similarminds.com
- Cognitive Psychology and Cognitive Neuroscience, en.wikibooks.org
- Word Jumble Hoax Debunked, Kevin Larson, blogs.msdn.com
- Buzan, Tony. (2000). *The Mind Map Book*, Penguin Books, 1996. [ISBN 978-0452273221](http://ISBN978-0452273221)
- Edward De Bono. *Six Thinking Hats* (1985) [ISBN 0-316-17831-4](http://ISBN0-316-17831-4)
- PsyBlog, www.spring.org.uk
- The Role of Myers-Briggs Type Indicator in Electrical Engineering Education, Timothy Chang and Daphne Chang
- Using personality type differences to form engineering design teams, Siu-Tsen Shen, Stephen D. Prior, Anthony S. White and Mehmet Karamanoglu, *Engineering Education* vol 2 issue 2 2007

Images

- Mind Map, Creative Commons Attribution-Share Alike 3.0, Aranya
- UML Diagrams, Creative Commons Attribution-Share Alike 3.0, Kishore Kumar
- Semantic Network, Creative Commons Attribution-Share Alike 3.0, Danny Stevens