

# Skills for Testing

## An Ecology of Thinking Tools

Tampere Goes Agile 2013

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**How I see skills and skills development**

**5 examples from my testing work**

**Conclusions in terms of how skills help and also constrain**



# How I got to the idea of skills

asking questions(in a simple, non-offensive manner)

have an empathetic approach

be appreciative, considerate

have the ability to explain my train of thoughts

collect info effectively

### Human-Human Interaction skills

focus

defocus

break a problem into multiple smaller problems

have diverse view points

stick with a consistent view point

use curiosity

fix variables and vary one at a time

exercise stubbornness

don't use stubbornness

### Rule of thumb skills

### Information visualization skills

describe coverage

make maps of features under test

## My Personal Testing Skills State of the Art

think critically

use counterfactual reasoning

deal with uncertainty and incompleteness

prioritize

work in a timeboxed manner

### Risk controlling skills

learn

generate functionality flows

analyze information

recognize patterns

read actively

create models

use models

read and write code

write effective bug reports

make logical connections

change how testing is done and seen in the team

collect relevant information from different sources

### Attitude Determining skills

What I will not cover

skills a tester SHOULD have

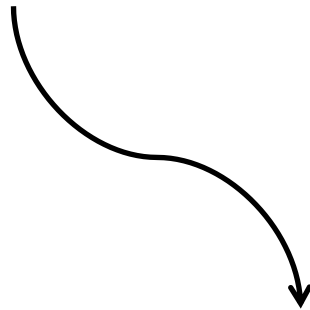
MAJOR breakthroughs

# Skills

The Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Facts						
Concepts						
Procedures						
Cognitive Strategies						
Models						
Skills						
Attitudes						
Metacognition						

# How can I actually work on skills?

forming a habit starting from  
knowledge of some rules



becoming skillful

# My environment

- regular environment ?
  - predictability of outcomes?
- adequate opportunity to learn ?
  - availability of good feedback?
  - amount of experience?



# My contribution

attitude

motivation

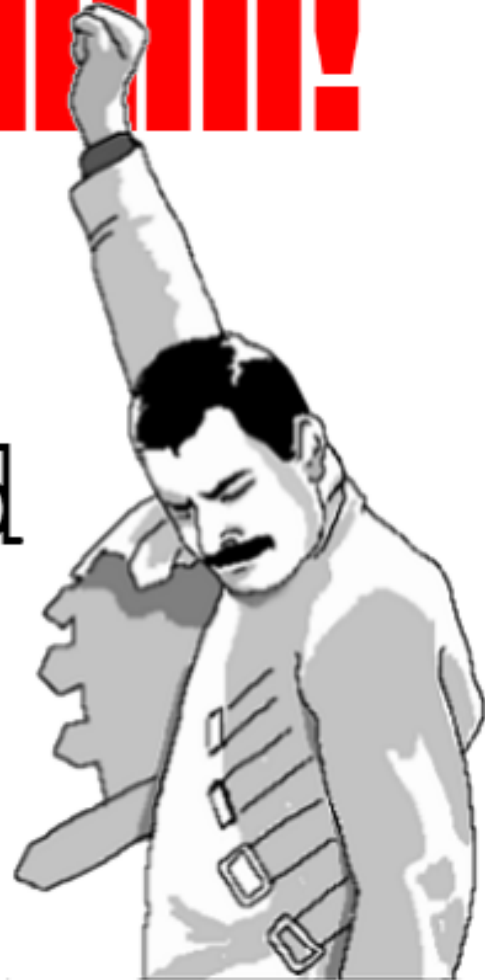
talent

deliberate practice

# Fractionated expertise

yeeeeeeaaahhh!

i guessed  
RIGHT!





# Skills at work

“I can use data to disprove a proposition, never to prove one. I can use history to refute a conjecture, never to affirm it.”

- Nassim Nicholas Taleb

1

# Getting information on a feature I need to test

asking questions(in a simple, non-offensive manner)

have an empathetic approach

be appreciative, considerate

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• **Human-Human Interaction skills**

[11:45:22] Alexandra: Hi Mister

[11:45:40] Alexandra: You are working on the Equipment printout tag, right?

[11:45:45] Alexandra: How is the progress going?

[Open question here, expecting any info that he can provide]

[11:47:23] Mister: Hi. It is done and waiting comments from [BM] And [PM].

[He's not giving details, just says that it's done]



[13:44:23] Alexandra: So the change is that the barcode was introduced

[13:44:37] Alexandra: and some attributes? What do you mean by 'only 9 attributes'?

[I am pinpointing to the specific changes so I can get specific info]

[13:47:45] Mister: In Device list there are all attributes from database to that object but in this new report only 9 attributes can be shown because this device shield size is 92mm\*65mm.

[13:50:55] Mister: Device shield is printed with "sticker" printer and it will be placed to device's side as a shield which size must be 92\*65

[Aha! A printer is involved! That's novel info]

[13:57:15] Alexandra: And how do you select which to include, if there are more than 9?

[13:59:51] Mister: Now they come ordered by ID. But this is a question, that I must talk with BM. Nice that you mentioned it now..

[It seems that he didn't think to ask this question. So I'm providing new insight here]



[14:31:56] Alexandra: I noticed that when the attribute name does not fit, it is simply cut-off

[14:32:49] Alexandra: For example, there's attribute 'Ventilation system has been cleaned and balanced in year'

[14:33:10] Alexandra: In the report, all I see is "Ventilation system has been"

[Giving specific examples to avoid dismissive arguments]

[14:35:28] Mister: Yes. I know this is a problem. This is the way BM wanted to do this. I think you can make an issue to JIRA from this problem for later discussion...

[14:49:39] Alexandra: So then if the object ID should correspond to the building/property and that ID is static

[I'm trying to make my assumptions visible]

[15:45:37] Alexandra: There seem to be more records with the same id

[15:45:50] Alexandra:

1	KOy Mannerheimintie 99	099
1	KOy Mannerheimintie 99	01

[15:49:16] Mister: Yes they are different language versions. Ignore them..first one is by Finnish

[15:50:30] Alexandra: Ok. why is the code different, though?

[15:52:10] Mister: Good question. I don't actually know..I sent names by Finnish to you

# What did I know at first?

I need to test an 'Equipment printout tag' feature.

# What did I know after the conversation?

- I found that the report will be printed on a sticker of fixed dimensions: 92mm\*65mm.
- I found what the sticker should contain, what information the barcode conveys.
- An oracle: I got the DB info that I needed in order to establish validity of data in tests.
- I brought a new insight: How should the data be ordered in the printout?
- A bug: Info is cut-off on the report and loses meaning.
- A possible bug: Object IDs in the report not matching the DB values.

asking questions(in a simple, non-offensive manner)  
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collect info effectively

### Human-Human Interaction skills

### Rule of thumb skills

focus  
defocus  
break a problem into multiple smaller problems  
have diverse view points  
stick with a consistent view point  
use curiosity  
fix variables and vary one at a time  
exercise stubbornness  
don't use stubbornness

### Information visualization skills

describe coverage  
make maps of features under test

## My Personal Testing Skills State of the Art

### Attitude Determining skills

learn  
generate functionality flows  
analyze information  
recognize patterns  
read actively  
create models  
use models  
read and write code  
write effective bug reports  
make logical connections  
change how testing is done and seen in the team  
collect relevant information from different sources

### Risk controlling skills

think critically  
use counterfactual reasoning  
deal with uncertainty and incompleteness  
prioritize  
work in a timeboxed manner



# Getting information on an unknown feature I had to test

asking questions(in a simple, non-offensive manner)

have an empathetic approach

be appreciative, considerate

have the ability to explain my train of thoughts

collect info effectively

• **Human-Human Interaction skills**

- Break a problem into multiple smaller parts
- Analyze information
- Read actively
- Recognize patterns
- Exercise stubbornness

2

Focusing also on the testing process,  
not only on tasks

**change how testing is done and seen in the team**

On the previous project	On this project
Focusing on tasks	Work in a timeboxed manner
Less defocusing	Write code
Not so effective at collecting info	Read code
Not thinking critically about my testing process	Defocus from my current task
I didn't use my curiosity	Use my curiosity
	Change how I do testing
	Change how testing is seen in the team

```
[Test]
public void NewRequest_AddRequest()
{
    Selection.SelectObject(BRIEF_NAME, PROP_NAME, BUILD_NAME);
    newRequests.AddNewRequest(new Request(Utils));
}
```

```
[Test]
public void ManageRequest_AddRequest()
{
    Selection.SelectObject(BRIEF_NAME, PROP_NAME, BUILD_NAME);
    manageRequest.AddNewRequest(new Request(Utils));
}
```

```
//ToTest: Add and delete a request on the Manage requests page - "tilojen käyttäjä"(shared user account and tenant role) user
//          - verifying that the request has been added in the right place (under the correct property)
//          - verify it is correctly added - filled in data is saved
//          - verify that the request has been deleted
//          - verify that the correct request has been deleted
```

```
//ToTest: Add and delete a request on the New requests page - "tilojen käyttäjä"(shared user account and tenant role) user
//          - verifying that the request has been added in the right place (under the correct property)
//          - verify it is correctly added - filled in data is saved
//          - verify that the request has been deleted
//          - verify that the correct request has been deleted
```

```
//ToTest: Add requests at both property and building levels
```

```
//ToTest: Export requests list to PDF (risk of program error) from New requests page
```

# Skills atrophy

On the previous project	On this project
<p><b>Using sql queries</b> to check the validity of outputs</p> <p><b>Monitoring http requests</b> to understand if the sent data is valid</p> <p><b>Verifying output of application changes in json files</b></p>	

# Testing a feature to get relevant information (or not)

GM:02 | Demo

Service requests | Document n

**NEW REQUEST**

Request description:

Object  
099A Mannerheimintie 99 A

Space/room: Link request to  
Service areas  
Mandatory information

**CONTACT INFORMATION**

Name | Tester Al

Phone number | Mandatory

Email | ext.alexar

☐ I wish to follow up this request

**ADDITIONAL INFORMATION**

Save | Clear

**Select space**  
Kerros 1

TIP: Select a space or room by clicking the floor plan with the mouse button. You can move the floor plan by keeping the mouse button down while moving the mouse. You can also zoom in and zoom out the floor plan with the mouse wheel.

Status: 1048 Leikkaussalit  
Floor area: 63.4 m<sup>2</sup>  
W22 JK178 (varavoima)  
441 Leikkaussalit

Send feedback | Log out

M

heimintie 99 A

by mouse over

Building info



[11.02.2013 10:44:10] Maaret: You should look at the environments (tilat ja tekniikka) changes.

[11.02.2013 10:48:35] Alexandra: Is there more info on the map feature/component?

[11.02.2013 10:50:43] Maaret: It's supposedly a very small feature:)

[11.02.2013 10:53:05] Maaret: The technical change was such in nature, that as per our architect "it should blow up on your face" if it did not work

[12.02.2013 16:50:36] Alexandra: Why won't there be fixes for rooms?

[12.02.2013 16:51:07] Maaret: Two reasons. 1) it's external component. and 2) the only part of it done internally is one messy 2000 lines of code method.

[12.02.2013 16:51:20] Maaret: It will be completely rewritten if current version is not good enough.

[12.02.2013 17:15:33] Maaret: I was probably too hasty in trying to explain this rooms thing for you yesterday, as I feel I was trying (yet failing) to mention that we're interested in "blows on your face" type of issues.

[12.02.2013 17:19:32] Alexandra: I remember you said something about blowing up in your face, in my mind this read that the architect thinks that if it's not working properly, it probably doesn't work at all. :) So I didn't grasp the meaning..

[12.02.2013 17:16:23] Maaret: I don't know if it's more time, or becoming alert on the fact that no two tasks are the same.

[12.02.2013 17:19:37] Maaret: Also, I think you need to worry less about noise and more about quality.

[12.02.2013 17:19:49] Maaret: Your quality won't improve if you worry about noise.

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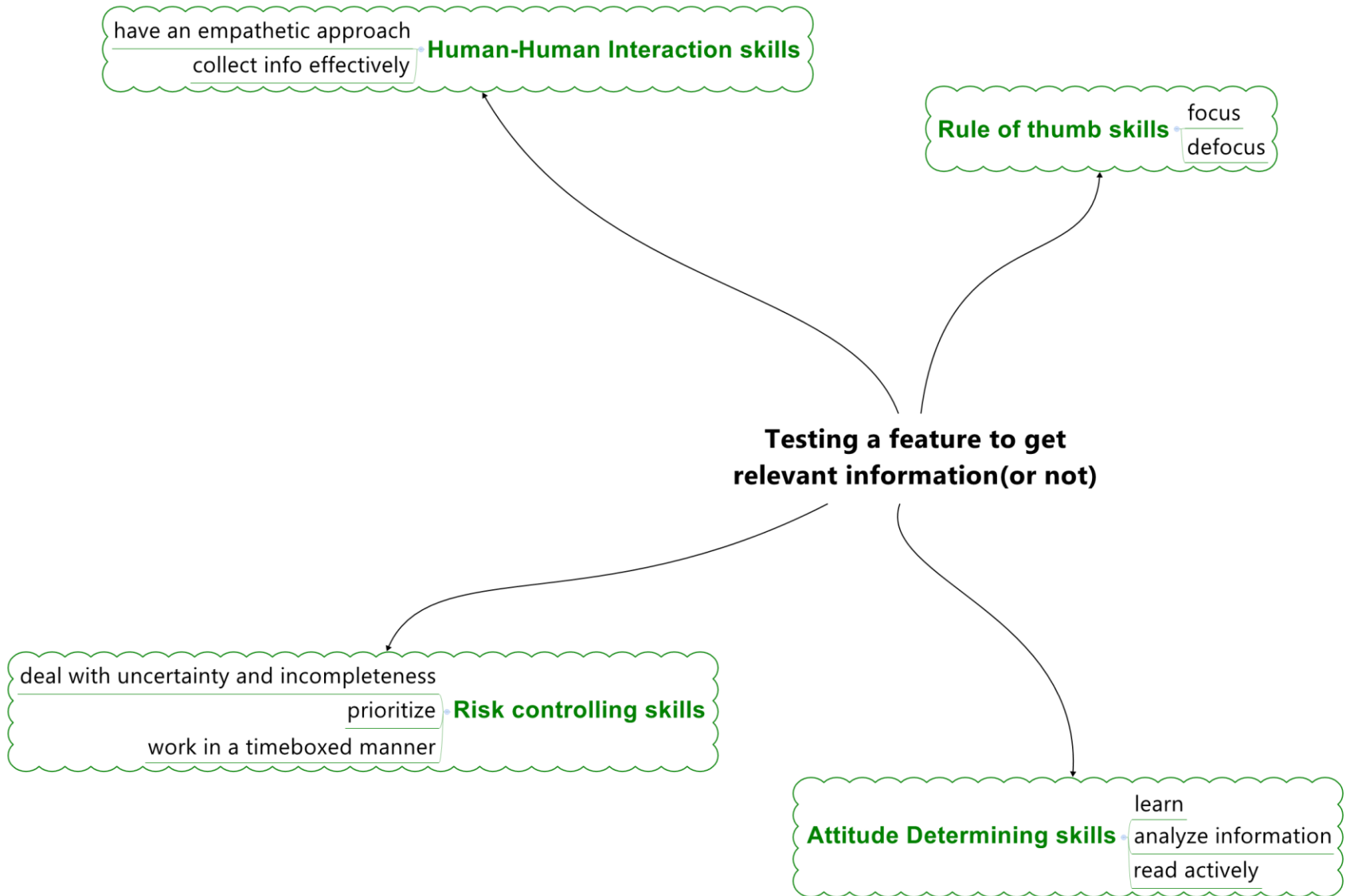
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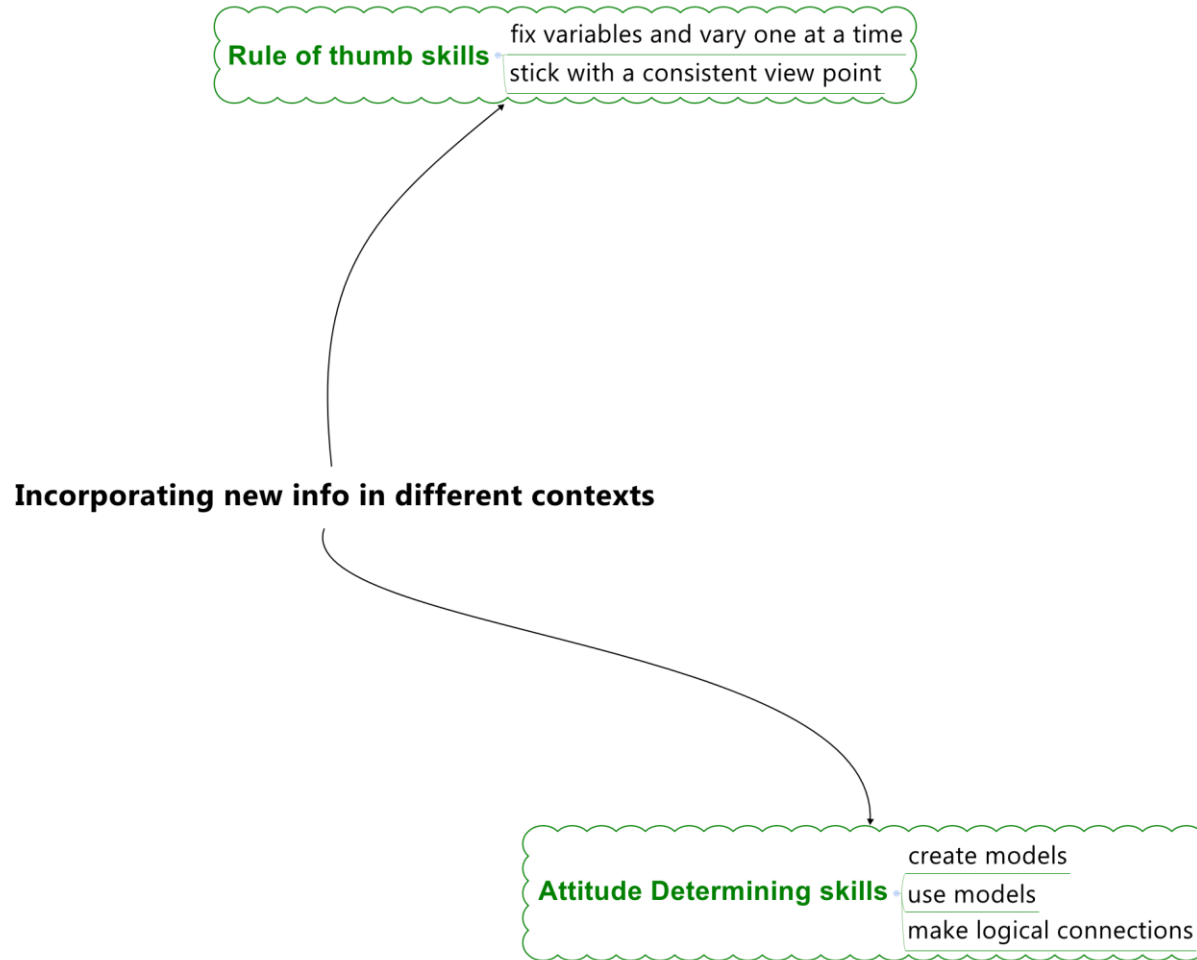
### Risk controlling skills

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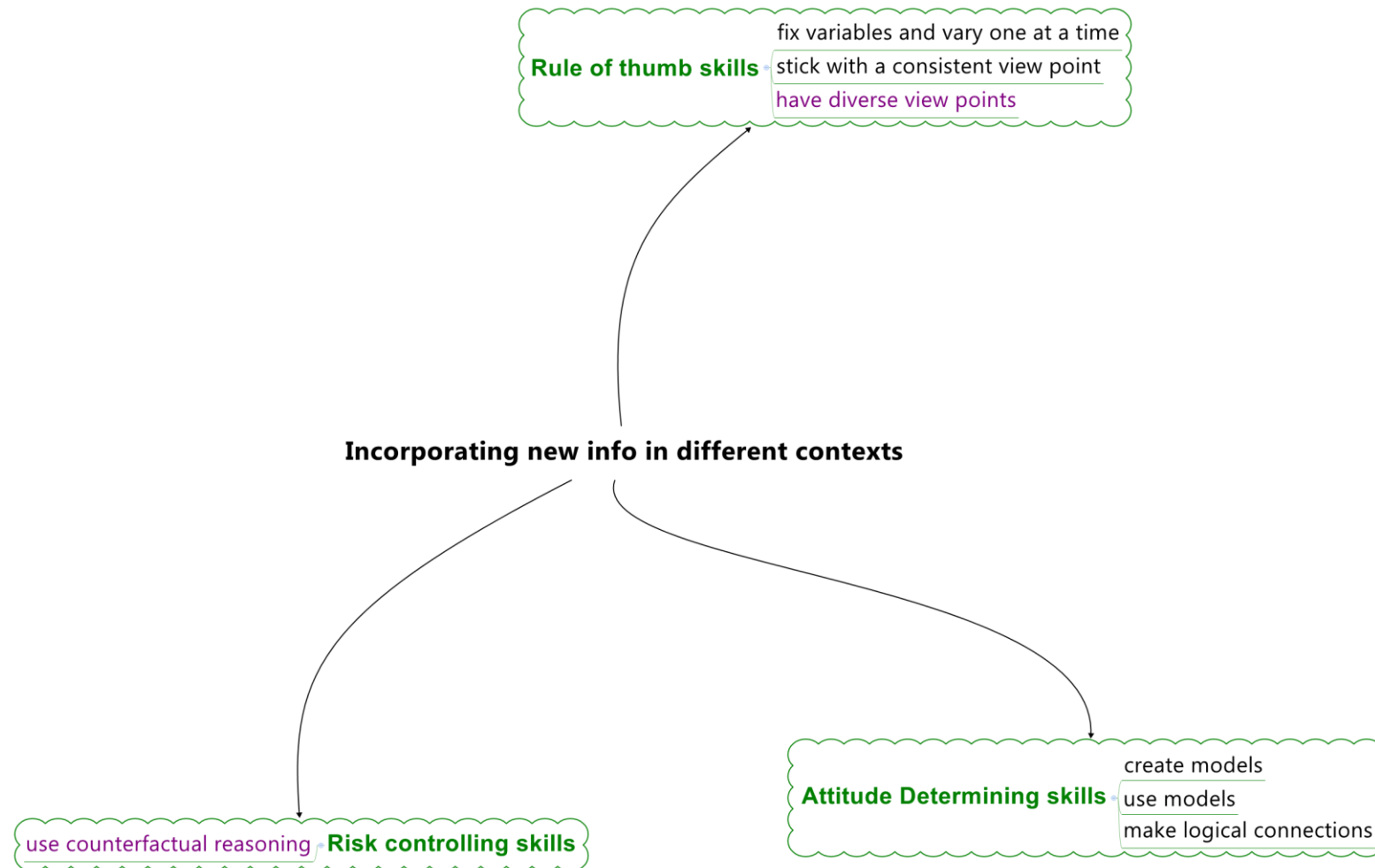




# Incorporating new info in different contexts



# Incorporating new info in different contexts



An organic mix of skills



**My own skills ecology constrains me**

An organic mix of skills



I need a variety of them



An organic mix of skills

I need to practice them a lot



An organic mix of skills

**Trial and error as an approach**





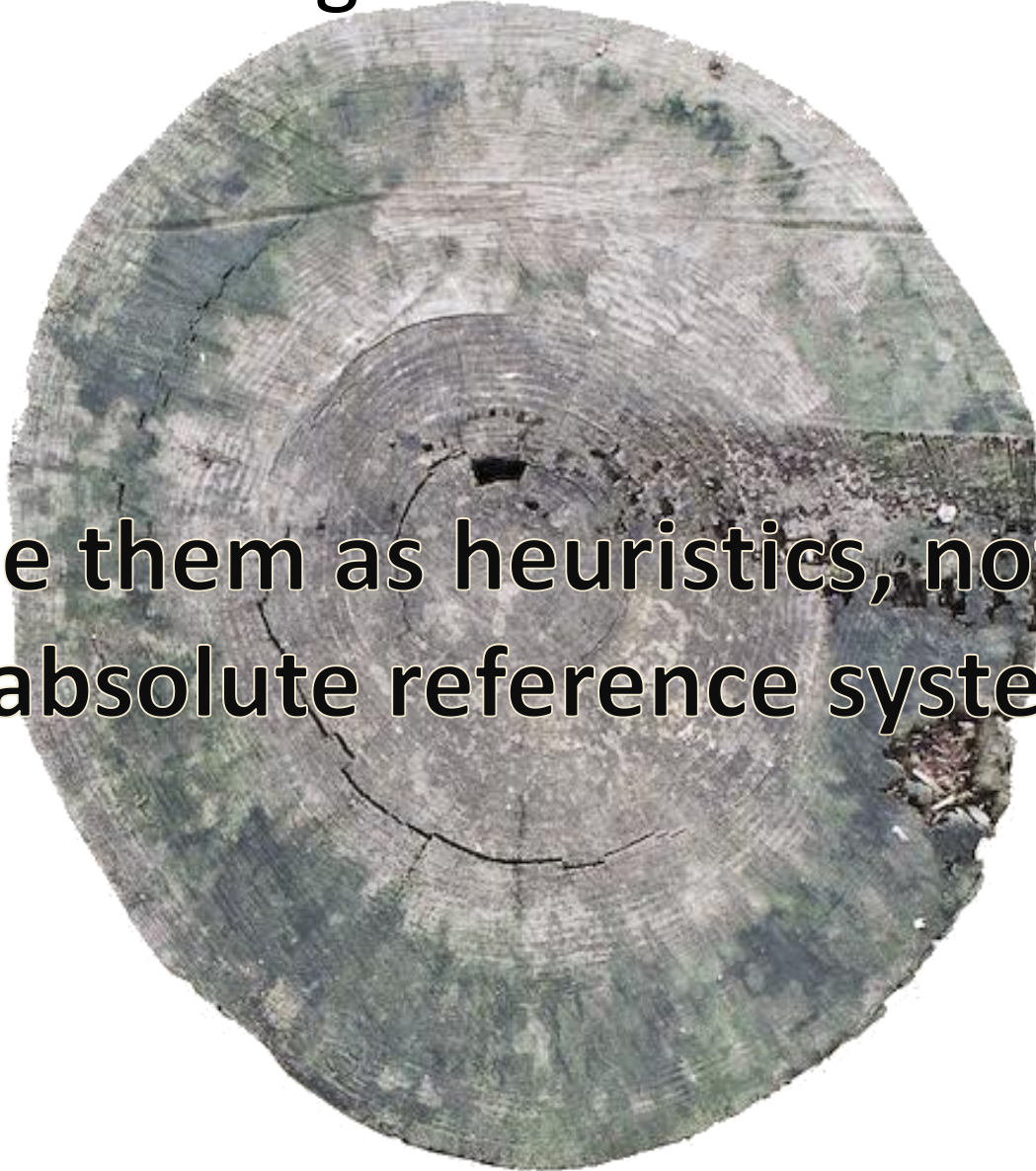
An organic mix of skills



I need to adapt

An organic mix of skills

See them as heuristics, not as  
absolute reference systems



“When all is heuristic, the hard, sad, cold inhuman nature of the absolute, the certain, the sure bends to the soft human nature of the heuristic.”

- Billy Vaughn Koen

“The job belonged to the specialist. The kids know that they no longer live in a specialist world; you cannot have a goal today”

- Marshal McLuhan

# References

- [Instructor's Manual for the BBST Courses – Rebecca L. Fiedler, Cem Kaner, Douglass Hoffman](#)
- [BBST Foundations course slides](#)
- [“Conditions for Intuitive Expertise – A Failure to Disagree” Daniel Kahneman and Gary Klein](#)
- [Why designers fail and what to do about it – Scott Berkun](#)
- [“Discussion of the Method” – Billy Vaughn Koen](#)
- [How to Read a Book: The Classic Guide to Intelligent Reading – Mortimer J. Adler & Charles Van Doren](#)
- [Forward Through the Rearview Mirror: Reflections on and by Marshal McLuhan](#)
- [http://www.artangel.org.uk/projects/2000/longplayer/letters/nassim\\_nicholas\\_taleb\\_to\\_stewart\\_brand](http://www.artangel.org.uk/projects/2000/longplayer/letters/nassim_nicholas_taleb_to_stewart_brand)
- Images: [Diatom image on slide 46](#) , Tree portraits by [Müge Yilmaz](#) (slides 37-42)



Thank you!

smoke signals @coveredincloth