



Requirements Engineering (Summer 2022)

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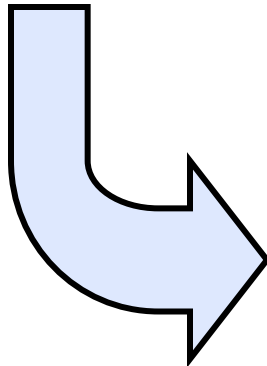
<https://github.com/nanniu/RE-Summer2022>



Today's Menu

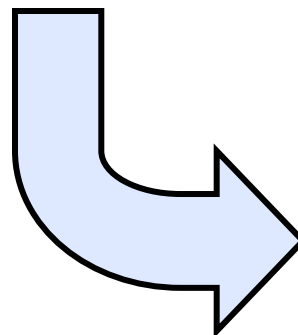
Monday (July 18)

Req.s modeling
ASN3 released



Tuesday (July 19):

Visual Modeling Notations
ASN3 Q&A

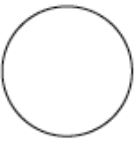
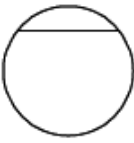

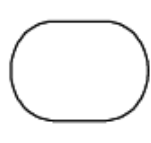


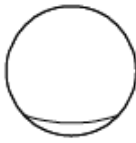

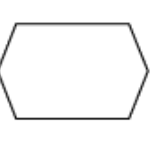


Wednesday (July 20):

ASN3 due
Req.s traceability
ASN4 release

More
RE Stories

The i^* Notations [Yu-RE'97]

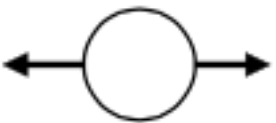
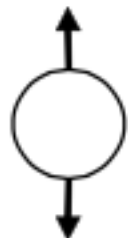
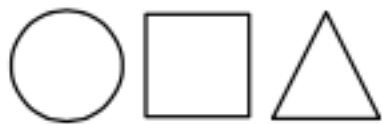



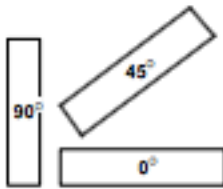

								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task

→ What do you think about these visual notations?

→ Would you use the same/similar/different ones?

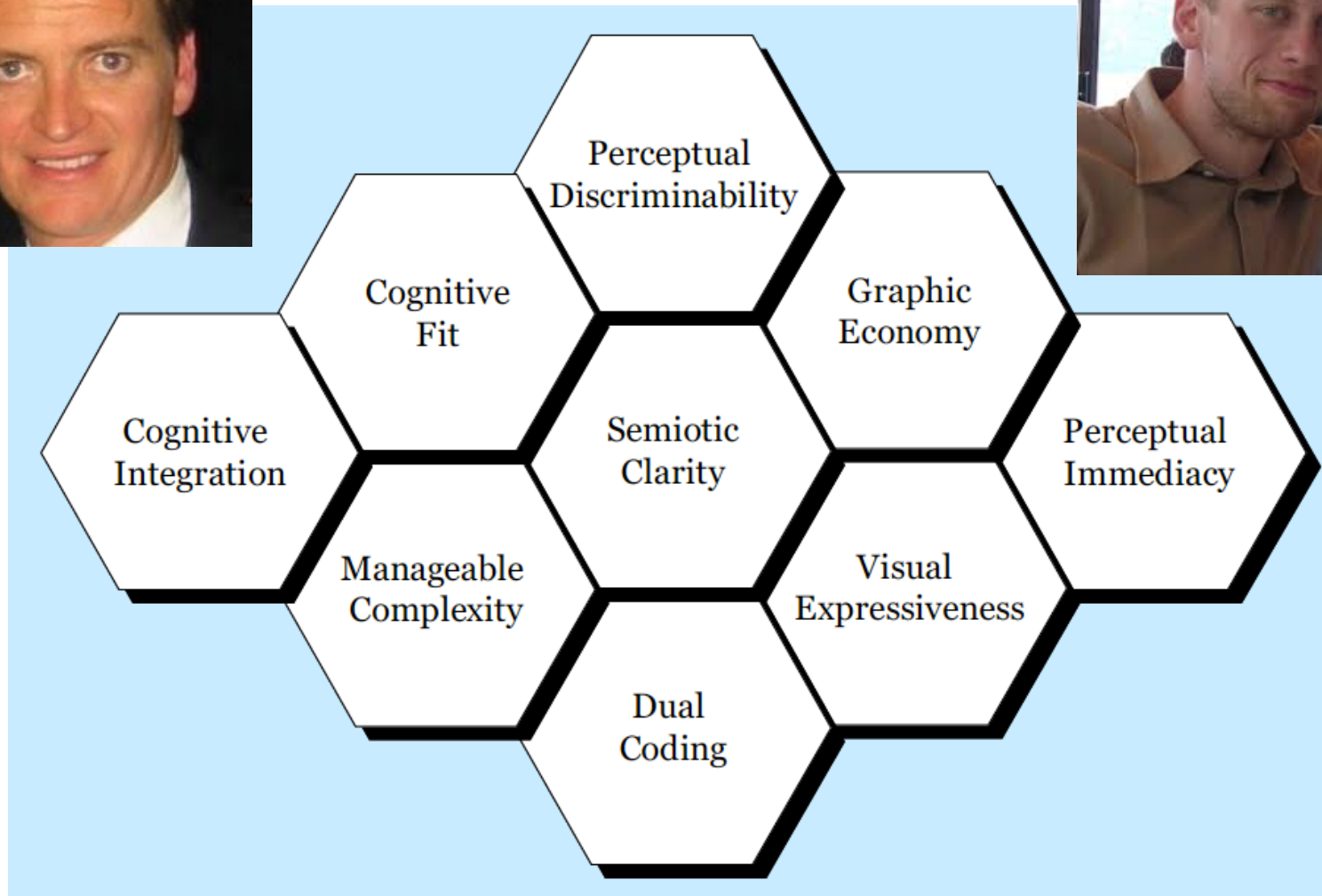
→ How would you choose them in the first place?

The Visual Alphabet

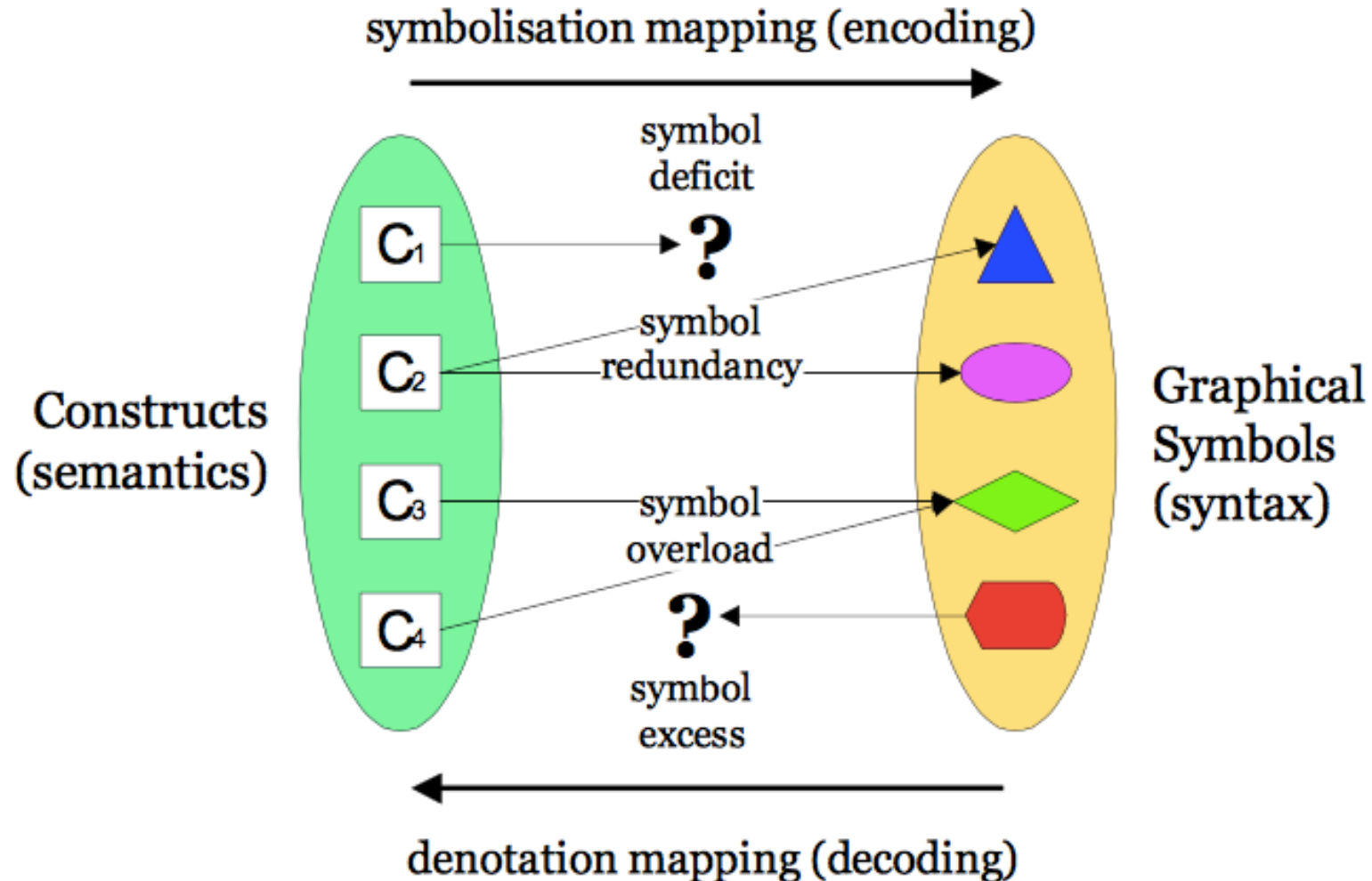
PLANAR VARIABLES	RETINAL VARIABLES		
Horizontal Position  Vertical Position 	Shape 	Size 	Colour 
	Brightness 	Orientation 	Texture 



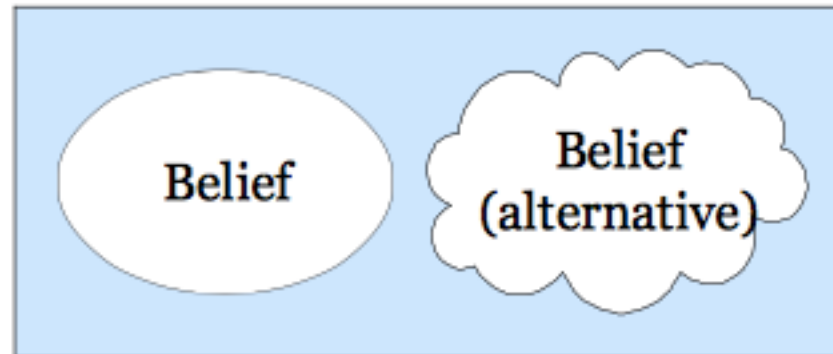
Physics of Notations





Semiotic Clarity



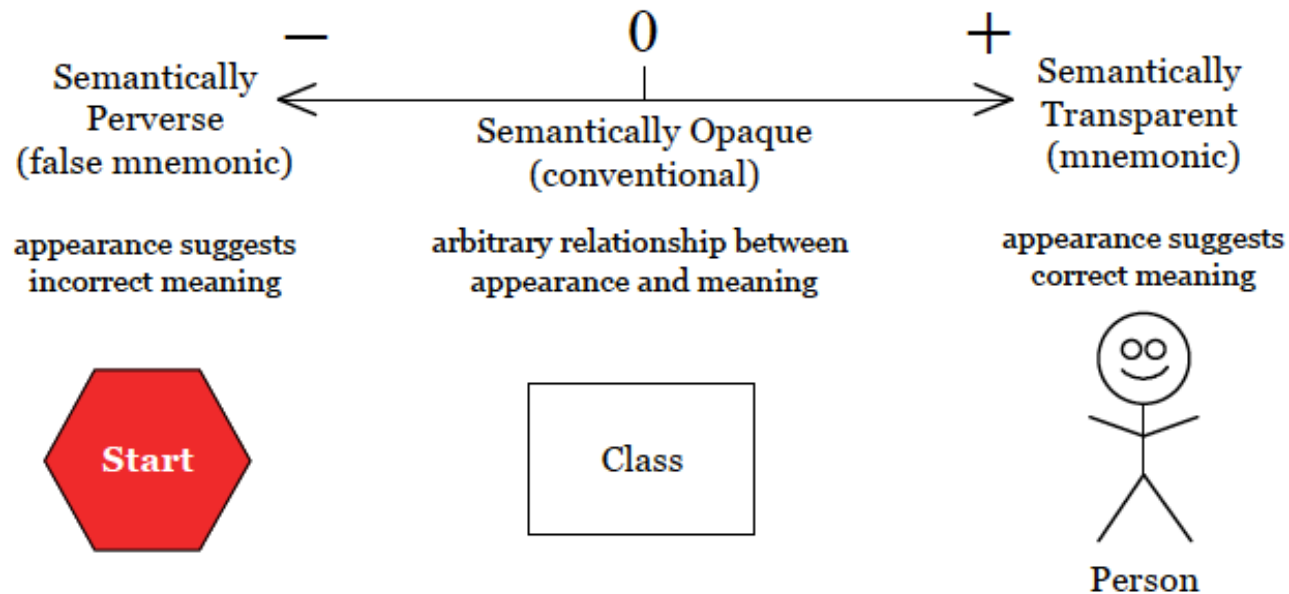
Symbol Redundancy



Symbol Overload

Graphic link	Semantic relationship	Overload
	Actor association (6 types) Contribution (9 types)	14
	Correlation (9 types)	8

Let's design "semantically transparent" visual notations



Let's design "semantically transparent" visual notations





Let us practice the **prototype** way

- For each of the five i^* constructs (actor, resource, goal, softgoal, task), I'll show you 5 candidate visual notations, please respond to a poll to select one and only one that you think is the most semantically transparent
- This is part of class participation



Here're our **prototype** results



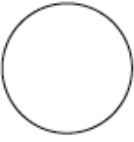
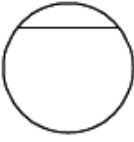

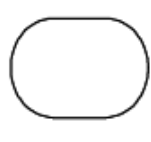

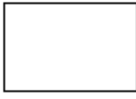
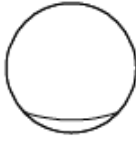

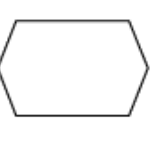


Relying on the judges: **Stereotype**




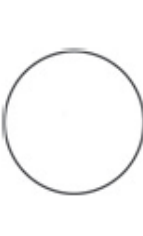







Test 4 sets of i^* Notations

→ Standard i^* [Yu-RE'97]

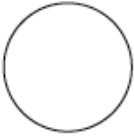
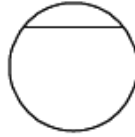


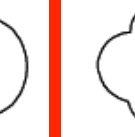

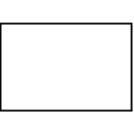


								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task





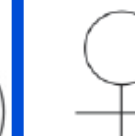



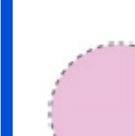
→ PoN (Physics of Notation) i^* [Moody-REJ'10]

								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task

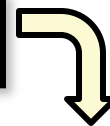
Both are designed by expert researcher(s) in RE, though the latter has embodied a set of principles (design rationales).







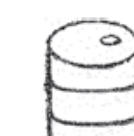




								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task

								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task

Stereotype



								
Actor	Agent	Belief	Goal	Position	Resource	Role	Softgoal	Task



Test 4 sets of i^* Notations (Cont'd)

- Prototype i^*
 - Stereotype i^*
 - PoN (physics of notation) i^*
 - Standard i^*
-
- What's your hypothesis?
 - What do you think the actual results are?

Results of the RE'13 study

→ 83 participants to experiment “recognition”

↳ Measure hit ratio & semantic transparency coefficient

→ How effective these are?

↳ Standard i^*

↳ PoN i^*

↳ Stereotype i^*

↳ Prototype i^*

→ Hypothesis

Prototype > Stereotype > PoN > Standard

→ Result

Stereotype > Prototype = PoN > Standard



Modeling in RE

→ Modeling with a purpose

- ↪ Facilitate communication
- ↪ Organize information
- ↪ Uncover missing information
- ↪ Uncover inconsistencies

→ Yu's paper - not purely on i^* per se, but more on "Early RE"

- ↪ Uncover hidden assumptions ("who" & "why")
- ↪ Explore alternatives
- ↪ Relate to business and organizational objectives

"People can use pencil to draw on the back of an envelope." (E. Yu)



Summary (serving as today's take-aways)

→ Visual notation design (HCI and RE)

↳ Principles

- "Community Acceptance" must also be one of them

↳ Ways

- Expert-based vs. end-user-based (stereotype & prototype)

↳ Modeling with a purpose

- Oftentimes, the purpose is NOT "appearance suggests correct meaning", just like lots of words are NOT "onomatopoeia"
- Commenting "//increment i" for `i++`; is useless