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

$(\,Pa\,,Me\,,\underset{Me}{\cap}\,,\underset{Me}{\cap\varnothing}\,)$

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

$$\ldots$$

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) introducing paradigm and measure

Let us consider a paradigm Pa, as a set of measures Me:

$$Pa = \{Me, \ldots\}$$

or [3]:

$$Pa = \{\ldots\}_{Me}$$

$$\ldots$$

1.2 totality, commonality

(∪ , ∩) introducing all, and common

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

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

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

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

$$\ldots$$

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

$$\underset{Me}{\overset{\cup_{1,2}}{}} = Pa_1 \cup Pa_2 = \{Me_1, Me_2, Me_3, Me_4\}$$

$$\ldots$$

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

$$\underset{Me}{\overset{\cap_{1,2}}{}} = Pa_1 \cap Pa_2 = \{Me_2, Me_3\}$$

$$\ldots$$

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

$$\ldots$$

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[1] mastodon — twitter
[2] all terms are tentative. corrections ∧∨ advice, welcome.
[3] is this alternate form acceptable?

1.3   cardinality

(n)   counting elements

The cardinality of any set, refers to the number of contained elements, expressed $|\{\ldots\}| = n$.

So where:
$$A = \{a, b, c\}$$

cardinality is:
$$|A| = 3$$

$$\ldots$$

1.4   incommensurability

($\cap\varnothing$)   introducing incommensurable paradigms [4]

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 $\overset{\cap}{Me}$, is an empty set *({} or $\varnothing$)*:

$$\overset{\cap}{Me} = Pa_3 \cap Pa_4 = \varnothing$$

$$\overset{\cap_{3,4}}{Me} = \varnothing$$

$$\ldots$$

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

$$\overset{\cap}{Me} = Pa_3 \cap Pa_4 = \varnothing : \overset{\cap}{Me} \to \overset{\cap\varnothing}{Me}$$

$$|Pa_3 \cap Pa_4| = |\varnothing| = |\overset{\cap\varnothing_{3,4}}{Me}| = 0$$

$$\ldots$$

note: while any two paradigms may appear incommensurable as an isolated pair [5], we will later discover that there exists a universally special paradigm, which by analysis or composition, renders all paradigms reconcilable, and as such, commensurable

$$\square$$

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