

# Brutalistic Fundamentalism & Naturalistic Metaphysics

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# Introduction

- Fundamentality is all the rage in contemporary metaphysics
- Metaphysics is even claimed to be 'about what is fundamental, and what derives from it' (Schaffer 2009, 379)

How should we articulate the notion of fundamentality?

# Context 1/2

- Here I focus on *Brutalist Fundamentalism*, or *Brutalism* (for short).
- This doctrine holds that there is an intimate connection between the fundamental and the brute, namely that which lacks explanation.
- We can distinguish between two forms of brutalism: radical and moderate.
- Radical brutalism is the view that fundamental facts are **wholly ungrounded**.
- Moderate brutalism is the view that fundamental facts are **only partially ungrounded**.

# Context 2/2

- Radical brutalism is the received view or something near enough.
- Several metaphysicians have recently argued for the existence of *moderately brute facts*. These are facts that are fundamental but not wholly ungrounded. Such a possibility jeopardizes the tenability of radical brutalism.
- However, moderately brute facts are typically established via controversial metaphysical scenarios.

# My Aims

- I aim to put pressure on radical brutality by defending the existence of moderately brute physical facts. To this end, I expand on an argument defended by Kerry McKenzie (2017) against radical brutality.
- However, I will also argue that we should not be too hasty in endorsing moderate brutality.

I conclude by recommending a more inclusive *pluralistic brutality*: the view that some fundamental facts are radically brute, and others are moderately so.

# Game plan

- Naturalistic Metaphysics
- Grounding
- Radical & Moderate Brute Facts
- From metaphysics to physics
- From physics to metaphysics
- Implications

# Naturalistic Metaphysics

- My target audience is that of naturalistic metaphysicians.
- I do not have a full theory of naturalistic metaphysics. I have in mind something akin to ‘moderately naturalistic metaphysics’ (Tahko & Morganti 2017).
- Our metaphysical theorizing should be informed by science: we should assess metaphysical concepts, theories, hypotheses against the backdrop of science.
- But metaphysics is not exclusively at the service of promoting science. Nor does its value depend on that.

# Fundamentality and Naturalistic Met.

- Fundamentality is a case study in naturalistic metaphysics so construed.
- It plays a central role in both physics and metaphysics. Among other things, both disciplines aim to give us a better understanding of fundamental aspects of reality and its structure.
- My overarching goal is to defend a metaphysically insightful as well as scientifically responsible conception of fundamental facts.
- Pluralistic brutalism is a better candidate than its counterparts.

# Grounding 101

- Grounding is a non-causal determination relation with explanatory import among facts.
- Grounding relations are irreflexive, asymmetric, and transitive.
- I shall assume *unionism*:  $f$  is a ground of  $g$  iff  $f$  metaphysically explains  $g$ .

**Completeness:**  $f$  is a partial ground of  $g$  iff there is a (possibly empty) plurality of facts  $\Gamma$  such that  $\Gamma, f$  is a full ground of  $g$

# Radical Brutalism

A fact  $f$  is radically brute iff there is no fact  $g$  such that  $g$  is a partial ground of  $f$ .

All fundamental facts are radically brute

- Perhaps the popularity of radical brutality is connected to the idea that the fundamental explains the derivative, but not the other way round (Bliss & Priest 2018)
- Another motivation could be the resulting virtue of a theory with a few unexplained facts doing all the explaining (Cameron 2008).

# Textual evidence

- ‘A is ungrounded iff it is fundamental full stop—absolutely fundamental’ (Bennett 2011, 27)
- ‘If a fact has no ground, then it is fundamental in a perfectly good sense: there is no explanation of why it obtains’ (Audi 2012, 710)
- ‘There are those facts that are apt for having a ground but lack one. These are the so-called ‘fundamental’ or ‘brute’ facts’ (Dasgupta 2016, 387)

# Moderately brute facts

A fact  $f$  is moderately brute iff (1) there is a fact  $g$  that is a partial ground of  $f$ , and  
(2) there is no plurality of facts  $\Gamma$  such that  $\Gamma, g$  is a full ground of  $f$

- Under brutalism, moderately brute facts are fundamental. The mark of a fact's fundamentality is its ungroundedness.
- We may want to distinguish between *weakly* and *strongly* fundamental facts (Leuenberger 2020). Even if moderately brute facts are weakly fundamental, they are fundamental nonetheless.

# Failures of completability

- Typically, moderately brute facts are introduced by defending a metaphysical scenario that would violate **Completability**.
  - 1) In scenario *S*, some facts are moderately brute.
  - 2) *S* is metaphysically possible.
  - 3) If *S* is metaphysically possible, then radical brutalism is false.
  - 4) Therefore: radical brutalism is false.

# The case: Categoricalism (1/2)

- Suppose that properties are only contingently associated to causal roles.
- Suppose also that nothing in the nature of properties determines the causal roles they play. Properties are role-occupant qualities, or quiddities.
- Lastly, suppose that laws of nature are derivative upon or grounded in patterns or distribution of properties and causal roles (cf. BSA laws)
- (Maybe, we should also suppose that there is a plurality of worlds covering the possible patterns of recombination of properties and causal roles.)

# The case: Categoricalism (2/2)

- Now consider two possible worlds  $w$  and  $w^*$  that are exactly alike except for
  - (1) the fact,  $q$ , that P plays the role R in  $w$  and Q plays R in  $w^*$ ; and
  - (2) the derivative nomic facts involving P and Q in  $w$  and  $w^*$ , respectively.
- What grounds  $q$ ?
- The fact that properties are only contingently associated to causal roles is a plausible partial ground. (2) cannot be invoked to ground  $q$ .
- Nothing else can explain the quidditistic difference.  $q$  is moderately brute.

# Other cases

- Armstrongian totality facts and polarity of “schmarge” (Leuenberger 2020)
- Stochastic grounding (Bader 2020)
- Arbitrary grounding (Werner 2021)
- Strong emergence (Trogon & Witmer 2021)
- Existence (Trogon & Witmer 2021, credited to K. Mulligan)
- Self-locating facts in decoherence-based EQM (Wilson forthcoming)

# Controversial strategy

- The radical brutalist could argue that each putative scenario fails to establish the possibility of moderately brute facts due to its being metaphysically controversial.
- The naturalistic metaphysician is not compelled to accept the existence of moderately brute facts on these grounds.
- I suggest that one can defend the physical existence (and thus possibility) of moderately brute facts. The naturalistic metaphysician with brutalistic inclinations has more pressure to acknowledge these facts.

# From metaphysics to physics

- McKenzie (2017) argues that plausible assumptions about QFT and the nature of fundamental kinds (quantum fields) produce an argument against radical brutalism.
- I will turn McKenzie's argument into one for the existence of physical facts that are moderately brute.
- The novelty of my approach is its ground-theoretic interpretation. In the paper, I argue that my formulation escapes three objections De Rizzo (2019) raises against McKenzie's original argument.

# Setup

- Call  $K$  the fact that our world instantiates a certain suite of fundamental kinds.
- $K$ : the fact that  $K_1$  is instantiated, ...,  $K_N$  is instantiated.
- Assume, for a moment, that  $K$  is neither a conjunction nor a disjunction.
- Call  $GP$  the fact that the fundamental kinds must obey the following principle:

**Goldilocks Principle:** ‘Whatever the actual inventory of fundamental kind is, it will take the form of  $B_1, \dots, B_N; F_1, \dots, F_M$  for some  $N > 0$  and with upper bound on  $M$ , and with  $M$  and  $N$  related’ (McKenzie 2017, 249).

# Grounding McKenzie's argument

- 1)  $K$  is a fundamental fact.
- 2) If radical brutalism is true, then  $K$  must be wholly ungrounded.
- 3) There is fact,  $GP$ , that is a partial ground of  $K$ .

Therefore

- 4) Radical brutalism is false.
- 'To correctly identify which fundamental kinds the world in fact instantiates just is to correctly specify a crucial aspect of the fundamental structure of the world'  
(McKenzie 2017, 236)

# De Rizzo vs. McKenzie

Julio De Rizzo (2019) argues against McKenzie's original formulation.

1. Hempelian partial explanations are not explanatory
2. McKenzie's argument does not qualify as metaphysical or, if it does, it overgenerates metaphysical explanation.
3. *GP* is not genuinely explanatorily.

# Brutalism and Metaphysics

- De Rizzo (2019) argues that McKenzie's argument to carry weight against radical brutality must be metaphysical.
- De Rizzo's objection is that McKenzie's argument is not metaphysical. McKenzie's argument relies on an essentialist claim about the nature of quantum fields. But this won't suffice.
- Two things: (1) the grounding-formulation is distinctively metaphysical, and (2) the naturalistic metaphysician would have reasons to receive McKenzie's argument even if it were not metaphysical.

# *GP* is a partial ground

- De Rizzo (2019, 405–408), argues that *GP* is not genuinely explanatory. *GP* allows us to recognize *that K* obtains, but it does not give us a reason *why*. I disagree.
  - 1) Metaphysical explanations can be answers to *how*-questions (Litland 2013; Richardson 2020). How is that *K* obtains? By its being compatible with *GP*.
  - 2) Even if *GP* were an enabling ground, and not generative, it would still be explanatory (Baron-Schmitt 2020; Cohen 2021).
  - 3) The interpretation of *GP* as a partial ground is fruitful, and this is a reason for thinking that it is apt.

# From physics to metaphysics

- Now I want to defend the truth of this claim:

If  $K$  is fundamental at all, then (1)  $K$  is moderately brute or (2) the constituent facts of  $K$  are moderately brute.

Of course, there are many objections to both (1) and (2).

Let us talk about them during the Q&A.

# $K$ is moderately brute

- $K$  can be plausibly regarded as an Armstrongian totality fact. Namely, a higher-order fact about all the first-order facts of a certain sort that obtain.

$K$ -tot: the fact that  $K_1$  is instantiated obtains, ..., the fact that  $K_N$  is instantiated obtains, and these are all the obtaining facts about which  $K$ s are instantiated.

- If  $K = K$ -tot, then  $K$  is moderately brute. Armstrongian totality facts are merely partially grounded in their constituents (Leuenberger 2020).
- Nothing in the constituent  $K$ -facts (the fact that  $K_i$  is instantiated) explains why these are all  $K$ -facts that obtain.

# K-facts are moderately brute

- Even granting that  $K$  is a complex yet wholly grounded fact (e.g., disjunction or conjunction of K-facts), we can recover the existence of moderately brute physical facts.
- K-facts having the form ‘the fact that fundamental kind  $K_i$  is instantiated’ are merely partially grounded in  $GP$ .
- However, nothing in present-day physics suggests that K-facts have a full ground. That is, there is no complete explanation of why a certain fundamental kind is instantiated.
- If  $K =$  its constituent K-facts, then  $K$  is moderately brute.

# Implications

- Suppose that you are persuaded that  $K$  is moderately brute. What are the implications?
  - 1) It is harder for radical brutalist to reject the possibility of moderately brute facts.
  - 2) Opponents of **Completeness** have a new argument in their toolkit.

# Moderate brutalism then?

Does the existence of moderately brute physical facts warrant the adoption of the view that all fundamental facts are moderately brute?

- In the absence of further considerations, we are not justified in thinking that all fundamental physical facts are moderately brute. Nor does the previous discussion suffice to establish that all fundamental facts, physical and non-, are moderately brute.

# Pluralistic brutality by elimination

1. If radical brutality is false and moderate brutality is unwarranted, then we should adopt pluralistic brutality.
  2. Radical brutality is false and moderate brutality is unwarranted.
  3. Therefore, we should adopt pluralistic brutality.
- Like any argument by elimination, it is possible that this argument for pluralistic brutality is missing a viable but hidden option.

# Take-home message

- My positive recommendation is this. Those who have brutalist inclinations and believe that physics has a strong bearing on we conceive of fundamentality should adopt **Pluralistic Brutalism**: the view that some fundamental facts are radically brute, and some others are moderately so.
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