Set Theoretic constructions, Super sets, and Degenerate metrics for Solutions in $\mathcal{U}_S$

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Abstract

We construct a set theoretic notation of modeling solutions with regards to THE BIGGEST PROBLEM IN THE UNIVERSE. *We extend this model to interpret and analyze super sets and their implications for non-degenerate metrics. Specifically, we analyze* MADDOX'S *notion of super sets and how a maximal construction results in degeneracy.*

I. INTRODUCTION

THE Biggest Problem in the Universe" is a top-rated comedy podcast hosted by Maddox and Dick Masterson, in which they each episode they present at least one potential problem in the universe. In an attempt to obtain votes (the standard metric employed), they provide justification for which problem deserves the most votes. In a dual notion, they also host "The Biggest Solution in the Universe", where they propose specific solutions.

During the course of this show, Maddox often references mathematical notions. One common recurring notion is of a subset (and super set) and their implications.

In 1990 [1], Masterson and Lectuel proved that at least a natural partial ordering ($<$) exists for the canonical $\mathcal{U}_P$ (The universe of all problems). This idea was extended to $\mathcal{U}_P^* = \mathcal{U}_S$ (The dual of universe of all problems, the solutions) in 1991 [2]. While it is still an open problem to show that under each order $(<_P, <_S)$ there exists continuous functions from $U_P^< \to U_P^{*<}$ or if it is unique and can be extended from a natural non-degenerate metric.

In episode 9 of "The Biggest Solution in the Universe", Maddox claimed that, implicitly, satellites are a bigger solution to GPS since satellites is a super set of satellites. In this paper, we show that this notion is either trivially degenerate or false. We provide an alternate model for practical use in further episodes.

II. PRELIMINARIES

In this section, we will recall that a metric on $\mathcal{U}_S$ is a function f such that:

$$f : \mathcal{U}_S \to [0, 1]$$

assuming at least one largest solution does exist under a standard normalization process. We can define the standard net metric on a countable subset $A \subset \mathcal{U}_S$ then :

$$f_{net}(A) = \sum_{i \in \{|A|\}} f(A_i)$$

A non-degenerate metric is a metric function f with the following properties:

- $0 < f(u) < 1$ for $u \in \mathcal{U}_S$ (non-singular)
- $f_{net}(A) = 1$ iff $A \subset \mathcal{U}_S$ and $\mathcal{U}_S \setminus A \neq \emptyset$ (non-trivial)

The non-singular, or "ants to aids" condition, ensure that a single element cannot be a biggest solution. Instead, there exists some property

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of u which creates an equivalency with at least one more element in $\mathcal{U}_S$.
The non-trivial, or "One-Ups Men" clause ensures that the maximal metric subset of $\mathcal{U}_S$ is not itself. This condition is violated under certain constructions of Maddox's Metric.

III. Degeneracy in First Order Super Set (FOSS) metrics

The Maddox Metric is a FOSS metric, in that it looks only at first order properties of the set to determine comparative values. Specifically, the Maddox Metric claims:

$$f_{net}(A) \geq f_{net}(B) \Longleftrightarrow A \supset B$$

Degeneracy of this principal can be shown as such. Let A be a super set of B such that $A, B \subset \mathcal{U}_S$. This implies A is a bigger solution than B. If $A = \mathcal{U}_S$ then the set is degenerate since either $f_{net}(\mathcal{U}_S) = 1$ or $f(B) = 1$ and $f_{net}(B) \leq f_{net}(\mathcal{U}_S) \leq 1$.
If A is a proper subset of $\mathcal{U}_S$ then $f_{net}(B) \leq f_{net}(A) \leq 1$. But according to Maddox's Metric, we can construct a new set by $C = A \cup \{c\}$ where $c \in (\mathcal{U}_S \setminus A)$. We know that $f_{net}(A) \leq f_{net}(C) \leq 1$. If $C \neq \mathcal{U}_S$ the process can be repeated until C is maximal. This the maximal subset, in the Maddox Metric, must be $\mathcal{U}_S$ and therefore is degenerate.
It is important to note here that degeneracy is not a desirable property since every problem can merely be "one-up"ed. An example could be:

- Dick claims **GPS** is a solution.
- Maddox claims **Satellites** is a better solution since it is a super set.
- Dick claims **things that fly into space** is a better solution since it is a super set.
- Maddox claims **Physical Things** is a better solution since it is a super set.

Repeat this process until you obtain the obvious biggest solution in the universe, the set of all solutions!

IV. Non-degenerate Models

Non-degenerate models are favorable, not only because they prove Maddox to be a fool, but they provide fair and consistent models for a universe of problems/solutions. The reason for non-degeneracy follows from the intuitive fact that extending to super sets potentially extends to further problems. That is, f_{net} doesn't necessarily increase when new items are appended.

Sure, satellites do indeed have all the benefits of GPS and more, so it must be a better solution! Alas, this fault in logic is Maddox's folly. Satellites, as an extension, not only implies a gain in possible solutions but it also entails new problems. This can be easily seen by a simple example. If we take **Malala Yousafzai** as a solution, we can clearly extend it to the solution of **People**. **Malala Yousafzai** is a person and therefore is a subset of **People**. However, **Anti-Vaxxers, Slactivists, Conspiracy Dipshits, Social Justice Warriors, Arm Chair Psychologists** are all subsets of **People** too. Note that these are six out of the top ten problems. To circumvent this, a simple redefinition can be made. Lets make a function q such that:

$$q : \mathcal{U}_S \rightarrow \mathcal{U}_P$$

where q maps an element of $\mathcal{U}_S$ to its dual in $\mathcal{U}_P$. Then if $q(A) \rightarrow A^*$ such that $A^* \subset \mathcal{U}_P$. Then the new net metric function (f'_{net} is defined as:

$$f'_{net}(A) = f_{net}(A) - f^*_{net}(q(A))$$

Or simply the sum of all positives minus the sum of all metric values of the implicit problems. This rectification is so elegant, its surprising that Maddox hadn't developed it.

V. Conclusion

Its actually not surprising, as Maddox's mathematical knowledge may only extend to a mythical bachelor's degree in mathematics and light reading on Wikipedia. Not impressive at all considering the state of collegiate institutions these days. Far from the intellectual stature that a Ph.D. in Mathematics from UBC implies. I happily extend and invitation for Maddox to audit my lectures on Classical Problem Theory, where we cover the basics of Univseral spaces, Dual Spaces, Canonical Coverings, and Natural Topology. I also host a variety of graduate level courses on Advanced Techniques in Diagnosing Phallic Contradictions, Feminist Analysis of *Titanic*, and Quality Comparisons as Functions of Cost. In summation, Dick...go fuck yourself.

References

[1] Masterson and Lectual, 1990 – Masterson, P. and Lectual, I (1990). Natural partial orderings on the Universe of Problems *J.o.V.*, 10:250–258.

[2] Masterson and Lectual, 1991 – Masterson, P. and Lectual, I (1991). Partial Orderings and transfer properties to dual spaces of $\mathcal{U}_P$ *J.o.V.*, 15:17–26.