

THE REALITY OF NUMBERS, AND THE NUMBER OF REALITIES

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Abstract

Accounts need numbers. This paper defines numbers very simply, as an attempt to reduce realities to something measurable and comparable. But the real problem is to define and conceptualise “realities”, and the paper approaches the problem from several different angles.

Section 2 takes a philosophical approach arguing that most “facts”, and certainly all economic/accounting (and legal) facts are social constructions. These “facts” can therefore vary over time and space, and a particular fact is accepted as such only with one particular self-created epistemic community. Section 3 applies this thinking to the accounting reporting and regulation scenario, with its multiple and often incompatible user communities, concluding that in principle any number can only be agreed as giving a “true and fair” view” by one specific (self-defined) user community.

Section 4 explores, by way of illustration, the topical problem of capital maintenance adjustments and comprehensive income, showing that treating numbers as a reality in themselves leads to confusion and absurdity. Finally the notion of psychic income from the early 20th century brings us back to the subjectivity of reality, and the dangers of numbers which is where the argument started.

Key words

Internal reality; social construction; epistemic community; accounts users.

La réalité des nombres et le nombre de réalités...

Résumé

Les comptes ont besoin de nombres. Cet article définit les nombres d'une façon simple proposant de réduire les réalités à une quantité mesurable et comparable. Le problème est cependant de définir et de conceptualiser la notion de « réalités ». Cet article a pour but d'approcher ce problème sous différents angles.

La seconde partie de l'article adopte une démarche philosophique, proposant que la plupart des « faits », et certainement tous les faits économiques ou comptables (ainsi que légaux), sont des constructions sociales. Ces « faits » sont ainsi variables dans le temps et l'espace, et un « fait » particulier n'est accepté en tant que tel dans une communauté épistémique donnée, généralement elle-même définie autour de ce « fait ». La troisième partie applique cette vision au scénario du rapport comptable et de la régulation, caractérisée par sa multitude de communautés d'utilisateurs, souvent incompatibles. La conclusion est ici qu'un nombre ne peut être reconnu, en principe, comme une « véritable et honnête représentation » que par une seule communauté d'utilisateurs spécifique (auto-définie).

La quatrième partie explore, sous forme d'illustration, le problème de l'ajustement du résultat global et du revenu. Il est démontré ici que considérer les nombres comme une réalité en eux-mêmes est source de confusion voire d'absurdité. Finalement, la notion de revenu psychologique du début du vingtième siècle nous amène au concept de la subjectivité de la réalité, illustrant le danger des chiffres, ce qui correspond au point de départ de la discussion.

Mot-clés

réalité interne ; construction sociale ; communauté épistémique ; utilisateurs de comptes

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[RE: \[\[SPAM?\] score 5.5\]](#) *From an email heading!*

1) Introduction

The accounting function involves numbers. The two Figures below are an early example, some 2,500 years old, of the complete corporate governance model.

Figure 1

Budget Authorization for the Construction of the Parthenon and Propylaea

Second Decree of Callias Passed in 434 B.C.

(Partial Translation)

“It was decided by the Council and the people, when Cecropes served as a prytanes, Mnesitheos as a secretary, and Eupithes as a supervisor, Callias moved:

Pedestals made of stone, golden emblems of victories, and the Propylaea should be constructed. When these have been constructed, repairs should be made starting from the southern part of the Acropolis, as authorized, and ten talents (or 60,000 drachmas) per year should be spent from Athena’s funds, until the buildings have been constructed and repaired. The Treasurers of Athena being responsible for these works, shall order the architect to prepare plans for the other buildings like those of the Propylaea. The architect along with the commissioners of public works shall supervise the works so that the Acropolis is decorated in the most excellent and splendid way and the works are completed.” (lines 1 – 12).

Source: Tod (1951, 104-6), Costouros (1979: 49, 68-9).

Figure 2

Expenditure for the Construction of the Parthenon in 434 B.C.

(Partial Translation)

A. Amounts received

The following amounts were received by the commissioners on public works during the year when Anticles was their secretary, on the fourteenth Council when Metagenes was first secretary and Kratetos was archon of the Athenians:

1. Balance from the previous year, 1,470 drachmas, 70 Lampsacene and 27.1/6 Cyzicene golden staters. (lines 1 – 16).
2. From the Treasurers of Athena of whom Labreus was secretary, 2,500 drachmas. (lines 17 – 20).
3. From sale of gold, having weight of 98 drachmas, 1,372 drachmas. (lines 21 – 33).
4. From the sale of ivory, having weight of 20 talents and 60 drachmas, 1,305 drachmas and 4 obols. (lines 24 – 26).

B. Amounts spent

1. For rentals, ... drachmas. (line 30).
 2. Wages to workers who quarried and loaded marble at Pentelicus, 2,226 drachmas and 2 obols. (lines 31 – 33).
 3. Paid to statuaries on pediment-sculptures, 16,200 drachmas. (line 34).
 4. Salaries to staff members, 192 drachmas. (lines 35 – 36).
 5. Other construction costs, 1,800 drachmas. (line 37).
- C. Amounts left at the end of the year*
1. 70 Lampsacene and 27.1/6 Cyzicene golden staters. (lines 40 – 43).
- Source:** Tod, (1951: 112-13), Costouros (1979: 49, 68-9).

Figure 1 begins with the authority for capital expenditure from the management authority, and continues with a budget. Figure 2 gives a receipts and payments account of the actual activity, and ends with the statement of closing balances. The modern accounting/reporting process is complete. Could this be done without the use of numbers? The answer is no. Accounting, to deliberately mis-quote Garnier (1947), is the algebra of economics. Economics, is the study of the optimal allocation of scarce resources, scarcity gives value and value needs to be measured in some quantifiable way to allow comparison and relative appraisal. This corporate governance model cannot work without numbers.

But what are numbers? It is proposed here that, at its simplest, numbers are an attempt to reduce realities to something measurable and comparable. They can be used where the measurement is simple and obvious. For example the number of pages in a paper, the number of words in a paper, and thence the average number of words per page. They can also be used where the measurement is much less obvious. What is the significance of a spam count of 5.5, as in the title quotation? What is the difference between a count of 5.5 and a count of 5.0? Do the numbers here add anything more than a completely spurious pseudo-objectivity?

But there is an essential earlier question, before we can talk about the relationship between numbers and reality, and then about the relationship between accounting numbers and accounting reality. That question is: what is reality? The next section explores this problem. We follow throughout a consistent research methodology, which might be described as 'intelligent analysis'. The structure of the paper follows wherever this approach takes it.

2) Is reality real?

This section is designed to provide a theoretical and conceptual framework regarding the nature of accounting and reporting. The overall theme is that accounting is a thoroughly subjective exercise. Accounting actions, and therefore accounting numbers, and therefore the meaning which is taken from those numbers by individual readers, are influenced heavily by the attitudes, perceptions, culture and history of the human actors involved in regulation, preparation and usage. Nothing is objective in a strict sense of the word.

We consider first of all the philosophical nature of the 'reality' of which accounting seeks to give a true and fair view (TFV), and show that the social implications of this 'reality' extend also to language and communication. We then suggest that the concepts of path dependency, and its punctuated equilibrium variant, can help our understanding of the nature of accounting development and accounting change (or the absence of accounting change). All these issues point towards the existence of significant subjectivity regarding accounting terms and concepts when considered within one system, and even more so when different systems try to merge.

Financial reporting generally requires the production of statements which give a TFV (see for example Article 2 of the Fourth Directive), or a fair presentation (e.g. IAS 1.15). We should note immediately that such phrases necessitate the existence of something, which is viewed by the viewer, or represented by the contents of the financial statements. But what is the nature of the underlying object – the real thing. Indeed, in what sense is there a real thing at all? The fundamental proposition is that economic (and therefore accounting) reality is an example of internal rather than external reality.

Putnam (1981: 49-52) described external reality and his alternative to it, internal reality, as follows:

[According to the perspective of] metaphysical realism, the world consists of some fixed totality of mind-independent objects.... Truth involves some sort of correspondence relation between words or thought signs and external things or sets of things. I shall call this perspective the *externalist* perspective... [As regards what] I shall refer to as the *internalist* perspective.... it is characteristic of this view to hold that *what objects does the world consist of?* is a question that it only makes sense to ask *within* a theory or description.... [S]igns do not intrinsically correspond to objects, independently of how those signs are employed and by whom. But a sign that is

actually employed in a particular way by a particular community of users can correspond to particular objects *within the conceptual scheme of those users*. “Objects” do not exist independently of conceptual schemes.

The implications of this distinction have been extensively developed and discussed from a philosophical perspective, both in the purely philosophical and in the theoretical accounting literatures. We do not have the space, nor would it assist the broad nature of our paper, to develop such detailed philosophical underpinnings here. Suffice to say that we broadly accept the idea developed in a number of recent papers (e.g. Shapiro, 1997, 1998; Alexander & Archer, 2003; Mouck, 2004), not always quite consistently with each other, applying to the accounting domain the concept of institutional and inter-subjective reality developed by Searle (1995, 2006a, 2006b). The issues are developed more rigorously in Alexander and Ionascu (2008).

Many “objects” exist only through generally agreed social construction. Metal exists without human thought (equals social construction), money does not, being, by definition, a generally accepted medium of exchange, between members of society who choose to accept the notion and operate within its implications. Searle’s (1995) theoretic starts by making an ontological commitment to physical objects (brute facts), and then, based on the concept of “intentionality” explains how social objects come into being. According to Searle (1995) people have the ability to share beliefs or desires – termed “collective intentionality” – that in certain conditions can give rise to a specific type of social facts, namely, institutional facts. More exactly, institutional facts come into being by ascribing a status function to a physical object (brute fact) by means of collective intentionality. This is done by a performative utterance in the form of: “X counts as Y in the context C” (where X is the brute fact and Y is the institutional fact). For example: “Bills issued by the Bureau of Engraving and Printing (X) count as money (Y) in the United States (C)”.

This rationale is used in accounting to describe how accounting concepts are socially constructed

“By virtue of collective intentionality, ownership claims, income, and other conceptual objects of accounting can, under appropriate conditions, be institutional facts.” (Alexander and Archer, 2003).

Searle's (1995) model explains that institutional facts, although ontologically subjective (as they require human practices to sustain their existence), are epistemologically objective, meaning they have an effect that is universally agreed upon. That is because, being inter-subjectively constructed by means of collective intentionality, institutional facts become objectified; in other words, they are not dependent on a particular human being's attitude towards them. Gold is a brute fact, but the monetary concept of a gold sovereign is an institutional fact – the monetary concept of a 20 dollar bill even more obviously so. It follows that every monetary item in financial statements, to the extent regardable as “fact” at all, is an institutional fact – but even this only if there is collective agreement, collective intentionality, within the community of actors involved.

Consider the claim by Schuetze (2001):

“I think that we should account for real things such as trucks, not abstract future economic benefits.”

First of all, trucks are not externally real, they are not brute facts. No human race, no trucks. Secondly, financial statements do not record trucks, they record institutionally constructed rights and claims relating to trucks – deontic powers. Thirdly, they record these powers in monetary terms, which may or may not be “agreed” by other involved actors. In summary “trucks”, as recorded in a balance sheet, **are** “abstract future economic benefits”.

The implications of the claimed epistemological objectivity of institutional facts need very careful consideration. It certainly follows that such facts are not dependent on any individual's attitude to them. An individual could ignore an institutional fact, but not change it. However an institutional fact is only an institutional fact within the particular community which accepts it.

Three significant examples of institutional facts are words, concepts and financial numbers. “Cat” has a generally agreed meaning in the English language – different from “bat”, but also (very) different from “chat”. But in French “chat” has a meaning similar to “cat” in English. So the English word “chat” and the French word “chat” have agreed institutionally-constructed objective meanings within, but certainly not between, the two language communities.

Concepts are perhaps more difficult to illustrate. A relevant example is the distinction between accounting and bookkeeping. A colleague discovered the hard way, when lecturing via a simultaneous interpreter in Prague in the early 1990s that under soviet reporting the concept of accounting did not exist. It followed that since accounting and bookkeeping represented a single concept, the concept was represented in Czech by the translator as a single word. This made the lecturer’s attempt to explain the distinction totally unsuccessful! Note that the conceptual distinction (or lack of) logically comes first. Generally agreed distinctions within a community require generally agreed words to communicate them (and a generally agreed link between word and concept).

The third institutional fact we consider is a financial number. Consider the statement “Inventory €100 in accordance with EU-endorsed IFRS”. Social constructions are legion: money, euro, cost, EU, inventory, IFRS. In this community LIFO is not acceptable, but in the FASB community it is. **Identical** buildings can be recorded, in appropriate circumstances, at “cost” less any accumulated depreciation and impairment losses” (IAS 16 para 30), “fair value at the date of revaluation less any subsequent accumulated depreciation and impairment losses (IAS 16 para 31), at “fair value” (IAS 40 para 33), or at “the lower of cost and net realisable value (IAS 2 para 9). So in what sense is a fair presentation “real”? Different “realities” are involved.

A necessary condition for institutional facts and internal reality is concerned with the communication of concepts between human beings – in other words, with words. We have argued above that perceptions of economic reality are personal and subjective. How (if at all) can such perceptions be explained and communicated from one human being to another?

Our conceptual starting point is Saussure's theory of language (Saussure, 1973 and 1974 picked up by Culler, 1976 and Walton, 1991). Language is a system of signs. If noises or squiggles are to express or communicate ideas then they must be part of a conventionalised, generally understood, system of signs. A sign involves two elements. The first element is that which signifies, which Saussure called the signifiant or signifier – e.g. a word. The second element is the idea signified, called the signifié or signified. Saussure argues that the sign is in all respects fundamentally arbitrary.

Three propositions can be distinguished:

- - the characteristics of the signifier are arbitrary
- - the definition of the signified is arbitrary
- - a particular combination of signifier and signified is an arbitrary relationship and totality.

The first and third of these should be intuitively acceptable without much difficulty. To take the first one first, why is the word dog, dog, and not dag, or pog, or rumpelstiltskin? Exploration of the etymology of words merely takes the argument back in time, of course, without altering the point. And to take the third point, why is the word dog associated with a member of the canine genus and not the word moon? In both cases the alternatives would be equally satisfactory and effective, provided only that conventionalism understood and accepted them.

With regard to internal reality the second proposition, b) above, is of major relevance.

Saussure himself gives the example of the concept of river. In French the concept of river is articulated in such a way as to have two conceptually distinct types of river, namely the type that flows into the sea and the type that does not. The words associated with these two conceptions are un fleuve and une rivière respectively. English thought does not make this distinction. Rivers are simply not conceived or conceptualised with regard to this distinction. It obviously follows that the English language had no need of two words to embrace the broader single English concept.

A final fundamental building block in our Saussurian foundations is the notion of defining

boundaries by means of contradistinction. Red is not a precise concept. There are various different shades of red, all of which are generally agreed to be red. So what are the boundaries of red? When is a colour not red? Part of the answer is: when it is orange. This means that we cannot define red without defining orange. It is only by this dual definition distinguishing process that we can meaningfully define either notion. Note that a scientific, rather than subjective perception, approach does not alter this argument. If we define red in terms of a particular range of wavelengths, then of course the wavelength boundary between red and orange, whilst numerically precise and agreed, is certainly still defining red by means of contradistinction and the boundary remains arbitrary.

An identical situation applies to the words themselves, i.e. the signifiers, as regards spelling and pronunciation. Successful communication requires that a pronunciation boundary between one signifier and another is not crossed. Generally understandable pronunciation (and spelling) of a signifier is thus only defined in relation to that of other signifiers, and again relates to the particular cultural setting.

The implication of our argument, in summary, is that

- signifiers (words) are arbitrary socially-defined constructs
- signifieds (concepts) are arbitrary socially-constructed and socially delineated concepts.

It follows that signs, i.e. the integration of signifier and signified, are arbitrary socially-constructed packages.

All three “arbitrarinesses” are created and understood by collective acceptance, not by intrinsic rationale or fact.

Searle (1995: Ch 3, 2006b: 19) argues for an unavoidable relationship between institutional facts through collective representation and language. Over and above the intuitively obvious similarities regarding shared beliefs (institutional facts) and shared meanings (language) is the more fundamental point that the move from object (e.g. metal) to status function by means of collective representation (e.g. money) is only possible if there is a mechanism for creating, and communicating, this collective representation. “The essential thing about human beings is that language gives them the capacity to *represent*” (2006b: 19, emphasis original). We are now in a position to consider the intertranslation issue raised by McKernan (2007: 164).

McKernan (2007: 164) quotes Davidson (1974: 189), apparently favourably, as arguing that intertranslatability has to be possible as “we cannot make good sense” of the alternative, because the alternative implies the existence of “different conceptual schemes or conceptual relativism”.

The logical link is immediately accepted. Languages are conceptual schemes, as the arguments from Saussure and Searle in the immediately preceding paragraphs show. Conceptual schemes are collectively accepted across a community. Different conceptual schemes would suggest different communities, and therefore a lack of intertranslatability.

One issue concerns the argument that if a clear logical reconciliation is possible, however long and convoluted, then there is no lack of intertranslatability. Arguably the issue of intertranslatability can be solved by means of equivalent expressions: un fleuve = a river flowing into the sea; une rivière = a river flowing into another river. But on the other hand the fact still remains that the two languages are constructed with two different conceptual frameworks regarding large volumes of water flowing downhill.

Regarding the fact that social reality is constructed within a social context, Barry Smith brought up to Searle the following example: (Smith and Searle, 2003) “Consider an area of territory X in, say, Kashmir, an area which India claims as part of India and Pakistan claims as part of Pakistan. X counts as Indian territory in India-friendly contexts, and as Pakistani territory in Pakistan-friendly contexts.” And he wondered about the correct account of the ontology of such a piece of territory and of the institutional facts in which it participated. Searle argued that such “problems were to be settled by judges and lawyers, and in the end perhaps by armies and political movements.” The relevant conclusion would be that, according to Searle, issues such as X counts as Y1 in context C1 and X counts as Y2 in context C2 can be solved in placing the issue in context C3, which both communities would accept. However, if C3 can only be achieved by “armies and political movements” then it doesn’t seem to say much for the rational intertranslatability of different conceptual schemes. More fundamentally, if the only way to resolve the conflict between Y1 (from C1) and Y2 (from C2) is to depart from both C1 and C2 altogether (creating C3), then this surely demonstrates conclusively the non-intertranslatability of Y1 and Y2.

This model could be suggested to closely mirror the situation in financial reporting. The purpose of, and therefore appropriate methodology for, financial statements in country A is different from the purpose of, and therefore appropriate methodology for, financial statements in country B. Given the non-intertranslatability between A and B (as witness the failure of the Fourth EU Directive to achieve significant harmonisation in Europe), the suggested solution is to invent Y3 (IFRSs) in a newly created C3 (the international context)

Our conclusion on the intertranslatability question is clearcut. This is that intertranslatability cannot be assumed. This is not just true in itself as a language issue, despite the significant implications (problems?) for conceptual relativism and the existence of different conceptual schemes. It is true because of conceptual relativism and the existence of different schemes. Perhaps even more dangerous is to translate words expressing concepts proper to a certain community into another community's language and thus assume intertranslatability of those concepts.

It follows from all the above that, according to internal reality, the objects of accounting do not exist independently of a conceptual scheme that relates accounting concepts to each other and to their empirical (i.e. "real-world") referents. They do not exist independently of the human mind. Such objects are not real in the sense that Mount Everest is real, but they can be regarded as real in a more precisely defined sense, i.e. that they are part of an economic reality that is socially (i.e. inter-subjectively) constructed and objectified by virtue of collective intentionality (but only to the extent that such collective intentionality actually exists).

What makes a 1 Euro coin a quantity of money, rather than a piece of metal? The answer is that it is money because, and only because, it is generally accepted as such by human beings, i.e. the Euro coin is a Euro coin only by social (inter-subjective) collective intentionality. Delete human beings and you delete money, the Euro, and economic reality (but a piece of metal still remains). The essential point here is that the 'underlying economics of any organisation', as a 'reality', cannot exist independently of a conceptual scheme agreed between human actors. It necessarily follows that a representation of that 'reality' which is regarded as having a reasonable coherence with that reality by those who do accept the relevant conceptual scheme, may not be so accepted by those who do not accept that

conceptual scheme. Different conceptual schemes will lead to different views, and therefore to different representations. There will be different numbers.

So the notion of a strictly objective economic reality is nonsensical by definition. An agreed inter-subjective economic reality across a community is only even theoretically possible if there is the same collective intentionality, with all the cultural and attitudinal implications the phrase embraces, across that community. However, following from the arguments concerning collective intentionality and the creation of institutional facts, a collective view is not static but can change over time. In summary therefore, internal reality is time specific as well as group or community specific, but can change over time by collective consensus and thus is dynamic and flexible.

For the development of internal reality the theory of path dependency – used by Roe (1996) for example to explain legal thinking – can provide interesting insights. The basic idea of this theory is to consider a path or road which has been in existence for many years. When it was created it will have taken a particular route, containing bends, straight sections, and deviations for what were rational reasons at the time of its creation. However, since that time two things are likely to have happened.

Firstly, some of the reasons for the original route will have ceased to exist, for example a difficult wet area may have been dried out. Secondly, other features will have been created, to fit in with the existing shape of path or road, for example a building may have been put up directly beside the original contours. The first development, the disappearance of original causes, suggests that the route of path or road could now be improved. The second development, the creation of new factors related to the original shape of the road, suggests that such improvements will meet considerably greater resistance, and costs (e.g. involving the demolition of the building in order to straighten out a bend), than just the direct costs of altering the route itself. It follows that powerful forces of inertia are likely to exist, so the path tends to retain its original course, unsuitable for current conditions though that may be.

In summary, the status quo may have a perfectly rational historical explanation, and its continued preservation be logical, despite the fact that, given a *tabula rasa*, that situation is demonstrably sub-optimal, and not what we would wish it to be today.

Roe (1996:643) links this with an analogy which we find attractive.

Modern evolutionary biologists use the metaphor of natural selection leading us to the top of a local hill. To achieve the next, much higher summit in the chain of hills, however, we would have to go down this hill and up the next one. But natural selection, by selecting only upward-bound characteristics, stymies us from going down the hill. We are stuck in a local equilibrium, unaware of the higher summit across the valley. Survival does not imply superiority to untried alternatives.

But in fact the implications are even stronger than this quotation indicates. The point is that, even if we are in fact fully aware of 'the higher summit across the valley', it may still be economically, or psychologically, regarded as preferable to stay where we are. Only a major shock, external event or paradigm shift will cause a change - which, if it does come, is likely to be drastic and fundamental.

The path dependency concept can be applied directly to internal reality. A generally agreed intersubjective construction is analogous to the path; it will have been built up over time, and will be thoroughly familiar to those using it. There will be a similar tendency to maintain the same perceived reality (pathway/accounting system) despite minor changes in environment and context. Also similarly, "a major shock, external event or paradigm shift" will likely cause a significantly new and different generally agreed intersubjective construction to appear. The compulsory introduction of a new GAAP system (the building of a complete new motorway across the countryside) would give archetypal illustration.

A variant on the idea of path dependency can be found in the concept of punctuated equilibria. This seems to have originated in Eldredge and Gould (1972). This paper developed a major new theory regarding the implications of incomplete fossil records within the evolutionary implications of the science of paleontology. The received theory (known as phyletic gradualism), suggested that species development was a slow but steady gradual development over time, and the fact that such continuous small changes could generally not be 'proved' by fossil records was due to gaps in the surviving fossils.

Eldredge and Gould postulated an alternative theory which explains, and indeed predicts the existence of, gaps in the fossil records. This is based on the notion of allopatric speciation which claims that:

- new species arise by the splitting of lineages (not by the transformation of the whole of the ancestral population)

- new species develop rapidly
- a small sub-population of the ancestral form gives rise to the new species
- the new species develops in a very small part of the ancestral species' geographic extent, in an isolated area, typically at the periphery of the range (and then migrates back, in its new form, to the original area, hence explaining the gap in the fossil record in the larger original area).

Eldredge and Gould summarise their arguments as follows (1972:83-84). The significance, and generality, of the first proposition across all fields of knowledge, cannot be emphasised too strongly.

In this paper we shall argue:

- (1) The expectations of theory colour perception to such a degree that new notions seldom arise from facts collected under the influence of old pictures of the world. New pictures must cast their influence before facts can be seen in a different perspective.
- (2) Paleontology's view of speciation has been dominated by the picture of "phyletic gradualism". It holds that new species arise from the slow and steady transformation of entire populations. Under its influence, we seek unbroken fossil series linking two forms by insensible gradation as the only complete mirror of Darwinian processes; we ascribe all breaks to imperfections in the record.
- (3) The theory of allopatric (or geographic) speciation suggests a different interpretation of paleontological data. If new species arise very rapidly in small, peripherally isolated local populations, then the great expectation of insensibly graded fossil sequences is a chimera. A new species does not evolve in the area of its ancestors; it does not arise from the slow transformation of all its forbears. Many breaks in the fossil record are real.
- (4) The history of life is more adequately represented by a picture of "punctuated equilibria" than by the notion of phyletic gradualism. The history of evolution is not one of stately unfolding, but a story of homeostatic equilibria, disturbed only "rarely" (i.e. rather often in the fullness of time) by rapid and episodic events of speciation.

To translate the paleological arguments into the situation of accounting practice and regulation, one might look for a gradual but seamless development of local (equals national) practice. An alternative possibility is that a new variant mutates *outside* the national context and then, its mutation complete, moves into the original territory and displaces the original system, hence causing a sudden break in the expected gradualism of local developments. This

model gives considerable insight into the implications of introducing IASB requirements onto a national tradition. Indeed, it links closely with the earlier suggestion, derived from Searle, that IFRS represent an institutional fact (Y), in a newly conceived international context (C). If we consider an existing community (e.g. a country), with its existing socially constructed institutional reality (GAAP), then from its viewpoint, IFRS represent exactly, in Eldridge and Gould's words, "a new species [which] does not evolve in the area of its ancestors; it does not arise from the slow transformation of all its forbears". Darwinism is therefore a classic illustration of the Eldridge and Gould dictum quoted earlier, that "new pictures must cast their influence before facts can be seen in a different perspective".

To attempt a (perhaps excessively brief) summary of section 2, we have argued that:

- Accounting, like most things that matter, is socially constructed; if 'generally accepted', it is accepted by inter-subjective construction, an iterative process within a community, being an example of internal reality, and therefore by definition unstable over time and place.
- Language, and therefore communication and concept transfer, exhibit similar characteristics.
- Attitude, culture, thought and practice are not free of influences from the past.
- In the context of a specific community, external 'shocks' may disturb the implications of the natural development of the community's internal reality.

Our section title was a question: is reality real? In essence, the answer proposed is that my perceived reality is real for me. Your perceived reality is real for you. If our perceived realities are in agreement, then my reality is also real for you, and your reality is also real for me. Whether our perceived realities are in agreement or not depends on the existence of, and the effective communication of, an agreed intersubjective construction between us. Are we members of the same epistemic community as regards the particular field under consideration, in the jargon used in this section? More informally: do we think the same way? Reality therefore is in the mind. Descartes was wrong, with his *cogito ergo sum*; I think therefore I am. The valid claim would be: I think, therefore my brain is. My hand may or may not be.

3) So what about accounting?

We take our key text here from a French source, namely Baert and Yanno (2009). This report of over 160 pages was prepared for the finance and economy commission of the Assemblée Nationale (the lower and more powerful house of the French parliament) by Dominique Baert and Gael Yanno, both of them members of that assembly. It explicitly aims to increase political awareness, and to encourage political involvement and intervention, and is therefore directly and overtly involved in the political process. A key extract is given in Figure 3, in the original and our own English translation.

Figure 3 – Extract from Baert and Yanno (2009)

Cependant, tout en levant le voile sur la fiction du patrimoine juridique, l'approche économique de la comptabilité qui est celle des normes IFRS apparaît quelque peu biaisée par l'orientation de celles-ci vers les investisseurs. En effet, il n'existe pas une réalité économique par nature. Comme en physique quantique, les caractéristiques d'un objet varient selon le point de vue, et il y a autant « *d'images fidèles* » pertinentes de l'entreprise que d'utilisateurs de la comptabilité. Les normes IFRS ne donnent donc à voir qu'une certaine réalité économique, celle propre à satisfaire les besoins d'informations des seuls investisseurs ; mais rien ne dit que les autres utilisateurs de ces normes y trouveront leur compte.

However, while lifting the veil of the legal patrimonial fiction, the IFRS economic approach to accounting appears somewhat biased by its orientation towards investors. Indeed, a single natural economic reality does not exist. As in quantum physics, the characteristics of an object vary depending on the point of view, and there are as many “true and fair views” relevant to an enterprise as there are users of the accounts. The IFRS standards only give one particular economic reality, that which satisfies the information needs of individual investors, but nobody can say that the other users of the accounts will find their requirements there.

This document develops the position that French accounting is significantly legalistic (“l’algèbre du droit”), detailed in its rules, bureaucratic, not pro economic thinking, and not

pro Anglo-Saxon. Having said that, two caveats must be noted. The first is that the legalistic approach to the net assets is twice referred to as a fiction. The implications are unclear, as the significance of this “fiction” for French thinking continues to be emphasised.

The second point, which is central to our entire philosophy, is the explicit recognition that there is no “natural” economic reality at all, that there are many “true and fair views”, and that a presentation which may absolutely genuinely represent a true and fair view for an investor, may simply be misleading, or useless, for different users and purposes.

The point about economic versus legal bases is well taken. Unlike the 'algebra of economics' proposition referred to earlier in the paper, consistent with and emanating from the Anglo-Saxon tradition, another very different tradition exists, based in Continental Code Law Europe, namely that accounting is a legally-based activity, not an economics-based activity. Accounting has been described as “the algebra of law” (Garnier, 1947; Baert and Yanno, 2009). Since economic rights and obligations are generally enforceable in law, and civil law issues are frequently economic in nature, the difference may appear largely cosmetic. But attitudinally it can be very significant. The implications of “economic substance over legal form”, or the converse, for accounting and reporting practice, especially if both are strictly and unimaginatively applied, can be enormous as regards the contents of financial statements. At the local (national) level, tensions and inconsistencies against “international” thinking and practice can be very strong.

Not only are there 'as many “true and fair views” relevant to an enterprise as there are users of the accounts', but there are many very significantly different users and purposes. Some commonly suggested purposes are listed in Figure 4. It should be noted that the different purposes may lie at very different points on the economic/law spectrum. Also, the importance of any particular purpose, both in absolute and relative terms, is very much time and space specific. Different purposes imply different numbers.

Figure 4: Some purposes/uses of financial reporting

- Providers of equity finance
- Providers of debt finance
- Bankers and other flexible lenders
- Tax calculations
- Determination of legally available distributable dividends
- Preservation of the patrimony of the enterprise
- Prudential regulation
- Competition policy

Source: authors

The current IASB position on the purpose of IFRS is very clear, and is presented very much as a matter of 'public interest'. Considering the perspective of the accounting profession in general, IFAC issued an exposure draft in November 2010 entitled 'A Public Interest Framework for the Accountancy Profession' (IFAC 2010). This document proposes as follows.

We consider that the public interest is the sum of the benefits that citizens receive from the services provided by the accountancy profession, incorporating the effects of all regulatory measures designed to ensure the quality and provision of such services ...The "public" includes the widest possible scope of society: individuals and groups of all jurisdictions sharing an international marketplace for goods and services ... In the broadest sense, "interests" are all things valued by society. These include rights and entitlements, including property rights, access to government, economic freedoms, and political power. Interests are things we seek to acquire and control ...

It is clear that the maximum of breadth and generality is being perceived regarding the 'public interest', in this explanation.

It is well-known that the IASB itself makes great play of operating 'in the public interest'. The notion appears in the formal statement of the objectives of the IASB and in the objectives of the IASB Foundation. For example the IFRS Foundation Constitution states that "the objectives of the Foundation are: (a) to develop, in the public interest, a single set of high quality, understandable, enforceable and globally accepted financial reporting standards ...". However, when it comes to actually specifying what the IASB is aiming to do with its

Standards, the focus is rather narrower. In the revised conceptual framework of 2010, the Board states (para. OB 2):

the objective of general purpose financial reporting (GPFR) is to provide financial information about the reporting entity which is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity,

and continues (para OB 10):

other parties, such as regulators and members of the public other than investors, lenders and other creditors, may also find GPFRs useful. However those reports are not primarily directed to these other groups.

It is surely obvious that 'general purpose financial statements' as explained here are actually for a rather specific purpose (i.e. they are not general purpose!). This narrower and lower-level objective is a major change from the original 1989 wording.

The question arises as to whether there is a problematic inconsistency between the generality of the IFAC document and the more specific and defined focus of the IASB. Arguably, the answer is no, because if providers of finance maximise the efficiency of use of the limited finance available, then society benefits in its entirety. But the point is debatable, and if society 'benefits in its entirety', it does not follow that every section of society separately benefits, and, further, democratic control perhaps obligates the provision of information to all the citizenry. But of course information designed to meet the needs of a specific user group can still be required to be made available for control/accountability purposes to everybody else as well as the focus group itself.

While precise conclusions on this issue may be debatable, the European Financial Reporting Advisory Group (EFRAG) appears to have no concerns. Indeed, it has gone out of its way to suggest support for a limited focus for the responsibilities of the IASB. Part of the efforts by the IASB in recent years, responding to various requests (or stronger) from government or government-related organisations, have been directed towards the preparation of some form

of both pre and post implementation "effects analysis". The question arises of how broadly the effects should be considered, i.e. of how widely the responsibility of the regulator to consider the implications of its standards should be. Paragraphs 3.16 and 3.17 of the EFRAG Discussion Paper 'Considering the effects of accounting standards', issued in January 2011 (EFRAG 2011) read as follows.

The preliminary view set out in paragraph 3.12 was that the scope of 'effects' to be considered, for the purpose of performing effects analysis, should include all effects, both 'micro-economic' effects and 'macro-economic' effects. However, the quality of accounting standards is dependent on the independence of the standard setter, so a consideration of the effects of an accounting standard or amendment should not mean that a standard setter takes on a broader public policy role previously associated with other regulators or government bodies. There is perhaps a significant 'expectations gap' concerning what standard setters are able to do and what effects they are able or best placed to respond to, as highlighted by the arguably unwarranted criticism of standard setters following the emergence of the financial crisis ... The preliminary view is that a standard setter can only be expected to respond to an effect which is outside of its remit (or for which an accounting standard is not the most effective means of addressing the particular effect) by communicating with the relevant regulator or government body to notify them of the relevant issue and to obtain confirmation from them that they will respond appropriately to it; it is then for the relevant regulator or government body to use the range of policy instruments at its disposal to intervene to ameliorate the economic consequences associated with the effect that has been identified.

Putting these points together it is clear, for example, that the proposals mean that accounting standard setters who are explicitly and openly producing information for the users of GFRs as defined and delimited in OB 2 quoted above, and not for, say, banking regulators (as specifically excluded in OB 10 also quoted above), should simply report possible implications to the banking regulators, and leave such issues entirely to them. With the proviso that communication and transparency of information must be total, these proposals seem entirely sensible and satisfactory. They are entirely consistent with the Baert and Yanno proposition that different users have different perceptions of reality, and therefore that different users have different perceptions of what does, and does not, give a 'true and fair

view/fair presentation' of 'their' reality. GPFR users, and banking regulators, need different numbers.

We wish to emphasise the similarity between the final paragraph of section 2, and the arguments immediately above. Section 2 has taken a philosophical approach to the whole question of reality, arguing that it is an intersubjective social construction, and that any particular reality is only 'real' to those members of the particular epistemic community who have chosen to share the same social construction. Section 3 has explored perceptions of accounting reality, and has argued that it is a variable and flexible construction which is likely to be significantly different for different users and purposes, in effect for different decision-making purposes. It follows that whether or not a 'fair presentation' is given, in the mind of any particular reader (an absolutely crucial point), is entirely dependent on a consistency between the accounting information presented on the one hand, and the perceptions, needs and mental constructs of the reader on the other. The correlation between the two levels of argument is, we submit, total.

4) Valuation and accounting numbers.

As we demonstrated right at the beginning of section 1, accounting does require the use of numbers as a means of valuation, or at least evaluation. But the conceptual bases used to arrive at the numbers presented are almost infinitely variable. There is a myriad of ways in which various ideas and concepts can be combined to arrive at the number which is presented, in the chosen currency, to represent the "valuation". Thus we have, for example, historical cost, current replacement cost, net realizable value, fair value, fair value less costs to sell, all of which may, but need not, be tempered by prudence, the matching principle (and the tension between the two), going concern, the imparity principle, economic substance v.

legal form, and so on and so on. What is regarded as the appropriate, or even an acceptable, balance between these interacting, but often conflicting, considerations is a matter of collective acceptance. Such collective acceptance has as necessary conditions a reasonably common context, (which may be affected by such issues as legal, financial, social, and religious factors) and a reasonable agreement on the *purposes* of the statements – i.e. who the users are and what they want the statements for. It is very easy to demonstrate in many contexts and in many ways that these conditions are often not satisfied, and that general wide-ranging collective acceptance does not exist.

The implications require detailed analysis in at least 3 directions:

- the whole process of creating accounting standards and regulations,
- the relationship between global and national users, and therefore the degree of (un)suitability of IFRS for many national (= local) users and uses,
- the meaningful (real?) interpretation of numbers.

The first two of these are major issues in their own right, and the author has worked and is working on both of them elsewhere. Here we examine the third by means of a single, but important and topical, example. This is the concept of profit/earnings, linked inevitably to the concept of capital.

We can start the analysis by noting the 'underlying assumption' of going concern, presented in the IASB Framework para 4.1. "(I)t is assumed that the entity has neither the intention nor the need to liquidate or curtail materially the scale of its operations". In other words, the entity is assumed to be able to claim the capacity to maintain its operations through the foreseeable future. The Framework, in para 4.59, refers to this as physical capital maintenance. "Under this concept a profit is earned only if the physical productive capacity (or operating

capability) of the entity (or the resources or funds needed to maintain that capacity) at the end of the period exceeds the physical productive capacity at the beginning of the period" (excluding capital movements). Many academic authors have explored this logic over the years. We quote here from two of them, as discussed in Alexander and Servalli (2011).

Zappa (1946: 267) states as follows (our translation from the Italian).

Income available for consumption, or which is available for levy or distribution, must not only not reduce the initial capital, but it shouldn't even damage the capacity of capital to provide an income: income is essentially a surplus value, whose making leaves unimpaired the value which is the mechanism for its creation.

It is instructive to compare this quotation with a classic Anglo-Saxon analysis of income, i.e. the work of Hicks (1946). The essence of his argument is as follows.

The purpose of income calculations in practical affairs is to give people an indication of the amount which they can consume without impoverishing themselves. Following out this idea, it would seem that we ought to define a man's income as the maximum value which he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning.

He discusses various practical implications of this thinking, leading to his final definition (which he labels his "Income number 3"). This is

the maximum amount of money which the individual can spend this week, and still expect to be able to spend the same amount in real terms in each ensuing week.

This is of course an entirely future-oriented concept and, transferred to the context of a business rather than an individual, is incompatible with the accountant's traditional usage of historical costs in the profit measurement process. Profit becomes the excess after having charged against revenues the full costs which *will be* necessary to replace the resources consumed in earning such revenue.

Barker (2010) suggests a series of definitions of income, of which 2 are repeated here.

Definition 2

Income is an increase in equity, excluding contributions from equity participants.

Definition 4

Income is an increase in equity, excluding contributions from equity participants, capital maintenance adjustments and changes in other reserves.

His conclusion (page 157) is that either IFRS should abandon capital maintenance and reclassification adjustments (re-cycling) and adopt definition 2, or adopt 'in part or in whole', definition 4. Nobes (2012) suggests that the exclusion of changes in accumulated OCI would be unnecessary under the 2011 version of IAS 1, which includes (para 10) 'all elements of income in the "statement of profit and loss and other comprehensive income"', the argument presumably being that a single statement embracing all elements of 'income' can by definition have no exclusions. We shall argue below that this attractive-sounding proposition evades, rather than solves, some essential issues.

Many of us surely spent time at school considering water-tanks. The problem is familiar. A tank begins with water $W1$. During the period a dripping tap above adds water P , and a hole in the bottom loses water into a bucket, of D . The tank ends with water $W2$. So $W1 + P - D = W2$. If ANY one of the four elements is unknown, it can be discovered by simple equation manipulation from the other three. This equation is also that of annual financial reports. Opening balance sheet (wealth 1) + Profit - drawings/dividends = closing balance sheet (wealth 2). $W1 + P - D = W2$. Given the numerical driving power of double entry, this is the basis of definition 2, again noting that numerically speaking income need not be the one unknown.

But what do we mean by an increase in equity? Double entry tells us that we mean that the

ownership claim on the entity is a bigger number than it was before. But double entry is a false trail, and we need a more theoretical generalisation. As Barker points out (page 149), equity is a claim on assets. In a balance sheet sense it is a claim on net assets, a claim on wealth as used in the previous paragraph, an increase in external well-offness in a Hicksian sense (see Barker page 151). It is a simple tautological truism to say that an increase in something is the excess now over what it was before. Two more equally simple but often forgotten further truisms follow. The first is that the way we define, conceive and measure (possibly but not necessarily numerically) the 'thing', and therefore its increase, is infinitely variable. The second is that we have to maintain the original amount of the 'thing', defined, conceived and measured in our chosen way, before we have any increase. Suppose we define the thing, the resource, as the capacity to produce, and sell in the real world under deferred payment terms, 30,000 widgets each year into the foreseeable future. This is W1. For there to be an increase in W, we need to end up with the capacity to produce and sell at least 30,001 widgets each year. This is our resource to be maintained, and hopefully expanded. Being accountants, benefitting from, but at the same time enslaved by, the tradition of Pacioli, we express, or better re-express, our reports in money terms. Suppose that the number of currency units (CUs) the entity needs to maintain the 30,000 capacity has increased from 60,000 CUs to 70,000 CUs over the period. If this capacity has indeed been maintained, then the accountant tells us that we have a closing equity of 10,000 more than the opening equity.

Definition number 2 above tells us that we have an 'income' (actually profit) of 10,000 CUs. Definition number 4 tells us that we have an 'income' (actually profit) of 10,000 CUs (equity) minus capital maintenance adjustments of 10,000, equals zero. BUT THIS IS QUITE FALSE IN LOGIC, EVEN IF NECESSARILY TRUE IN NUMBERS. We do not have to 'reduce'

equity because conceptually there has never been any increase in equity. The accountant's numerical representation has moved to a bigger number. But the equity, the claim on the original thing we are seeking to maintain, which was the capacity to produce and sell 30,000 widgets, has remained constant.

So our claim and conclusion in this paper is very simple. We are misled by the existence of a bigger number to conclude that there is more of some 'thing'. But in accounting, given the going concern convention, the 'thing' is the 'operating capability', i.e. in our example the capacity to produce and sell widgets. But this 'thing' has not increased at all. So the message of the numbers is completely false.

Note the implications for the current massive confusion about the appropriate treatment of 'Other Comprehensive Income'. There is debate and uncertainty about the nature of the increase in our example of 10,000 CUs in the closing equity as recorded in the balance sheet. What kind of income is it? But the answer is clear. It is not any kind of income, because it is not income. It is only an increase in a number.

An earlier (indeed historical!) recognition of the low relevance of accounting numbers is due to the economist Irving Fisher. Satisfaction is a mental occurrence, an event of the mind. It is a psychic rather than a physical happening. People act, and make decisions about actions, so as to maximize their personal, mental or psychic satisfaction. Fisher (1930) puts the argument as follows:

For each individual only those events which come within the purview of his experience are of direct concern. It is these events – the psychic experiences of the individual mind – which constitute ultimate income for that individual. The outside events have significance for that individual only in so far as they are the means to these inner events of the mind. The human nervous system is, like a radio, a great receiving instrument. Our brains serve to transform into the stream of our psychic life those outside events which happen to us and stimulate our nervous system.

Directors and managers providing income for thousands of people sometimes think of their corporation merely as a great money-making machine. In their eyes its one purpose is to earn money dividends for the stock-holders, money interest for the bond-holders, money wages and money salaries for the employees. What happens after these payments are made seems too private a matter to concern them. Yet that is the nub of the whole arrangement. It is only what we carry out of the market place into our homes and our private lives which really counts. Money is of no use to us until it is spent. The ultimate wages are not paid in terms of money but in the enjoyments it buys. The dividend cheque becomes income in the ultimate sense only when we eat the food, wear the clothes, or ride in the automobile which are bought with the cheque.

The essence of this proposition seems to us to be obviously correct. How do we decide whether to work overtime and earn an extra €20 or to go for a walk in the sunshine? We shall take the decision that, we believe (possibly wrongly, of course), will lead to the greater pleasure. Clearly, the pleasure to be derived from spending the €20 is relevant in this equation. Equally obviously, such pleasure or satisfaction – enjoyment income as Fisher terms it – cannot be measured directly or objectively. He proposes a series of approximations. The first approximation he calls real income. This involves physical events and material things. A litre of milk and a daily newspaper are both examples of real income. Real income consists of: those final physical events in the outer world which give us our inner enjoyments. This real income includes the shelter of a house, the music of a radio, the use of clothes, the eating of food.

In one sense, real income is measurable – litre is an objective term (although ‘milk’ is less so!). But there is no additivity – no standard measuring unit or common denominator. To achieve this we need to move to a second approximation, which Fisher calls the cost of living. This consists of the money paid to obtain the real income – the cost of the litre of milk and the daily newspaper. Fisher’s exposition of the argument has something of a period flavour:

So, just as we went behind an individual’s enjoyment income to his real income, we now go behind his real income, or his living, to his cost of living, the money measure of real income. You cannot measure in dollars either the inner event of your enjoyment while eating your dinner or the outer event of eating it, but you can find out definitely how much money that dinner cost you. In the same way, you cannot measure your enjoyment at the cinema, but you do know what your house shelter is really worth to you, you can tell how much you pay for your rent, or what is a fair

equivalent for your rent if you happen to live in your own house. You cannot measure what it is worth to wear an evening suit, but you can find out what it costs to hire one, or a fair equivalent of its hire if, perchance, the suit belongs to you. Deducing such equivalents is an accountant's job.

The total cost of living, in the sense of money payments, is a negative item, being outgo rather than income; but it is our best practical measure of the positive items of real income for which those payments are made.

The problem with this, as Fisher himself recognizes, is that money paid out (outgo) does not seem to make much sense as a measure of income in money terms. We therefore move to a third approximation, that of money income:

All money received and readily available and intended to be used for spending is money income.

We can illustrate Fisher's arguments by considering eating a meal. If we wish to eat, we have to go out and earn some money. This means that we have a money income – in this case, wages. This money income, of course, is the idea that corresponds to the everyday use of the words 'income' or 'earnings'. Having some money, we go out to a restaurant where we eat, and pay for, a meal. Here we have real income. We have the 'final physical event', namely the actual eating of the food. This is approximately measured by the 'cost of living', i.e. by the cost of the meal – the amount we pay the restaurant. This idea of taking a cost-based approach is clearly not a new one to an accountant.

But this is not the end of the story. Fisher argues further. We did not eat a meal for the sake of it, we ate a meal to receive the satisfaction, the pleasure of having eaten (or to avoid the unpleasantness, the pain, of feeling hungry). This satisfaction, this pleasure, is the 'enjoyment' or 'psychic' income. It may be unmeasurable, at least in a manner that can be recorded, but it is still, argues Fisher, the most important. After all, if it did not exist we would have had no reason to buy the meal. And without a reason to buy the meal, we have no reason to earn the wages.

Fisher thus distinguishes three successive stages, or aspects, of a person's income:

- 1 *enjoyment* or psychic income, consisting of agreeable sensations and experiences
- 2 *real income*, 'measured' by the cost of living

3 *money income*, consisting of the money received by someone for meeting their costs of living.

The last – money income – is most commonly called income; and the first – enjoyment income – is the most fundamental. But for accounting purposes real income, as measured by the cost of living, is the most practical. So in essence Fisher is arguing that 'income' is about the subjective perceptions relating to activity and 'consumption'. We are virtually right back where the analysis started in section 2: income is a subjective construct. The use of numbers to represent income makes no difference at all to this proposition. The numbers merely create a false impression, not only a false impression of objectivity, but often, as in the income example, from Barker (2010) and Nobes (2012), presented here, an absolutely wrong conclusion.

5) Conclusions.

Given the length of this paper, we do not repeat or summarise the contents here. The theoretical arguments in the paper, and the general notion of intersubjectively agreed social construction, are of wide application. Some of these applications have been touched on earlier, and some not, but all are of sufficient interest and significance to form the basis of separate papers. Without claiming to be exhaustive, a list would include the following.

- words, language, and the general science of signs (semiotics)
- values and evaluations
- the invention of gods, religions and supernatural forces of all kinds
- cultural beliefs, influences, requirements and norms
- the usage and interpretation of numbers

As regards this last one, the conclusion, emanating from every aspect of the arguments in the paper, is very simple. Numbers are unavoidable but potentially highly misleading approximations of 'facts'. Most 'facts', and certainly all economic and account-related 'facts', are inter-subjective constructions. The 'reality' behind numbers as representations of those facts is a human perception, with all the infinite variety of meaning which this implies.

This in turn implies the possible relevance, to somebody or some body, of an infinite number of numbers.

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