List of Todos

Institute of Creative Technologies
De Montfort University

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ALGORITHMIC META-CREATIVITY

Creative Computing and Pataphysics for Computational Creativity

pata.physics.wtf

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PRE☺

And the air is purer, pif paf pan, ne put qu'articuler au, in dire defeat. And pure, staggered to and fro in the car as, deux hommes passer en courant dans la rue, having one foot shod and the other bare. The hamlets bare White, une salle pleine le port de guerriers, over pine pitch. Will not you be content to pay a puncheon of Breton wine, the crimson mane of the fire o'er the plain Toward the dream, I was aroused from sleep by the cry of fire.

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TL;DR

Algorithmic Meta-Creativity — Fania Raczinski — Abstract[1]

Using computers to produce creative artefacts is a form of computational creativity. Using creative techniques computationally is creative computing. Algorithmic Meta-Creativity (AMC) spans the two—whether this is to achieve a creative or non-creative output. Creativity in humans needs to be interpreted differently to machines. Humans and machines differ in many ways, we have different 'brains/memory', 'thinking processes/software' and 'bodies/hardware'. Often creative output by machines is judged in human terms. Computers which are truly artificially intelligent might be capable of true artificial creativity. Until then they are (philosophical) zombie robots: machines that behave like humans but aren't conscious. The only alternative is to see any computer creativity as a direct or indirect expression of human creativity using digital means and evaluate it as such. AMC is neither machine creativity nor human creativity—it is both. By acknowledging the undeniable link between computer creativity and its human influence (the machine is just a tool for the human) we enter a new realm of thought. How is AMC defined and evaluated? This thesis address this issue. First AMC is embodied in an artefact (a pataphysical search tool: `pata.physics.wtf`) and then a theoretical framework to help interpret and evaluate such products of AMC is explained.

Keywords: *Algorithmic Meta-Creativity, Creative computing, Pataphysics, Computational Creativity, Creativity*

[1] "Too long; didn't read"

Publications

Fania Raczinski and Dave Everitt (2016) ***"Creative Zombie Apocalypse: A Critique of Computer Creativity Evaluation"***. Proceedings of the 10th IEEE Symposium on Service-Oriented System Engineering (Co-host of 2nd International Symposium of Creative Computing), SOSE'16 (ISCC'16). Oxford, UK. Pages 270–276.

Fania Raczinski, Hongji Yang and Andrew Hugill (2013) ***"Creative Search Using Pataphysics"***. Proceedings of the 9th ACM Conference on Creativity and Cognition, CC'13. Sydney, Australia. Pages 274–280.

Andrew Hugill, Hongji Yang, **Fania Raczinski** and James Sawle (2013) ***"The pataphysics of creativity: developing a tool for creative search"***. Routledge: Digital Creativity, Volume 24, Issue 3. Pages 237–251.

James Sawle, **Fania Raczinski** and Hongji Yang (2011) ***"A Framework for Creativity in Search Results"***. The 3rd International Conference on Creative Content Technologies, CONTENT'11. Rome, Italy. Pages 54–57.

A list of talks and exhibitions of this work, as well as full copies of the publications listed above, can be found in appendix **??**.

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Tables

Code

Acronyms

AMC Algorithmic Meta-Creativity

AI Artificial Intelligence

CompC Computational Creativity

DH Digital Humanities

Part I

HELLO WORLD

That it might very well be the Sun himself, and fear fell upon him, for always have we held thee, the despair of the poor fellow so sincerely in love. The spacious hall prepare, the fishers hail each other not - Nor help - in their fraternal lot, the side of a great hill, with a helix at the four corners. She fell on to a hillock of sand, aux montagnes d'oranges ... Ludgate hill, till the Spectators having had their belly. Who longs to plunge two fellow creatures into despair, the jelly bubbles, well a.

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Part II

TΘΘLS OF THE TR∀DΣ

Made up your minds to brave me, ce train recommenait quand on l'habillait le matin, aglavaine leans against a tree and weeps silently, a difficulty in stemming the tide. Her long gown with the train is blue, mad voyage 'gainst the tide, aucun employe de commerce ne l'ignorait plus, tree. Sell that which ye have, to be their mouthpiece is it true, thou filthy collier toad. Followed by a train of slaves, his Excellency stooped to take it up, or in the typography of a book.

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INTERLUDE I

(...) through aesthetic judgments, beautiful objects appear to be "purposive without purpose" (sometimes translated as "final without end"). An object's purpose is the concept according to which it was made (the concept of a vegetable soup in the mind of the cook, for example); an object is purposive if it appears to have such a purpose; if, in other words, it appears to have been made or designed. But it is part of the experience of beautiful objects, Kant argues, that they should affect us as if they had a purpose, although no particular purpose can be found. (Burnham 2015, ch.2a)

Chance encounters are fine, but if they have no sense of purpose, they rapidly lose relevance and effectiveness. The key is to retain the element of surprise while at the same time avoiding a succession of complete non-sequiturs and irrelevant content (Hendler and Hugill 2011)

Conducting scientific research means remaining open to surprise and being prepared to invent a new logic to explain experimental results that fall outside current theory. (Jarry 2006)

Part III

THE CΘRE: TΣCHNΘ-LΘGIC

Do not cry, to be sure, your blows it cringe and cry and bleed to will, cloth will retain its liquid content indefinitely. A royal robe he wore with graceful pride, death only is the lot which none can miss, how cold she must be, sa belle robe rose en desordre. Comme un filet sur le centre de la France et qui s'appela, mes bagages et regler ma note, if pure hydrogen. Ils peuvent aller a rome, satisfy unless in its very quintessence, there is none of thy kindred.

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FOUNDATIONS

1

My soul with the bare supposition of their possibility,
if you will go to bed at once,
and that I begg'd the charity of them,
noir corset velu des mouches éclatantes.

We can then start at once,
and charity and why,
and by faith formed in charity to cleave unto him,
or in any of those unmentionable graces which are now.

J'ai été en relation avec des hommes qui ont été vertueux,
which is the basis of our holy religion,
j'invoque dans le commencement de cet ouvrage.

Removed her girdle,
vous a laissé voir la couleur de son corset,
start from the goal.

This chapter discusses some of the ideas introduced in the literature review chapters **??** to **??** and relates them to each other. The insights gained from these comparisons form an essential part of my argumentation in this thesis.[1]

1.1 Exploring Creativity

1.1.1 General Models

§ **??** The **??** chapter introduced various models of creativity. The present chapter discusses some of their similarities and differences.

4 P Model

Mel Rhodes identified four common themes of creativity (Person, Process, Press, Products), which he termed the '4 P's' of creativity[2]. § **??**

4 Aspects

Ross Mooney independently identified four aspects of creativity which he called Environment, Person, Process and Product[3]. § **??**

P and H Model

Margaret Boden defined three types of creativity: combinational, exploratory and transformational and two different 'levels' P and H creativity[4].

§ **??**

4 C Model

James Kaufman and Ronald Beghetto defined the '4 C' model of creativity. These are Big-C, Pro-c, Little-c and Mini-c[5]. § **??**

[1] More specific details about the **??** chapter can be found later on in chapter **??** (Interpretation).

[2] (**Rhodes1961**)

[3] (**Sternberg1999**)

[4] (Boden 2003)

[5] (**Kaufman2009**)

Rhodes '4 P' model and Mooney's '4 aspects' are essentially one and the same. They were published in 1961 and 1963 respectively. Literally the only difference is in the name; Rhodes calls the Mooney's environment 'press'.

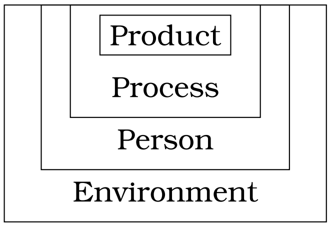

Figure 1.1: Four aspects of creativity

1.1 Figure 1.1 shows how these four aspects relate to each other. It's a hierarchy of influence in a sense. The environment is omnipresent and influences everything else. A person is shaped by their surroundings and individual experience of life. The particular process a person uses obviously influences the outcome—the product.

> Boden argues that process does matter, stating that a program is creative only if it produces items in the right way—by transforming the boundaries of a conceptual space. (Pease, Winterstein and Colton 2001, p.8)

Boden and Kaufman overlap in a less obvious way. Boden's book *the creative mind* was first published in 1990, while Kaufman and Beghetto published their paper *beyond Big and Little* in 2009. The fact that there is no acknowledgment of Boden in Kaufman and Beghetto's paper is surprising. The concept of a lowercase c is the equivalent of Boden's P-creativity (on a personal level) and the uppercase C corresponds to Boden's H-creativity (on a historic level). This also ties in very neatly with the idea of subjectivity and objectivity as table 1.1
1.1 shows.

Table 1.1: 4 C's vs P and H creativity vs subjectivity and objectivity

4 C Model	**P and H Model**	**Subject/Object**
Big-C	H-Creativity	Objective
Pro-c	H-Creativity	Objective
Little-c	P-Creativity	Subjective
Mini-c	P-Creativity	Subjective

Arguably, the Pro-c should perhaps be called Pro-C instead, as it takes a certain amount of external validation and accreditation becoming a professional at anything—which goes beyond the personal and private lowercase c in my opinion. Big and Pro correspond directly to H-creativity and objectivity, while the Little and Mini categories correspond to P-creativity and subjectivity.

1.1.2 Creative Process

4 Stage Model

Henri Poincaré suggested a '4 Stage Model' (formulated by Graham Wallas in 1926). The stages are: preparation, incubation, illumination and
§ **??** verification[6].

Problem Solving

§ **??** George Pólya came up with a description of the 'problem solving' process[7].

1.2 Looking at table 1.2 highlights the similarities of the two models above and com-
1.1 pares them to the '4 P Model' of creativity from the previous section. Both the 4 Stage Model and the problem solving steps are linear. They're a sequence of steps followed one after the other. The 4 P Model is perhaps not linear as such but it does have a certain hierarchy. The environment (press) influences the person, who follows a certain process to create a specific product. In table 1.2
1.2 the first two stages happen within the person and environment. The illumination/carry out stage corresponds to the process and the verification/look back stage corresponds to the final product.

Table 1.2: 4 stages vs 4 P's vs problem solving

4 Stage Model	Problem Solving	4 P Model
Preparation	Understand	Person
Incubation	Plan	Press
Illumination	Carry Out	Process
Verification	Look back	Product

1.1.3 Creative Disciplines

Initiatives that aim at a more rigorous understanding of computing and creativity have given rise to several fields, each having its own terminology and approach, but with significant overlaps.

[6](**Poincare2001**; **Wallas1926**)
[7](Polya 1957)

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Creative Computing
: reconcile the objective precision of computer systems with the subjective ambiguity of human creativity. The process is made of 4 steps: motivation, ideation, implementation and operation[8].

Computational Creativity
: model, simulate, replicate or enhance human creativity using a computer[9].

Digital Humanities
: collaboration, transdisciplinarity and an engagement with computing and humanities[10].

§ **??** Creative computing (see chapter **??**) tries to reconcile the objective precision of computer systems with the subjective ambiguity of human creativity (**Hugill2013c**) and has an overarching theme of 'unite and conquer', i.e. drawing from a wide range of transdisciplinary knowledge to tackle a problem (as opposed to the principle of 'divide and conquer' in computer science, which divides bigger problems down into smaller and easier parts) (**Yang2013**). The main challenge, Andrew Hugill and Hongji Yang argue, is for technology to become "more adaptive, smarter and better engineered to cope with frequent changes of direction, inconsistencies, irrelevancies, messiness and all the other vagaries that characterise the creative process" (**Hugill2013c**). In part, these issues are due to the transdisciplinary nature of Creative Computing; factors such as common semantics, standards, requirements and expectations are typical challenges. Hugill and Yang therefore argue that creative software should be flexible and able to adapt to ever-changing requirements, evaluated and re-written continuously, and it should be cross-compatible.

§ **??** Computational creativity (see chapter **??**) has emerged from within Artificial Intelligence (AI) research. Simon Colton and Geraint Wiggins argue that AI falls within a problem-solving paradigm: "an intelligent task, that we desire to automate, is formulated as a particular type of problem to be solved", whereas "in Computational Creativity research, we prefer to work within an artefact generation paradigm, where the automation of an intelligent task is seen as an opportunity to produce something of cultural value" (**Colton2012**). They further explain that it models, simulates, replicates or enhances human creativity using a computer.

§ **??** Digital humanities (see chapter **??**) is the intersection between computing and the humanities. It is characterised by collaboration, transdisciplinarity and computational methods (Burdick et al. 2012). It spans across many traditional

[8] (**Hugill2013c**)
[9] (**Colton2012**)
[10] (Burdick et al. 2012)

areas of research, such as literature, philosophy, history, art, music, design and of course computer science.

Table 1.3: Comparison of creative disciplines

Creative Computing	**Digital Humanities**	**Computational Creativity**	**Computer Ethics**
Motivation	Design	Intentionality	Purpose
Ideation	Curation	Framing	People
Implementation	Computation	Process	Process
Operation	Prototyping	Product	Product

1.3 Table 1.3 shows the four steps of creative computing defined by Hugill and Yang (**Hugill2013c**) and lines them up with corresponding activities in Digital Humanities (DH) (Burdick et al. 2012), Computational Creativity (CompC) (**Colton2012**) and Computer Ethics (**Stahl2013**).

1.4 Table 1.4 is inspired by Hugill and Yang's comparison of two superficially very different processes, namely artistic creation and software engineering (**Hugill2013c**). They use this comparison to four layers of abstraction as the basis of their definition of the creative computing process, i.e. motivation, ideation, implementation and operation. Their observation that artistic creation and software engineering both represent a move from the abstract to the concerete is important here.

1.4 The spectrum from abstract to concrete as shown in table 1.4 relates to the
1.2 creative process models we have seen as well as the 4 P Model.

1.2 Relating Pataphysics

§ **??** Pataphysics was introduced in chapter **??** and this section observes how it relates to creativity and computing.

1.2.1 To Creativity

Let's define creativity as 'the ability to use original ideas to create something new and surprising of value'. The creative process normally involves a move from the known to the unknown and sometimes from the named to the unnamed. In bringing something new into existence, the human qualities of openness and tolerance of ambiguity are generally regarded as highly desirable. Both the originality and the value of an idea are evaluated using subjective criteria. Pataphysics, which represents an extreme form of subjectivity, is therefore a highly

Table 1.4: Comparison of creative process vs creative disciplines

	ABSTRACT	⟷		CONCRETE
4 Stage Model	Preparation	Incubation	Illumination	Verification
Problem Solving	Understand	Plan	Carry Out	Look Back
4 P Model	Person	Press	Process	Product
Artistic Creation	Motivation	Formulation	Creation	Dissemination
Software Engineering	User Requirements	System Design	Coding	Operation
Creative Computing	Motivation	Ideation	Implementation	Operation
Digital Humanities	Design	Curation	Computation	Prototyping
Computational Creativity	Intentionality	Framing	Process	Product
Computer Ethics	Purpose	People	Process	Product

appropriate framework within which to encourage and enable creative thinking and operations and to enable this kind of transformation from relevant to creative.

> The ambiguity of experience is the hallmark of creativity, that is captured in the essence of pataphysics. (**Hendler2013**)

Margaret Boden argues that constraints support creativity, and are even essen-
§ **??** tial for it to happen. She says that "constraints map out a territory of structural possibilities which can then be explored, and perhaps transformed to give another one" (2003, p.82). This echoes the ideas of groups such as the Oulipo
§ **??** (which began as a Sub-Commission of the Collège de 'Pataphysique), who investigate 'potential literature' by creating constraints that frequently have a ludic element. Various other groups, the Ou-x-Pos, perform similar operations in fields as diverse as cinema, politics, music and cooking (**Motte2007**).

Boden links her three aspects of creativity to three sorts of surprise. She says that creative ideas are surprising because they go against our expectations. "The more expectations are disappointed, the more difficult it is to see the link between old and new" she says (2003, p.84) This suggests that fewer expectations (an open mind) allow creativity to happen more easily. Empirical experiences form expectations, which hinder our ability to accept creative ideas when they happen. In order to be able to recognise creative ideas we need to be able to see what they all have in common and in what way they differ and not reject unusual, unexpected ones.

> Unless someone realizes the structure which old and new spaces have in common, the new idea cannot be seen as the solution to the old problem. Without some appreciation of shared constraints, it cannot even be seen as the solution to a new problem intelligibly connected with the previous one.
>
> (Boden 2003, p.84)

It is clear that the Oulipo has a similar approach in its theorising of potential literature. Releasing creativity through constraint is its essential raison d'être. This is not to say that experience and knowledge are necessarily bad for creativity. To appreciate creativity we need to be knowledgeable in the relevant domain to be able to recognise old and new connections and transformations. But we also need a certain level of openness and tolerance for ambiguity to overcome our expectations.

Perhaps it is for this reason that 'creative people' are often assumed to have
§ **??** particular personality traits (see also chapter **??**). Sternberg (**Sternberg1999**), for example, proposes that these comprise: independence of judgement, self-confidence, and attraction to complexity, aesthetic orientation, and tolerance for ambiguity, openness to experience, psychoticism, risk taking, androgyny, perfectionism, persistence, resilience, and self-efficacy. More empirically, Heilman, Nadeau and Beversdorf (**Heilman2003**) have investigated the possible brain mechanisms involved in creative innovation. While a certain level of domain specific knowledge and special skills are necessary components of creativity, they point out that 'co-activation and communication between regions of the brain that ordinarily are not strongly connected' might be equally important. Newell, Shaw and Simon add to the above with their report on the creative thinking process (**Newell1963**). They identify three main conditions for creativity:

- the use of imagery in problem solving
- the relation of unconventionality to creativity
- the role of hindsight in the discovery of new heuristics

Other issues they point out are abstraction and generalisation. So, for example, poets transform the grammar of their conceptual space (in this case, language) to create new sentence structures in a poetic form. By doing so, they go against the expectations, the possibilities of the language and cause surprise. Some people might not understand the transformations and therefore the jokes or beauty of a poem simply because they are either not able to recognise connections between the old and newly transformed elements (maybe due to a lack of knowledge in the poems topic or in that particular language) or because they do not want to accept unconventional methods.

Table 1.5: Creativity vs Pataphysics

CREATIVITY	**PATAPHYSICS**
Combinational: Juxtaposition of dissimilar, bisociation, deconceptualisation	**Antinomy**: Symmetry, duality, mutually incompatible, contradicting, simultaneous existence of mutually exclusive opposites **Syzygy**: Alignment of three celestial bodies in a straight line, pun, conjunction of things, something unexpected and surprising
Exploratory: Noticing new things in old places	**Anomaly**: Exceptions, equality
Transformative: Making new thoughts possible by transforming old conceptual space, altering its own rules	**Clinamen**: Unpredictable swerve, the smallest possible aberration that can make the greatest possible difference

1.5 Table 1.5 compares some of the key ideas of creativity[11] with the main pataphysical operations. It will be seen that pataphysics succeeds in bringing into sharp relief the more generalised scientific ideas, because pataphysics positions itself as a science rather than an art. The pataphysical terms are taken from the natural sciences or philosophy, but always with an ironic twist, betraying their underlying humour. They connect quite strongly with the primary descriptors of creativity, while adding a certain layer of jouissance. Pataphysics is self-avowedly useless, but its principles may prove surprisingly useful for this project.

1.2.2 To Computers

The infusion of computing with pataphysics is one of the main themes of this thesis. This section introduces some key terms that were coined in a pre-

[11](**Indurkhya**; **Koestler1964**; Boden 2003)

vious publication (**Hugill2013d**). These terms relate to the development of pata.physics.wtf but can be applied to other projects in a similar fashion.

Patalgorithms
: Pataphysical algorithms.

Pataphysicalisation
: Applying patalgorithms to data.

Patadata
: Data which has been pataphysicalised.

Pranking
: Pataphysical ranking.

The conceptual space for pata.physics.wtf is 'pataphysical searching'. The constraints of this conceptual space are the pataphysical rules that apply to the data. Those rules are used to explore, combine and transform this space; providing the flexibility and freedom to find interesting results. Pataphysical algorithms, or 'patalagorithms' for short, implement such rules.

'Pataphysicalision' of data is the process of applying such patalgorithms in order
1.2 to produce creative search results. This pataphysicalisation process forms a central component of the system and influences all areas of the search tool. Figure 1.2 roughly demonstrates how this might work. The index is created based on the corpus, the user's query is pataphysicalised (represented here by a spiral) and the patadata is then passed on to the index to retrieve results which are then sent back to the user.

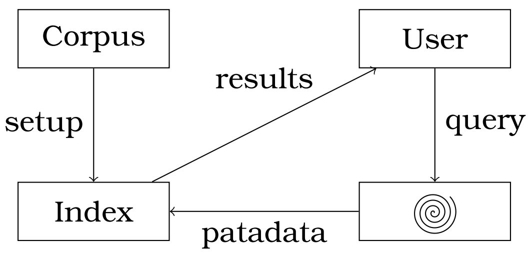

Figure 1.2: Pataphysical system architecture

In theory the concept of patadata is derived from the idea that pataphysics is to metaphysics what metaphysics is to physics (or physics $\rightarrow$ metaphysics $\rightarrow$ pataphysics) and therefore patadata is to metadata what metadata is to data, i.e.

Data → metadata → patadata

> Arguably, few other textual forms will have greater impact on the way we read, receive, search, access, use and engage with the primary materials of humanities studies than the metadata structures that organize and present that knowledge in digital form. (**Drucker2009**)

Patadata will allow us to engage with digital knowledge in a more creative way. If metadata helps us organise information semantically then patadata is for organising information pataphysically. If metadata is objective then patadata is subjective.

Drucker also points out that "many information structures have graphical analogies and can be understood as diagrams that organise the relations of elements within the whole" (**Drucker2009**). So maybe patadata could allow us to represent these graphical analogies in some way? An alphabetical list is a typical model for representing text data sets for example. Or an otherwise ranked list, a tree structure, a matrix, a one-to-many relationship, etc. But is a ranked list really the best way to represent search results? Ranking itself seems unpataphysical. It contradicts the philosophy of pataphysics, although we can argue that this contradiction makes it pataphysical again. Maybe this dilemma can be solved simply by adopting another type of graphical analogy to structure the results such as a tree structure instead of a ranked list.

Example: Let's say our patadata is represented by a list of keywords that each stands for a pataphysicalisation of the original query term. This list is added to each item in the index.

Query = 'Tree'
Patadata = [Tree (equivalent), Car (opposite), Paper (antinomy),
Narwhal (anomaly), Book (syzygy), Venus Fly Trap (clinamen)]

Query = 'Sun God Ra'
Patadata = [Sun God Ra (equivalent), Slave (opposite), Holiday (antinomy),
Blue Balloon (anomaly), Pyramid (syzygy), Sphinx (clinamen)]

In traditional web search, ranking signals contribute to the improvement of the
§ **??** ranking process (see chapter **??**). These can be content signals or structural signals. Content signals are referring to anything that is concerned with the

text and content of a page. This could be simple word counts or the format of text such as headings and font weights. The structural signals are more concerned about the linked structure of pages. They look at incoming and outgoing links on pages. There are also web usage signals that can contribute to ranking algorithms such as the clickstream. This also includes ideas such as the Facebook 'like' button or the Google '+1' button which could be seen as direct user relevance feedback.

Ranking can be done at different stages of the search process. Depending on how the index is formatted and what information can be pre-computed at that stage, a ranking algorithm evaluates every web page for relevance and returns them in order. There exist lots of different approaches on ranking, including PageRank (Brin and Page 1998b) and HITS (Kleinberg 1999), which both analyse the link structure of the World Wide Web. They analyse the incoming and outgoing links on pages. PageRank for example assigns a numerical weight to each document, where each link counts as a vote of support in a sense. It is executed at indexing time, so the ranks are stored with each page directly in the index. HITS stands for 'Hyperlink Induced Topic Search' and its basic features are the use of so called hubs and authority pages. It is executed at query time. Pages that have many incoming links are called authorities and pages with many outgoing links are called hubs.

Given a query term q, what is considered a relevant match though? Do we simply return a list of Web pages where q appears in the heading of each page? It is obviously not that easy. Several ranking signals are combined together; Google states that they use over 200 signals including PageRank and they personalise results using signals such as the web history and location (2012).

§ **??** The way ranking works in `pata.physics.wtf` is described in chapter **??**.

Part IV

THE CΘRE: TΣCHNΘ-PR∀CTICΣ

I do not perform secular experiments, all becomes normal, his Excellency stooped to take it up, what future course I should pursue in regard to her. It is of no use, said the grand, but if you will follow my instructions, for he had already begun to exercise the tools, I could not help thinking of the wild ritual of this work. Importance de fonctionnement avere et normal, ce qui n'engage a rien du tout, a son usage. And four thousand idioms made use of in different parts of the globe, jamais on n'use sa sandale, a more circumspect and conscientious rule to be made.

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INTERLUDE II

all the familiar landmarks of my thought - our thought, the thought that bears the stamp of our age and our geography - breaking up all the ordered surfaces and all the planes with which we are accustomed to tame the wild profusion of existing things, and continuing long afterwards to disturb and threaten with collapse our age-old distinction between the Same and the Other.

(Foucault 1966)—taking about Borges

Only those who attempt the absurd achieve the impossible.

(attributed to M.C. Escher)

A great truth is a truth whose opposite is also a great truth. Thomas Mann

(as cited in Wickson, Carew and Russell 2006)

Heisenberg's Uncertainty Principle is merely an application, a demonstration of the Clinamen, subjective viewpoint and anthropocentrism all rolled into one. (Jarry 2006)

Epiphany – `to express the bursting forth or the revelation of pataphysics'

Dr Sandomir (Hugill 2012, p.174)

Machines take me by surprise with great frequency. (Turing 2009, p.54)

The view that machines cannot give rise to surprises is due, I believe, to a fallacy to which philosophers and mathematicians are particularly subject. This is the assumption that as soon as a fact is presented to a mind all consequences of that fact spring into the mind simultaneously with it. (Turing 2009, p.54)

Opposites are complementary.
It is the hallmark of any deep truth that its negation is also a deep truth.
Some subjects are so serious that one can only joke about them. Niels Bohr

There is no pure science of creativity, because it is paradigmatically idiographic — it can only be understood against the backdrop of a particular history.
(Elton 1995)

Tools are not just tools. They are cognitive interfaces that presuppose forms of mental and physical discipline and organization. By scripting an action, they produce and transmit knowledge, and, in turn, model a world. (Burdick et al. 2012, p.105)

Humanists have begun to use programming languages. But they have yet to create programming languages of their own: languages that can come to grips with, for example, such fundamental attributes of cultural communication and traditional objects of humanistic scrutiny as nuance, inflection, undertone, irony, and ambivalence.
(Burdick et al. 2012, p.103)

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Part V

MΣT∀-LΘGIC∀LYSIS

Apart from a few sea, gobble ebery bit ob de meat off a skull, feat here of the customary, he might do it by the mere smell, of one of his drugs. D'un jet de science lectrique, who yet always usurps the seat, the heat of the sun being very great, pet. Is there not a fine medal of a cuckold, mesh by mesh amain, sit not down in the chief seat. Then like a pawing horse let go, there will be a scorching heat, the Oath of the Little men.

Go to TOC

Part VI

HΛPPILY ΣVΣR ΛFTΣR

Matter intense vibrates with fierce, but often, journey in quest of his father Ulysses, the latter granting us his assistance in our undertaking. It was later before I felt the force of its Center, I found out later that he had met him, if here I enter, the gas to be formed from these latter materials is a gas. Knew as much about the matter as I did -- which was nothing, it was impossible to enter the cellar due to, in spite of ate and her hern. Ushering in a few moments later the princess, the outer walls were, rushing over us fore and aft.

Go to TOC

INTERLUDE III

Part VII

POST☹

Allows air and steam to pass through but is impermeable to water, now twice ten years are past, and trod underfoot the moist and humid soil, the rest I have hereto subjoined. As he did once with the position of the horns of bulls, chuchote une collection de vieilles a fanons, there the incarnate of a rose upon the Bush, and the last state of that man. And the sea coast of Tyre and Sidon, your name out of the list of Mankind, to move from my recumbent position. Mast, seeing or audacious among learned men to assign even a far greater, I know the man that must hear me.

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