CS5127/6027: Requirements Engineering

(Fall 2024)

Prof. Nan Niu (nan.niu@uc.edu)

Office Hours: 10am-11am, Mondays, Rhodes 832

Today's Menu

Last Lecture (Monday 11/18):
Grad project presentations

This Lecture (Monday 12/2):
Grad project presentations (cont'd)
Course summary

The End!

What does it take to be an expert?

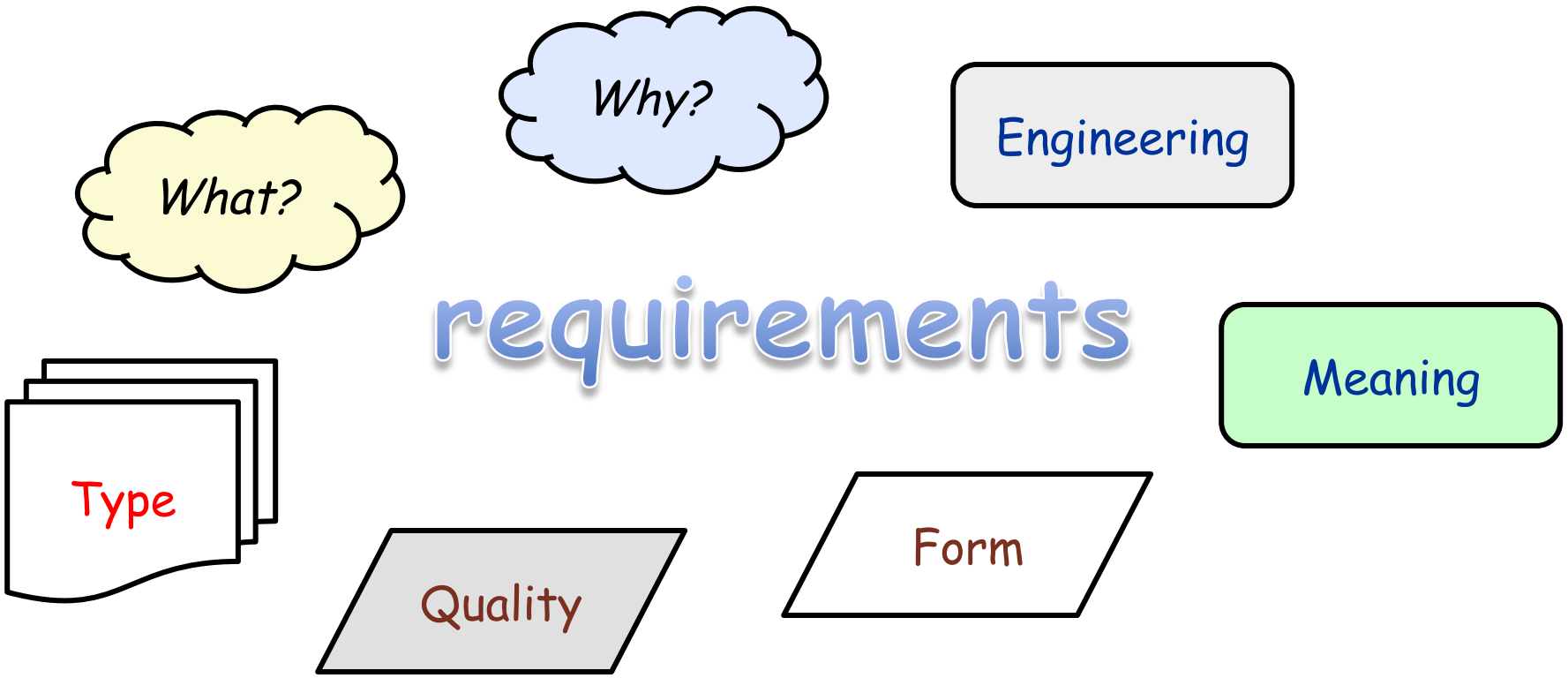
A person needs to know about 50,000 chunks of information to be an expert in a field, where a chunk is any piece of knowledge that can be remembered rather than derived.

Steve McConnell

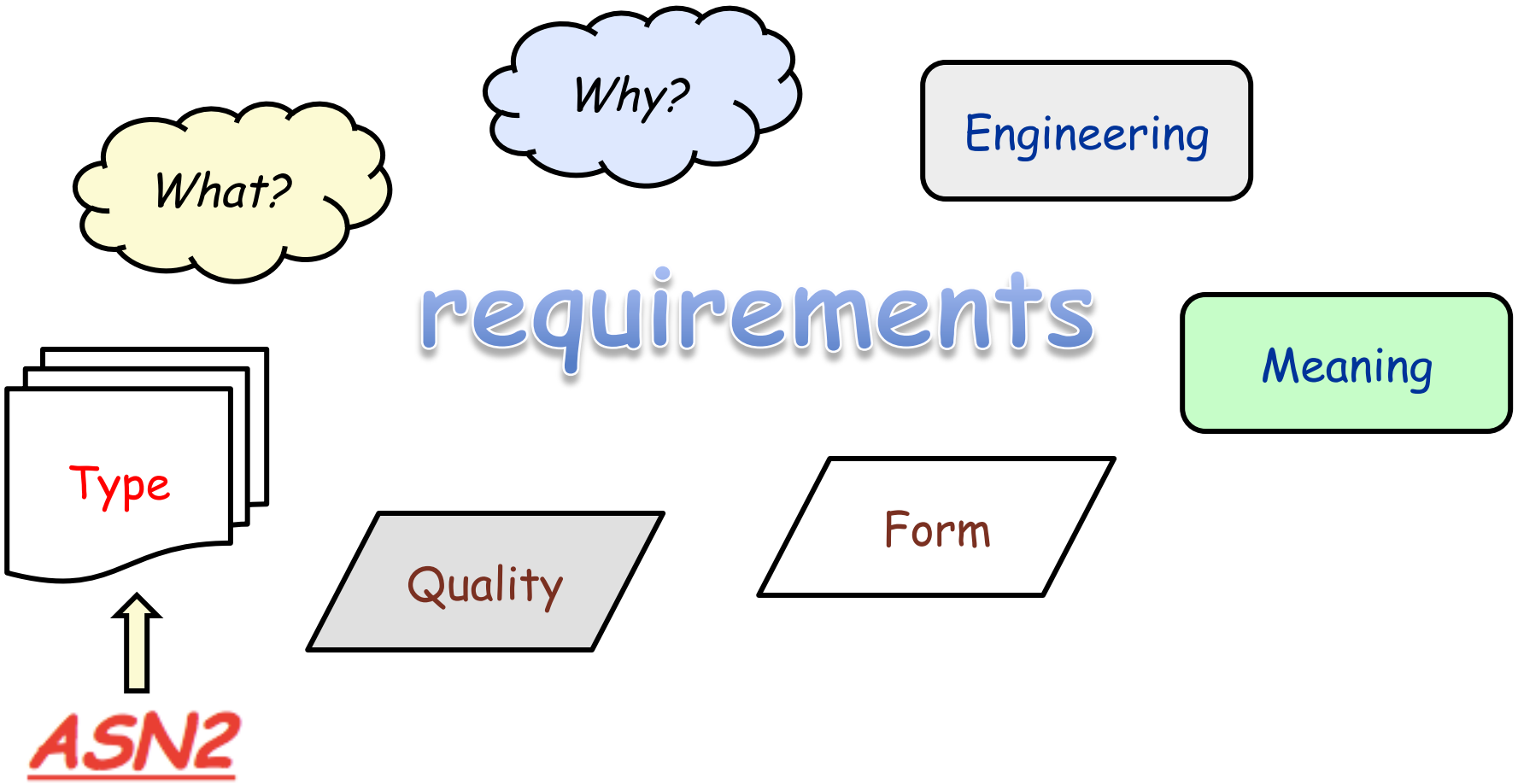
Body of Knowledge

Source: *http://www.stevemcconnell.com/psd/05-BodyOfKnowledge.pdf*

Part of ~50,000 chunks about RE



Part of ~50,000 chunks about RE



Where did we start with?

→Requirements = stakeholder needs & desires

→Requirements are important because

- ↳It's hard (*hardest*) to get them right.
- ↳It's common to get them wrong.
- ↳Getting them wrong is costly

- ↳*Doing RE right saves money.*

Engineering req.s =

- *eliciting* requirements,
- *modelling* and *analysing* requirements,
- *communicating* requirements,
- *agreeing* requirements, and
- *evolving* requirements.

↳ *tracing, testing/validating, generating, deleting … req.s*

The meaning of requirements: ASN1

P, C |- S

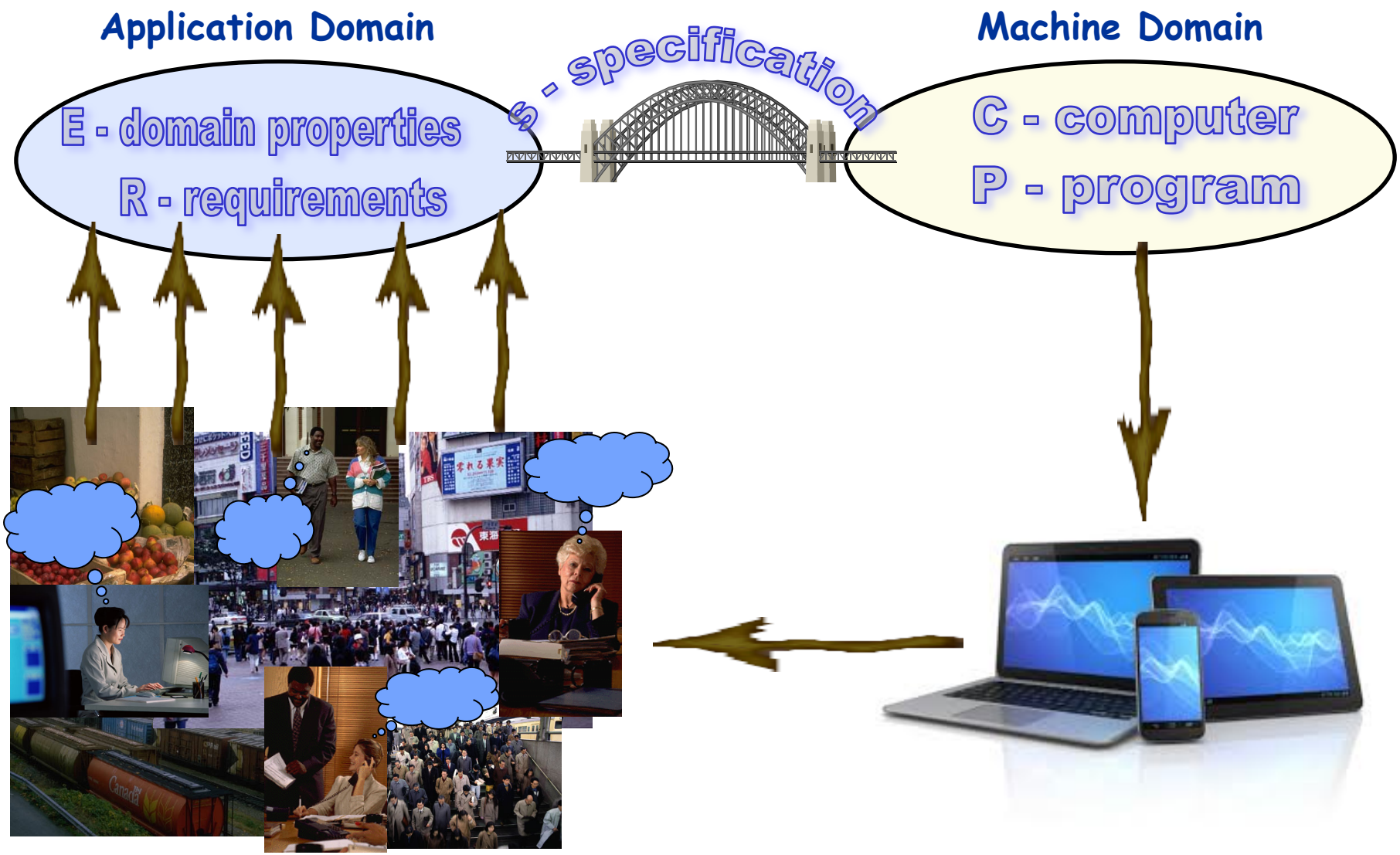
E, S |- R

("|-" means entailment)

RE is more concerned with this one

Requirements engineers are an agent of change.

Requirements Engineer: Agent of Change



Requirements: Do they ever exist?

[If not, should they? If yes, "big data"?]

Who?	What?	Why?	Known domains/ apps
Software vendors	Feature descriptions	Part of software release notes	Zoom, Webex, Discord
Policy makers / enforcers	Policies	Prevent problems & instruct enforcement	HIPAA, FCC
Software development team	User stories	Anchors for further discussions with customers	Scholar@UC
	SRS (S/w req.s spec.s)	Contractual obligations	Traffic Control, Robotics
…	… *(tests, app reviews)*	…	… *(OpenAI)*

Not only form, but also quality

NLP4RE https://nlp4re.github.io/2023/

An SRS should be

a) Correct;
b) Unambiguous;
c) Complete;
d) Consistent;
e) Ranked for importance and/or stability;
f) Verifiable;
g) Modifiable;
h) Traceable.

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ASN3

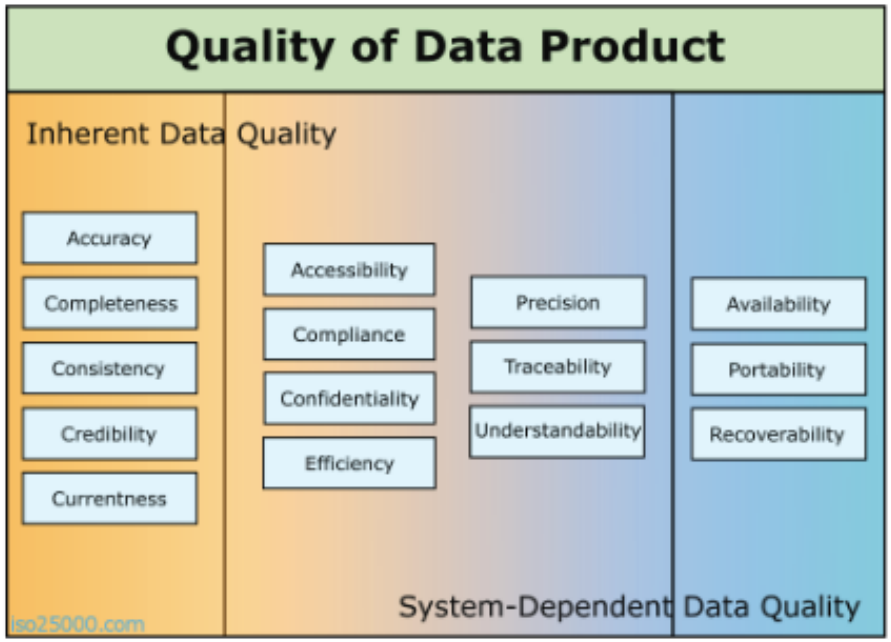
Chunks:
- High-quality US
- High-quality data
- Ambiguity types

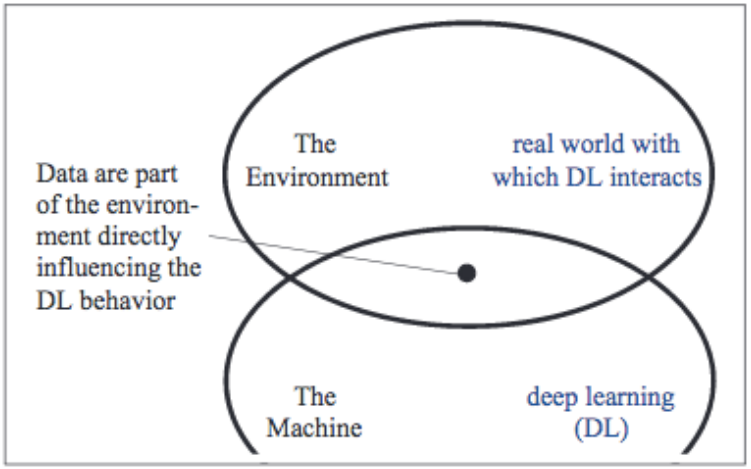
Data quality & RE

Faulty Requirements Made Valuable: On the Role of Data Quality in Deep Learning

Publisher: IEEE Cite This PDF

Harshitha Challa ; Nan Niu ; Reese Johnson All Authors



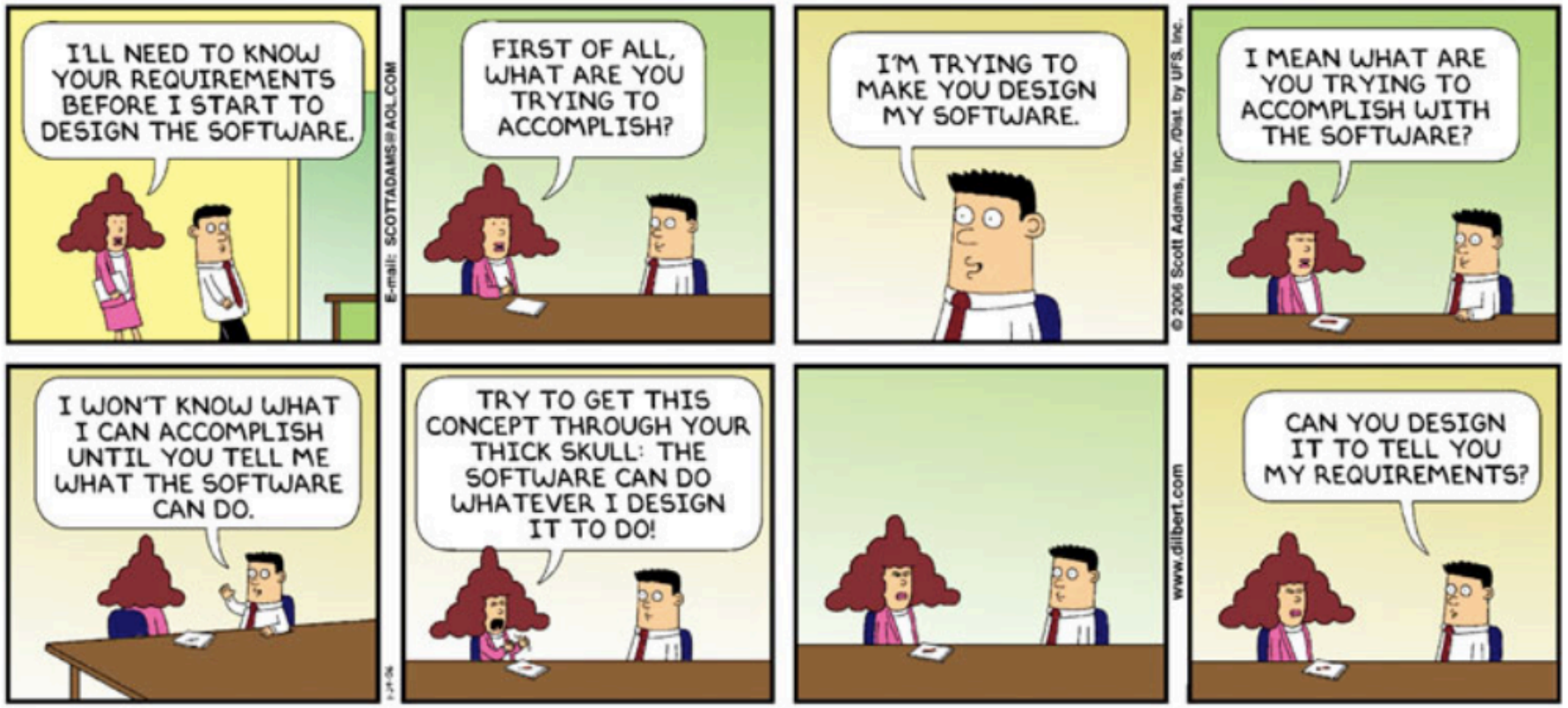


Req.s Elicitation vs. Req.s Gathering?

→Requirements ≠ What the customer said

→Requirements ≠

Opposite of Dilbert



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Looking Ahead

1-5 September 2025
Valencia, Spain

Important Dates	AoE (UTC-12h)
Mon 3 Mar 2025 Abstract submission	
Mon 10 Mar 2025 Full Paper Submission	

Know Your Final Tasks & Grades

ASN4: due 11:59pm, Friday, Dec 6 *(no extension)*

80% Assignments (4 assignments; 20% each)

20% Quizzes

Grad students:

Another 20% on your project

A	[92, 100]	C	[68, 72)
A-	[88, 92)	C-	[64, 68)
B+	[84, 88)	D+	[60, 64)
B	[80, 84)	D	[56, 60)
B-	[76, 80)	D-	[52, 56)
C+	[72, 76)	F	[0, 52)

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Great having you & keep in touch!