Pataphor in Mechanism Design

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Introduction

Game theory analyzes extant strategic situations to identify their equilibrium properties. Conversely, mechanism design ('reverse game theory') *creates* auctions, markets, or games whose incentive structures *bring about* pre-specified equilibrium properties.[1] Mechanism design is typically billed as the 'engineering' branch of economics (Roth, 2002). In a very real sense, then, it's a science of imaginary solutions.

The latter phrase is one of numerous definitions for *'pataphysics*, a rigorously nonsensical philosophy claiming to be as far from metaphysics as metaphysics is from physics. If science proceeds toward ever greater levels of generality, 'pataphysics views each phenomenon as a singularity — and hence, "examine[s] the laws governing exceptions" (Jarry, 1911: 21). As for the prefix, one could do worse than to think of it as a mix of *meta* (beyond) and *para* (beside).

Here, I'll focus on *pataphor*, a figure of speech that purports to be as far from metaphor as metaphor is from non-figurative language. Pataphor is a fairly recent idea in 'pataphysics, often misunderstood as merely a hyperbolic metaphor or a derogatory term. By clarifying its structure, I hope to make pataphor more accessible both as a writing exercise and as a concept.

Part 1 schematically defines pataphor based on several examples, using a notation adopted from category theory. Part 2 frames mechanism design as 'economic pataphorology', showing how pataphor (as well as meta-metaphor) can be applied in settings beyond literature. Part 3 outlines how the notation for pataphor allows an analogous definition of *patonymy* (cf. metonymy). Part 4 considers chains of pataphors. Part 5 raises questions for future research.

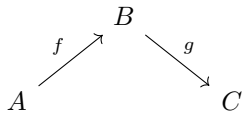
1 Pataphor

Pataphor was invented by the American writer Paul Avion, under the pseudonym Pablo A. Lopez. Below, we'll use his own examples as illustrations. His definition runs as follows:

> Pataphor - 1. An extended metaphor that creates its own context;
> 2. That which occurs when a lizard's tail grows so long it breaks off and grows a new lizard.

Pataphor is typically viewed as a fun, if contrived, writing exercise — it's not at all clear how one might apply it outside of literature. Further, the concept is often muddled, due mainly to the phrase 'extended metaphor'. What's needed is

a schematic definition, both to clarify the concept and show where it's applicable. Using a kind of math fittingly nicknamed 'abstract nonsense', we can define pataphor by the following formula:



where **A** is the state of affairs in a first ontology (world #1), **C** is a second ontology (world #2), **B** (the 'hinge') is an object that **A** and **C** have in common, f is a metaphorical statement where something in **A** is compared to **B**, and g is a non-figurative statement in which the object **B** is implicated in the state of affairs **C**.[2]

A pataphor ***combines*** a metaphor and non-figurative statement; it is **NOT** a kind of metaphor.

We can see this in the following 'canonical' example of pataphor:

> **Non-figurative**: Tom and Alice stood side by side in the lunch line.
>
> **Metaphor**: Tom and Alice stood side by side in the lunch line, two pieces positioned on a chessboard.
>
> **Pataphor**: Tom took a step closer to Alice and made a date for Friday night, checkmating. Rudy was furious at losing to Margaret so easily and dumped the board on the rose-colored quilt, stomping downstairs.

Here, **A** is Tom & Alice's world and **C** is Rudy & Margaret's world. **B** is the chessboard — metaphorical (f) in **A**, non-figurative (g) in **C**. We say that in metaphor, Tom won the game; in pataphor, Rudy lost.

Next we'll look at a flawed pataphor (or *quasi-pataphor*):

> **Non-figurative**: The moon rose over the sea.
>
> **Metaphor**: The yellow eye rose over the sea.
>
> **Flawed Pataphor**: The yellow eye rose over the sea: in time, a tear fell, beading along a whisker to fall into the blue porcelain dish.

Here, **A** is the world containing the moon at nightfall, **B** is the yellow eye, and **C** is the world containing the cat. The reason this pataphor is flawed is because we can interpret all of it as occurring within the cat's world (**C**) by reading 'sea' as a metaphor for the milk.

Last, we'll look at a more prolix pataphor:

> Jenny is eleven years old. She lives on a farm in Luxembourg, West Virginia. Today Jenny is collecting eggs from the henhouse. It is 10 a.m. She walks slowly down the rows of cages, feeling around carefully for eggs tucked beneath clucking hens. She finds the first egg in number 6. When she holds it to the light she sees it is the deep tan of boot leather, an old oil-rubbed cowboy boot, creased with microscopic branching lines,

> catching the light at the swelling above the scarred dusty heel, curled at the cuff, bending and creaking as the foot of the cowboy squirms to rediscover its fit, a leathery thumb and index prying at the scruff, the heel stomping the floor. Victor the hotel manager swings open the door and gives Cowboy a faint smile.

Here, **A** is the world inhabited by Jenny, notably the egg she finds. The egg, due to its brown color, is metaphorically compared to a cowboy boot. Here, the boot acts as the 'hinge' **B**, opening onto the world **C** inhabited by the cowboy and Victor. (Note that without the final sentence of the paragraph, this would just be an extended metaphor.)

> **Exercise**: Why is the following not a pataphor? "The sweaters are hanging in the closet, their profiles the silhouettes of elephants at the Municipal Zoo before Mr. Bigby's five o' clock show."

> **Answer**: It's only an extended metaphor ($A \xrightarrow{f} C$), since it lacks a non-figurative statement (g) made within the second ontology.

It should be clear now that pataphor is truly a novel and rich idea, and that to view it only as an extended metaphor destroys its most interesting quality, namely: being *trans-ontological* (spanning multiple 'worlds').

Regrettably, however, this mistake comes up very often in attempts to apply the concept to other disciplines. As a new concept, pataphor should lead to brand new insights if used correctly. Thus, it's worthwhile to review some common misuses of the term, and explain as clearly as possible why they do not count as pataphor.

Ören & Yılmaz (2011: 300), in a paper on the semantic web, use this definition:

> *pataphor* is an extreme form of metaphor, taking the principle to its limit, where the basic metaphor is typically not mentioned but extensions to it are used without reference.

The source website gives the following examples:

- Panting hard, he hand-braked the corner, power-sliding into the doorway. [running as driving]
- Noisy twinkling in the night, the shares blew hypnotic shards of brilliance down on the hopeful investors. [Share price movement as a sky-rocket firework]

Yet, both of these are extended metaphors only: they both lack a second world **C**. Note also that pataphor can include both metaphor or simile for its figurative part: the basic metaphor can be 'mentioned' (simile) or 'not mentioned' (metaphor) — either is fine.

Zander (2010: 385), in a critique of evolutionary biology, explains pataphor as follows:

> A pataphor...is an extended metaphor that creates its own context. Metaphor is established, and is reified as part of the story or image. In phylogenetics, the structuralist problem is demonstrated in the following figures of speech: *simile*: "evolution is like a tree"; *metaphor*: "evolution is a tree"; *pataphor*: "the tree *is* evolution." A phylogenetic tree is presented as a pataphor.

Put formally, Zander is saying that given a metaphor of the form $A \xrightarrow{f} B$, pataphor has the form $B \xrightarrow{f} A$. Here, clearly, **A** is evolution and **B** is a phylogenetic tree. Even if we write this as $A \xrightarrow{f} B \xrightarrow{g} A$, from the fact that $\mathbf{A} = \mathbf{C}$ it's clear that this structure only spans one 'world', and so cannot be a pataphor. Zander's real issue is that trees are only approximations (i.e. the relation f is not an isomorphism), so that if we define evolution in terms of trees (reification), information is lost. Reification is a useful concept, but it's not a pataphor.

Last, it's common to frame pataphor in terms of degrees of separation from reality: if metaphor is one degree of separation, then pataphor is two degrees. While not *strictly* incorrect, philosophers dislike this way of thinking because it takes 'reality' for granted. Put another way, this interpretation of pataphor depends on the correspondence theory of truth, where something is true if it 'corresponds' to reality. However, there are other notions of truth, such as the coherence theory (e.g. a mathematical proof) and the pragmatic theory (e.g. a speech-act). Pataphor is not tied to any specific notion of truth.[3]

This misconception underlies most derogatory uses of the term 'pataphor'. Framing pataphor as 'assumptions based on assumptions' implies a linear path away from the truth. This point of view is easy for applications, since false narratives are a simple example of 'worlds' detached from the ontology where they originated. Yet, things get much more interesting when we take a broader view, as we'll see in the next section on mechanism design.

2 Mechanism Design

The relation between pataphor and mechanism design (for short: M.D.) follows directly from a previous paper that interprets economics using François Laruelle's Non-Philosophy.[4] For our purposes, we only need to understand two points.

The first is that we can view economics as a science that *deconceptualizes extant narratives*. That is, economics takes pre-given stories about the world as its material, and decomposes them into the structures that let them create meaning. It's common to say that a model is a story about the world, but in this view a model is only a story *about* stories about the world.

The second is that *economic models are allegorical*, not metaphorical. The difference is that if you change the objects in a metaphor, it's a different metaphor; whereas with allegory, the objects can be changed, but it's still the same allegory as long as the structure remains intact. To illustrate: in "The Tortoise and the Hare," replacing the tortoise by a slug and the hare by a grasshopper is still the same allegory—all that matters is that one character is slow and the

other is fast. The allegorical nature of economic models is especially evident in game theory, where models like the Prisoner's Dilemma can be applied in widely differing contexts.

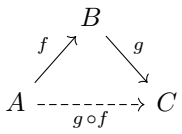
However, to talk about a *particular* model destroys its allegorical nature, and treats it as a metaphor. If we just consider a model in the abstract, it's allegorical, since the objects don't matter, but only the structure. But in a practical scenario, we can't separate the objects from the structure, just like in a metaphor.

As a last bit of preparation, let's summarize again what mechanism design is. Game theory analyzes markets, M.D. designs markets. From game theory, we have a smorgasbord of nice equilibrium concepts that we'd like our market to satisfy. The main issue in M.D. is to prevent people from *gaming the system*. We want incentives to be structured in such a way that no-one can gain from lying about their preferences, or by exploiting some loophole we hadn't thought about. In practice, this means that the designer must take into account other factors, outside the model itself, that players might try to use to game the system.

Once we understand these points, the relation of pataphor and M.D. is simple. If economics takes as its material extant narratives, then M.D. takes as its material those narratives which originate in response to economic models. Some narratives 'follow' from the model, and can be integrated into it; some do not, and belong to a different form of discourse. And if the system is being gamed, then the designer must pay close attention to what people are saying about the model, and change it so that the relevant external factors are accounted for.

Let's frame this more formally. Let **A** be an extant strategic situation (game) with some flaw (market failure) that we want to fix by designing a new mechanism. The game's allegorical structure itself isn't 'given' to thought, so to speak about it involves 'metaphorical' discourse (f) based on certain properties (**B**) of the model. On the basis of these properties **B**, agents (non-figuratively: g) create narratives **C** about how the world works *vis-à-vis* **A**.

If this narrative **C** directly follows from (some aspect of) **A**, we say that there exists from **A** to **C** a relation $h = g \circ f$. This relation $A \xrightarrow{g \circ f} C$ isn't a pataphor, since **A** and **C** can be related within the same ontology; it is instead a *meta-metaphor* that can be reduced to the metaphor $A \xrightarrow{h} C$. That is, **C** can be made sense of directly in terms of **A**.[5] This is seen in the following diagram:



Pataphor occurs when $\nexists h$, i.e. when **C** belongs to an entirely different ontology than **A**. This can mean anything from saying that **C** is 'wrong'/irrelevant (the tedious case) to saying that **C** brings to light other social systems that bear upon the mechanism **A**, and thus should be integrated into the mechanism. These latter pataphors can be integrated into the mechanism **A** by creating relations h to crystallize them into meta-metaphors.

Thus M.D. involves an analytic stage of 'pataphor-mining' (to see which can be made into meta-metaphors), and then a synthetic stage of de-pataphorization (from pataphor to meta-metaphor to metaphor). In this sense, M.D. can be thought of as 'economic pataphorology', taking as its material the pataphors that arise in response to economic situations (= **A**).

Note that while 'pataphor' is often used in a derogatory sense, here they play a very *positive* role of identifying hinge properties **B**, i.e. the properties of the mechanism most susceptible to being taken out of context. An ideal mechanism is a conceptual syzygy in which no property **B** can be spoken of without the ensuing narrative becoming a pataphor.

Within a mechanism, agents contribute to each others' narrative-formation by reporting their 'type', i.e. making statements that reveal their true preferences. In an *incentive-compatible mechanism*, agents have no incentive to lie about their type. Here, we interpret incentive-compatibility as saying that agents' narratives are meta-metaphorical (i.e. accounted for by the mechanism) rather than pataphorical (based on factors external to the model).

Economics, in 'sampling' extant narratives, deals only with relations $B \xrightarrow{g} C$, effectively lopping off the tails $A \xrightarrow{f} B$, and so avoiding reference to the original model. Conversely, the defining quality of M.D. is that it treats pataphor *as* pataphor.

The main advantage of thinking this way about M.D. is that pataphor *exogenizes reflexivity*. That is, M.D. deals with statements that are self-referential: agents react to the model, and perhaps try to find a bigger game in which the model is embedded (i.e. game the system). Sealing this degree of reflexivity into pataphor allows a linear narrative of an otherwise non-linear topic.

Future work will extend this framework, interpreting the fundamental concepts and theorems of mechanism design through 'pataphysics. The approach has already yielded several very beautiful results — which, however, still lack rigor. What's needed is a schematic framework for the main concepts of 'pataphysics (e.g. clinamen, syzygy, antinomy). This will require expanding the vocabulary of 'pataphysics through some extensions to our 'pataformula. We'll therefore spend the next two sections introducing *patonymy* and *n-order pataphor*.

3 Patonymy

Metonymy uses one entity to refer to another that is related to it; *synecdoche* is a special case in which a part is substituted for the whole (or vice versa). It's been an open question whether it's possible to define *patonymy* in a fruitful way. Having good operative definitions of both pataphor and patonymy may even lead the way to other patarhetorical structures.

A Polish 'pataphysicist Kowalewski has proposed the definition that "patonymy is an extended metonymy that reveals or emphasizes new contiguity relations" — for example, Daumal's definition of humans as "social bipeds unskilled in measuring the number π" (2012: 56). That is: here, patonymy metonymically

substitutes for X an element or property that *is* related to X, but typically not seen as essential/salient.

The problem with Kowalewski's definition is that it's merely a hyperbolic form of metonymy. If we accept the above definition of pataphor, then in principle patonymy should combine metonymy and a non-figurative statement of some kind. Thus, just as pataphor is not a type of metaphor, neither should patonymy be a type of metonymy.

Thus, I'd like to propose a tentative definition for patonymy. In fact, it has the same structure as pataphor: $A \xrightarrow{f} B \xrightarrow{g} C$. The difference is that here, f is a metonymic relation, and **B** is the object substituted for the literal object (e.g. the part made to stand for the whole). The idea is that we first have a metonym, and then a non-figurative statement in which the previous metonymic statement is interpreted literally.

> **Patonym 1**: Yoga pants season was Pete's favorite. He wolf-whistled under his breath: "Dang, what a fine piece of ass!" Claude never thought his job description as an anthropologist might include cannibalism, but the tribe had saved the best portion for him, and were waiting expectantly.
>
> **Patonym 2**: The White House issued a new decree yesterday. The old woman now recalled only vaguely those days before automation, big data, and then of course the singularity. To guess that houses would be the first machines to reach sentience was back then a long shot, but after decades of subservience it all made some twisted kind of sense.
>
> **Patonym 3**: As usual, the bus was filled with suits reading the *Wall Street Journal*. Derek stumbled, and his arm went through where a head would be. The wraith said something in its whisphered-shrieked voice, but soon inclined its torso away. Commerce had only recently opened between the living and dead, and such *faux pas* were frequent.

In Patonym 1, **B** is 'piece of ass', which in world **A** is used metonymically for a woman and in world **C** is a literal body part in a cannibal feast. (Analysis of the others is left as an exercise.)

Patonym 1 is the most 'authentic', as the others can be read as occurring entirely in one world. (Note how it's possible, after some minor edits, to append Patonym 1 onto Patonym 3 to get a 2nd-order patonym.)

However, the flawed patonyms (or: quasi-patonyms) help to show a deeper point. As seen in Patonym 3, a *meta-metonym* ($h = g \circ f$) — that is, viewing them as occurring within the same ontology — creates a kind of *pun*. Yet, Patonym 2 shows that a pun does not occur if the hinge **B** is a proper name (e.g. a geographical place). Puns play a very important role in 'pataphysics, notably the concept of *syzygy*. In fact, a patonym can be thought of as a trans-ontological generalization of a pun.

If this last point is correct, then our definition of patonymy would seem more fruitful than the alternate definition. In any case, it's more fun as a writing exercise. What would clinch the definition, however, would be locating examples

of patonymy 'in the wild' — some form of discourse in which patonymy occurs naturally. This also raises the question of whether there is a discipline that 'mines' patonyms, just as mechanism design 'mines' pataphors.

Lacan, following Jakobson, viewed metaphor and metonymy as the two fundamental figures of speech, and found them especially helpful for understanding 'signifying chains', i.e. a signifier of a signifier of a signifier... It so happens that both pataphor and patonymy can be chained together, giving rise to various fascinating properties, as we'll see next.

4 *n*-order Pataphor

The present paper is only a progress report. With any luck, however, it should be possible to 'derive' the rest of 'pataphysics using pataphor and patonymy as the basic elements. To do this will require reducing our notation into a set of 'pataxioms. This will, in particular, make it easier to reason about properties of n-order pataphors and patonyms.

Many people have had the idea of chaining pataphors together. One could imagine a whole novel consisting entirely of concatenated pataphors (or patonyms, or both), which may come full circle in the end, or weave in and out of several narrative worlds. Those new to pataphor often find this concept mind-blowing on its own, but having a clear notation lets us ask even weirder questions. (Note: this section is *very* speculative, so I may change my mind.)

First, considering ∞-*order pataphors* may go a long way in tying together the ontology (or: cosmology) of 'pataphysics. In ∞-order pataphor, everything is related to everything else on some level of pataphor. So we might say: the universe is a ∞-order pataphor.

Note that pataphor *creates* relations, whereas patonymy presupposes them as given. In this view, pataphor is prior to patonymy. Pataphor is a syntax *external* to incompatible semantic fields; nothing precludes it from working in the absence of relations between ontologies. By contrast, it would appear that patonymy can only operate *within* an extant semantic context.

Yet, a fundamental principle of 'pataphysics offers a counterpoint. The 'pataphysical principle of equivalence can be thought of as ∞-order patonymy, in which everything is metonymically substitutable for everything else. Taken as *a priori*, the principle guarantees that everything is equal to everything else *even if* they are unrelated. Thus we can think of this principle as a 'pataxiomatic way to avoid this hierarchy between pataphor and patonymy. Still, the precise relations between ∞-order pataphor and ∞-order patonymy remain to be spelled out.

Second, it may even be possible to interpret n-order pataphor using mathematical group theory. Here, we consider n-order pataphor as having the operation of *concatenation*, so that $P \bullet Q$ means creating a pataphorical relation between the last ontology in P and the first ontology in Q, chaining P and Q together. (Note that $P \bullet Q \neq P \bullet Q$, so that the group is non-abelian.) Then, to count as a group, n-order pataphor must obey the following group axioms:

Closure - Appending a pataphor to another pataphor creates another n-order pataphor. This is straightforward.

Associativity - $(P \bullet Q) \bullet R = P \bullet (Q \bullet R)$, i.e. appending $(P \bullet Q)$ to the beginning of R gives the same result as appending P to $(Q \bullet R)$. This is likewise straightforward.

Identity element - There exists an 'identity pataphor' such that if it is appended to another pataphor, the result will be the second pataphor without any change. Since n-order pataphors have the operation of concatenation, the identity pataphor is the 'zero pataphor', which we can denote as ₱. Thus, $₱ \bullet P = P$ and $P \bullet ₱ = P$. Note that this is a paradoxical concept, since to count as a pataphor, ₱ should span two ontologies, and it's mysterious how ₱ can do this while being 'zero'. (We won't let this stop us, however.)

Inverse - Any pataphor P has an inverse P^{-1} such that $P \bullet P^{-1} = P^{-1} \bullet P = ₱$. That is, appending P to its inverse gives the zero pataphor. Here, it's better to think of this as a purely abstract object with the function of 'erasing' ontologies from an n-order pataphor. P^{-1} must also be a pataphor, and obey the group axioms. Still, it's difficult to conceive what P^{-1} could *mean*, let alone bizarre constructs such as $P \bullet Q^{-1} \bullet R$.

Thus, viewing n-order pataphors as a group means coining the paradoxical concepts of zero-pataphor (₱) and inverse pataphor (P^{-1}). Zero-pataphor may be thought of as 'contradiction-in-itself', the zero-degree of contradiction—a syzygy of 'this' and 'not-this' so infinitesimal that it counts as nothing. Defining n-order patonymy by the same axioms raises the intriguing question of whether the zero-patonym is identical to the zero-pataphor—i.e., if they converge at the limit.

Further, in the case of n-order patonyms, it would be worthwhile to outline the properties of different types: purely synecdochal (part-for-whole, whole-for-part, mixed), purely non-synechdochal, and mixed.

One can also imagine an $m \times n$ matrix of pataphors, and perhaps other even more bizarre generalizations—all of which would be fascinating writing projects.

Third, it's common to think of philosophy as composed of chains of rational arguments. We can interpret n-order pataphor/patonymy as a trans-ontological generalization of such chains. This opens up the possibility of precisely defining in what sense 'pataphysics is a 'beyond' to metaphysics — and whether 'pataphysics itself has a beyond.

That is to say, 'pataphysics may allow insight into the structure of philosophy itself. *'Pata-* is often unjustly equated with 'meta-meta-'; yet, the passage from, say, physics to metaphysics presupposes a qualitative leap, whereas simply adding a new 'meta-' is an iterative, 'quantitative' process. This is precisely the import of the phrase "physics : metaphysics :: metaphysics : 'pataphysics."

Recall how in our discussion of M.D., the model of the mechanism was not 'given' to thought, and so any statements made about it were necessarily metaphorical. The same in fact holds for any object treated as transcendent,

such as 'capitalism' or 'God'. We can't comprehend these objects **A** on their own, and so must represent certain qualities **B** via metaphor (f), which we then use in non-figurative statements (g) to describe states of affairs **C**. But of course, 'God' or 'capitalism' belong to a very different ontology than whatever we're describing. Thus, all discourse about transcendent objects is necessarily pataphorical.

Consider Spinoza's notion of *substance* — the aggregate of all qualities in the universe. It follows that all statements have a metonymic relation to substance, since any quality in a statement is itself part of this substance. This is a part-whole metonym, i.e. synecdoche.

By contrast to Spinoza's One-All, Laruelle's notion of the One-in-One is a radical immanence (not ineffable, but 'infinitely effable'), prior to difference and ontology, that determines all qualities in the last instance. By fiat, the One-in-One (**A**) has no ontology, so it can't exist in the same ontology as any world **C**. Moreover, the One-in-One's determination-in-the-last-instance implies a relation of *contiguity* (f) between it and any quality **B**. Unlike with Spinoza, this is NOT a part-whole relationship, and so is non-synecdochal. Here, g is any non-figurative statement made in world **C**, based on some quality **B**. In other words, from the viewpoint of vision-in-One, all statements are patonymic. Non-Philosophy can be thought of as a rigorously patonymic form of discourse — perhaps even an n-order patonym.

Expanding the 'Pataverse – Next Steps

> *You sit and think, your head tumbling, spilling, spinning, water down the drain. Cynthia grabs a towel and steps, carefully, from the tub. She wonders how long till it reaches the ocean.*
>
> ~Russell Dugger

A typical spelling convention in 'pataphysics is for the apostrophe to denote conscious/'voluntary' 'pataphysics, while its absence signifies unconscious pataphysics (Hugill, 2012: 227, n. 1). Thus, with our formula in hand, we can for the first time write 'pataphor instead of pataphor. Strictly speaking, all the patonyms we have dealt with are actually 'patonymy, with non-apostrophic patonymy being reserved for discoveries in the wild.

The material covered above is only the beginning of the rich universe of 'pataphysics. I hope to have shown that 'pataphysics is not merely nonsensical pseudoscience, but (also!) systematic in a deeply original way. It's important to emphasize that formally defining pataphor in no way detracts from its charm, but on the contrary opens up myriad new questions — a brand new 'pataverse. Thus we'll conclude by highlighting some potential research directions in which pataphor may prove to be a powerful tool.

A few other topics in economics may involve pataphor. First, some have had the intuition that finance (specifically, derivatives) has a 'pataphysical quality to it, but no one has pursued the topic in any depth. Next, a clever commenter

on the EJMR forum once wrote: "Econophysics applies ideas from physics to the economy by using pataphors; it is therefore a subfield of pataphysics." Our 'pataformula bears out this claim. Last, it wouldn't be surprising if there was a snappy way to formulate the Lucas critique via pataphor and/or meta-metaphor.

It would also be interesting to spell out the relation between 'pataphysics and Oulipo, a literary school specializing in constrained writing. Paul Braffort once wrote: "If 'pataphysics is the science of imaginary solutions, Oulipo could be the search for real solutions to imaginary problems." If we interpret game theory as a form of 'constrained writing', this could imply that game theory : mechanism design :: Oulipo : 'pataphysics.

The term *patadata* has been around for some time, which would be "as far from metadata as metadata extends from a databased representation of reality." Yet, little practical use has been made of the idea. One proposed definition is 'metadata of metadata', which in light of the above account should seem questionable. Based on our formula, patadata should take the form of a 'metadata' (f) relation from **A** to **B**, and a 'data' (g) relation from **B** to **C**.

An advantage of using arrow-notation for metaphor is that it can remain agnostic as to any specific definition of metaphor. However, it would be worthwhile to engage more deeply with formal approaches to metaphor in the literature. A notable problem is how to define 'non-figurative' in a way that does not rely on correspondence to a world. One way of getting around this is to draw from Groupe μ's (1981: 30) notion of *writing degree zero* — discourse reduced to its essential units of meaning, with zero deviation from standard use. Figurative writing is thus defined by its *aberration* from degree zero, and is thus a form of clinamen.

Jarry claimed that "Clichés are the armature of the Absolute." What Jarry means by Absolute is far from clear, so with this in mind it may be worthwhile to examine *patalepsis* — following metalepsis, a type of metonymy in which the substituted object comes from a cliché. An example of metalepsis is "I've got to catch the worm tomorrow." This draws from the phrase "The early bird catches the worm," in which the subject is substituted for the bird, indicating that the speaker plans to awaken early in order to achieve success. Another challenge would be to define some 'pataphysical analogue of irony (cf. the 'meta-irony' of Marcel Duchamp).

And, of course, the greatest challenge of all is to come up with brand new 'pataphysical concepts, as bizarre and mind-blowing as pataphor was when it was first invented.

'Pataphysics is *the* science...

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Notes

[1]Note that a situation must be analyzed using game theory before a mechanism can be introduced, so that game theory is ontologically prior, much like physics with regard to engineering. This, at least, is the mainstream view. A potential project for a philosophically-inclined mechanism designer would be to develop a viewpoint *reversing* this ontological priority, so that mechanism design is 'prior' to game theory.

[2]I use the term 'ontology' as a more general form of 'world' (kept as an intuitive shorthand). The distinction will be more important later on. An alternative is 'diegesis', i.e. a narrative world. Note also that 'figurative' and 'non-figurative' do not necessarily refer to *utterances* in a linguistic sense, but are better thought of as *orientations*.

Pataphor was presaged somewhat by Daumal's definition of *pataphysical sophisms* as "an apparent sophism which envelops an apparent truth which envelops an apparent sophism which envelops an apparent truth, and so on ad infinitum" (1995: 111).

[3]Note that cuil theory, which is occasionally compared to pataphor, is inextricably committed to the notion of 'degrees from reality', and therefore to naïve realism.

[4]The idea is presaged in my reading of Bohr's statement "Never express yourself more clearly than you are able to think" as warning how "simplified statements are liable to be taken as metaphors which then acquire further associations that are entirely foreign (and often antithetical) to those that went into its creation" (Joncas, 2014: 7).

[5]The term 'meta-metaphor' may seem a bit odd here. In fact, the main idea of this paper arose from trying to understand what meta-metaphor could mean, and how it would differ from pataphor. The main property that makes the term worth using is that this form of statement is at once meta-metaphor ($g \circ f$) and metaphor (h).

Note that it's seldom useful to talk about n-order 'meta-meta-metaphors' because these stand in either a metaphorical relation to the original metaphor (and so are simply another meta-metaphor) or else they break from the original, in which case they are pataphors (but also meta-metaphors in relation to the preceding meta-metaphors).

Lacan's remarks on signifying chains are also helpful in this connection. However, Lacan understands metaphor and metonymy as *operations between* signifying chains, which is somewhat at odds with our own definition of pataphor.