the improbable, yet elementary, case: *making sense of an incoherent species, by deriving, and applying, the common primitives, of a coherent universe - @causalmechanics* [1] *- 2023-03-09*

1 paradigm, measure, common measures, incommensurability

(Pa , Me , $\overset{\cap}{_{Me}}$, $\overset{\cap\varnothing}{_{Me}}$)

A reinterpretation of Thomas Kuhn's 'On The Structure of Scientific Revolutions', through the lens of set-theory(-ish) mathematics.

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note: consider all set-theory as pseudo-set-theory; a means for a novice mathematician to express ideas in less time and fewer words than a similarly novice writer might, in prose [2]*.*

1.1 a gentle introduction

(Pa , Me)

Let us consider a paradigm Pa, as a set of two measures $Me_1 and Me_2$:

$$Pa = \{Me_1, Me_2\} : |Pa| = 2$$

...

1.2 totality, commonality

($\cup$, $\cap$)

If paradigm Pa_1, contains measures $Me_{1,2,3}$:

$$Pa_1 = \{Me_1, Me_2, Me_3\}$$

And paradigm Pa_2, contains measures $Me_{2,3,4}$:

$$Pa_2 = \{Me_2, Me_3, Me_4\}$$

...

The *set-of-all* measures $\overset{\cup}{_{Me}}$, across Pa_1 and Pa_2, can be found by union $\cup$:

$$\overset{\cup}{_{Me}} = Pa_1 \cup Pa_2 = \{Me_1, Me_2, Me_3, Me_4\}$$

...

The *set-of-common* measures $\overset{\cap}{_{Me}}$, between Pa_1 and Pa_2, can be found by intersection $\cap$:

$$\overset{\cap}{_{Me}} = Pa_1 \cap Pa_2 = \{Me_2, Me_3\}$$

...

Observing:

$$|\overset{\cup}{_{Me}}| = 4 \ , \ |\overset{\cap}{_{Me}}| = 2 \ , \ |\overset{\cap}{_{Me}}| < |\overset{\cup}{_{Me}}|$$

...

note: remember, this is a simplification, and an introduction

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[1] mastodon — twitter

[2] all terms are tentative. corrections $\wedge\vee$ advice, welcome.

1.3 incommensurability

(∩∅) [3]

Consider paradigms Pa_3 and Pa_4, whereby:

$$Pa_3 = \{Me_1, Me_2, Me_3\}$$

$$Pa_4 = \{Me_4, Me_5, Me_6\}$$

$$\ldots$$

When paradigms Pa_3 and Pa_4, do not share common measures, then $\underset{Me}{\cap}$, is an empty set $\varnothing$:

$$\underset{Me}{\cap} = Pa_3 \cap Pa_4 = \varnothing : |\varnothing| = 0$$

and paradigms Pa_3 and Pa_4, can be said to be incommensurable $\underset{Me}{\cap\varnothing}$:

$$\underset{Me}{\cap} = Pa_3 \cap Pa_4 = \varnothing : \underset{Me}{\cap} \rightarrow \underset{Me}{\cap\varnothing}\ ,\ |\underset{Me}{\cap\varnothing}| = 0$$

$$\ldots$$

note: while any two paradigms may appear incommensurable as an isolated pair [4]*, we will later discover that there exists a universally special paradigm, which by analysis or composition, renders all paradigms reconcilable, and as such, commensurable*

□

[3] famously, two paradigms which share no common measures are incommensurable.
[4] from an unified scientific endeavour