Group know-how is understanding-like

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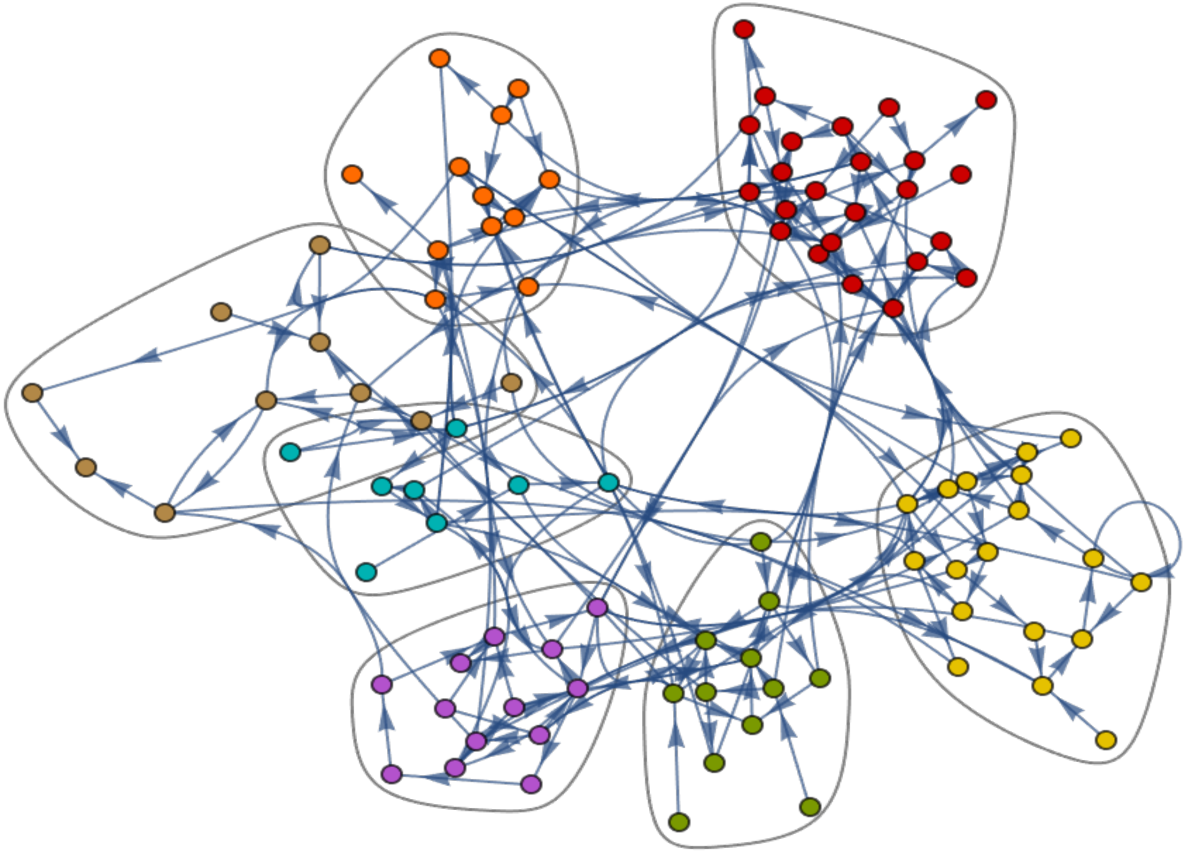
Outline

1) Introducing: *understanding-like* states
2) Know-how as an understanding-like state
3) Group know-how
4) Comparisons



Understanding-like states

The core idea

- There is a class of contentful states whose contents are graphically formatted. These are the *understanding-like* states.
- For content c to be graphically formatted means that it can be mapped to a graph in the mathematical sense (roughly, a tuple of a set of vertices and a set of edges).
- More precisely:

  Understanding-like
  A state s is understanding-like if it can be characterized by a tuple <G, D>, where G is a set of graphs, and D is a set of dispositions concerning those graphs.

Understanding: *Graph Maximalism*

- Understanding is understanding like. The following is a necessary condition for understanding:

  Graph Maximalism
  S understands at t only if S is at t in a state U characterizable by a 4-tuple $\langle G_I, G_E, M, D\rangle$, where G_I is a non-empty set of internal graphs, G_E is a possibly empty set of external graphs, M is a mapping between elements in G_I and G_E , and D is a dispositional profile associated to possible manipulations of G_I.

What this gives

- The properties of understanding states can be spelled out in terms of properties of the internal graphs.
- Understanding graphs are coupled to a target. A state of understanding can be accurate or inaccurate depending on the properties of the mapping between the internal and external graphs that characterise it.

Compression

- In the full model of Morales Carbonell (2023), there is also a component of compression: the degree of compression of the graphs involved can be of epistemic significance.
- The capacity to compress graphs is part of the dispositional profile associated to understanding-like states.
- Compressibility will matter for know-how as well.

Understanding attributions

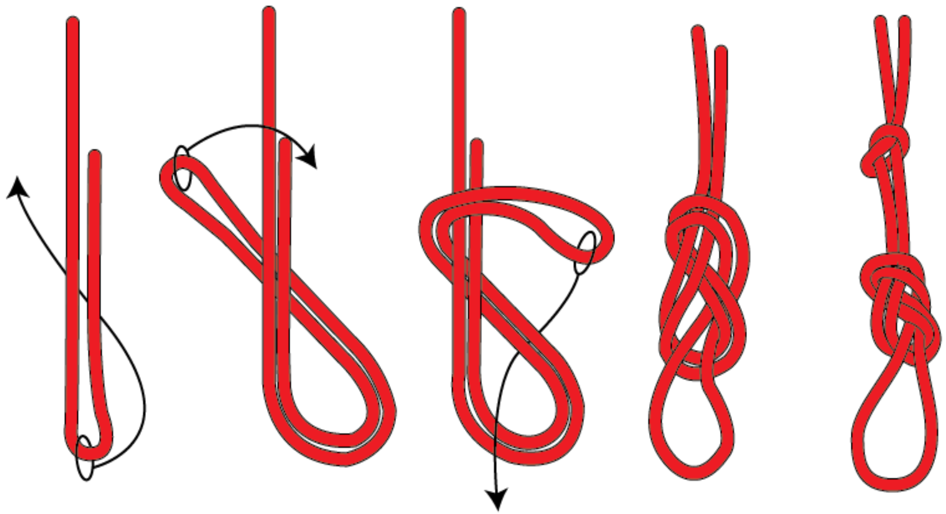
- We can define understanding states in a broadly contextualist framework (cf. Morales Carbonell 2021):

  S understands in context C iff S's understanding state meets certain criteria that are determined by the context C.

- Some possible criteria: well connectedness, factivity, supporting cognitive control, coherence, etc.
- These vary with the task that defines the context: understanding a scientific theory requires the satisfaction of different criteria than understanding a person or a novel.
  - This suggests that there is no natural kind of understanding states.

A broader class of states

- To be understanding-like is necessary but not sufficient to be an instance of understanding (i.e., a subject who is in an understanding-like state may or may not understand).
- There are states of epistemological significance which are understanding-like but fail to be understanding properly speaking. For example, *misunderstandings*.
  - This is important to account for the *dynamics* of understanding.
- There may be other understanding-like states.



Know-how as an understanding-like state

The proposal

- Practical knowledge or know-how is also understanding-like in this sense:

  UL Necessity
  A subject s knows how to ϕ only if they are in an understanding-like state that bears on ϕ-ing

What kind of understanding-like state is know-how?

- There are two ways in which know-how may differ from other understanding-like states: in terms of the content or in terms of its dispositional profile.
- But: the dispositional profile of a contentful state supervenes on its content.
- So it may pay off to focus on the kind of content associated to know-how first.

Procedural graphs and ways

- A proposal: the graphs that characterise know-how states qua understanding-like are *procedural*, they represent ways or methods to do something.
- What are ways?
  - Stanley & Williamson (2001): whatever we quantify over when we say 'however', 'anyhow'.
  - Yablo (1998): nothing, just an artifact of the manner in which we talk about possible answers to how-questions.
  - Bengson & Moffett (2011): sequences of action types whose execution is an act.
  - A way to ϕ is the form of a procedure that culminates in a state where ϕ has been satisfied. Ways are process types.

Some characteristics of ways

- *Diversity*: it is possible for the same thing to be done in more than one way
- *Public*: two subjects can act in the same way
- *Non-exclusive*: a subject can execute more than one way at the same time.
- *Factive*: it must be possible for someone to execute a way
- *Exhaustive*: acting in a way to achieve some condition must lead to achieving that condition
- *Coarse-grained*: equivalent ways must be identical.

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- ✔ *Public*: two subjects can act in the same way
- ✔ *Non-exclusive*: a subject can execute more than one way at the same time.
- ✗ *Factive*: there can be *impossible* ways, ways which cannot be executed
- ✗ *Exhaustive*: there can be *partial* ways, ways which do not necessarily lead to an achievement
- ✔ *Coarse-grained*: equivalent ways must be identical.

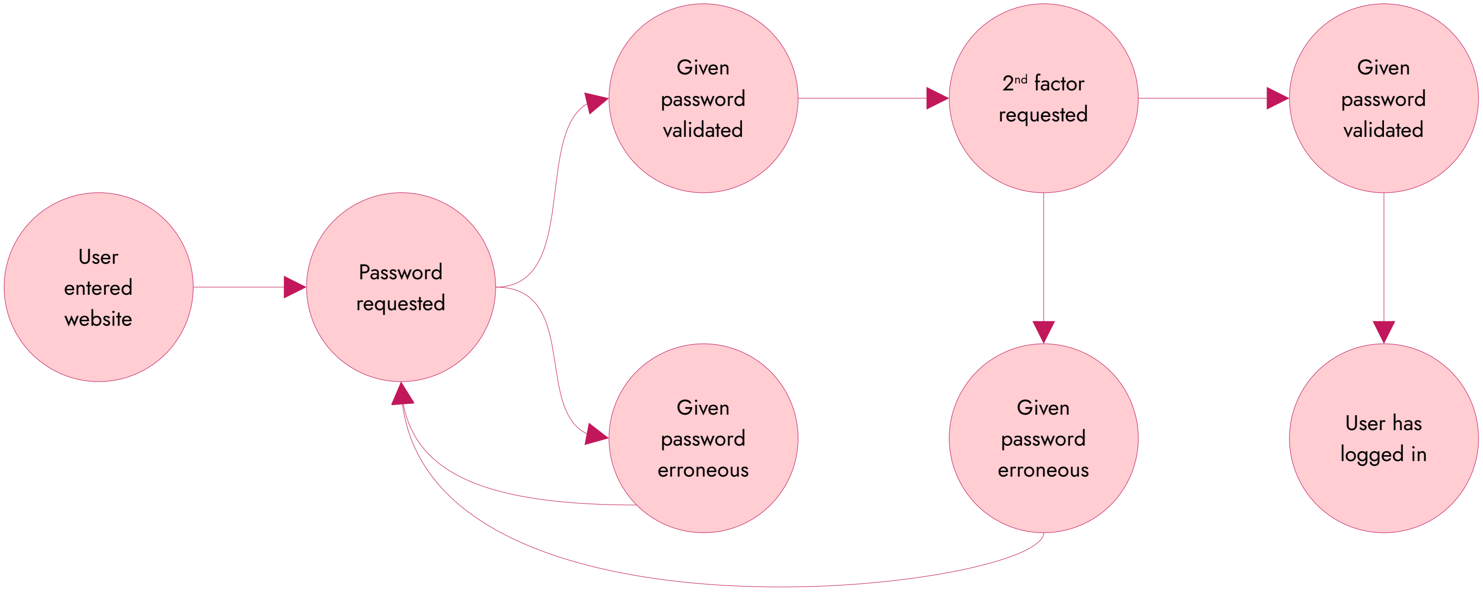
Schemes for procedural graphs

- There is no single way to represent a procedure.
- There is massive heterogeneity in the manners in which subjects can represent a procedure.
- There is always an interplay between the content of an understanding-like state and its associated dispositional profile. It can be part of the dispositional profile that the subject is able to produce representations under a given scheme, or that supplement the content in various ways.

The A-scheme

- *State-based*: Vertices are states and edges are transitions between states.
- Sequential state graph: a non-forking sequence of states.
- We must allow loops.
- But then: we must allow forking and joining.
  - One way to do this is with *hypergraphs*, where edges can attach to any number of vertices.

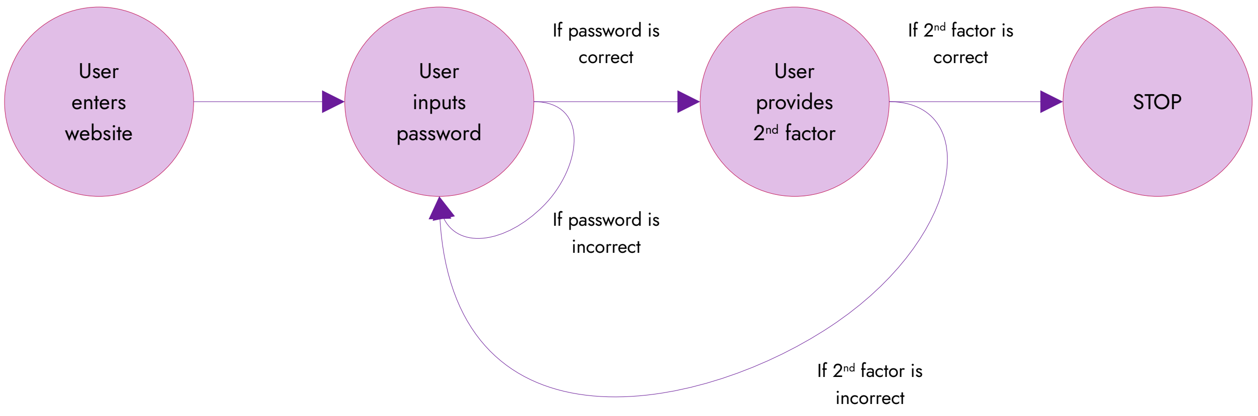
A-scheme procedural graph for 2FA



The B-scheme

- *Action-based*: Vertices are actions, and edges represent transitions between actions in a temporal order.
- This represents *atelic* actions better: these actions do not have a natural ending point, and thus do not lead to achievements.

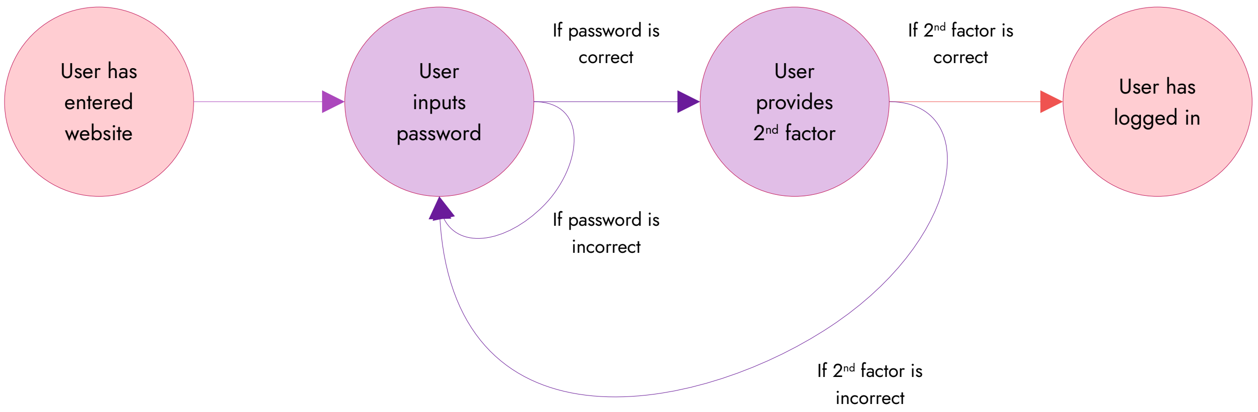
B-scheme procedural graph for 2FA



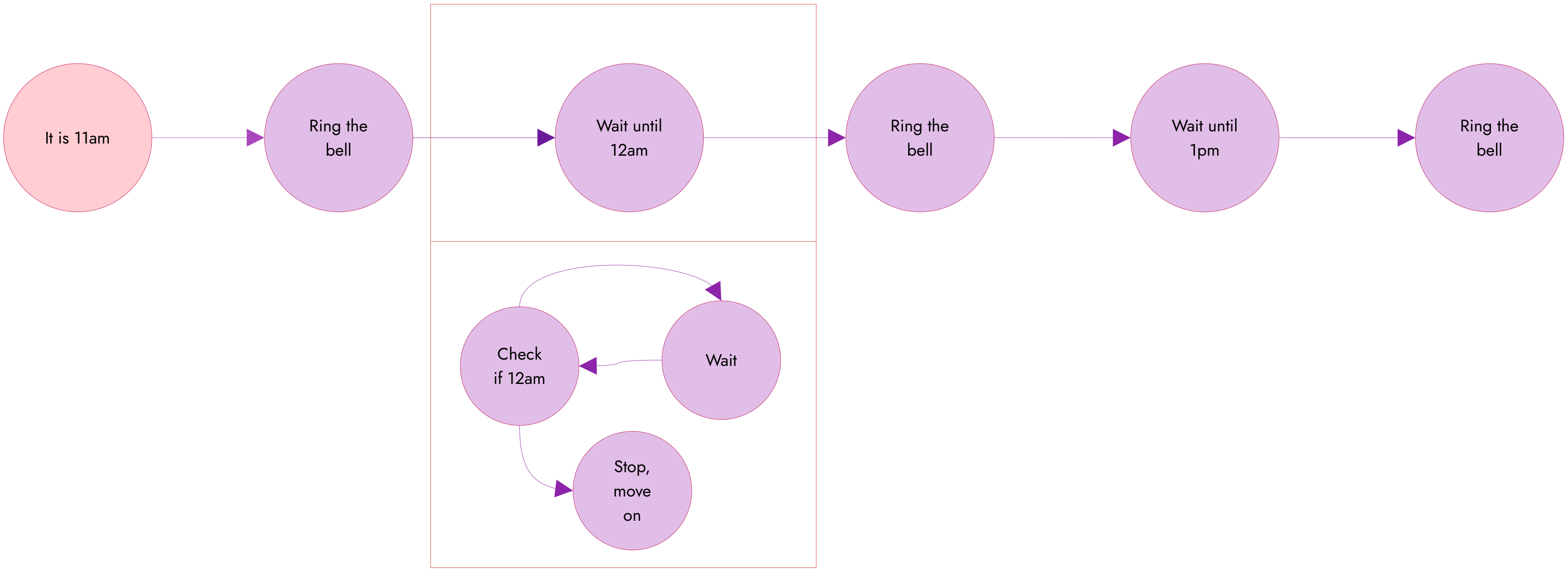
The C-scheme

- *Mixed*: vertices can be states or actions, edges can be transitions between states and states, states and actions, actions and actions, actions and states (and states and actions and states, actions and actions and states, if we consider forking edges).

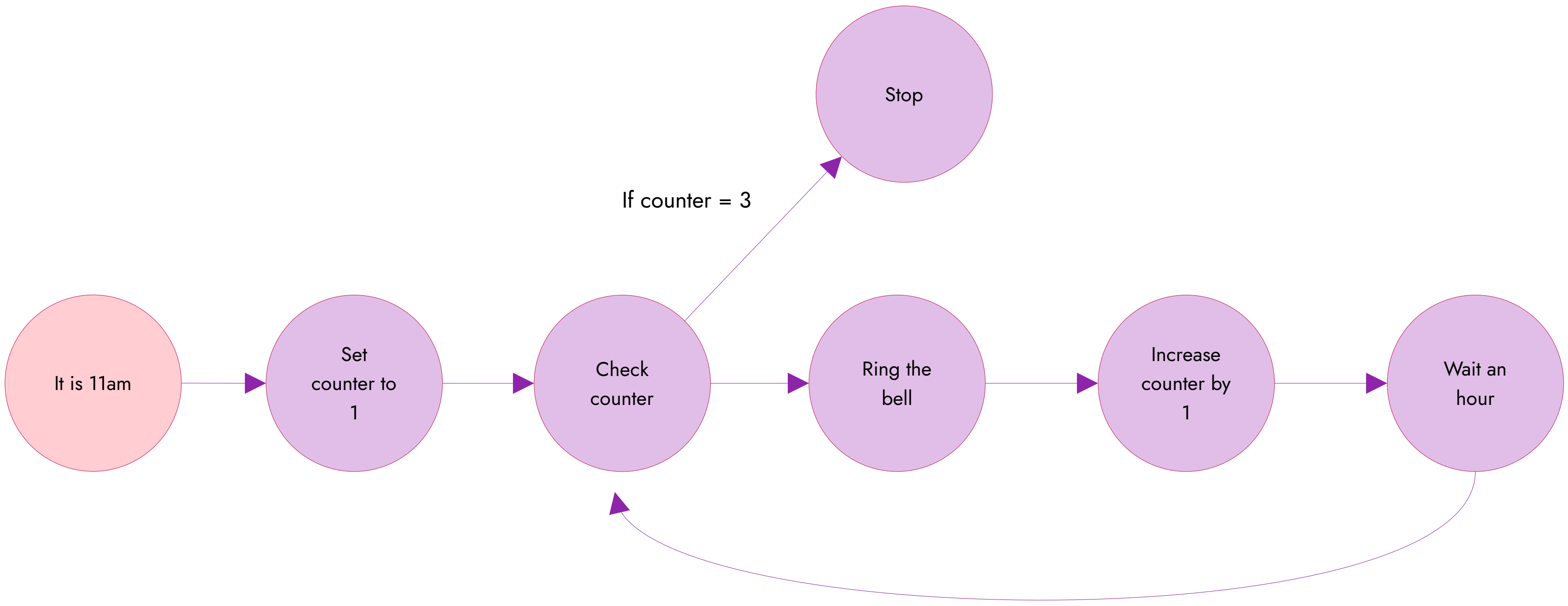
C-scheme procedural graph for 2FA



C-scheme procedural graph for ringing a bell three times



C-scheme procedural graph for ringing a bell three times



Reducibility

- These schemes are not meant to be exhaustive, but we may suppose that a large number of procedural representations can be captured by them.
- It is not necessary that the scheme follows a canonical representation: 🔔🔔🔔 can represent a procedure (ringing a bell three times, for example, which falls under the B-scheme).
- Different graph schemes can be encoded in different ways depending on the ways to decode them that are available as part of the relevant dispositional profiles

Know-how states are environmentally coupled

- Know-how states are not just internal, they are characterised by some external graphs. These are the available ways to act in the given context.
- We want to say that it may matter if internal graphs match in some sense those available ways to act.
- We also want to say that whether someone knows-how to do something depends on their capacity to (successfully) execute the ways to act that their internal graphs prescribe.

Graph-likeness

- To summarize, the proposal is that states a necessary condition for a subject to possess know-how:

  Graph-likeness of know-how states
  S knows how to ϕ in a situation X only if S is in a state H characterized by a triple <G_I, G_E, D>, where G_I is a non-empty set of procedural graphs (the internal graphs), G_E is a possibly empty set of procedural graphs that represent the possible ways to act in a set of relevant possible situations accessible from X (the external graphs), and D is a set of dispositions to manipulate the internal graphs, interpret them and execute them.

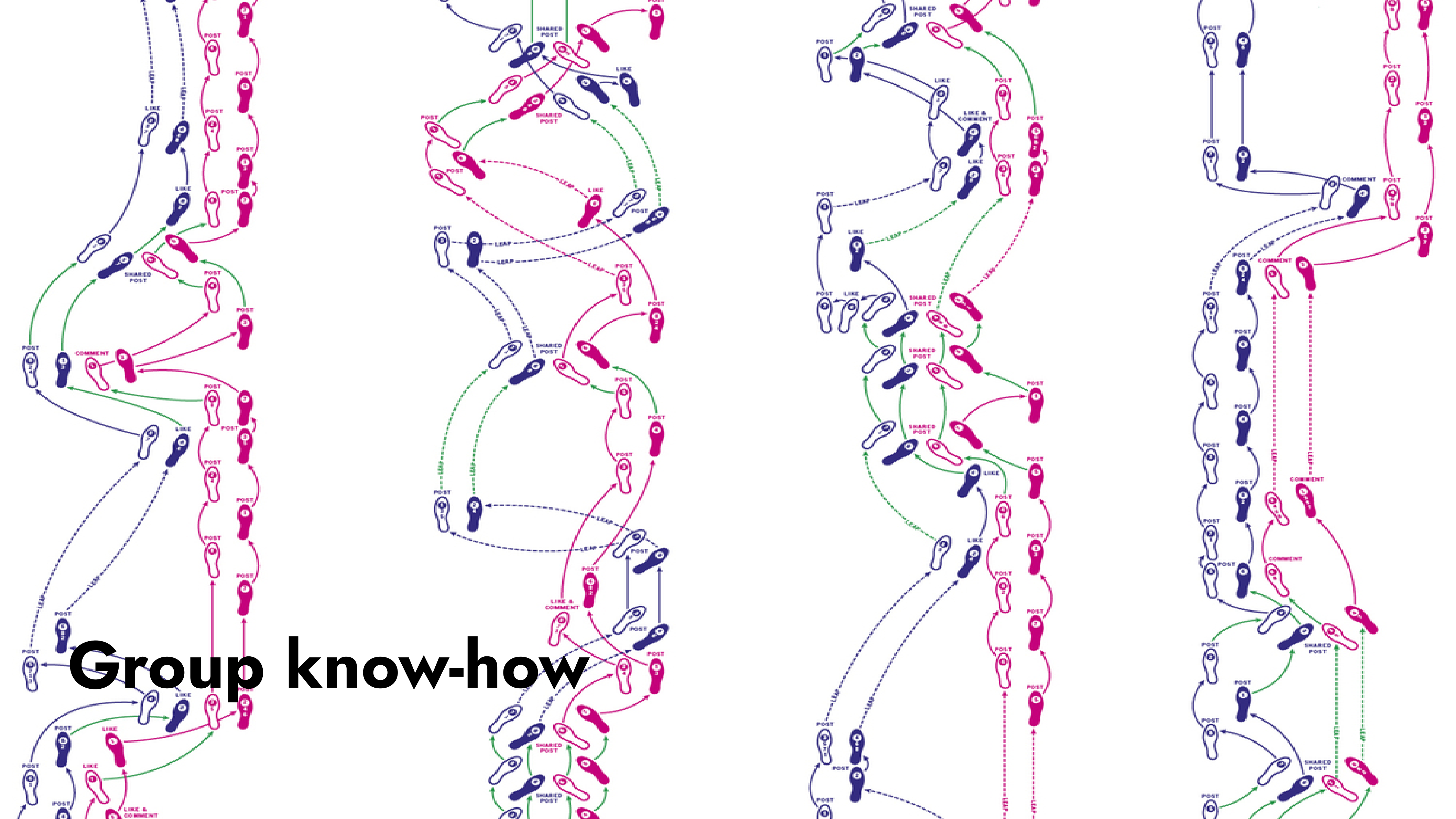
Know-how attributions

- Like in the case of understanding attributions, the know-how attribution story will be contextualist.
- But it I worth paying attention to two ways the attribution story could be approached:
  - *Time-slice approach*: whether a subject knows how to do something at a time hinges only on their state at the time.
  - *Historical approach*: whether a subject knows how to do something at a time can hinge on facts other than the state of the subject at the time.
- Suppose two people were in identical states at time t. According to the time-slice approach, if one is attributable with understanding, the other is too. A historical approach needs not validate that inference; for example, differences in their histories may matter.
  - This is a reason why Graph-Likeness cannot be a sufficient condition for know-how from a historical perspective.

Intellectualism or anti-intellectualism?

- The idea that know-how is a contentful state seems to suggest that the approach is intellectualist.
- But:
  - No commitment to representationalism (alternative accounts of content are available).
  - No commitment to propositional content – attitudes towards graphs need not involve propositional attitudes. Rather, they can be *sui generis*.
  - Dispositional profiles are crucial.

Group know-how



The possession problem

- Graph-Likeness makes no restrictions about the kind of subject it can apply to. Can it be generalized to collective subjects?
- What does it mean for a subject to possess/have/be in a graph-like state?
- In the individual case: either having a representation or a disposition (maybe both). This is not (in principle) problematic.
- What could it mean in the collective case?

Key idea: Graphs can be distributed

- The structure of graphs is nicely suitable for distributed processing.
- Given a set of subjects S and a graph G, different subjects in S can individually possess different subgraphs of G, and the capacity to coordinate in such a way that the group as a whole can achieve actions that would only be possible if the totality of the graph was possessed. In this condition, we say that S possesses an understanding-like state concerning G.

Group know-how

- So, in the case of know-how:

  Given a set of subjects S and a procedural graph G of an action A, S knows how to A only if different subjects in S (1) can individually possess different subgraphs of G, and (2) have the capacity to coordinate in such a way that the group as a whole can be responsible to achieve A.

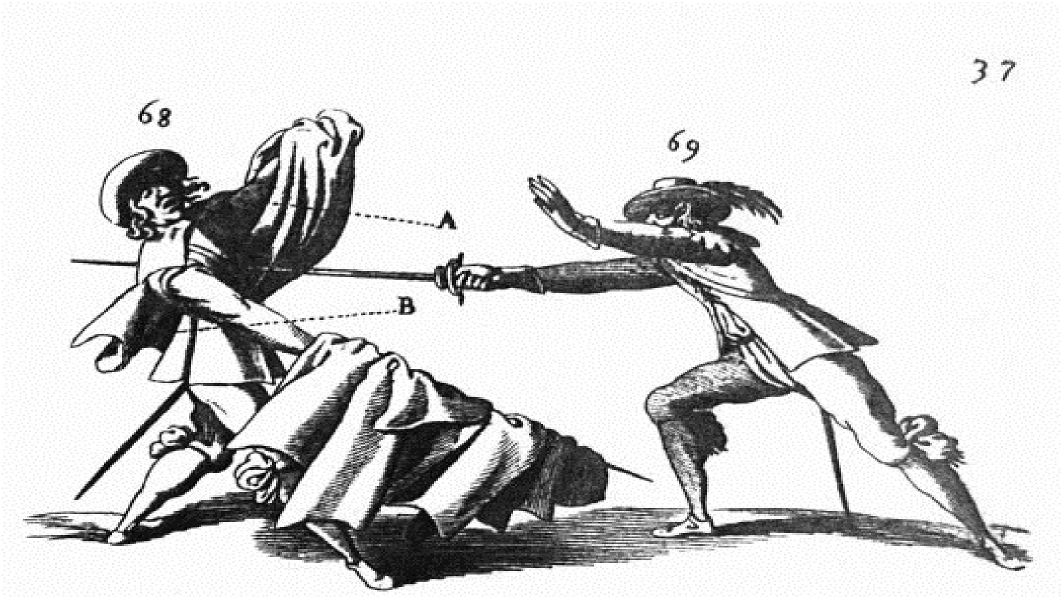
- The capacity of the group to achieve A depends on the capacity of its members to 'do their part'.
- This (the capacity to do one's part) is a *background* capacity.

Procedures that require group effort

- Some procedures *cannot* be executed by a single subject.
- Those procedures require the coordination of a number of subjects.
- Each member of a group that attempts to execute such a graph contributes to the action of the group as a whole (cf. Bird 2014, Birch 2018).
- This does not require explicit coordination! No member of the group needs to be aware of the intention of the group. No member of the group needs to be aware of the overall plan.

Degrees of group know-how

- Intuitively, a group could grasp a graph better than others.
- But what does this mean?
- One possibility: the members know how to do their part better.
- Another possibility: the way the group can work is better (simpler/more compressed, more reliable, etc.)



Comparisons

vs. Non-propositional intellectualism

- Bengson & Moffett (2011):

  Objectualist Intellectualism (OI)
  To know how to ϕ is to stand in an objectual understanding relation to a way w of ϕ-ing
- Understanding-like states are not necessarily forms of understanding or knowledge
- Know-how attributions do not validate understanding attributions, but OI does.
- A genealogical story about why we have a concept of know-how rather than a concept of practical understanding is missing. Saying that it is a shorthand is not enough.

vs. Joint enablements

- Birch (2019):

    A group knows how to X iff each member has the ability to X in a way that enables coordination and is responsive to the way in which the other members could attempt to X.

- But: explicit coordination is not necessary.
- There needs not be an intention to X in part of the members of the group.

vs. Joint responsibilism

- Pallermos & Tollefsen (2018):

  A group G knows how to X if and only if
  (1) G is able to responsibly X by reliably applying the constitutive standards of X-ing; (2) G is able to fulfil (1) in virtue of its members forming a distributed cognitive system.

- Reliability may not be necessary; here, context determines how reliable the group needs to be.

vs. Fractured inquisitive capacities

- Habgood-Coote (2022):

  G knows how to X iff (1) Some members of G are able to generate answers to subquestions of what is a way in which G can X? on the fly; (2) Between them, the members of G are able to generate answers that add up to a resolving answer to what is a way in which G can X?.; (3) The interrogative capacities of the different members of the group can be exercised together to generate resolving answers to the question how can we X? in the course of X-ing together.

- This relies on an revisionary account of generating answers, according to which this can be done by performing non-linguistic actions. This is something that we may want to avoid.
- The account is superficial, the possession of a graph is an account of what it means to have a relation to a graph that is of practical significance.

Limitations

- Graph-likeness is a necessary, but not sufficient condition for having know-how, and thus it only provides a necessary but not sufficient condition for group know-how.
- This needs to be sorted by adding an account of know-how attributions. I already indicated some ways in which this can go, which I will not go into here.
- However, on a promissory note, I should mention that I take a historical, anti-intellectualist story about attribution as the most promising way to go.
- It also needs to be accounted that by offering an account of understanding-like states in general rather than on the narrower target of know-how, the account also offers a broader perspective on agency.

Thanks!

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