the improbable yet elementary case

@causalmechanics/ @themanual4am

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a mathematical paradigmatic mashup: Thomas Kuhn Vs map-territory Vs ...?

prefer the simplest explanation [1]

consider all mathematics as pseudo-mathematics; a means for a novice mathematician to express ideas in less time and fewer words than a similarly novice writer might, in prose. all terms are tentative. corrections $\wedge\vee$ *advice, welcome.*

...

[1] which works

1 maps

(M) [2]

1.1 set-of-all

(${}^{\cup}_{Me}$ *)*

For a paradigm Pa, the set-of-all measures ${}^{\cup}_{Me}$, is a union $\cup$, of respective principals Pr:

$$ {}^{\cup}_{Me} = \{Pa|Pr_1 \cup Pr_2 \ldots\} $$

$$ {}^{\cup}_{Me} = \bigcup Pa \colon \{Pa| \bigcup_{M \in Pr} Me\} $$

1.2 set-of-common

(${}^{\cap}_{Me}$ *)*

For a paradigm Pa, the set-of-common-measures ${}^{\cap}_{Me}$, is an intersect $\cap$, of respective principals Pr:

$$ {}^{\cap}_{Me} = \{Pa|Pr_1 \cap Pr_2 \ldots\} $$

$$ {}^{\cap}_{Me} = \bigcap Pa \colon \{Pa| \bigcap_{M \in Pr} Me\} $$

1.3 symmetric difference

(${}^{\cap\triangle}_{Me}$ *)*

The symmetric difference ${}^{\cap\triangle}_{Me}$, is the set-of-all measures ${}^{\cup}_{Me}$, minus the set-of-common measures ${}^{\cap}_{Me}$:

$$ {}^{\cup}_{Me} - {}^{\cap}_{Me} = {}^{\cap\triangle}_{Me} $$

1.4 general special

(${}^{Gc}_{Me}$, ${}^{Sc}_{Me}$ *)*

territory aligns by the general case; maps ought to

For a paradigm Pa, the set-of-common measures ${}^{\cap}_{Me}$, represents the general case ^{Gc}:

$$ {}^{\cap}_{Me} \equiv {}^{Gc}_{Me} $$

For a paradigm Pa, the symmetric difference ${}^{\cap\triangle}_{Me}$ represents the special case ^{Sc}:

$$ {}^{\cap\triangle}_{Me} = {}^{Sc}_{Me} $$

[2] all references to paradigm Pa, also apply to an arbitrary set of principals Pr

1.5 common, common

($\overset{\cap\cap}{Me}$ *)*

Initially, we considered each paradigm Pa, a set of measures Me, with common measures the result of intersect $\cap$:

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

Subsequently, we redefined a paradigm Pa, as sets of paradigmatic principals Pr, each a set of measures Me, and observe that each paradigm might be considered either by set-of-all measures $\overset{\cup}{Me}$, or by set-of-common measures $\overset{\cap}{Me}$.

As follows, the common measures between paradigms $Pa_{1,2}$, ought now qualify combination, as necessary:

$$\overset{\cap\cap}{Me} = \bigcap Pa_1 \cap \bigcap Pa_2$$

$$\overset{\cup\cap}{Me} = \bigcup Pa_1 \cap \bigcup Pa_2 \ , \ \overset{\cap\cup}{Me} = \bigcap Pa_1 \cup \bigcap Pa_2 \ , \ \overset{\cup\cup}{Me} = \bigcup Pa_1 \cup \bigcup Pa_2$$

or as intersecting general case: $\overset{\cap Gc}{Me} = \{Pa_1|^{Gc}_{Me}\} \cap \{Pa_2|^{Gc}_{Me}\}$

1.6 complexity

($|\overset{\cap}{Me}| < |\overset{\cup}{Me}|$ *)*

The paradigmatic set-of-common measures $\overset{\cap}{Me}$, is a subset $\subseteq$ of the paradigmatic set-of-all measures $\overset{\cup}{Me}$:

$$\overset{\cap}{Me} \subseteq \overset{\cup}{Me}$$

The paradigmatic set-of-common measures $\overset{\cap}{Me}$, is simpler than the paradigmatic set-of-all measures $\overset{\cup}{Me}$:

$$|\overset{\cap}{Me}| < |\overset{\cup}{Me}|$$

The set of common, common measures $\overset{\cap\cap}{Me}$, between *any* two paradigms Pa, is simpler still:

$$Pa_1 \rightarrow \overset{\cap_1}{Me} \ , \ Pa_2 \rightarrow \overset{\cap_2}{Me} : |\overset{\cap\cap}{Me}| < |\overset{\cap_1}{Me}| \ \wedge \ |\overset{\cap\cap}{Me}| < |\overset{\cap_2}{Me}|$$

note: ignoring further treatment for time being [3]

1.7 reconciliation

(the set theory principle of inclusion and exclusion)

"the universe does not double count"—conservation laws

The set theory principle of inclusion and exclusion states:

$$|X \cup Y| = |X| + |Y| - |X \cap Y|$$

"for an accurate account, the sum of set cardinals must be subtracted by the cardinal of the common set"

"paradigms which do not reconcile by the general case, double count"

$$X \cap Y \equiv \overset{\cap\cap}{Me} \equiv \overset{\cap Gc}{Me}$$

□

[3] diversity; etc