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.

...

*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 $\underset{Me}{\cup}$, across $Pa_1$ and $Pa_2$, can be found by union $\cup$:

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

...

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

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

...

Observing:

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

...

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

...

## 1.3 incommensurability

*(* $\cap\varnothing$ *)* [3]

Consider paradigms $Pa_3$ and $Pa_4$, whereby:

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

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

...

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 $\underset{Me}{\cap\varnothing}$:

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

...

*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*

$\square$