Towards a typology of questions for requirements elicitation interviews

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Outline

1. Motivation
   - why do we need to talk about interview questions?
   - why do we need to introduce categories of interview questions?
2. Typology
   - A glimpse of the categories developed so far.
3. Applications
   - Examples of how we can use typology to qualitatively analyze interviews.

Interviews

Useful and widely used in RE

- For gathering initial background information for a project
- For understanding and resolving political issues [Hickey and Davis]

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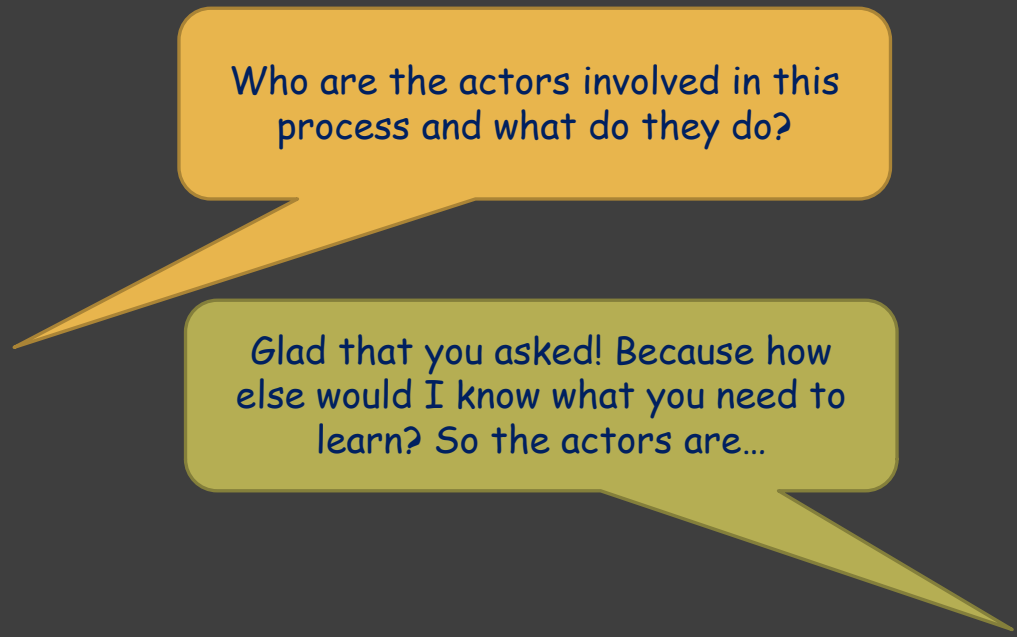
Typical Interview

- Interviewer asks questions
- Interviewee responds as they wish

Answer quality depends (also) on question quality



Motivation

What are good questions to ask?

- What to ask? [**Content**]
- When to ask it? [**Ordering**]
- How to ask it? [**Style**]

Forget *good* questions: how do we even just talk about questions?

- We need a **vocabulary**.

Our work

An ongoing effort for developing such a set of interview question categories.

Based on a review of the literature in various domains where interviewing is relevant

Goal: develop a classification scheme (a **typology**) of interview questions.

- Why: assist empirical scientists with qualitatively analyzing interview data using a standard coding language.

Advantage of using a common scheme:

- Application of common reliability measures, such as inter-rater reliability.
- Straightforward reproducibility by other researchers.

Methodology

A broad literature review:

- Areas include: software engineering, psychology, sociology, knowledge management, library science, journalism, health care, and judicial and criminal investigation.
- Sources: IEEE, Proquest, Pubmed, and Factiva have been used.
- Queries:
  - “library science” and “reference interview”;
  - “sociology” and “interview question*”
  - “psychology” and “interview question*”.
- Snowballing

So far: groups of categories

Content

Time

Form

Style and probing style

Objective

Also: Ordering

Content

Concerned with what the interviewer is interested in finding out about when asking a question.

Object of inquiry and questions about it [Derr]

- Existence, identity, properties, relations etc.

Focus on identifying objects, processes and relationships thereof [Wood]

Theory informed, e.g.:

- activity theory [Fuentes-Fernàndez et al.]
- sociotechnical systems [Wahbeh et al.]
- viewpoints [Sommerville et a.]
- Modelling approach, e.g.:
  - goal oriented, object oriented, process oriented.

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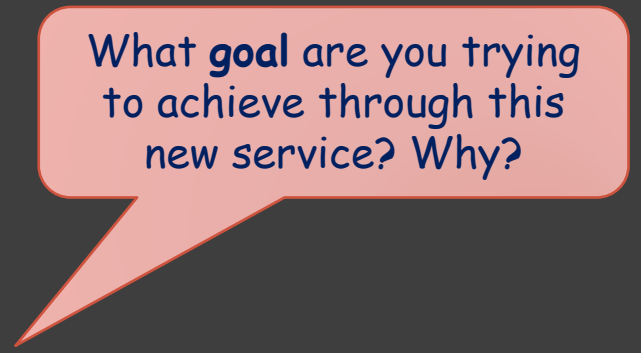

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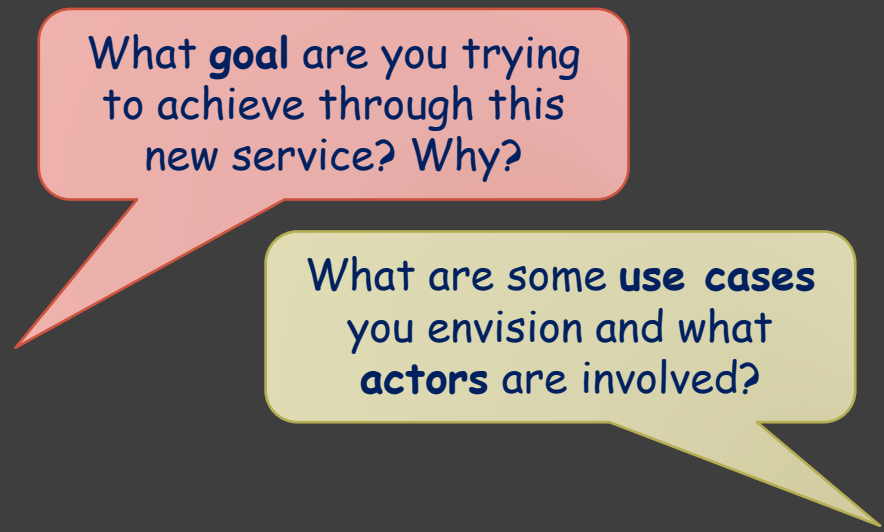

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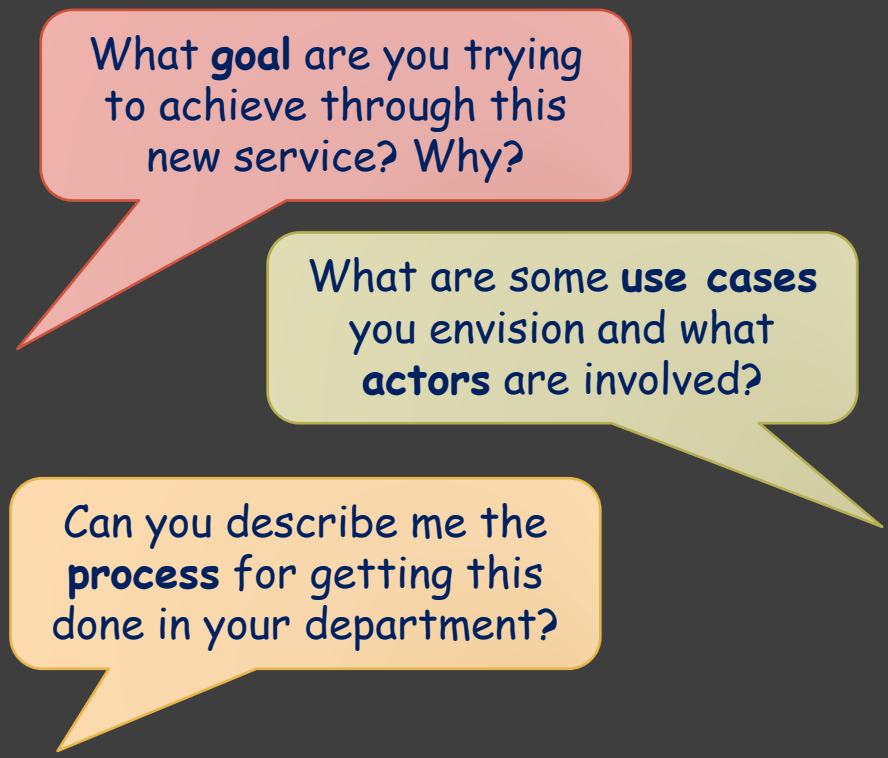
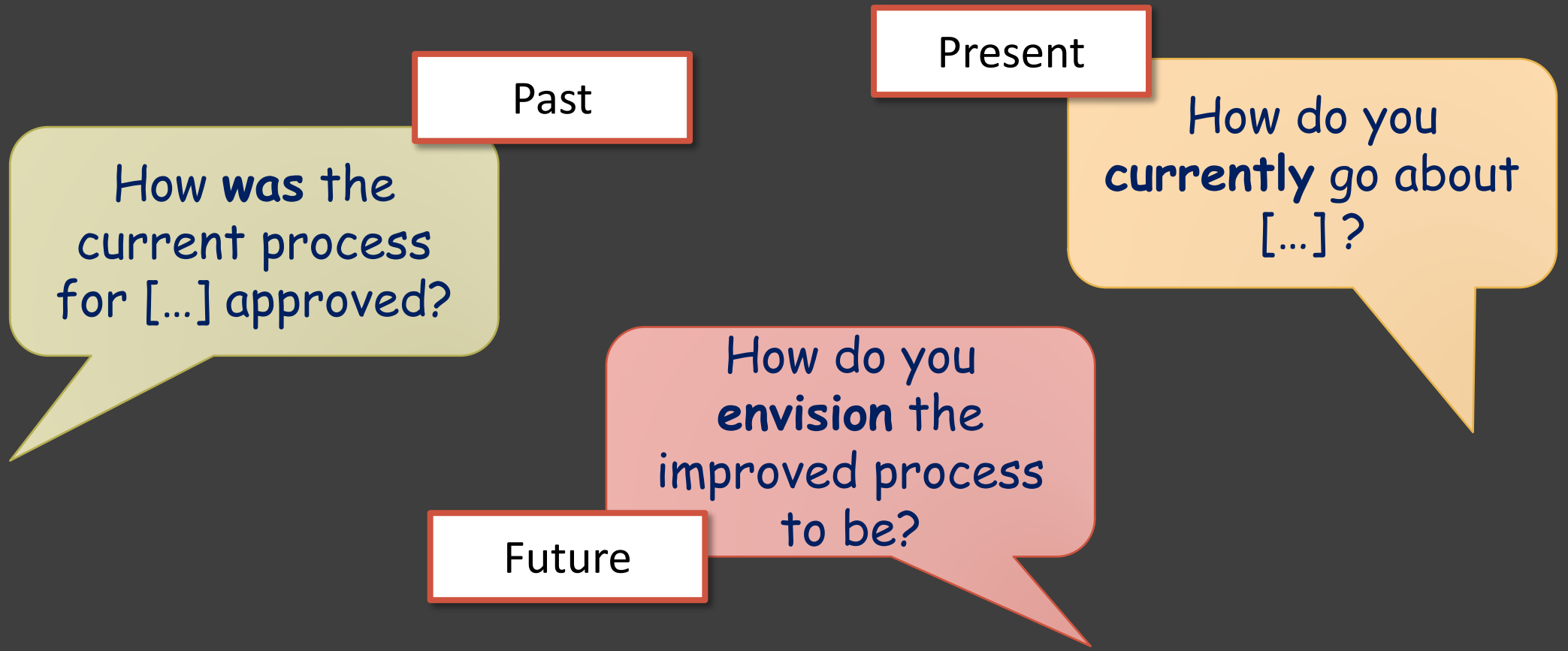


Content

Users/stakeholders
Needs
Processes
Object or data in the domain
Required functions
Technology
Project pragmatics

… and there might be more categories there to be identified.

Time


Past
How **was** the current process for […] approved?
Present
How do you **currently** go about […]?
Future
How do you **envision** the improved process to be?

Style

Format:

- open
- bipolar
- multiple choice.

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
- Declarative
- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

Can you tell me about …?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
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- Declarative
- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

Could you step me through this process?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
- Declarative
- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

Where is the data centre located? What time do you open?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
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- Specifying questions
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- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

How do you cancel an order?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
- Declarative
- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

What do you actually do when you have such unusual case?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
- Declarative
- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

That didn't work, did it? [Invites confirmation]

Other styles:

- Introducing
- Tour, mini-tour
- Directional
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- Contrast
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Style

Format:

- open
- bipolar
- multiple choice.

Who are the members of that committee?
[requires short, factual answers]

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
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- Ready reference
- Contrast
- Catchall questions.

Style

Format:

- open
- bipolar
- multiple choice.

Can you tell me about the situation in department X? How is it the same or different from what happens in your department?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
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- Contrast
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Style

Format:

- open
- bipolar
- multiple choice.

Are there any issues not addressed in this discussion that you think I should know about?

Other styles:

- Introducing
- Tour, mini-tour
- Directional
- Instructional
- Specifying questions
- Declarative
- Ready reference
- Contrast
- Catchall questions.

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

Could you tell me more about that?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

Why are you saying that___?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

You said that __ but now you have told me__. How do you explain that?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

Is it correct that __?
Does this imply that __?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

So if I understand you, you're saying that __?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

So it takes a lot of effort to query the information, is that what you say?

Probing Style

Informational probe

Reason seeking probe

Consistency probes

Interpreting

Restatement

Check-reflect

Echo probing

So, you copy the information from the application form to the screen and then what do you do?

Object

Content maneuvering:

- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Object

Content maneuvering:

- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Do you need the tabulation or also the visualization feature?

Object

Content maneuvering:

- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Given your clear need to do away with this approval process, how do you think this could be done?

Object

Content maneuvering:

- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Direct: *"Have you personally made such data entry mistake?"*
[centered on the interviewer]
Indirect: *"Do you believe many colleagues make such data entry mistakes?"*

Evaluating the Typology

Content:
- Users/Stakeholders
- Needs/Evaluations
- Processes
- Objects/Data
- Required Functions
- Technology

Time:
- Past
- Present
- Future

Format:
- open
- bipolar
- multiple choice.

Styles:
- Introducing
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Probing:
- Informational probe
- Reason seeking probe
- Consistency probes
- Interpreting
- Restatement
- Check-reflect
- Echo probing

Object:
- Forced choice questions
- Leading questions
- Direct vs Indirect questions

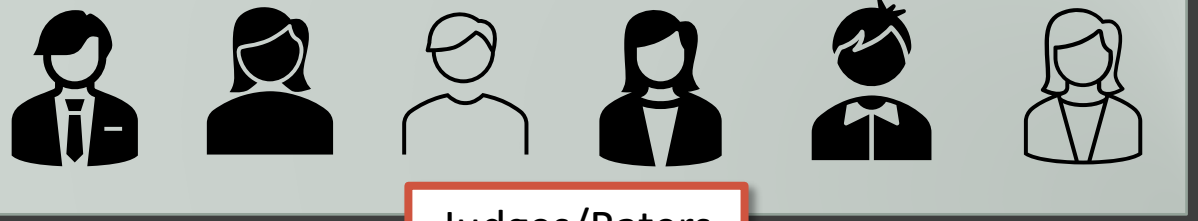
Reliability

Content Unit
(**interview question**)

"So if I understand you, you're saying that you want to eliminate cheating?"

Data Language
(the **typology**)

- Open
- Bipolar
- Multiple Choice
- …
- Needs
- …
- Interpreting
- Check-Reflect
- Restatement
- Echo
- …

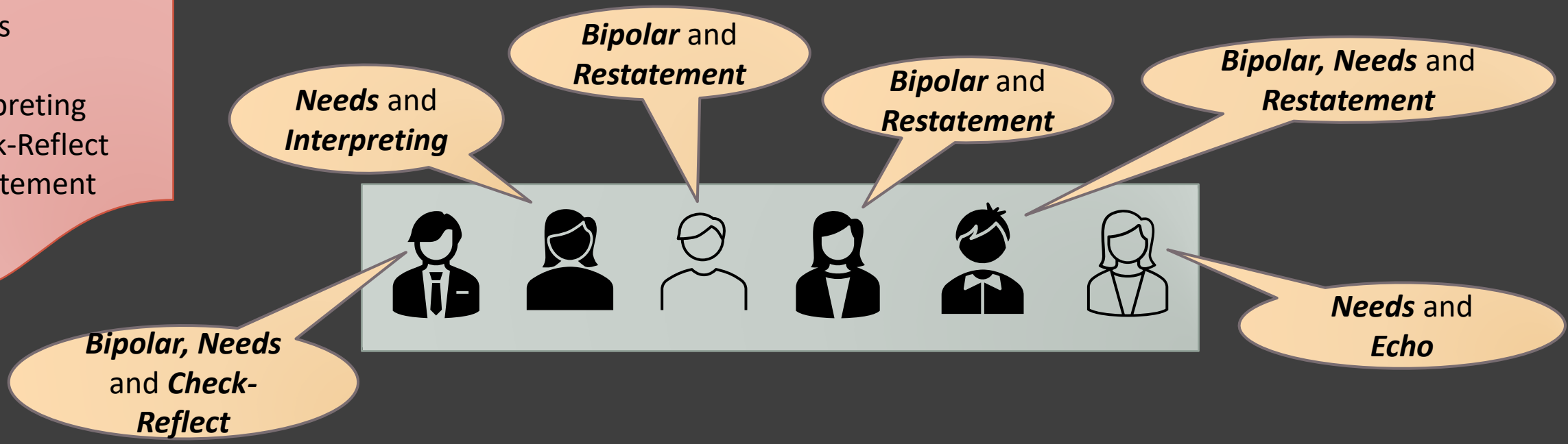


Judges/Raters

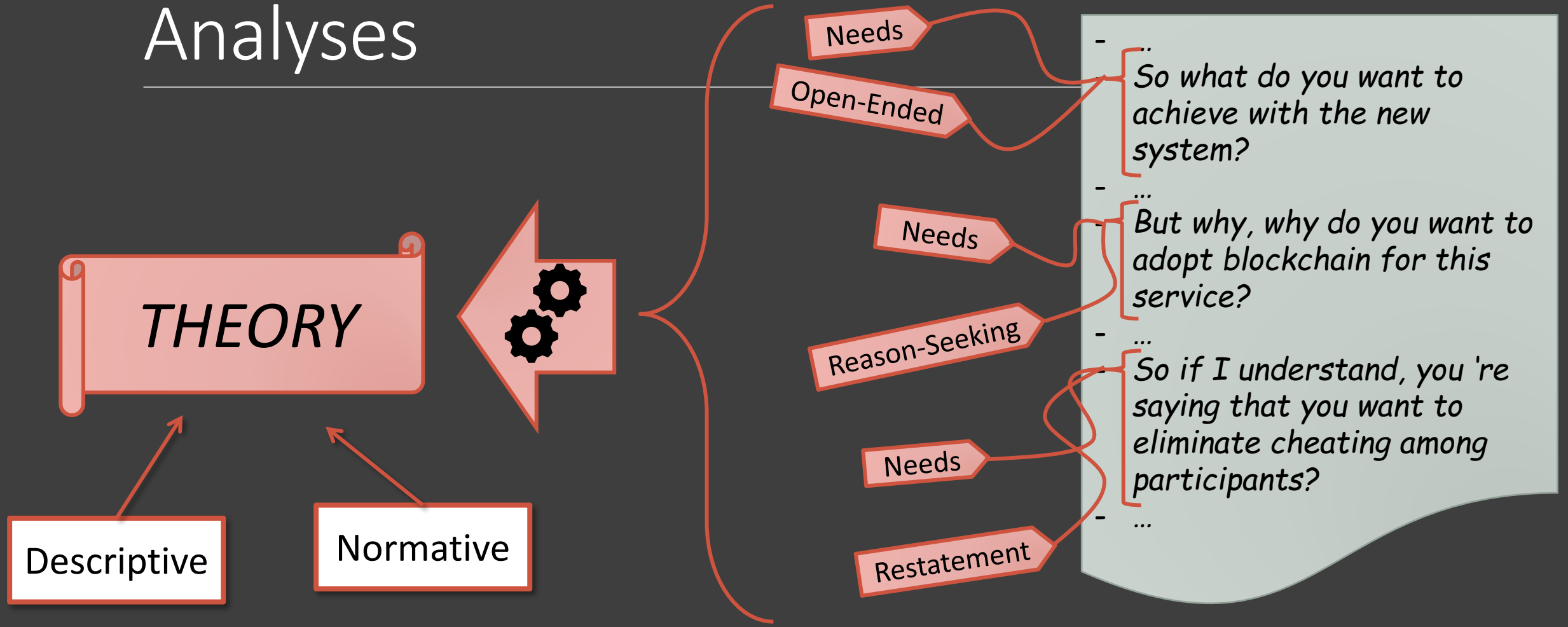
Reliability

"So if I understand you, you're saying that you want to eliminate cheating?"

Data Language:
- Open
- Bipolar
- Multiple Choice
- …
- Needs
- …
- Interpreting
- Check-Reflect
- Restatement
- Echo
- …



Analyses


THEORY
Descriptive
Normative
Needs
Open-Ended
Needs
Reason-Seeking
Needs
Restatement
- ...
So what do you want to achieve with the new system?
- ...
But why, why do you want to adopt blockchain for this service?
- ...
So if I understand, you 're saying that you want to eliminate cheating among participants?
- ...

Thank you!

(questions?)