

- On
deRosset's
Collapse Problem

1398, IPM

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● Overview

○ - Introduction:

- What is Grounding?
 - MGQ and the Collapse Problem
 - Free Modal Recombination
 - Multiple Realizability
- The implausibility of LINK
 - The Implausibility of CORR
 - What's next?



Introduction

● What is Grounding?

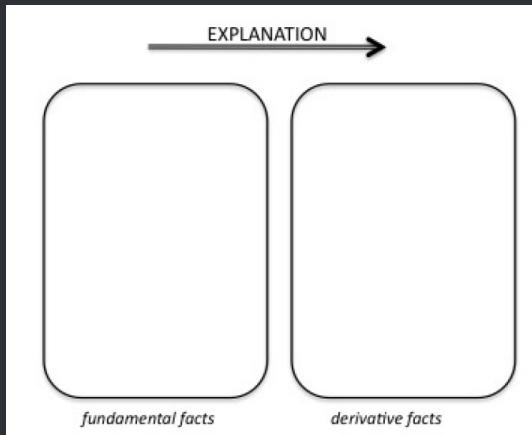
- - Some examples:
 - Roses are red in virtue of being scarlet
 - Mental facts obtain in virtue of physical facts
 - Gods love an act because it is pious
- Properties:
 - Transitive, Assymmetric, Irreflexive
 - UN: if a grounds b then, $\Box (<a \text{ exists}> \rightarrow <b \text{ exists}>)$

● What is Grounding?

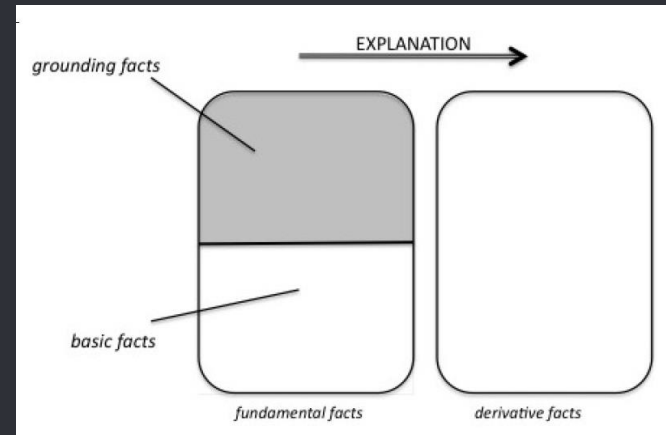
- **Fundamentality:** a fact/entity is fundamental if it is ungrounded
- **Derivativeness:** Something is derivative if it is not fundamental

Dualism Vs Trialism

Dualism



Trialism



- Skepticism, Realism and Irrealism

- - **Realists:**

- Grounding is a real relation

- **Skeptics:**

- Grounding is esoteric
- Grounding is nothing over and above small-g grundings

- **Irrealists:**

- Grounding is useful but not real!

- MGQ and the Collapse Problem

- **MGQ:**

What, if anything, grounds the grounding facts?

Collapse Problem:

D1 Beijing is a city;

D2 Beijing is derivative;

FUND Grounding facts are fundamental;

FACTS Beijing is derivative only if no fact involving Beijing is fundamental.

● Free modal recombination & Multiple Realizability

○ **Free modal recombination view (FMR):**

It says, granting the existence of the fundamental layer, in reality, we can freely recombine the entities in it in other possible worlds. For example, if a, b and c are the fundamental entities, in another possible world, it is possible that we only have the entity a and the entity c.

Multiple Realizability (MR):

It says that higher-level entities, in the structure of reality, are multiply realizable by different entities from the lower level of reality. For example, the mental state P can be realized by neuron x in humans, and also it can be realized by neuron z in some other animals



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Against LINK

● Collapse argument

○ **LINK** e_1, \dots, \dots, e_n are the entities that ground entity e only if e 's existence and features are all explicable solely by reference to the existence and features of e_1, \dots, \dots, e_n

CORR An entity e is fundamental if e 's existence or its possession of some feature is fundamental.

● Collapse argument

1- LINK is true.

2- CORR is Intuitively plausible

3- LINK Implies CORR

4- (2 or (1&3)) imply CORR is true.

5- Grounding facts are ungrounded (assumption)

6- All entities are either derivative (grounded) or fundamental (ungrounded). (the account of Dualism)

7- By definition, Grounding facts are explanations of a relation between one grounded entities to another grounded entity, or one grounded entity to an ungrounded entity.

8- There are some entities in reality which are grounded. (entities are layered)

9- 7 implies that grounded entities have a feature which is a grounding fact explaining their relation to a grounded or ungrounded entity.

10- 1&4&5&9 imply that grounded entities are ungrounded.

11- 6&10 imply that all the entities are ungrounded which leads to a collapse (there is only one layer for all of the entities)

12- 8 and 11 contradict each other

Therefore, **5 is false** because he thinks 1,3,4,5,6,7 and 8 are plausible.

● Against LINK

○ **LINK** e_1, \dots, \dots, e_n are the entities that ground entity e only if e 's existence and features are all explicable **solely** by reference to the existence and features of e_1, \dots, \dots, e_n

● Strong Free Modal Recombination

➡ 1- SFMR is true

2- LINK is true

3- Assume the entity b to be derivative(grounded) at w1

4- 2&3 imply b's features are solely explainable by the entities which ground it (let us say the entity a is the ground of b at w1)

5- 1 suggests b is fundamental at an arbitrary world like w2.

➡ 6- Any fact about an entity is the feature of that entity

7- 5&6 imply the fact that [b is fundamental at w2] is a feature of b

8- The fact that [b is fundamental at w2] is not explainable by a

9- 7&8 imply at least one of b's features is not solely explainable by a

10- 9&4 contradict each other

Therefore, 2, namely LINK, is false.

Weak Free Modal Recombination

1- WFMR is true

2- LINK is true

3- Assume the entity c to be derivative (grounded) at w_1 , and the entity a is a grounded entity which grounds b . Also, b grounds c .

4- 3 implies a grounds c at w_1 . Because grounding relation is transitive²⁶,

5- 2&3 imply c 's features are solely explainable by the entities which ground it, namely b .

6- 1 suggests it is possible that b does not exist in some arbitrary world like w_2 . So, we do not have the "grounding fact" that [b grounds c] and the fact that [a grounds b]. However, it is still possible that a grounds c at w_2 . Due to 4. (It is like that we omitted the layer in which b existed at w_1 .)

7- Any fact about an entity is the feature of that entity

8- 4&6&7 imply the fact that [a solely grounds c at w_2] is a feature of c

9- The fact that [a solely grounds c at w_2] is not explainable by b

10- 8&9 imply that at least one of c 's features is not solely explainable by b

11- 10&5 contradict each other

Therefore, 2, namely LINK, is false.

● Multiple realizability

- It has the same properties as grounding:
Transitivity, asymmetry, irreflexivity
- If a relation is realization, then it is grounding
- Why bringing the possible worlds?
To avoid the cosmos!

● Local Multiple realizability

→ 1- Weak Multiple realizability is true. This account says if a grounds b it is possible that **in the same world** another entity grounds b. for this matter assume that “c grounds b”

2- LINK is true

3- Assume b to be multiply realizable

4- By definition, we know that 3 implies that b is grounded in some entity like a

5- 2&4 imply that b's features are solely explainable by a

6- 1 says that b is also grounded in some other entity like c

→ 7- Any fact about an entity is the feature of that entity

8- 6&7 imply that the fact that [b is grounded in c at w2] is a feature of b

9- The fact that [b is grounded in c at w2] is not explainable by a

10- 8&9 imply at least one of b's features is not solely explainable by a

11- 10 & 5 contradict each other

Therefore, 2, namely LINK, is false.

● Global Multiple realizability

→ 1- Multiple realizability is true. This account says if a grounds b it is possible that in some other world like w2 another entity grounds b. for this matter assume that “c grounds b”

2- LINK is true

3- Assume b to be multiply realizable

4- By definition, we know that 3 implies that b is grounded in some entity like a at w1

5- 2&4 imply that b's features are solely explainable by a

6- 1 says that b is also grounded in some other entity like c at w2

→ 7- Any fact about an entity is the feature of that entity

8- 6&7 imply that the fact that [b is grounded in c at w2] is a feature of b

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Against CORR

Collapse argument

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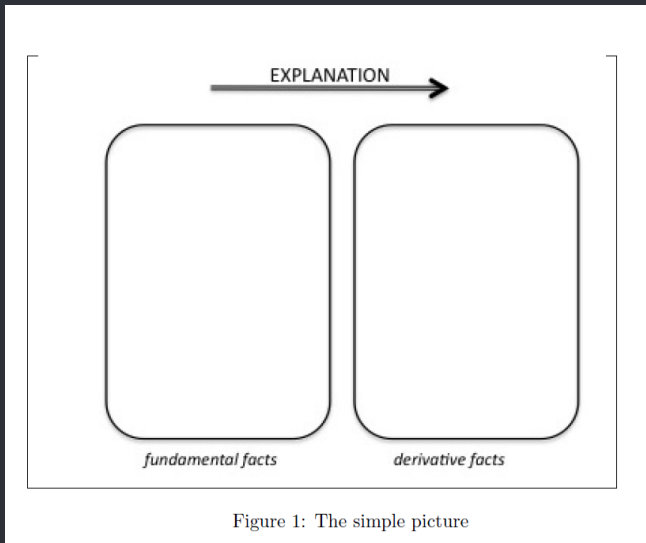
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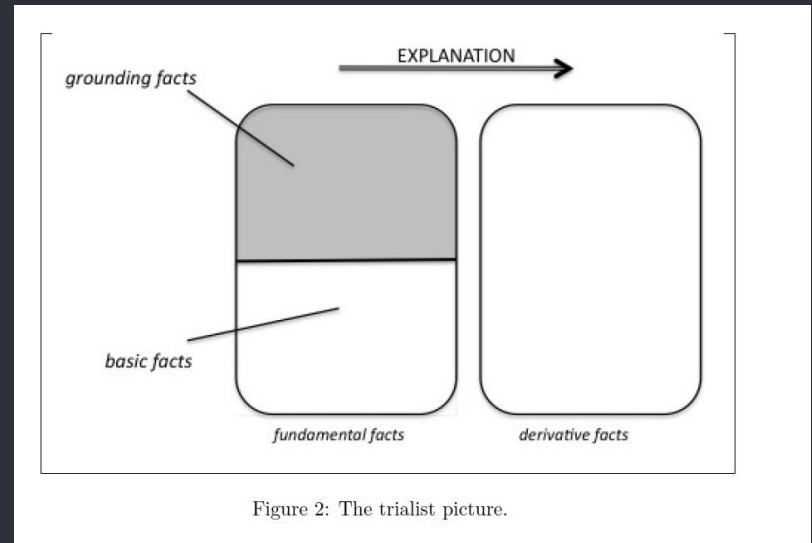
“CORR says that, if one were to detail all and only the fundamental facts, then one would mention only fundamental entities: derivative entities are not part of the fundamental story of the world.”

Dualism Vs Trialism

Dualism



Trialism



“Suppose that e ’s existence or its possession of some feature is fundamental. Assume for reductio that e is derivative, and so grounded in other entities. If e is grounded, then the application of LINK implies that e ’s existence and its possession of each of its features are derivative, contradicting our supposition. QED.”

● Trialism*

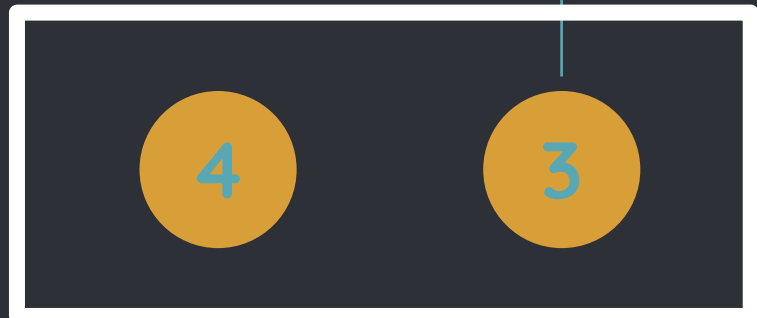
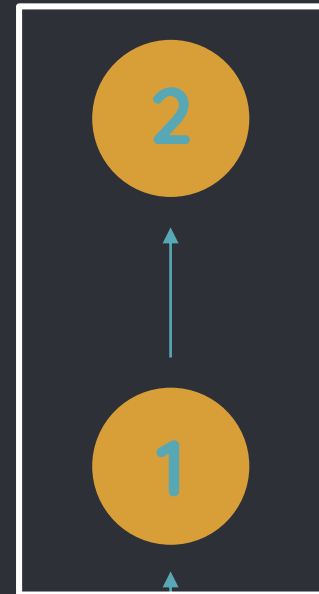
○ 1- Grounded entities which ground other entities.

2- Grounded entities which do not ground other entities.

3- Ungrounded entities which ground grounded entities.

4- Ungrounded entities which do not ground any entity.

Derivative entities



Fundamental entities

● Against CORR

○ **T*-CORR**

An entity e is basic if e 's existence or it's possession of some feature is basic.

“Suppose that e ’s existence or its possession of some feature is fundamental. Assume for reductio that e is derivative, and so grounded in other entities. If e is grounded, then the application of LINK implies that e ’s existence and its possession of each of its features are derivative, contradicting our supposition. QED.”

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What's Next?

Collapse argument, Bennet's argument for the MGQ

Thanks!

ANY QUESTIONS?

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