Each year the Australasian Association of Philosophy elects the hosts of the annual Australasian Postgraduate Philosophy Conference. The host thus elected, become the independent executors of the conference. To this extent, the APPC09 exists in association with the AAP

http://aap.org.au

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Editor’s Introduction

The following publication has been compiled to commemorate the 2009 Australasian Postgraduate Philosophy Conference and consists to that end of selected papers submitted to the paper competition of the conference. This year’s annual Australasian Postgraduate Philosophy Conference was jointly held by Macquarie University and the Australian National University (ANU) as nominated by the Australasian Association of Philosophy (AAP). The conference was held at Macquarie University’s North Ryde campus from Wednesday the 15th to Friday the 17th of April 2009.

In all we had 54 presentations from postgraduates over the course of the conference with upwards of 70 attendees. Guided by this year’s theme of ‘philosophy and the real world’ we had presentations on a wide variety of topics ranging from traditional areas of philosophy to cross over studies with the positive sciences, media and cultural studies, law, economics and management theory. Through presentations such as these an interdisciplinary approach to philosophy was explored within the conference.

However, it may be said, that philosophy can be concerned with the real world without needing to cross institutional borders per se. We saw this in presentations with a political or social purpose. In these cases, what may be merely fanciful or “purely abstract” remains oriented towards the real world as that which it is for. Philosophy may in turn orient itself purely towards questions of the essence of the real, truth, knowledge and so forth. Even here, in these heights of abstraction, philosophy remains hewn to the real world insofar as it seeks to elucidate something like the transcendental\(^1\) of the real and our relation towards it. That is to say, so far as it accomplishes its task, it is in the service of the “real world” or, it is in the service of concerns which grow out of the realities of the real world.

Thus, in the spirit of a bridge back to the concrete realities of the world associated with this conference I would like to express on behalf of the APPC09 committee our sincerest gratitude to all who made the conference possible. We would like to thank our keynote speakers Dr. Jeremy Shearmur (ANU), Prof. Jeanette Kennett (CAPPE, now MQ) and last but not least,\(^{1}\)

\(^{1}\) i.e. the conditions of possibility for… if only as the basic structures guiding any possible inquiry into what things really are etc.
Prof. John Sutton (MQ). We would like to thank our sponsors ANU, CAPPE, the AAP and Macquarie University (especially the Department of philosophy and the division of SCMP, now integrated with the faculty or Arts).

We would like to thank all those who sat on the panel of the associated event the ‘Public Forum on Philosophy in Education’, namely its M.C. Alan Saunders (ABC Radio National), Dr. Phil Cam (UNSW), Dr. Greg Leaney (UNSW) and Dr. James Ley (USYD). We would also like to thank Prof. Stewart Candlish and Prof. Peter Menzies for their time during the ‘Q. and A. on Publishing’ associated with the conference. We would like to thank Assoc. Prof. Nick Smith for the help he rendered as head of department at Macquarie University’s department of philosophy, and Muhammad Rahman, SCMP/Arts faculty web master, for his work in providing us access for our website. We would also like to thank Katie Wu of CAPPE for her administrative assistance. And lastly we would like to thank all those people who supported postgraduate philosophy in Australasia and beyond through their attendance and participation in the event.

Finally, we would like to congratulate the winners of our paper competition. First prize was awarded to Glenn Carruthers from MACCS at Macquarie University for his paper ‘Is the body schema sufficient for the sense of embodiment? An alternative to de Vignemont's model’. Second prize was awarded to Wilson Cooper from Philosophy at Macquarie University for his paper ‘Can Functional Reduction Close the Explanatory Gap?’ Lastly, third prize was given to Peter Evans from the Centre for Time at the University of Sydney for his paper ‘Finding time in temporal structure: Minkowski spacetime and the block universe view’

On behalf of the conference organising team I hope that you enjoy the following papers which arose out of this exciting conference and we would like to thank everyone who offered us their support in organising, preparing and running the conference. As the editor of this collection I have edited the following papers for formatting etc. and must to that extent take responsibility for mistakes which may occur in this volume.

Adam Tate

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2 Society, Culture, Media and Philosophy
Reductively explaining the mental in terms of the physical has been an enterprise attracting scant support recently. However, Jaegwon Kim has argued that this is because of a flaw in the most prominent method of reduction employed to date. Bridge law reduction seeks laws that connect mental descriptions with physical descriptions to allow a derivation of mental laws from physical laws. The main criticism Kim makes against bridge law reduction is that recruiting bridge laws does not explain why there is a correlation between the mental and physical properties described, since the correlation is assumed without explanation. In order to explain why a certain mental property is correlated with a certain physical property, such explanations need to respect the constraint that premises contained in the deductive nomological (D-N) argument explaining the correlation do not refer to the property being explained, or to any other properties at that higher level. If this is achieved, we then have explanatory ascent and close the explanatory gap.

Kim argues that functional reduction can deliver explanatory ascent, and thus close the explanatory gap. By functionalising a mental property, like pain, in terms of its defining causal role, C, we have a definition of pain. Since definitions are not added premises in a D-N explanation, if C is found on a lower level, say neurophysiology, as a law about neural state N, then we have an explanation of why pain is correlated with neural state N: N satisfies causal role C and pain is nothing more than causal role C.

In this paper, I argue that Kim’s method of functional reduction is unsuccessful in closing the explanatory gap, since causal role C will involve a different level of description when defining pain than when constituting a law about neural state N, thus preventing its discovery at the neurophysiological level.
The ‘explanatory gap’ is a label that has gained considerable currency in the recent philosophical literature (Levine 1983). What this label essentially denotes is the fundamental inadequacy of certain explanatory resources for delivering a complete explanation of the phenomenon under consideration. To use a salient example, it is argued that a physical explanation of consciousness will not give us a complete explanation of why consciousness arises in physical beings; there will always remain a gap between the physical explananda and the explanandum of consciousness (Chalmers 1996, p.47). The issue of the explanatory gap is usually characterised in the context of consciousness or ‘qualia’, but it is a much more widespread phenomenon occurring at the interface of many scientific disciplines, and even within physics itself. Thus, it is important to keep in mind that the explanatory gap addressed here is a general problem and not specific to the psychological or phenomenal, although many of the examples cited are of mental states.

Jaegwon Kim has traced the motivation underlying the explanatory gap back to the nineteenth century, and revealing an implicit constraint on reductive explanations, offers a diagnosis of why traditional attempts at reductive explanations have failed. He has proposed a solution to the explanatory gap in relation to some mental states by formulating explanations that functionally reduce mental states to underlying physical realisers. In this paper, I will scrutinise Kim’s method of functional reduction and argue that it begs the question against his rivals, the emergentists and non-reductive physicalists, thereby failing as a convincing method of reductive explanation and a solution to the explanatory gap(s). My labels ‘emergentism’ and ‘non-reductive physicalism’ are intended to differentiate between the emergentist claim that properties with a fundamentally novel nature emerge from physical complexity, while non-reductive physicalism is weaker, only claiming that certain properties are irreducible to the physical without instantiating a fundamentally different nature. I will first outline the explanatory gap and provide Kim’s solution to it, and then I will present some questions that will remain for those inclined by emergentism or non-reductive physicalism. Finally, I will argue that two assumptions in particular, underpinning functional reduction, beg the question against the emergentist and non-reductive physicalist, thereby casting doubt on the capacity of Kim’s solution to convert anyone without the inclination to reductive physicalism.

In his book, Physicalism, or Something Near Enough (Kim 2005), Kim puts forward the solution that he claims answers a question concerning mental properties that has been around since at least 1866. In 1866 T. H. Huxley wrote: “...how is it that anything so remarkable as a
state of consciousness comes about as the result of irritating nervous tissue” (Huxley 1866)? Although the core issue this question addresses has fascinated both scientists and philosophers, Kim claims no one has been able to adequately account for why it is that something like pain arises when tissue damage occurs and not some other sensation like itch or tickle. The British Emergentists formulated the problem against a backdrop of scientific theorising that is still widespread today. That backdrop is a layered view which organises the world into a structural hierarchy of entities ranging from the simplest and smallest through to larger and more complex entities. On this view, consciousness is a property existing at the level of organisms and is thus at a higher level than, say, properties at the level of cells or molecules. If a reductive explanation is to answer Huxley’s question adequately, the British Emergentists argued that the explanation should only contain facts about entities on levels constitutive of organisms, since the incorporation of facts from the level of organisms would make a deductive explanation circular. In the case of consciousness, it is a property of organisms, which are said to emerge from the level of cells, so any explanation of consciousness should only draw on terms and concepts that denote entities and properties at the cellular level or lower, perhaps the terms from theories of neurophysiology and similar scientific theories. The British Emergentists believed that properties like consciousness and life were emergent in the sense that a complete theory at their basal level, i.e. the molecular level for life and the cellular level for consciousness, could not account for why such properties emerged. In more recent times this problem has come to be known as the explanatory gap (Levine 1983).¹

When reduction in the philosophy of mind became popular in the mid twentieth century, the initial thought was that mental states, properties, etc, are identical to physical states, properties etc. The major influence on carrying out such reductions was a derivational model of laws, whereby explanations for reductions are deductive nomological arguments. Deductive nomological explanations require that terms found in the conclusion are also found in the explanatory premises. So given a psychological law or regularity connecting mental states, a correlation between mental and neural terms is sought to enable the derivation of the psychological law from the neurophysiological theory. Since it will be rare that the different

¹ I am using the British Emergentist account of the ‘explanatory gap’ here for two reasons: First, it is how Kim motivates the need for his own solution to it. Second, Levine’s original exposition of it and much of the subsequent commentary have focused mainly on the issue between the physical and consciousness, and as earlier mentioned, here, I am more interested in the general issue of explanatory gaps at many levels of explanation.
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Theories will contain the same theoretical terms, laws that link the theoretical terms found in neurophysiology with the theoretical terms of psychology need to be posited. Thus, the descriptive expressions of the deduced theory are mirrored in the deducing theory and the requirement for the deductive nomological explanation fulfilled. These are what Ernest Nagel called ‘bridge principles’ and the British Emergentist, C. D. Broad called ‘trans-ordinal laws’ (Nagel 1961; Broad 1925). What we are supposed to end up with is something like the following: Say we have the psychological regularity that mental state M₁ is followed by M₂. If bridge laws can be found that connect M₁ and M₂ with physiological states P₁ and P₂ respectively, such that ‘M₁ iff P₁’ and ‘M₂ iff P₂’ then the psychological regularity can be derived from the physiological theory as follows:

1. If P₁ then P₂
2. P₁ iff M₁
3. P₂ iff M₂
4. If M₁ then M₂

Such an account supposedly provides the warrant for identifying M₁ with P₁ and M₂ with P₂.

One of the principal obstacles for carrying out bridge law reductions is the multiple realisability of some higher level properties. For if M₁ can be realised by many different P₁’s then there will be no bridge law forthcoming, since each instantiation of M₁ may be similar in virtue of characteristics that none of the P₁’s share. For instance, pain in different organisms like molluscs, reptiles, and mammals may have similarities in being caused by tissue damage and causing avoidance behaviour, but the underlying physiological characteristics that realise the pain in each case may have nothing in common with each other. However, according to Kim, this problem is overcome by limiting the reductive analyses to species-specific features, or even features specific to individuals. For bridge law reduction, however, a more pressing issue needs to be dealt with. These bridge laws do not explain anything; in fact, they can often be used to beg the question against dualism or pluralism. For it is the higher level property that is to be reductively explained, but by including that property in the bridge laws, it is thereby smuggled into the reducing theory. So, when pressed for a reason that explains this correlation, the identity theorist’s response is either uninformative e.g. ‘they have always occurred together’ or question begging e.g. ‘they’re identical’. Therefore, bridge laws fail to explain why it is that the correlation occurs in the first place, hence an explanatory gap.
The concern for those who deny the possibility of fully explaining higher level properties like consciousness in terms of lower level theories is that the identity is simply stipulated rather than explained. British Emergentists and other property dualists claim that to provide a complete physical explanation of a property like pain, it is necessary that the explanation only include physical terms in the explanatory premises. This is because drawing on higher level terms in the deductive inference only reiterates what is already obvious – that a correlation exists between pain and some physical process. However, it is the correlation itself that is in need of explanation. When interpreted in this way, the explanatory request of the British emergentists represents a challenge to reductive physicalists, and thus places a constraint on the reductive explanations that physicalists offer of higher level properties. Kim formulates the constraint as follows:

**Constraint (R)**

The explanatory premises of a reductive explanation of a phenomenon involving property F (e.g., an explanation of why F is instantiated on this occasion) must not refer to F [or any other properties on that level or above] (Kim 2005, pp.105-106).

With constraint (R) in place, we can see that bridge laws would violate the explanatory request of property dualists since a bridge law introduces the higher level term into the explanation via its explanatory premises.

Drawing on a causal or functional model of higher level properties originally proposed by David Armstrong and David Lewis independently (Armstrong 1981; Lewis 1972), Kim argues that explanations of higher level properties can be provided without including terms of the higher level in the explanatory premises. First, a functional definition of the higher level property in terms of its causal role is formulated and the definition then serves as a criterion for empirical investigation. Following this, a law of the reducing theory is sought that fulfils the causal role of the higher-level definition and we have an explanation of why the higher level properties are correlated with the lower level properties. A certain lower level property, P, has causal role C, and having the higher level property, M, is nothing other than having a lower level property that performs causal role C. Hence, if P satisfies causal role C and M is defined by causal role C, M is nothing over and above having P. The process involves three steps:
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Step 1: Functionalisation of the target property, where the property to be reduced is given a functional definition of the following form:

\[ \text{Having } M = \text{def. having some property or other } P \text{ (in the reduction base domain) such that } P \text{ performs causal task } C. \]

This will mean finding a property \( P \) from the base domain that fits the causal specification definitive of \( M \).

Step 2: Identification of the realisers of \( M \), where we find the properties (or mechanisms) in the reduction base that perform the causal task \( C \).

Step 3: Developing an explanatory theory, where we construct a theory that explains how the realisers of \( M \) perform task \( C \) (Kim 2005, pp. 101-102).

An explanation of pain in terms of its lower level realisers then has the following form:

A system, \( x \), is in neural state \( N \) at \( t \).
Neural state \( N \) satisfies causal role \( C \) (in systems like \( x \)).
Having pain = \text{def.} being in some state satisfying causal role \( C \).
Therefore, \( x \) is in pain at \( t \). (ibid, p.112)

Since definitions do not count as extra premises of a deduction, the inclusion of the term ‘pain’ in line three does not violate constraint (R).

Now what I want to examine is the claim that functional reduction can close an explanatory gap by stating the causal role of \( N \), that is, causal role \( C \), in terms and concepts that do not cite properties of higher levels than the reducing level and then identifying this description with a corresponding definition of a higher level term. Emergentists will deny that this is possible for a range of reasons. For Kim argues: “Suppose pain has been functionalized, say, a la David Armstrong: being in pain is being in a state apt to be caused by tissue damage and apt for causing winces and groans” (Kim 2005, p.112). Many of those persuaded by emergentism would reject that step 2 from above can be carried out in all cases. That is, we could not identify the realisers of ‘pain’, since we could not find the properties (or mechanisms) in the reduction base that perform the causal task \( C \) without also including higher level entities in the explanation. This is because the causal powers of some higher level properties are considered as brute by some emergentists, and while correlated with lower level properties,
have a distinct nature, thus making them necessary inclusions in a complete explanation. Other emergentists and non-reductive physicalists will reject step 3 from above. Step 3 is supposed to deliver an explanation of how neural state N performs causal task C, and so, will also have to be in lower level terms. But unless we also fill in why neural state N has this particular causal role it would seem everything has not been explained. Those making this objection will question whether lower level laws can provide an adequate explanation for the why question. The main reason used to support both of these criticisms is the existence of downward causation. However, there are two assumptions held by functional reductionists like Kim that exclude this possibility: 1) The principle of physical causal closure and 2) causation as generation. I will argue that both of these assumptions beg the question against the emergentist, since they both ensure that anything defined by a causal role will be physically reducible, thus rendering Kim’s functional reduction unconvincing as an attempt close explanatory gaps.

First, let us consider the assumption of physical causal closure. In Kim’s terms, it says: “If a physical event has a cause at \( t \), then it has a physical cause at \( t’ \)” (Kim 2005, p.15). Kim, himself, does not offer an argument for the principle of physical causal closure, rather, he tells us: “There are excellent, even compelling, reasons for accepting the causal closure and explanatory self-sufficiency of the physical world” (ibid, p.155), referring his reader’s to David Papineau’s ‘The Rise of Physicalism’ (Papineau 2001). However, the excellent and compelling reasons offered by Papineau might not be accepted by someone inclined toward an emergentist picture. In its essence, Papineau’s account suggests that the historical precursor to accepting physical causal closure was the establishment of the conservation of energy law. This law effectively removes any chance of spontaneous special forces operating on the physical domain. This is because the conservation of energy law dictates a build up in potential energy compensates for any losses in kinetic energy. Building on this law are two empirical arguments from the sciences that present evidence for the ultimate acceptance of the principle of physical causal closure. First, is an argument from fundamental forces. After finding that non-fundamental forces such as friction reduce to a small number of fundamental conserved physical forces or their combination, the correct inductive lesson to draw from this is that other non-fundamental forces like vital, muscular or mental forces etc will likewise be reduced. This, however, leaves open the possibility of fundamental non-physical conserved forces. Second, is the argument from physiology, which is intended to take up the slack of the previous argument. If there were fundamental non-physical forces in existence then the
detailed physiological investigations being carried out by the sciences would start to reveal anomalous physical processes within organisms, which are fundamentally different to the interactions that are explained by the physical forces. So the argument from physiology, according to Papineau is simply, “that detailed research has failed to uncover any such anomalous processes” (Papineau 2001, p.31), therefore, there are none.

Emergentists and some non-reductive physicalists will find this conclusion premature, since without conclusive evidence to the contrary there is still the possibility that there are conservative non-physical fundamental forces in existence. One argument put forth in support of this is that our current techniques for revealing such forces are inadequate. Even the theoretical physicist Paul Davies accepts this possibility saying, “in the case of the living cell it is doubtful whether additional ‘organisational’ forces related to a global complexity variable acting at the molecular level would have been detected by techniques used so far” (Davies 2008, p.49). When M is defined in step 2, it is defined in such a way that there is some physical realiser, P, of M that must perform causal role C. With the physical causal closure assumption in place, however, any causal or functional definition drawing on physical properties automatically rules out downward causation. But one of the reasons that emergentism has received more attention recently is that physical explanations have not fully explained the phenomena of the physical domain and this brings into question physical causal closure. Therefore, the explanation that Kim and other functional reductionists are offering rests on an assumption that some emergentists would reject.

Entertaining the idea of new fundamental forces is not the only way to support downward causation; there is a more plausible option. While Davies is reluctant to concede that new non-physical forces pop into existence or augment current physical forces, he does acknowledge that an appeal to the openness of physical systems does present a “system harnessing existing forces for its own ends [and] that once a system is sufficiently complex, then new top-down rules of causation emerge” (ibid, p.48). One classic example of this comes from Donald Campbell who is credited with introducing the term ‘downward causation’ into the literature (Campbell 1974). Campbell notes that in explaining the causal role of a termites jaw structure, drawing on the laws of lower molecular or chemical levels will not fully explain why the termite has that jaw structure with “the particular distribution of proteins found in the jaw” (ibid, p. 131). When we consider a soldier termite, which has a jaw that is so highly specialised that it cannot feed itself and needs to be fed by its fellow workers,
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the inadequacy of the explanatory self-sufficiency of the physical world becomes even more apparent. When we ask regarding the soldier termite: Why does a soldier termite have this particular jaw structure rather than another? The answer: Because the DNA template or protein distribution satisfies the causal role of the soldier termites jaw, seems to explain very little. As Campbell states: “The soldier’s jaws and the distribution of protein therein (and the particular ribonucleic acid chains that provide the templates for the proteins) require for their explanation certain laws of sociology centring around division-of-labour social organisation (ibid). We can see in this case that the type ‘soldier ant jaw structure’ is straightforwardly correlated with a suitably restricted range of physical constitutions. However, citing the causal role as an explanation to Kim’s example question: Why this correlation rather than another? does not close the explanatory gap. Kim can always reply that any such appeal to higher levels, like properties of the social level, will likewise be functionally reducible to the physical level, but this only makes salient another assumption that is underlying Kim’s proposed solution to the explanatory gap – his view of causation.

It would seem from Kim’s comments in *Physicalism, Or Something Near Enough* (Kim 2005), he endorses a mechanical or productive account of causation, as opposed to what Ned Hall calls a ‘dependence’ view of causation (Hall 2004, p.225). Kim contends: “it is causation in this sense [as generation] that is fundamentally involved in the problem of mental causation” (Kim 2005, p.18). This view of causation, however, effectively reduces causation to fundamental physical forces or processes, thereby denying the emergent causal influences of higher level phenomena canvassed above. Kim argues that alternative versions of causation as counterfactual patterns of dependence cannot handle pre-emption and overdetermination, thus giving causation as generation the upper hand, in his opinion (ibid, p.18, f12). However, causation as generation has problems of its own and certain views of causation as dependence have gained in popularity recently precisely because they can overcome the difficulties Kim mentions, thus providing dependence with greater explanatory power than Kim is willing to allow. Although causation as generation has not been completely discarded, many philosophers working in the area of causation will deny Kim’s verdict that it provides an adequate analysis of causation by itself. The following examples are intended to show why causation as generation is inadequate and that causation as dependence can accommodate Kim’s contentions.
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It follows from causation as generation that exactly similar effects would have equal amounts of force/energy as causes and this raises a problem. For instance, if causation just is the exercise of force or exchange of conserved quantities of force/energy, then a difference in the amount of force would amount to a difference in the effect. James Woodward presents an example from economics where this does not seem to be the case. The equilibrium price of oranges will involve a myriad of individual interactions, “all of which involve transfers of matter or energy [.but] the equilibrium price will remain the same as long as there is a market in which consumers are able to purchase oranges by some means [and] information[...] is available to buyers and sellers in some form” (Woodward 2003, pp.355-356). Thus the same effect, the equilibrium price of oranges, will occur with different amounts of energy transference underlying the putative cause. Another difficulty for causation as generation is the claim that omissions are causes. For instance, David Lewis presents the case of a void causing death, where the absence of anything is deemed, appropriately, as the cause, but by very definition, there is no force or energy contained or instantiated in a void (Lewis 2004, p.277). Causation as generation, therefore, will have difficulties in determining the cause for such an effect. If you’re worried about the impossibility of a void, Lewis notes that in a vacuum the least of your problems would be high energy photons (ibid, p.278). Both of these examples present counterexamples to analyses of causation as generation or production indicating that the theory is not the whole story regarding causation.

In response to the problems dependence theories of causation face with regard to pre-emption and overdetermination, I will draw on some examples from Woodward again. Woodward builds on counterfactual models of causation with what he calls an interventionist model (Woodward 2003). Without going into too much detail, the interventionist account can determine which of the pre-empted and pre-empting cause the actual cause is by working out whether varying the truth-value of either makes a difference to the truth-value of the effect. An example is a case where a desert traveller’s water canteen is both poisoned and punctured by two would be assassins. In the actual case, the puncture leads to dehydration and thus death for the traveller. On the naive counterfactual approach, the counterfactual, ‘if the canteen had not been punctured then the death would not have occurred’, comes out false, since the canteen was also poisoned, so the death would still have occurred. Therefore, counterfactual dependence cannot pick out the correct cause and this is Kim’s complaint. In

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2 This assumption is open to challenge, there may exist cases where differing amounts of equal but opposite forces can result in the same effects. I will not take issue with this possibility here though.
this example, we have two causal routes to the death, one from the puncture to the dehydration to the death, and a second from the poisoning of the water to the ingestion of poison to the death. According to Woodward, if we hold fixed the truth-value of the ingestion of poison at its actual value of being false, then an intervention that changes the truth-value of puncturing the canteen from true to false will bring about a change in the truth-value of the death from true to false. Alternatively, if we hold fixed the truth-value of the dehydration at its actual value of being true, then an intervention that changes the truth-value of poisoning the water from true to false will not change the truth-value of the death. Woodward notes: “This asymmetry of counterfactual dependence captures or cashes out the content of our saying that the puncturing and not the poisoning was the actual cause of [the traveller’s] death” (Woodward 2003, p.79). Therefore, contrary to Kim’s charge, counterfactual dependence accounts of causation seem capable of identifying a pre-emptive cause.

The case of symmetrical overdetermination is a little more complex, but follows a similar pattern to that of the previous example. As a simple case of symmetrical overdetermination, we can consider two riflemen, A and B, in a firing squad who both shoot fatal shots into the person being executed, C. We can see again in this case that the counterfactual, ‘if A had not fired, then C would not have died’ comes out false because of rifleman B’s shot. Thus, Kim’s complaint that counterfactual dependence cannot pick out actual causes in such cases. Attributing the solution to this difficulty to Halpern and Pearl (2000) and Hitchcock (2001), Woodward explains that we can change the truth-value of one of our variables, A or B, if that change is in the redundancy range. Basically, varying B from true to false will be in the redundancy range with respect to the path from A to C if, given the actual value of A, the intervention of changing B to false will not change the actual value of C (Woodward 2003, p.83). Once this is done we then have the counterfactual ‘if A had not fired then C would not have died’ coming out as true and vice-versa for B if we change A to false. Again, this is acceptable because changing A to false will not change the actual truth-value of B. We can see that this procedure can deliver the verdict that both A and B should be counted as a cause of C, which is what most peoples intuition will be. What this example is intended to summarise is the possibility of overcoming the symmetrical overdetermination shortcoming of counterfactual analyses of causation that deter Kim from their acceptance. I don’t pretend that this very short description will convince anyone that the difficulty is resolved, but only that it is not as straightforward a matter as Kim makes out.
The previous examples concerning the assumption of causal closure and causation as generation are intended to highlight the resources available to an emergentist, and the weaker position of non-reductive physicalism, for rejecting functional reduction. Causal closure of the physical might not be true for at least two reasons: First, the existence of non-physical fundamental forces has not been ruled out conclusively by science. Second, certain analyses of causation may yet endorse the need to include higher level properties in causal explanations and their possible independent causal efficacy. Both of these consequences would entail the existence of downward causation and thus, deny the causal and explanatory self-sufficiency of the physical domain.

The interesting thing about Kim’s solution to the explanatory gap posed by the British Emergentists is that an emergentist would have to accept the assumptions of physical causal closure and causation as production/generation to be convinced by the explanation. But the content of physical causal closure and causation as generation is that any causal process involving a physical property is completely physical and completely explainable in physical terms. With these assumptions in place, defining higher level concepts like pain in terms of their causal role automatically makes the referent of the concept/term physical. When questioned further about causal closure, Kim’s argument ultimately relies on the inductive results of the sciences observed by Papineau, which are far from decisive. Therefore, it would seem that if one is to be convinced by Kim’s proposal that functional definitions are necessary and sufficient for functional reducibility (Kim 2005, p.165), one would already have to accept the conclusion of reductive physicalism, that everything, especially causal interaction, is nothing over and above the physical. Therefore, functional reduction can be charged with the same fault as Kim charges Nagel reduction with, it is question begging.

We have seen how two assumptions, causal closure and causation as generation, which are used to support the functional reduction of higher level properties to their physical realisers, conspire to ensure that anything with a definition in terms of a physical property and its causal role will also turn out to be physical. The principle of physical causal closure restricts all causal sequences with physical effects to the physical domain. This principle rests on empirical evidence that there are only a small number of fundamental physical forces and other forces have so far been reduced to these. However, some emergentists will reject this principle on the basis that some properties bring with them novel causal powers that are not reducible to underlying physical forces. Causation as generation is reductive in that it
Can Functional Reduction Close the Explanatory Gap?
By Wilson Cooper

assumes all causal processes are exchange of force/energy or what could be called physical connection. A more plausible rejection of the causal closure principle can be mounted by denying that causation is simply generation and alternative dependence accounts of causation, in particular counterfactual dependence, show that this assumption is in need of more support before it will be accepted by rivals. Overall, with these two assumptions doing so much work in the argument for functional reduction, no one but the converted reductive physicalist will be convinced that functional reduction closes the explanatory gap.
Bibliography


Abstract:

A distinction is often made between the subjective first person perspective and the objective third person perspective. This is sometimes done by simply separating private knowledge - what only I can know - from what is public and knowable for everyone. In the context of sensory perception the view of the world from a third person perspective must be surmised from behaviour and it thus remains a theoretical construct unless the ‘third’ can be queried directly and their testimony considered. This normally works well only for subjects who share a language, and a culture, and it is more fitting to style these two subjects as ‘you and I’ or, when close communion is established and the two subjects identify with each other, even better as ‘we’. Language is integral to the means we use to self-report, analyse and deal with our own experience thus the presence of language and communication blurs the boundaries between the public and private and this blurring is explored in this paper in relation to our knowledge of the sensory world and the senses we use to explore it. Not only is the distinction between public and private blurred, a disjunctive distinction between objective and subjective is threatened.
§1 – Some Distinctions

There is in epistemology and the philosophy of mind a set of distinctions which all tend to stick together. They include the subjective-objective distinction, the distinction between the inner and the outer, that between secondary and primary qualities of objects, that between the first and third person perspectives, and a number of others. I’d like to cast doubt on the epistemological usefulness of all of these, but there is too much here to deal with so I will concentrate on the difference between subjective and objective, its formulation in terms of a perspective, and how this relates to the senses we have or believe that we have. This will inevitably involve some comments on the primary-secondary distinction, and also some on the contrast between the inner and the outer.

Which of these distinctions seems most important or fundamental depends on the range of problems one is considering but there is little doubt that the subjective-objective distinction is one of the key ones. Closely related to it is the distinction between private and public knowledge which can be based on the difference between what I personally see and feel and what everyone can see and feel, or more generally, can experience and know. It seems commonsensical to say, for example, that the way I know my private thoughts and feelings differs from how anyone else can know them. The same does not apply to cats and teapots since my knowledge of these things is not, at least in principle, any different to the knowledge that anyone else can have. This contrast between me and anyone can be signified by talking about the first and third person perspectives.

The terms are rarely applied in precisely the same way but a common theme underlying them all is the difference between the world as it is and the world as I concretely know it. Science naturally takes centre stage as the best, most objective knowledge we have of the world but philosophically speaking these distinctions are stubbornly problematic. The volume of debate on just the primary-secondary distinction is enormous, but I will try to demolish the one I see as basic, that between subjective and objective, by drawing attention to some interesting aspects of sense experience. The senses are a key topic since, as we shall see from a few examples, how these are usually considered by philosophers ranges from ignoring them to rehearsing a couple of ancient strategies which do not get to the heart of the problem.
It’s probably best to begin by explaining the title, but before even that the main conclusion can be stated. It is fairly widely known that in their philosophical use the terms ‘subjective’ and ‘objective’ have changed in meaning dramatically in modern times, especially during the 18th and 19th centuries. ‘Subjective’ as belonging to a subject used to signify something real while something ‘objective’ was dependent on a perceiving subject. Nowadays, ‘objective’ is something real and independent of the subject while ‘subjective’ is something personal, perhaps idiosyncratic.

The conclusion, which is motivated by what will be said about the senses, is that this modern formulation of the subjective-objective distinction is untenable and that we must be content with a distinction more as it was understood in the middle ages, and as one still finds it in Descartes, for example. This formulation ties subject and object inextricably into a greater whole.

§2 – You, I, Wit

Now my title, what wits do wit have? merely puts a simple question about the senses in common words which have become obsolete in English. Invoking the third person when discussing something objective strikes me as plainly asking both too little and too much. The point of bringing any other subject into an evaluation of personal knowledge must be to compare knowledge and experience and thus to determine how much or what parts or aspects of my experience are exclusively mine and which go beyond that. For this comparison I need someone who can talk to me in my language, and as Davidson puts it in one of his essays this is a second person or an interlocutor (Davidson 2001b, pp.107-121).

This does not go far enough for at least the following reason. If it was easy to separate out what is exclusively mine in my experience then it might suffice to wave at any biped passing by and ask them, in words or gestures, which of the things they see are the same things as we see. But if the question is not something as trivial as the agreement on the redness of a teapot - and even this is a tricky one without language - if someone is trying to determine what if anything belongs truly and irrevocably to them alone then they should become as intimate as
they can with their interlocutor. Naming that kind of intimacy and identification with each other is not so much citing a collective of subjects, as expressed in I and you, it is a special kind of togetherness, or first person plural, a kind of we.

Although it may be a matter of considerable convenience to have on hand more than one other person for these comparisons (and analogously Davidson’s interlocutor might be a whole linguistic community) there is in principle no logical necessity for this and I am willing to limit the experiment to two subjects. As it happens there is a single word for these two, this ‘you and I’ taken together. It is the dual first person pronoun which once existed in many languages and is still used in some. In old English this pronoun is wit, meaning ‘we two.’

Talking to someone who shares a language and culture with us so that we can get as close as possible to fully sharing our feelings, thoughts and beliefs has a fundamental limitation. Someone who is thoroughly acculturated into the same form of life as we lead will have been brought up with a similar range of stimuli, encouragements and admonishments as we have. The best to be expected then is that we find not just the core truths but also the prevailing misconceptions, blind spots and prejudices that are characteristic of a culture. The dialogue cannot tell us what human experience can or must be, at best it can show what it is, and perhaps what it was.

Two objections could be lodged here. The first is that all this talk of intimacy and communion is unscientific because what we are really engaged in is a process of inferring the states of other minds from behaviour and which pronoun is used is quite beside the point. The second is that talking about objective knowledge has nothing to do with any living subject and the third person pronoun is merely a token or place holder for something which is independent of all subjects.

These both fail for the same reason. In each case the objection offers a theoretical construction to compare with our own experience, and it is not more scientific to invoke a precarious inference for comparison when a more direct route is available.
§3 – The Wits

Before going any further with this the other use of ‘wit’ in the title needs explanation. This wit may be more familiar. It is an old Anglo-Saxon word, just as the dual pronoun is, and it means something like a faculty of the mind. Now the basic questions about the wits may include, for example, how many wits we have and my title simply asks which wits these are.

The Western tradition derives chiefly from Aristotle and his teaching on the psyche distinguished lower faculties of nutrition and reproduction, a middle set and then higher faculties which include reason. The middle set is the wits. These wits are touch, taste, smell, hearing, sight, common sense, estimation, memory and imagination. I’ve given nine but the tradition generally counts ten. Five outer wits which we now call senses and five inner wits. Here is one figurative inner-outer distinction.

The inner wits have been buried by history but the outer wits, or senses, are still going strong. Any book on the senses intended to educate children will dutifully list these five. Of course no self-respecting scientist would insist on five. Numerous specialised sensory receptors have now been identified and textbooks on the physiology of perception typically treat between eight and ten groups of receptors which provide different kinds of information and could loosely be called senses. Five are only listed when one wishes to avoid upsetting old prejudices.

Until quite recently while there was some speculation about other senses there was hardly any serious disagreement on the count of five we know about. What was always at issue is something apparently quite different. The main problem was how these senses should be ranked and how they operate.

I said earlier that when philosophers mention the senses they are generally trying to stay away from upsetting the prejudices passed on by tradition and they do not seem very keen to get involved in debates about how many senses there are, what they are, and how they should be classified. A widespread indifference to these kinds of issues can be surmised. The typical mention in the philosophy of mind or epistemology runs something like this: [...] touching, hearing, seeing, etc. A complete list is nowhere to be found. Sometimes there are hints to
show that the author knows more than the children’s books tell us. Whitehead, in his *Symbolism*, says: “for example, colours, sounds, tastes, touches, and bodily feelings.” (Whitehead 1959, p.25) The list is so close to exhaustive that one wonders why only smells are left out and bodily feelings left unspecified. There are good reasons for all this which I have no space to go into but two other strategies apart from omission by example should be mentioned.

The first is a complete refusal to get into this topic; this is generally done by talking about vision only. The prime example here is Frank Jackson who puts this (in parentheses as if it was a casual aside) on page 1, paragraph 1 of his *Perception*: “The restriction to visual perception - seeing - is to be understood throughout.” (Jackson 1977) Evidently the book has the wrong title, it should be called *Seeing*, but it’s not all Jackson’s fault. There are plenty of psychology texts called ‘Perception’ which are really about vision, with Irvin Rock’s *Perception* a fine example (Rock 1995).

This is the first strategy. To varying degrees this applies to many who talk about perception. It is the most popular strategy and it invariably singles out vision as the exemplar sense.

The second strategy has to do with prioritising the senses and here the stage was set for the West by Aristotle and the followers of Democritus. The question is ‘How do the senses operate?’ and the inclination is to reduce all of them to one of their number. So this is not at all the same as talking only about seeing.

The attempts at reduction must choose a paradigm and the most popular choices for paradigm senses are vision and touch. There is no need to go into detail on traditional rankings and the mechanisms proposed but it is clear that we will never explain sense perception by saying that it is all just like seeing or touching. Nevertheless, in the absence of better options this strategy has been popular since ancient times. Most recently it is to be found in Alva Noë’s book *Action in Perception* (Noë 2004).

Comparing the senses to sight or touch or reducing them to one of these does not always lead to the same results but an important issue, and the chief source of confusion, is the fact that both seeing and touching are complex and better thought of not as individual simple faculties providing different kinds of information but as combinations of abilities, combinations which
J. J. Gibson has called sense modalities (Gibson 1979). Indeed when one says ‘I see red’ and then ‘I see a teapot’ the verb ‘to see’ has two significantly different meanings in the two utterances and one may well see one without the other. Whether one or the other or both can be seen depends on one’s suite of sensory organs, how well they are working and how they are being used. To really get to the heart of the matter we need to know how to enumerate and characterise the individual abilities that combine in a modality. If we don’t have this we are like chemists trying to analyse a compound without knowledge of the elements.

§4 – The Object Vanishes

The elementary gaps in our understanding of the senses have various consequences. One with some historical importance and present relevance can be illustrated by a glance at the primary-secondary distinction. This distinction has ancient roots but its modern version is based on an attempt to separate out what is subjective from what is objective in sense experience; subjective meaning ‘dependent on a subject’ and ‘objective’ independent of a subject.

In dividing primary from secondary qualities the distinction is based on the senses, i.e. on sensations and sensory perceptions, but not on individual senses since each sense (except smell and taste) is credited with providing information on at least some primary quality. The well-rehearsed examples are colour and warmth on the secondary side and shape and solidity on the primary side.

Now the basic motivation for this distinction is quite transparent. If one wishes to separate out what it is about objects that is independent of the subject one requirement for doing this is to be able to talk about bodies in subject-neutral terms, as if we could know them in a way that does not depend on subjective sensory experience, on the first person perspective.

But simply making a distinction is pointless until it is explained - without simply insisting on it - why certain sensory qualities are perceived as they are while the others are modified or affected or even generated by the subject. Three centuries of progress in science and
philosophy has not got us much further in making the formulation of this any clearer.

On the philosophical side Colin McGinn in his book *The Subjective View* (McGinn 1983) assumes the distinction at the outset and then insists on it rather than justifying or motivating it with any fresh insight. The same is true of Frank Jackson in his *Perception* where a fairly standard Lockean representationalism is defended.

On the scientific side there is little debate about where the line, if any, should be drawn. There is rather a tendency to steal primary qualities from objects and either throw them away or hide them in the perceiver’s brain.

This general slide to abstraction is the hallmark of positivism, which can be understood as an effort to reduce science to the search for an abstract order underlying our sensations so that these sensations can be controlled or reproduced at will. Not all scientific theory is abstract and not all scientists are positivists. Nevertheless the problem remains to specify what, if anything, can be said about objects that is not simply a selection or abstraction from subjective experience of them.

Keeping this in mind, it should be clear that we may well agree to call some property of an object such as a teapot ‘objective’ but consistency demands that we don’t lose sight of the fact that any knowledge of it remains also subjective. Basing objectivity on such agreements does not yield strict objectivity according to some definitions - since something that depends on agreement between subjects cannot strictly be independent of all subjects - so it may be more proper to use some term such as ‘intersubjective’. That does not consign the term ‘objective’ to the dustbin. In Davidson’s words: “The ultimate source (not ground) of objectivity is, in my opinion, intersubjectivity.” (Davidson 2001a, p.83)

§5 – *The Subject Vanishes*

It’s time to come back to our senses. The last couple of centuries have seen a luxuriant growth in the knowledge of sense physiology and psychology. Any number of fascinating topics
What Wits do Wit Have? Intersubjectivity and Sensory Knowledge
by David Vender

could be used to illustrate that sensing is not a matter of waiting around for sense impressions to arrive at the seat of consciousness. But apart from overturning some of the simple suppositions inherited from the tradition, there is no consensus on what senses we human beings have.

The obstacles to progress are formidable since there are no agreed criteria for devising a taxonomy, but this need not detain us as it is now generally accepted that no matter how one wishes to approach the problem the old idea of outwardly directed faculties has been left behind. We sense pains and bodily irritations no less than we sense colours and tastes and sounds. The whole body is enervated and the positions and movements of limbs are sense data, just like but not in the same way as positions and movements of cats and teapots. In fact our ability to see the movement of a cat in the space of a room is founded on our ability to orient our body and feel its voluntary and passive movements. If these statements raise anyone’s hackles I can only point to the now vast amount of material on sensorimotor skills.

Some implications of this need to be brought out. Once it is realised that we sense the state of our body just as we sense the smell of roses or the movement of the cat, that is by using combinations of specialised organs, nerves and brain, and in fact that what we know about the movement of the cat actually requires us to sense our body, to learn about movement and spatial relations from our own movements and bodily form in space, then the separation of the perceiver from the world becomes negotiable.

If one draws the boundary between the subject and the outer world at the skin then the subject must sense the inner to see anything at all as outer. That in itself does not threaten epistemic competence regarding the worldly reality of the cat of course, because the subject’s body is no less a part of the world than the cat is. What it does threaten is the simple identification of the subject with the body since we now have the subject over against the physical body which becomes the object of sensory knowledge. The subject is aware of their own body using the relevant senses in a way that is precisely analogous with the way that the subject is aware of the colours of the sunset or the pacing of the cat.

At this point what is needed is a clear distinction between the experiences of the subject as they proceed through the contingencies and accidents which befall the individual and follow from the individual’s decisions and intentions, that is all those occasions of experience which
make up the sum total of the individual’s experience of life on the one hand, and the content of those experiences, be they memories of childhood, interactions with cats, pains from scratches and so on, on the other. In some sense the individual can be identified with the individual history of enjoyment and suffering, intention and action, but the division between this individuality and anything else cuts across the distinction between subjective and objective, as it cuts across the other distinctions, including primary-secondary, public-private, inner-outer, etc.

What is at issue for me in the subjective-objective distinction as well as the distinctions related to it is not what is being experienced here and now by some particular individual but what in that individual’s experience is in principle unavailable to someone else or, conversely, how the subject’s perceptual experience is unique not as a consequence of bodily organisation and previous stimulation - both of these being in principle and in all essentials available to other subjects - but as a result of some irreducible factor in the individual.

The promise of close communion such as is being suggested by the use of ‘wit’ threatens to empty what is usually taken to be subjective and turn it all, at least in principle, into something intersubjectively knowable. The strictly subjective - that which must depend on one and only one individual - vanishes.

This is the obverse of what happened earlier to the strictly objective. Both extremes have been emptied of content. All sensory experience is social in the strict sense that in principle none of it is independent of all individuals and none of it is restricted to one individual.

Once again there is no reason to throw the term ‘subjective’ away. Not only is it a fine synonym for personal, it is still a correlate to objective. As before, its ultimate source is in the intersubjective. And not just in the reverse-engineering sense that everything that is now subjective is potentially also intersubjective but mostly in the genetic sense that almost all that is now personal was acquired from the intersubjective as the individual developed in learning and experience. For the possessors of language the individual’s experience is informed largely by the way that shared testimony coupled with imitation directs the individual’s attention and instructs the individual so that they can participate in the common form of life.

Consistency again demands that what is called subjective is recognised also as at the same
time objective. This may seem even more offensive to common sense than the previous reverse suggestion but I think that any such offence arises from physicalistic prejudices. The emotions, pains and desires which function as archetypes of subjectivity are no less real than cats and teapots, and they certainly transcend individual experience in their significance and effect.

Indeed our perception of so-called secondary qualities is just as orderly as our perception of primary qualities and knowledge of primary qualities such as shape, position and motion as perceived by vision, touch and the bodily senses is as prone to error, illusion and hallucination as any other sensory knowledge.

§6 – The Essential Unity

What remains to be done is to acknowledge explicitly that the subject and object are indissolubly tied together if these words are to be useful in an epistemological context. There is no need, I think, to be upset by the fact that the subjective-objective distinction is not disjunctive. It is instructive to look instead at the old meanings to see how subject and object can fit together and what may have been forgotten in the more modern talk of a universe of physical objects.

Compared to inner and outer which are clearly spatial figures, subject and object may sound simply technical. But like many technical terms they are dead metaphors. Both are spatial figures from Latin. The ‘-ject’ bit means ‘to place’ and it is used in many terms such as project, inject, reject. Now the ‘sub’ in subject is ‘under’, so that to subject means to place under, and the subject is that which is placed under an authority or order within a cosmos.

The object is then twice removed from primary being because it needs a subject in order to be. The ‘ob’ means ‘against’ and this quite literally makes the object something which is put against an existing subject in a primary opposition. Also, an objection is what is put up against a positive thesis or proposition which is the subject under consideration. By saying positive thesis I am trying to keep explicit that any proposition assumes a language and a
context, so it exists properly and necessarily under a structured whole.

To take the word games a little further, we may notice another relevant spatial figure in substance. In this case ‘stance’ refers to standing or keeping equilibrium and orientation, maintaining some level of autonomy under a dynamic. The plain English term expressing the same basic figure is understanding. One might say that a knowing subject understands its proper place in the world order and the place of anything else.

What is neat about all these figures is that they point directly to agency, to autonomy and to the activity of keeping still. Without this incessant activity, for which certain senses are of course needed, the possibility of perception, which can be thought of as finding constants in a world of flux, is gone.

The spatial figures indicate a fundamental structure. This structure is not dual, consisting of a perceiving subject and a perceived object, but triadic, since an ordered differentiation is necessary not only for the subject and object to interact but for any object to be particular, to be known as such. Emptying the particular, individual subject and object of inherent structure or essence does not of itself imply that they are superfluous since the possibility of perceptive knowledge only arises between the perceiver and the perceived, in the relation arising from the presence of each in the context of a differentiated world.

§7 – Conclusion

The dividing line between me and the world is arbitrary in the sense that I must decide what I stand for, identify with, what it is that I take ownership of and responsibility for in the context of the purposes and processes that we discover and invent. The way to do this is to make the necessary choices in ways that enhance and develop personal well-being and experience. Of course we do not do this individually, we generally acquiesce to social norms and traditions, traditions which generally do not simply define us as the contents of our skins but tell us who we are and what is worth striving for.
What has been said about the senses implies that we are still largely in the dark when it comes to understanding their actual use and potential. While the traditions which evaluate behaviour and responsibility emphasise interdependence and involvement, evaluations of sense experience often separate the world ‘out there’ from individual experience of it ‘in here’, they celebrate a disinterested passivity, and even warn against sensuousness. But the separation is not a given, it is a matter of certain choices which all newcomers are invited or asked to share.

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Bibliography


Gibson, James (1979) *The Senses Considered as Perceptual Systems*, Houghton-Mifflin, Boston


Friedman was right about the Corporation, but can the free market solve Global Warming?
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Abstract:
If the human race is going to significantly reduce the Green House Gases (GHG’s) that are producing Global Warming we need to consider the role of the Corporation in GHG emissions. Milton Friedman has framed the parameters of the Corporation Social Responsibility (CSR) debate in his article that argued that the social responsibility of business was to increase profits. The paper uses the typology developed by Vanberg V.J. that consists of three types of CSR responses framed within Friedman's argument; a soft version, a hard version and a radical version. The soft version includes a discussion on stakeholders. The hard version includes a discussion on civil society. The Radical version includes a discussion on the current Global Monetary System established at Bretton Woods, including a discussion of the alternate version proposed by John Maynard Keynes at Bretton Woods and how the alternate would have created stronger Civil Society thus helping the harder version of CSR. Although Vanberg argued that the hard and radical versions of CSR are not appropriate, the paper argues that they are not only appropriate but are in fact essential if we are to reduce GHG emissions.
Friedman was Right About the Corporation, but can the Free Market Solve Global Warming?  
by Roger Le Lievre

§1 – Introduction

The world is warming. Scientists do not know with certainty what the effects of Global Warming will be, but they do know the cause. A number of gases from human activities, including carbon dioxide, methane, nitrous oxide and sulphur hexafluoride are trapping the sun’s energy in the biosphere. The phenomenon is called the Green House Gas effect. With increased industrialisation in China and India the emission of GHG’s will significantly increase in the coming years. The recognition that GHG must be reduced to mitigate the impacts of global warming is becoming increasingly recognised by the general community.

Global warming is a symptom of a larger problem. Mankind is using natural resources at unsustainable rates. The human organisations of nation states, Corporations and economic systems are geared towards a lineal process that assumes resources are unlimited. The motivation of self interest has given many people in the developed world a comfortable life and it is only fair that all people in all nations should aspire to the same standards as the developed world has achieved, however this would significantly adversely impact the environment. Scientific solutions are available but implementing them is difficult, particularly when most people would prefer to save money than save the environment. Either these systems have been incorrectly used, or new organisations need to be developed. The environment is being degraded and will continue to be unless there are some abrupt, fundamental changes in our economies, societies and politics.

Many of us feel that our individual carbon footprint which may include our electricity and gas consumption for our house, gas for our cars, and raw materials used in the products we consume, does not have much affect on the environment, though collectively it does have a large impact. The big polluters are the Corporations, particularly in mining, manufacturing, energy and government. We are all, however, the beneficiaries of the products that Corporations make and the services provided. Most people acknowledge that the patterns of consumption of all people must change if we are to lessen or reduce our impact on the environment, but we must do it collectively.
The Corporations on their own are not going to help, because a Corporation has a different purpose. Government policy is an important aspect of this struggle, but does not provide a solution in isolation, it requires political will for policies to be implemented. The Corporation in coordination with Government is a powerful relationship, however much of our current economy is geared towards strengthening both elements of this relationship. Externally generated change to the Corporation and the relationship between the Corporation and government is required. The concept of internally generated change within the Corporation under the rubric of Corporate Social Responsibility (CSR) is not going to drive the change that is necessary.

Responses to Milton Friedman

Milton Friedman argued in a famous article in the New York Time Magazine in 1970 that the social responsibility of business is to increase profit. Friedman correctly analysed the nature of the Corporation and correctly concluded that its purpose was to maximise profits. However his solution: market forces, is clearly an inadequate mechanism to decrease GHG emissions. Left on their own, market forces would emit enough GHG to make the world uninhabitable. Milton Friedman's argument has framed the parameters of the CSR debate ever since 1970. Vanberg (2007) outlined three typical CSR responses, which can be framed within Friedman argument. Vanberg labels these typical responses as: a soft version, a hard version and a radical version. According to Vanberg:

The soft version is concerned with the issue of how “socially responsible” Corporations ought to play the market game within existing rules. The hard version is about how the rules of the market ought to be changed in order to induce “socially responsible” Corporate behaviour. And the radical version questions the compatibility of CSR and the logic of the market game, calling in effect for adopting some alternative economic regime (Vanberg, 2007)

Although this paper uses the typology established by Vanberg, the paper argues that the hard response to CSR is part of the dynamic of a liberal society and that a hard version will be harder, the more liberal the society is. Global Civil Society, rather than being misguided should be celebrated and given increased space to strengthen and form a legitimate dynamic with the Corporation and the nation state. The paper also argues that only by creating radical change to the rules of the game, can we create the appropriate environment in which global
Civil Society can be strengthened to such an extent that it can combat Corporate and National interest and therefore bring about significant reductions in GHG emissions.

**Free Market Economists**

Within the liberal discourse sit a group of economists associated with the free market theory. Those who espouse this theory believe that the market mechanisms can correct most economic problems and government legislation can correct what the market is unable to. This view is held by Vanberg who argues that both the hard and radical versions of CSR are not necessary. This paper argues that the understanding of the market needs to be enlarged to include actions which are non-economic, including the actions of Civil society, if we are to understand how markets can be truly efficient. The hard and the radical versions of CSR are necessary and need to be analysed in order to understand how markets can become truly efficient.

Friedman argued that the suggestion that it is socially responsible for Corporate executives to be socially responsible shows ‘a fundamental misconception of the character and nature of a free economy (Friedman, 1962). Friedman argued that the importance of the market and its ability to allocate resources with optimal efficiency relied on the ability of businessmen to respond to market signals. Paying higher wages than necessary leads to unemployment and selling product for lower than the market price leads to shortages due to the markets not clearing at equilibrium. These 'socially responsible' distortions therefore do not assist anyone, they merely advantage some and disadvantage others.

In theory the free market argument is quite strong, however the argument assumes that the market is competitive and that there is an absence of market failure or that the government can regulate against market failure. The free market theory aims at the achievement of a market, where neither producers nor consumers can set prices on their own and where all economic decisions are reflected in prices. Those who criticise the free market are able to point to a number of issues; there are monopolies and duopolies that can control both supply and demand and there are externalities (i.e. pollution) that are not reflected in the price of goods. A large GHG emissions company, lowers production costs to themselves and pass on the costs to third parties. There is an efficiency issue at stake as Corporations will make
decisions that involve a misallocation of resources. As external costs (lower quality of air) are not borne by the firm, the firm will fail to reflect these costs in the prices it charges for its products. Output in consequence will be higher than it would have been if price matched the social cost of production (the sum of internal and external costs) with the result that the resources devoted to the activity in question are in excess of the socially efficient level. If producers could be made to pay their ‘victims’ the full cost of the damage created by their operations the inefficiency would disappear, goods would no longer be produced beyond the point at which they made a positive contribution to aggregate welfare. Companies would have an incentive to install pollution control devices to the extent that this would be cheaper than making compensation, payments, increasing overall efficiency (Parkinson, 1993).

**Corporate Lobbying**

In addition, large Corporations often have access to legislators and can stop laws being passed that would change the demand and supply characteristics of their products and services and therefore maximize profits. Political lobbying by large oil companies to slow the ratification of Kyoto in the U.S. is an example of this.

A legislator’s goal is to be elected so that he can legislate. To be elected the party needs campaign funds. The party will take a donation and in exchange listen and be responsive to the donor’s point of view. The donor will be more likely to fund the party of a legislator who is more responsive to their point of view. If a donation is coming from a large GHG polluter, such as an oil company, the Corporate donor may be able to point out to the legislator the benefits of motor vehicle transportation over public transportation, the dangers of nuclear energy, the lack of development of solar power, the need for opening oil refineries in frozen wilderness to increase the quantity of oil produced. These arguments have the purpose of increasing the market, decreasing competitive energy and oil substitutes or increasing the amount of oil to maximise profits.

The current system of political campaigning and electioneering means that those in political power need money and this system of electioneering corrupts the democratic process and the free market. The Constitutional Economists argument that legislation is a useful tool to use when the free market fails needs to take into consideration the actions of Civil Society in
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combating the affect of Corporate lobbying. Corporations in many democracies are able to manipulate legislators and slow the speed of legislation that would affect their businesses, however ultimately Civil Society can get necessary legislation through. Free market economists need to incorporate the actions of Civil Society into their market analysis. Active Civil society does have the power to combat monopolies, duopolies, externalities and Corporate lobbying. For Constitutional economists, legislation can solve situations that the free market cannot, however it is only through an active Civil Society that such legislation will ever see the light of day.

The Purpose of a Corporation

As stated by Berle and Means (1932), directors are bound to act on behalf of the shareholders. The problem of social responsibility is that Directors may lose sight of their obligations to shareholders. If social responsibility aligns with shareholder interests, there is no problem. It is only when social responsibility conflicts with shareholder interest that the problems begin. When a Corporation looses its primary purpose and squanders resources on goals un-aligned with its primary purpose that the Corporation becomes inefficient, unprofitable and loses market share and ultimately investor's money. The market can be efficient only when each aspect of the market concentrates on the purpose that it has and thus contributes to the greater good.

Internally generated CSR is not the solution to market imperfection. Friedman was right, Corporations need to remain focused and try to maximise profits, otherwise they will fail and investors will lose money.

If we analyse Friedman's statement 'there is one and only one social responsibility of business--to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game’. There are two key parts. We accept the first part, that Corporations have a responsibility to maximise profits. The second part of the statement is about rules, who makes the rules and why are the rules made? If we look at the analogy of a car, a car has two key aspects 1) an engine that propels the car forward and 2) a steering wheel which allows a driver to turn the car in a particular direction. In this analogy, profit
maximisation is the engine that propels the economy forward and the rules of the game are the steering mechanisms that determine in which direction the car will go.

§2 The Soft Version of CSR

The soft version of CSR is concerned with the issue of how the participants should play the market game within the given rules. Vanberg states that:

what distinguishes advocates of the soft version from other CSR-advocates is that they do (not) see a fundamental conflict between profit-seeking and social responsibility... They argue, instead that by taking the interests of non-owning stakeholders properly into account, managers promote the long term success of the Corporation, and thus act in the interest of shareholders. The slogan that captures the spirit of their view is “CSR is good for business!” (Vanberg, 2007).

What makes it profitable for Corporations to be socially responsible is the intangible benefits provided by the various non-owning stakeholders, such as the consumers who may be more willing to purchase products or services from a socially responsible Corporation. To understand the soft version of CSR it is necessary to discuss stakeholder theory and the ramifications of stakeholder theory for the Corporation.

Stakeholders

Stakeholder theory is intuitive and is the most widely spread theory and terminology in the management worldwide. The theory was first discussed by Freeman (1984) who thought that stakeholder management focussed on those interests and actors who affect, or in turn are affected by the Corporation. Over the years, the more stakeholder theory has expanded and been written about, the more difficult it has become to identify a core theory. Freeman (1984) suggests that stakeholder theory is nothing but a genre of stories that can help people to structure their experience, while Cludts (2000) states that there is no longer a 'standard' normative theory but rather a variety of normative theories.
The intangibles of a Corporation are things such as good will, brand name etc. that are not physically identifiable. Often intangibles of Corporations are worth much more than the plant, equipments and other tangibles of the company. The intangible value of a Corporation is an educated guess at the long term discounted cash flow that can be obtained from these ideas. The value may have been gained through generations of association with the company name and product or through the initial impact a word such as 'Jeep' has on an individual. Such benefits are usually obtained through value or goodness that that person has had in the past. Advertising at sporting events, on television, jingles, scholarships to education, sponsorship all add to the intangible value of a Corporation's mast head and product.

An Australian Parliamentary Joint Committee stated in its 2006 reported that

'Intangible benefits such as employee commitment, consumer trust and Corporate brand and reputation are convincing many companies of the benefits of better managing their social and environmental risks with a view to protecting and enhancing these assets and improving their long-term financial viability, particularly as Corporate value becomes increasingly dependent on intangible assets'. Further they stated that 'The pressure companies experience from the various drivers is increasing and is likely to continue to increase into the foreseeable future. It will be the companies that respond most effectively to those drivers which will have a competitive edge in the future'.(2006. Parliamentary Joint Committee on Corporations and Financial Services, 2006)

By increasing intangible benefits to stakeholders, Corporations can increase the value of their company. The Parliamentary Committee also included a submission from BHP Billiton that stated ‘Rather than proving a burden to our businesses, CSR has been viewed throughout BHP Billiton as critical to our long term success. The BHP Billiton Charter states that we will only be successful when our host communities value our citizenship’(ibid).

Research published in the Journal of Business Ethics in 2006 (Konrad A, Steurer R, Langer ME, 2006) concluded that 'Stakeholders play an increasingly important role in sustainable development and influence Corporations as they supply them with critical resources and if companies fail to identify and understand the interests of their stakeholders, they may suffer a financial consequence'.
§3 – The Hard version of CSR

The hard version of CSR is about how the rules of the market ought to be changed in order to induce “socially responsible” Corporate behaviour. The hard version is not interested in profits, it is interested in the common good. The hard version is not concerned with whether or not Corporations make profits, only in stopping behaviour which is against the benefit of society as a whole. The hard version often calls on players in the market game to behave in ways that systematically harm their profit-interests. The source of the hard version of CSR is almost always Civil Society.

There are two responses to the hard version, a rational response and a communal response. In the rational response Corporate Executives continue to play the game with the new rules imposed by Civil Society and continue to maximise profits. The communal response is the situation in which Corporate Executives do not try to maximise profits and make socially responsible decisions that are not in line with Corporate objectives. The communal response is often the one hoped for by Civil Society and feared by free market economists, however in practice the communal response virtually does not exist.

Civil Society

Civil Society groups are able to create factual constraints for Corporations that make it advisable for them to act in the ways that are less detrimental to the greater good. For instance in the case of Brent Spa and Ken Saro Wira, Greenpeace was able to force Shell into not dumping Brent Spar into the ocean and to consider the affects of polluting the third world, including reporting on their activities in the Third world.

If we understand economics to include the study of all actions both economic and non-economic, including the actions of Civil Society, then the demands of Civil Society can be
viewed as the demands of the market and therefore demands which need to be met in order to maximise profits. The rational response of Corporate executives to the new rules of Civil Society, is to continue to play the game with the new rules and to continue to maximise profits.

Friedman has argued that business must operate within the rules of the game, meaning open and free competition without fraud or deception. This paper argues however that the rules of the game are much more complex than simply open and free competition without fraud or deception. The rules of the game are the rules of society, business is part of society and society can dramatically change how a business can operate, simply by becoming involved in business.

Civil society does not have a product to sell and does not have the goal of maximising profits. People who form the component parts of Civil Society are acting in their own time to further the altruistic goals of the betterment of mankind and the advancement of civilization. Perhaps during the day an individual works for ExxonMobil and during the night he works for a civil society group such as CERES. During the day he works to pay his mortgage and family expenses and this allows him the free time to work for Civil Society. Both social organisations are necessary. The individual acts differently in each context because of the purpose. During the day the purpose is to earn money, during the night it is to satisfy a deep seated urge to work purely for the betterment of his fellow human beings. There is no contradiction between the two organisations, they simply have different purposes.

However if the purpose is mixed, he will not achieve the goals of either. If during the day the individual makes a socially responsible decision that decreases pollution, yet significantly reduces corporate profits, he may soon lose his day job and may no longer be able to work for Civil Society. If however during the day he makes decisions to decrease pollution because he has a Corporate governance structure in place and investors have been told of this Corporate governance structure and the structure was put in place by CERES, the outcome is different. He achieves the Corporation’s goals, the investors’ goals, society’s goals and he keeps his job and can continue to work for Civil Society.
If, as it will be demonstrated, Civil Society can dramatically impact the rules of the game, then we can abandon the notion that a Corporation has a social responsibility. What is important is not whether reducing GHG emissions is right, but rather how can the rules of the game be changed so that market prices reflect externalities and the global economy produces significantly less GHG emissions. The legitimate focus then becomes, how is it possible to make changes so that Civil Society will have a greater impact, become involved in Corporate entities, changing the rules of the game and act as a counter balance to the Corporate entity, as only by changing the rules of the game can there be legitimate and significant reductions in GHG emissions.

The role of Civil Society can be a rule making role, constantly re-negotiating and changing rules that provide a moral framework within which the Corporation can play the game of ‘let’s maximise profits’. The more influence Civil Society is given, the quicker the rules of the game change, making the system become more responsive.

**Carbon trading and Kyoto**

Another way of changing the rules of the game which is encouraged by Vanberg, is through the legislative process. An example of the legislative process is the implementation of the Kyoto agreement and Carbon Trading.

The Kyoto Protocol which establishes legally binding commitments for the reduction of GHGs was initially adopted for use on 11 December 1997 in Kyoto, Japan. In response to the Kyoto protocol, major MNC in the United States created the Global Climate Coalition (GCC) to battle any reduction commitments through political lobbying. According to CorpWatch, a non-profit organisation promoting Corporate environmental accountability, the GCC used various strategies:

1) Unemployment
2) Questioning scientific legitimacy
3) Attending meetings
4) Letter to President Clinton
5) Insisting developing countries commit to same reductions.
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As a result of Corporate Lobbying on July 25, 1997, the US Senate unanimously passed by a 95-0 vote the Byrd – Hagel Resolution (S.Res 98), which stated the sense of the Senate was that the U.S. should not be a signatory to any protocol that did not include binding targets and timetables for developing as well as industrialised nations or “would result in serious harm to the economy of the United States” Other economic analysis, however prepared by the Congressional Budget Office and the Department of Energy and Information Administration (EIA), demonstrated a potential large loss of GDP from implementing the protocol of up to 4.2% (EIA).

One of the major supporters of the Global Climate Coalition (GCC) was ExxonMobil and as a result of this support have become a target of a number of Civil Society groups include CERES and the single issue campaign – 'stop Esso'. CERES usually plays the good cop in working with Corporations to improve their reaction to the environment. Organisations such as 'stop Esso' have played the bad cop, working outside of Corporation, and have been responsible for organising events such as the stop Esso day in which 3000 people targeted 300 Esso stations. Eventually through the action of these Civil Society groups, Esso stopped funding the GCC. Ultimately, it has been groups like CERES who has been most successful in turning the Corporate tide towards making a pro-active response to the environment. Even within Esso there are signs of change, for example at the 2005 Corporate annual meeting at ExxonMobil, 28.3% of the shareholders supported “a resolution requesting that the company’s board……meet the Kyoto greenhouse gas reductions.”

Kyoto envisages a system of carbon trading allowing economies to meet their greenhouse gas (GHG) emission limitations by allowing developed nations to purchase GHG emission reductions credits from lower GHG producing nations with excess allowances. The concept of carbon trading is based on free market ideas. The concept is to ascribe a negative value to each ton of GHG gas emitted and positive value of each ton of GHG gas reduced through carbon sinks. In this way Corporations can incorporate the cost of pollution into production costs and pay those who are able to reduce carbon, therefore both increasing the quantity of carbon absorbed in carbon sinks and decreasing GHG producing activity. The synthetic development of value for a ton of GHG gas, mimics that value ascribed to other goods in the market place and therefore is in accordance with Friedman's view of the firm, by maximising profits, they will produce socially responsible results.
Although ExxonMobil initially fought the introduction of Carbon trading, CERES has been able to change the attitude of such Corporations towards Carbon Trading. Constitutional Economics can be a useful aspect of the free market in minimising externalities, as with the case of the Kyoto protocol, however such changes in laws are fought by Corporations and only the actions of Civil Society can change Corporations and eventually can change legislation.

§4 – The Radical Version of CSR

As previously stated the radical version of CSR questions the compatibility of CSR and the logic of the market game, calling in effect for the adoption of some alternative economic regime (Vanberg, 2007). One minor amendment needs to be made to this definition to cover all radical versions currently being proposed. This paper proposes that the radical version questions the economic system as a whole with some versions questioning the logic of the market game altogether and others wishing to change the economic system to improve the market game. This paper argues that the second version is the one that would be most productive in significantly reducing GHG emissions.

Global poverty, global warming and the global credit crisis are all the effects of the economic system. This system is supported by a single country's currency (the $US) which has been allowed to expand without the disciplining control of a Gold backing and of economic institutions (The World Bank and the International Monetary Fund (IMF)) created and designed to discipline debtor nations. This basic system was designed at Bretton Woods, however fundamental changes such as the reneging of gold backing of $US by Richard Nixon in 1971 have crept in along the way. These global problems are the outcome of the pressure applied by these economic institutions and an inability of Civil Society to confront Corporate and nationalistic self interest within this framework. These problems are related to the Global Monetary System and the types of behaviour that such a system reinforces. To tackle the problem of Global Warming, it is necessary to broaden our study and look at the economic
system as a whole, and how Civil Society's effectiveness has been reduced as a consequence of the economic system.

The alternative plan, put forward by John Maynard Keynes in 1944 at Bretton Woods, would have created a system that would have been truly global, that would have controlled the expansion of credit, stopped mercantilist behaviour of the developed world, given national economies the political space to develop strong Civil Society that was able to counteract GHG emissions, and ultimately developed a global consciousness directing teleologically, not communally, the idea that each person on the planet is part of the whole.

At Bretton Woods two completely different visions of the world collided. One that saw the world as a complete system in which each part was seen as simultaneously ends and means, with institutions that were capable of governing the entire body vs. an empire on the ascent, that wanted to cement itself at the centre of the world economy, with its currency and its institutions governing and controlling the entire body. The Keynesian plan ensured both deficits and surpluses would be held centrally by an International Clearing Union and would attract an interest payable to the International Clearing Union to discourage equally the build up of large deficits or large surpluses(Monbiot, 2003), mitigating profligate spending and nationalistic mercantilist behaviour and a need for an IMF or World Bank. The international clearing union would deal in an international currency (which Keynes called the Bancor) that would be based on a basket of commodities, thus ensuring that the currency was not debased. The only way a country could benefit from a surplus, was to purchase goods and services from another country, ensuring trade was consensual, without fraud or deception. A country with a surplus would be more likely to trade than a country with deficit thus motivating surplus countries to buy and motivating deficit countries to sell.

Such a system would provide political space for each country to develop without being impoverished by global trade. Surplus countries would be motivated to buy from under developed deficit countries. Begar-thy- neighbour policies now pursued by the First world against the Third world would be non-existent.
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The game of trade between nations should have the same rules as the game of trade between individuals that is:

1) Each country must be considered as an end to that country and not as a means to another country’s end
2) Without coercion and fraud or deception
3) Monopoly power must be limited

At the centre of the system must be the heart: an International Clearing Union, that ensures that excessive surpluses and deficits do not build up. A credit crunch is really a heart attack, where credit no longer flows and limbs and members begin to die. The current methods of resolving the problem i.e. printing money and lowering interest rates will only destroy national currencies. There is no solution to the current global financial crisis, other than changing the current $U.S., IMF, World Bank Global Monetary System.

How does the financial system impact Corporate GHG's? A system affects each of the constituent parts of the system. Countries that are equal to other countries and considered as ends in themselves, not means to another countries ends, who trade voluntarily without coercion, where monopoly power is limited, where debt is not crippling or asset prices spiralling, are no longer struggling for survival.

Countries that can be said to be at peace with itself and at peace with other countries, are then able to aim for goods not measured by GDP, such as social cohesion and the development of social structures. Extremes of wealth & poverty within a country mitigate efforts for social cohesion as the normal empathy that is generated between fellow men becomes stressed and fractured. The rich man knows he cannot help the multitude of the poor and therefore only develops fellow feelings for people in the same class. This also allows him and his family to stay wealthy, as they attain similar values as those he associates with. The poor develop feelings of animosity towards the rich, which do not appear to be concerned with the plight of the poor and do not appear to have undertaken any work that has merited their social position. People in countries under stress also develop strong affinities with primordial ties of race,
religion and nationality, which help the individual under stress by maintaining a sense of identity and place in society against the alienating effects of poverty and joblessness.

In a financial system in which no country dominates and all are seen as equal and ends in themselves, a consciousness of the whole and a positive feeling of attraction towards the whole are able to be developed. Teleology becomes meaningful as each part, each individual, each Corporation, each country, each town, each city are organs that are simultaneously ends and means. Once positive feelings of attraction to the whole system begin to establish each part is then able to see itself and its contribution to the whole, and is willing to channel activity in order to be more beneficial to the whole.

The current Global Financial Crisis may well result in the destruction of the current $US, World Bank, IMF Global Monetary System. The academic community needs to start thinking now about what is going to replace it. We need to dust of John Maynard Keynes' model as a starting point of a new system. Keynes' system will create strong, independent, free national governments and strong independent free civil societies. Such a system will create a global civil society that can challenge Corporations and Nation States, create new rules and decrease GHG emissions.

§5 – Conclusion

The Corporation plays a large role in the debate about GHG emissions and Global Warming. Milton Friedman's conclusions that the social responsibility of business was is to increase profits is correct. In fact the purpose of a joint stock company is to make as much money as possible as long as it plays within the rules of the game. Therefore unless reducing GHG helps maximise Corporate profits, the debate about reducing Corporations emissions of GHGs needs to look outside of the Corporation if it hopes to reduce GHGs.

All three versions of CSR; soft, hard and radical can play a role in limiting the level of GHGs emitted by Corporations. Each version however interacts with each other version. If it was not
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for Green Peace's 'hard CSR version' and their responses to Brent Spa and Ken Saro Wira in Nigeria, Shell Corporation may never have changed its environmental record and may never have championed the soft version of CSR i.e. The CSR is good for business. However, strong civil society is restricted to those countries in the world with liberal political systems. The current Global Monetary System, based on $US, the IMF and World Bank and in which the Third World has become increasingly impoverished is severely restricting global civil society. Radical change in the Global Monetary System of the kind envisaged by John Maynard Keynes would change the dynamics between the Nation State, the Corporation and Civil Society, strengthening Civil Society and allowing it to put more pressure on Corporations to change the level of externalities produced.

To conclude, yes Friedman was right about the Corporation, the social responsibility of business is to increase profit. Can the free market as conceived by free market economists solve Global Warming? The answer is an emphatic no. Left on their own, Corporations would create enough GHG to make the world uninhabitable. The solution is a strengthened Civil Society that creates new rules for Corporations to play. We are witnessing the beginning of a resurgent Civil Society that makes rules for Corporations. However, this hard version of CSR, needs to become harder if we are going to decrease Global Warming. The current Global Financial Crisis may result in the destruction of the $U.S., World Bank, IMF Global Monetary System. The academic community needs to start thinking now, about the sort of system that will replace the current system. A system such as that proposed by John Maynard Keynes will create a truly liberal world in which a strengthened Civil Society can create a positive dynamic between Corporations and Nations states, such that economic progress continues, but at the same time externalities of Corporations, in the way of GHG emissions, are significantly reduced.
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Bibliography

Parliamentary Joint Committee on Corporations and Financial Services (2006)


Friedman, Milton 1970 the Social Responsibility of Business is to Increase its Profits, “N.Y. Times” 13 September

Friedman, Milton and Friedman Rose (1962) Capitalism and Freedom, University of Chicago Press, Chicago


Abstract:
New medical technology can easily give rise to new ethical problems. It is through our working out of unique, somewhat isolated problems that light is shed upon other, wider issues. Pre-implantation genetic diagnosis (PGD) is often supported on the grounds that it is for the sake of the ‘future child’, and through a measured inquiry into the biological reality of PGD one may glean sound understanding of the relationship between identity and embryonic development more generally.

When an embryo with diagnosed with cystic fibrosis, for example, the immediate suggestion is that this specific embryo should be discarded so the future child will live free from the condition. But isn’t this incoherent? How exactly are we benefiting ‘the’ future child if we discard the embryo that could have presumably become the future child in question? Is not our identity inexorably tied to our genetic makeup, and therefore every embryo is a specific potential person?

I argue that this line of thought is fundamentally mistaken. In this paper, I examine PGD in relation to personal identity, to draw out a very specific misunderstanding; one that is borne out of focusing upon each embryo’s genetic separateness as opposed to their qualitative similarity. I begin by discussing the problems of associating identity with first a genome and secondly a phenotype, ultimately rejecting both. Next I look into the Parfitian distinction between numerical and qualitative identity before arriving at a final criterion for personal identity at the early embryonic stage: namely as a point of reference for a phenomenological locus, and whichever embryo is sentient first is morally significant as the ‘future child’.

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§1 – Introduction

Daniel Dennett once said that philosophers are better at questions than answers, and in various philosophical waters this seems fairly obviously to be the case (Dennett 1996, p. vii). Some questions in philosophy are, at least to this interested beginner, obviously mysterious and lend us no easy answers. For example, there is the familiar territory of freedom versus determinism that seems to have no clear way forward, nor any method to test scientifically for the validity of either hypothesis beyond reasonable disagreement (Cf. Chomsky 1988, pp. 133-170). However, ethical disputes in the so-called ‘real world’ may be settled by utilising the sizable well of knowledge already readily available to the critical thinker, assuming a few basic premises are granted (such as suffering is prima facie undesirable Cf. Singer 2009 pp.15-16).

When scientists in Britain realised that cuttlefish had sophisticated behavioural patterns it was no longer lawful for operations to be performed on them without an aesthetic administered (Dennett 1996, p. 94). Why was this so? Presumably it is because of two reasons: firstly, the complexity of the brain of a cuttlefish was sufficiently complex to imply some rudimentary phenomenology; secondly, the behaviour of cuttlefish is complex enough to push us towards granting it the ‘benefit of the doubt’. Thus by noting important factors that we generally accept as definitive in claiming that these animals, the central nervous system of monkeys say, have significant internal lives, we must also extend our regard to cuttlefish or else be condemned as inconsistent. It is this method of philosophy, i.e. noting disunity in our thought and unifying it in way or another, which I wish to employ here by examining one particular place where our intuitions come apart due to recent advances in medical technology.

Pre-implantation Genetic Diagnosis (hereafter PGD) is defined as testing utilised to diagnose genetic defects in embryos before they are implanted in the womb in IVF treatment.2 For the most part, embryos diagnosed with serious genetic disorders will be discarded or frozen, and ‘healthy’ ones implanted instead (Singer 1993, pp. 186-187 & Steinbock 2001, p. 175).3

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3 I set aside the weighty issue of abortion here, and instead focus on the reason for discarding an embryo.
This procedure is often supported on the grounds that it is for the sake of the ‘future child’ (Kuhse & Singer 1985, pp. 155-161). When an embryo is diagnosed with muscular dystrophy, for instance, the immediate suggestion is that this specific embryo should be discarded so the aforementioned ‘future child’ will live free from the debilitating condition.

But some contend this is incoherent. How exactly are we benefitting the ‘future’ child if we discard the embryo that could have presumably grown up to be the future child in question? Is not our identity inexorably tied to our genetic makeup, and as each embryo has a unique genome, is not therefore every embryo a specific potential person? After all, they say, if you had been that discarded embryo you wouldn’t be here right now.

In the course of this paper I will argue that this line of thought is fundamentally flawed. Where most consider the term ‘future child’ to refer to a particular genotype, or more plausibly a specific phenotype, I contend that we instead refer to something less tangible than either of these, namely: a subjective locus. I will therefore contend that in the context of pre-implantation genetic diagnosis, our genetic intuitions should be discarded for the more plausible conclusion that whichever embryo would have been implanted it would have turned out to be ‘you’ in a significant sense.

§2 – Genotype

The most common folk belief about embryonic identity and its relation to ‘us’, based primarily upon media discussion (Hopkins 1998, pp. 6-10), is that it is our genes that make us who we are in a morally significant sense. By ‘morally significant’ I here mean something akin to the following: you could not have been you without this genome, as any change to the genome would thereby be another person entirely, thus destroying you and condemning you to non-existence as opposed to existence, a harm as close to murder as one can muster. Through discussion of so-called ‘designer babies’ there arose a common misunderstanding that the discovery that it was at least theoretically possible to clone a human genome from an adult’s cell (in a procedure known as ‘somatic cell cloning’) provided us some insight into our

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4 This fuels various arguments against PGD as de facto eugenics, c.f. Steinbock (2001) pp. 179-180.
5 I draw this from the ‘essentialist’ argument from DeGrazia (2005), p. 29.
wider personal identities; our very uniqueness was in question. As a result there was a systematic questioning of the moral justification of such research, and whichever conclusions found would obviously impact upon PGD thereby as well, as both are primarily based upon the concept that the human genome is constitutive of our identity. For instance, if the popular media was right in saying that we each had a right to a ‘unique’ genome, something intrinsically identity-formative about the genome would have to be postulated, as even the objectors to cloning/PGD point out (Hølm 1998, pp, 160-162 & Kass 1999, 496-510). Presumably this rests upon your genes determining your psychology as well as your biology, and both in conjunction would have to be completely encapsulated in the genes alone.6

Sadly such a pat answer stems from a fundamental misunderstanding of the relationship between genes and the environment (Hopkins 1998, pp. 6-10). There is at least one primary objection: based upon genetic expression, that is, which genes do and do not get activated from a given genome. The difference between an expressed gene and an unexpressed one is primarily determined by the complex interrelation between external environment and individual genomes, thus our identity cannot be determined solely by our genome. If this does not convince you, consider the following: let us say we have a time machine and we go back in time and find the embryo that became you in your mother’s womb, and due to our advanced testing methods we discover that that embryo has cystic fibrosis which has not yet expressed itself in physical manifestations but undoubtedly will in the future. Now in this hypothetical, we have developed gene therapy to such a point where we can ‘replace’ or ‘turn off’ genes that are damaging to the future individual, and we do so. Have we thereby destroyed the first embryo and replaced it with somebody else, i.e. you? Obviously we have changed the genome of that first being. If you are tempted to say yes to this, bear in mind that genetic therapy is being developed as we speak to remedy genetic conditions after a person has already been born, and it does not look plausible to say that in so doing we destroy persons and replace them with someone else. It seems that the bare genome, at least, is not what we refer to when we speak of future children.

6 I leave open the question if your biology is your psychology, but concede that if one is an psychological eliminativist the argument herein will likely lack bite.
§3 – Phenotype

The phenotype of a given person (namely, the combination of genotype with the environment which leads various genes to express and others not to) obviously plays an important part of a given person’s life, as our external appearance, for example, is determined solely by phenotypic expression (Pollard 2002 p. 139). Similarly genetic disabilities may have an important part to play in the future of any given child. Predictably, then, those who wish to deny my central thesis could claim that ‘the future child’ is admittedly not ‘just’ the genome of the embryo. Instead it could be contended that the child could have only ever been this set of genes coupled with this environment which caused genetic expression, and it could have only been this coupling. (This avoids the simple counterexample of twins, because at the very least each twin experiences things from a marginally different point of view, and thus have differing phenotypes.)

There are two points of reply I wish to make to the phenotypic response.

Firstly, it smacks of question begging to say that future child could have only been this conjunction, as it seems trivially true that (in this world at least) the embryo that was me and was in that given environment remained me over time. To shore up the hypothesis perhaps it would be enough to say that the future child ‘is there’ at the pre-genetic expression stage in some sense but as we do not know what genes will or will not express we refrain from stating that the phenotype is there and thus, ontologically at least, there is only a potential future child. Sadly one cannot say much of value about this future ‘you’, as it is up to various imperceptible differences in the environment to ensure one or the other gene will or will not express. This seems quite unsatisfactory, at least for those of us who wish to resist a general determinist metaphysic (where everything is mysterious in this particular way). For example, it seems highly intuitive that ‘I’ could have been born five minutes earlier, or perhaps a day earlier; I could have attended Sydney University instead of Macquarie; I could have had a terrible accident at age six; and in all these cases my phenotype would be minutely different (or perhaps radically different) but it would seem a stretch to say that the phenotype that eventuated would thereby mean that Anson₁ has disappeared and now Anson₂ has come into being, destroying poor Anson₁ thereby.
Of course, one could deny this, and accuse me of begging the question on behalf of my own theory. This is fair criticism, if one neglects to note that determinism (genetic or otherwise) of this type characteristically begs the question on either side of the disjunctive. No real metaphysical work can be done here without question begging of some sort because neither side is falsifiable short of our aforementioned time machine. So I am willing to bite the bullet and say, yes, I do believe that our intuitions are right on this matter: any of us could have had a different phenotype without thereby being different people entirely.

Secondly, against the phenotypic view is the problem of genetic determinism. There is no known evidence to date that there is a genetic element to such important aspects of our character as intelligence, artistic tastes, and so on (Pinker 2003). Furthermore, it seems that a single gene may have multiple effects, such that if there was such a thing as an ‘IQ gene’ then its existence could be offset by another gene in the genome, or by the macro level pattern of expression found in the complete phenotype, and therefore we cannot say at any given point in phenotypic development when the total set/pattern of genes have ended expression. Thus if we are to say that it is the phenotype that is you there is the problem, fairly simply, of when precisely this you begins? If one was to reply that you were you once your character became ‘fixed’ in some important way, then I believe the door is open for my proposal as follows. Before closing this door however, I must entertain a vital distinction between types of identity.

§4 – Qualitative Vs. Numerical Identity

To argue for his reductive metaphysical thesis about persons, Derek Parfit distinguishes between numerical identity and qualitative identity. Qualitative identity is based upon qualities that an existent may have that it can share with other things which have these same

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7 See the many varied debates between four dimensionalists and presentists in the metaphysical literature for a ready example of this inability to distinguish readily from two competing world views, or the more familiar ground of freedom opposed to determinism.
8 Steinbock, ibid, pp. 183-184.
9 I use this term to make reference to a thing or person or whatever that exists and can be identified in its instantiation at all. Hence people are existents, as are bricks, canoes, and so forth.)
qualities: two red billiard balls devoid of unique marks are qualitatively identical. Numerical identity on the other hand demarcates an existent that is this particular existent, such that each billiard ball is to the cosmic world-view always distinct even if we cannot identify one from the other down here on the actual world. If two things appear exactly the same, they are not numerically identical, and further, whichever qualitative changes that an existent may go through fail to change its numerical identity: as long as this existent exists, it is still numerically identical with itself and nothing else. It is numerical identity that Parfit asserts we make reference to when we speak of personal identity (Parfit 1984, p. 202). But the assumption that numerical identity is what commonly matters to us is a claim Parfit and I wish to reject in favour of what should matter to us qua persons.

Parfit himself forwards a purely psychological criterion of personal identity in a vaguely Humean vein where all that matters to us should be what he terms Relation-R, i.e. a continuation of our hopes and dreams, our ground projects and so forth. This content-based psychological criterion emphasises subjective preference satisfaction: for Relation-R to persist we must be on a continuum through time where various connections are made and reinforced.

Whilst this sounds vaguely promising, there is a problem when we wish to discuss such ‘problem cases’ as PGD, as embryos are all equally without Relation-R. One cannot investigate a given embryo and arrive at any useful answer as to what type of person it will be, short of certain genetic traits that may help shape the being’s life, such as congenital deafness (Davis 1997). I wish to backtrack a step further and ask what is fundamental to subjectivity which provides the grounding for Relation-R, and subsequently, personal identity in a meaningful sense.

§5 – Phenomenological Criteria

In line with a Parfitian analysis it seems that what makes us, as already existent persons, qualitatively unique is our systems of Relation-R. However it is important to distinguish the numerically distinct biological entity that was your embryo from the subjective locus of
experience that eventuated in embryonic development. This second type of ‘you’ is existent due to its primarily subjective phenomenological nature. This entity exists as actuated in the sense that it experiences qualitative states (qualia)\(^\text{10}\) that are felt and thereby bring about qualitative changes in the entity in question (Gustafson 2005, pp. 222-223). I draw upon two basic assertions (the phenomenological importance of the I of experience; the non-reducibility of that I) in order to sketch an understanding of what should matter when we speak of personal identity in PGD.

All experiences of the kind Parfit mention (such as memories, worries, fears and so forth) are experiences had by some subject or other, even if a subject is construed to mean a locus of inquiry. Pain, for example, ‘is’ a subjective experience by definition (Searle 1997, loc. cit.),\(^\text{11}\) and various attempts made by philosophers to reduce subjective experiences to impersonal experiences have faltered.\(^\text{12}\) Mental phenomena fail to be expressed accurately when one tries to truncate descriptions of what is going on to the third person this way, as it does not pass a test of parsimony without distortion (Searle 1997, p. 123). There is a vast ontological and epistemic difference between my saying ‘there is a pain’ and ‘I am in pain’, and the two may not be reducible the way Parfit would wish. ‘There is a pain’ can be true of whoever has this mental property of being in a pain-state, but this does not accurately capture the situation in which I make the utterance, and in fact presupposes a feeler of pain; i.e. an existent subjectivity. I will return to this subjectivity shortly.

\section*{§6 – The Folk Belief of Embryonic Identity}

Now we turn to practical implications of this phenomenological criterion. Often we hear people state such common beliefs as ‘If you were selected for being discarded you wouldn’t

\(^{10}\) This is along Searle’s lines: ‘all conscious phenomena are qualitative, subjective experiences, and hence are qualia. There are not two types of phenomena, consciousness and qualia. There is just consciousness, which is a series of qualitative states.’ (Searle 1997, p. 9)

\(^{11}\) Searle, loc. cit.

\(^{12}\) Cf. Dennett 2002 pp. 226-246; Place 1990, pp. 29-36. Primarily these attempts fail because they disregard the centrality of subjective experiences to subjects themselves, and the more extreme of these accounts deny outright subjective experiences. Such accounts, while they cannot be disregarded purely on intuitional grounds alone, fall prey to a problem of trying to explain exactly where the difference between seeing green and red, for instance, may be found (Pseudonormal vision: people who see green as red and red as green and yet have no functional differences in their behavior or linguistic labeling abilities) challenge such a thesis. Cf. Nida-Rumelin 2002, pp. 99-105.
be here right now’ as a kind of intuitively plausible attack on the ethics of PGD. Some of the conditions that are screened for are quite serious, such as cystic fibrosis, and most embryos diagnosed with such conditions are discarded. To most this means of any three embryos, assuming only one is to be implanted, two unique individuals have been lost.\footnote{Even Singer, Kuhse, Parfit and Hare exhibit this belief (Kuhse & Singer 1985, pp. 156-159).} This of course rests upon an understanding of genetic material being constitutive of our identities, such that it was \textit{this} particular set of gametes that became, in a significant sense, me. Thus the picture most have of PGD is something akin to the following, where each line refers to numerical identity (fig 1.1).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig1_1.png}
\caption{Fig 1.1}
\end{figure}

However, this neglects the importance the phenomenological criterion. Granted, each set of genetic information is responsible for various aspects of a person’s physical makeup, such as eye colour, but there is little evidence that genetics are responsible for much other than this (Pinker 2003). Anything that truly \textit{matters} about you, in the sense that it is part of your character or personality, is built upon this phenomenological core of the human person (Cf. Murat 2007 p. 5; Landau 1993, pp. 53-55). Thus of all the important aspects of one’s
character, genetic differences do not seem to play the important role (for instance, if one has bipolar disorder we chemically rectify the situation such that the individual is ‘regained’ or ‘cured’ from the disorder).

One of the primary justifications of PGD is thus to avoid these undesirable genetic conditions on behalf of the ‘future child’, with the implicit belief that whilst there are three embryos, there is only one future child. But surely, the recalcitrant philosopher who subscribes to genetic identity producing personal identity would say, we are not benefiting the future child: we are destroying it as we discard the embryo. Instead we implant a different child.

In reply I point to a conflation of identity with identity traits. Obviously if certain genes express I may become taller or shorter, but this is not an important aspect of myself and is instead contingent and perhaps even auxiliary. There is no reason to treat something like my relative height as being any more important than I myself find it to be. One could easily imagine a possible world where my height was shaved by a few inches, and yet this shorter me would remain to be ‘me’ in all important respects.

§7 – Objection

Perhaps the most compelling objection available is for one to claim that certain conditions, such as Tay Sachs or cystic fibrosis, are in some important sense identity conferring, which is to say so integral to a person’s character that if one were to wish to give an ideally complete (albeit pragmatically impossible description) it would be critically important to make mention of these particular genetic conditions. Further and more commonly, gender can play an important part in a person’s life, such that it would be a stretch (to say the least) to claim that a person that is male would be ‘the same person’ if they were suddenly attached to some apparatus that would convert their body instantly to a female one. Surely, this objection goes, the embryo with the chromosomes required to render it female cannot be the same future child if during PGD a male embryo is chosen instead.
In reply, I wish to firstly concede that factors such as gender, complexion, genetic disabilities and so forth play important formative parts of a given person’s character.\textsuperscript{14} Undoubtedly I would be a very different type of person if I had been born female, but note the common way of describing these differences. I \textit{was born} male; a friend of mine \textit{was born with} cerebral palsy; every day children are born \textit{with} spina bifida. I contend that in these cases our pretheoretical intuitions are accurate: we make reference to a centre of concern, of consciousness, that has varied properties, varied contingencies, that will, or have, affect its life from this point onward. Along these lines perhaps it is best to be clear: I was \textit{constituted} by the phenotype that happened to be the one picked, but all potential subjectivities (I believe) are equal (Cf. Parfit 1984). In other words, at the earliest stage of brain development I believe each locus of consciousness is much the same qualitatively as the next, and then as various genes express, various environments are encountered, and so on, each subjectivity develops a psychology that is unique to that individual, but independent of genetic information.

\textbf{§8 – The Future Child}

When one says ‘if you had been discarded you would not have been born’ it appears as a truism at first glance, for the word ‘you’ is used to refer to the person you are, which is blatant question begging. Who do I make reference to if I were to be female and pregnant and then stroked my belly and decided upon two differing names one for each gender? Let us say I chose Andy and Mary as names. It turns out that the child is born healthy and male, and I duly dub the child Andy. At what point in my reference was the child actually going to be Andy? In normal development the answer would be clear: it was always going to be Andy because genetically Andy was always going to be male. Through analysis of PGD however, the picture becomes less clear cut. If instead of stroking my belly I stroked an array of Petri

\textsuperscript{14} One objection presented to me informally was that there is some evidence that there are genetic factors that relate to intellectual performance (construed as IQ scores in this instance) (Chiang et al. 2009). I find three primary problems with this viewpoint. 1) The study conducted utilised twenty-three pairs of monozygotic twins (p. 2213), thus having identical genotypess, but they were exposed to presumably the same environmental factors that aid in the development of IQ, and thus to falsify the thesis that ‘genetics determine the intelligence quotient of character’ these twins would have had to have been separated at birth and measured at later dates to see if there was statistical standardisation. 2) It is by no means clear that IQ and similar measurements are indicative of anything meaningful, as characteristically a person (practically construed) is made up of multiple groupings of skills and beliefs and so forth, such that intelligence is \textit{one of many} aspects of self. 3) Finally, and perhaps most damaging, intelligence simpliciter is by no means prima facie obviously identity formative as opposed to an identity \textit{trait}, thus my primarily phenomenological critique is untouched by this objection.
dishes and then picked a healthy embryo, did I just walk past several people and pick just Andy? I wish to offer the following: each embryo is only ‘there’ in any important sense once it has subjectivity, and as none of the embryos have subjectivity, there are only potential future ‘you’s. I then choose amongst them for the best version of ‘you’ and discard the rest, for when I say ‘you’ I refer first and foremost to the subject of experience upon which all psychology is built upon. Each embryo, whilst entirely numerically distinct, is qualitatively identical in this regard. They all lack a psychology; each does not have hopes and dreams written into its very genes; whichever would be implanted would be primarily loved the same by me, and so on. Our folk use of the word ‘you’ in embryonic cases, then, must be primarily phenomenological as we make reference to an enduring entity over time. Thus reference to the ‘future you’ looks more as follows (fig 1.2):

![Diagram showing potential paths to a future you](image)

The arrows each indicate a potential path to the same phenomenological locus. If I had been born with different genes, in all important matters, I would be still ‘me’, just a me with differing hair colour, or something equally unimportant. In all important senses, then, the
embryos are each qualitatively identical: whichever is chosen for implantation becomes ‘you’ if implanted. I stress however that I do not want to diverge too wildly from common sense: note I am being primarily pragmatic as opposed to hardnosed metaphysical. By way of example, I can make reference to a ‘future dam’ whilst none yet exist, and yet when one is built, this is what I was aiming to refer to, even if different concrete was used in its construction, etc.

I wish to also offer the following rejoinder: this analysis is primarily silent in regards the ethics of PGD in the imaginable cases where there are three potential future children in three dishes each with a debilitating condition and one or more are implanted anyway. This paper leaves open the ethical issues involved in PGD selection, but does point towards where such inquiry would follow as parents (or scientists) can be held at least causally responsible for the version of you that is brought to term. Other than noting this causal responsibility I choose to be deliberately mute.

§9 – Conclusion

Few would contend that they are only genetic material, and thus a creature that is extinguished before it has advanced beyond certain developments such that it has a conscious life can also not be regarded as anything other than a cluster of potential genetic expressions, and thus equal morally to the next genetic conglomeration that will occur. Of course this is not to say there are not differences between embryos genetically, as some disorders may be considered serious enough to warrant the discarding of the embryo. But this equates with saying that the ‘you’ desired would be one that is free from these diseases. After being born with such conditions, they logically enough become part of one’s narrative identity. Thus if I choose to discard one embryo that has cystic fibrosis in favour of another I have effectively chosen the same future child, but without a debilitating condition, much the same way I could have been born without blonde hair. Think of this as the difference between a blueprint and a completed house. Although the blueprint has minor differences one to the next the completed house is importantly the same. It fulfils the same functional role, and in discarding the other blueprints, future houses did not cease to be. There was only ever going to be one house, and similarly there was only going to be one future ‘you’.
**Bibliography**


Abstract:

In Frege’s theory of arithmetic where the definite article serves to classify something as an object, the “definite article premise” is one of the main premises along with the “context principle” and definite article premise provided a tool for Frege to define numbers as logical objects. By this tool he could distinguish linguistically concept of cardinal number and a cardinal number as an object so that they could have different terms which denote different things. I will discuss that the “definite article premise” itself is ineffectual. Frege’s logicist system is undermined for one of the premises in his argumentation is problematic. Particularly, the “definite article premise” cannot classify the concept words for numbers as objects words (proper names). Since his logicist project fails to be completed, it is not possible to secure the referent of number terms as logical objects. However the definition he has suggested can still give the Kantian intuition of individual numbers.
LIST OF ABBREVIATIONS

Frege:
BS: Begriffsschrift und Andere Aufsaetze (Frege’s Original)
CO: On Concept and Object
FA: Foundations of Arithmetic (Translated by Austin)
Beaney FA: Foundations of Arithmetic (Translated by Beaney)
FC: Function and Concept
Grundlagen: Foundations of Arithmetic
GG I: Grundgesetze der Arithmetik Vol. I / Grundgesetze
NLD: Notes for Ludwig Darmstaedter

Kant:
CPR: Critique of Pure Reason

Dummett:
FPM: Frege: Philosophy of Mathematics
§1 – Frege on Cardinal Numbers in General

Frege points out that a number term is used in a sentence as a proper name of an object; it can never be used with indefinite article. One cannot use the number terms as ‘each three’, ‘all threes’. (cf. NLD p.366) and he is strictly against the idea that numbers are devoid of content. If a discipline such as arithmetic exists then numerals must have a referent (*Bedeutung*) according to him.

Frege was convinced that mathematical objects of arithmetic were logical objects since they exist of necessity “because the truth-conditions for statements about them have been fixed in such a way that no condition for their existence needs to be fulfilled”. (FPM 308) In other words the propositions of arithmetic are analytic¹ and mathematical objects of arithmetic are a priori.

One of Frege’s fundamental principles in the *Grundlagen* (cf. FA p. X) indicates that an object can only fall under a concept. Also a concept and an object are very different things and cannot be substituted with one another. According to Frege “A concept ... is predicative. On the other hand, a name of an object, a proper name, is quite incapable of being used as a grammatical predicate.” (CO p.182) Here Frege notes that a concept is indeed “*Bedeutung* [referent] of a grammatical predicate.” (CO p.182) Moreover the definite article constructs singular terms and within the Frege’s theory, these singular terms in a sentence purport to denote objects. For this reason he introduced the definite article where the referent of ‘the number 1’ could be a self-subsistent object (*selbstaendige Gegenstaende*) and since it is a singular term and saturated it refers to an object. This is the only tool Frege uses to separate number terms that denote objects from concept word of number in linguistic level in arithmetic.

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¹ According to Frege when a proof of a true proposition is carried on by purely logical means and when the premises and definitions of the terms can be given logically then this proposition is analytic. If one has to use in the argumentations of a true proposition, rules belonging to some special science apart from logic and/or terms that are not logically described then this proposition is synthetic. A truth is *a posteriori* when one has to use facts that are not general and not demonstrable for proving it and *a priori* when one can decide the truth by only general laws that do not require proofs for themselves. (cf. FA § 3)
§2 – Frege’s Definition of Cardinal Numbers as Logical Objects

Frege claims that there is a possibility of one-to-one mapping between the objects falling under a concept to another concept if they have the same number of objects. For this purpose he suggests the definition:

The Number that belongs to the concept \( F \) is the extension of the concept “equinumerous\(^2\) to the concept \( F \)” (cf. Beaney FA §68)

(1) The extension of the concept “equinumerous to the concept \( F \)” is equal to the extension of the concept “equinumerous to the concept \( G \)” (cf. Beaney FA §69)

(2) ‘The same number belongs to the concept \( F \) as to the concept \( G \)” (cf. ibid)

By the context principle\(^3\) if the first sentence is true, then since the two sentences have the same content this guarantees the referent of the terms ‘the number of Fs’ and ‘the numbers of Gs’. Here the first proposition is purely logical and when true it gives the logical foundations and objectivity of the second proposition. (cf. FA §62) By securing the referent of the number terms one can give a general condition of equality of numbers. And if one can do this it is then also possible to give a criterion for recognizing individual numbers in purely logical means.

After giving the logical formulation of one-one correspondence (cf. Beaney 1997 p. 117) Frege gives the definition of the concept of cardinal number in purely logical terms since now “the concept \( F \) is equinumerous to the concept \( G \)” can be defined logically as “there exists a relation \( \phi \) which correlates one-one the objects falling under the concept \( F \) with the objects falling under the concept \( G \)” (cf. FA, §72) And by using the extensions he has introduced in the Grundlagen §68, and taking “\( n \) is a cardinal number” as having the same meaning “there exists a concept such that \( n \) is the cardinal number which belongs to it” he defines the general concept of cardinal number. (cf. FA, §72) Accordingly there is a concept \( F \), that its extension is equinumerous to \( n \) and since “the number which belongs to the concept \( F \)” is defined as “the extension of the concept equinumerous to the concept \( F \)”, number \( n \) belongs to that concept \( F \). By this he claims that he has defined the general concept of

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\(^2\) Having the same number of objects (gleichzahlig)... In Austin’s translation this is translated as “equal” which causes confusion since equality between concepts is different than the equinumerocity between concepts.

\(^3\) Never to ask for the meaning of a word in isolation but only in the context of a proposition (cf. FA p. x)
cardinal number in purely logical means and now he can define individual numbers in purely logical terms.

Then he identifies 0 as the number which belongs to the concept “not identical with itself.” (cf. FA §74) Now in order to advance from 0 to 1, first he defines the successor relation as follows:

There exists a concept $F$, and an object falling under it $x$, such that the number which belongs to the concept $F$ is $n$ and the number which belongs to the concept “falling under $F$ but not identical with $x$” is $m$ (cf. FA § 76)

By this Frege formulates that one more object falls under the concept $F$ than the concept $G$ and this has the same meaning as “$n$ follows in the series of natural numbers directly after $m$”. (FA §76) With this in mind, Frege claims that “the number which belongs to the concept identical with 0 follows in the series directly after 0”. (cf. FA §77) Which also reads as according to successor relation’s formulation “There exists a concept identical with 0, and 0 falls under this concept such that the number 1 belongs to that concept identical with 0 and the number which belongs to identical with 0 but not identical with 0 is 0”. Here the number 1 belongs to the concept “identical with 0”. And one can define the number 2 as belonging to the concept “identical with 1 or 0” since 0 and 1 fall under this concepts, namely there are two objects falling under this concept and so on. Hence, using the logical tools he has created, he claimed that he has given a purely logical formulation of the cardinal numbers.

§3 – Russell Paradox

In his Grundlagen Frege does not attribute an importance to the term ‘the extension of...’, while using “the extension of the concept $F$” in order to construct objects from the concepts. According to him he could have merely used “the concept $F$ equinumerous to the concept $G$” but he stated that it would have raise objections which could be answered but he does not choose to do so since he does not admit this as a crucial point.

4 Frege gives the definition of the concept “member of the natural number series ending with $n$” with the ancestral relation defined in his Begriffsschrift (cf. BS p. 72: formula 99). Then he could define all the individual numbers.
Now since Frege uses “the extension of ...” to construct objects from concepts, then extensions of concepts are objects according to him. Moreover he claims that he did not identify “extension of the concept” with “concept”. He says:

I merely expressed my view that\(^5\) in the expression ‘the number that belongs to the concept \(F\) is the extension of the concept equinumerous to the concept \(F\)” the words ‘extension of the concept’ could be replaced by ‘concept’... Besides, this was only an incidental remark; I did not base anything upon it. (CO p. 187)

He also assumes that “it is known what the extension of a concept is” (cf. FA §68, footnote). Accordingly we can summarize his assumptions as follows:

1. Concepts of number and successor relation could be logically formulated and the individual numbers are logical objects.
2. Extension of a concept is logically unproblematic. (cf. FA §68)
3. Extensions of concepts are objects. (cf. FC p.141)
4. Every concept must be defined for all objects. (If \(x\) is an object then \(x\) either falls under the concept \(F\) or does not.) (cf. FA §71)

By these assumptions he has shown that: Arithmetic can be derived from logic. (cf. Beaney 1997 p. 5) However Russell had pointed out that there is a problem with extensions of objects. Now by (4) an object either falls under the concept \(F\) or not. In other words if \(a\) is an object that falls under the concept \(F\), then \(F\) (\(a\)) is either true or false. Moreover extensions of concepts are objects (3). Now, one can define a concept such as “…is not a member of itself”. Let’s denote by \(Y\) “the extension of is not a member of itself”. If \(a\) is an object that falls under the concept “… is not a member of itself” then \(a\) is in \(Y\), but then \(a\) is not a member of itself, consequently \(a\) is not in \(Y\). And this yields to a contradiction in mathematical level in Frege’s thesis.

This result creates a problem for Grundgesetze where Frege has introduced extensions and built his theory upon the assumptions of extensions as value ranges (cf. GG I § 3 [Axiom V]\(^6\)) However in Grundlagen where he contextually defined the individual numbers and proved

\(^5\) in FA §68 and footnote in §68
\(^6\) ‘[T]he function \(\phi(F)\) has the same value-range as the function \(\psi(F)\)” has the same meaning and referent as ‘the functions \(\phi(F)\) and \(\psi(F)\) always have the same value for the same argument’ (GG I, § 3)
them as infinite on purely logical foundations extensions do not create problems. Moreover Frege’s argument could be proved without using the extensions of concepts\(^7\) which means that his thesis could be saved mathematically.

§4 – Definite Article Premise

Frege argues that a concept word cannot be the name of an object (cf. FA §51); it can only denote a concept. So he needs to make the difference clear for the object words\(^8\) and concept words; since the term ‘... is a horse’ denotes the concept horse but ‘the horse’ denotes the object horse. He has mentioned this in §47 in the *Grundlagen* and concluded that one should with some method designate or name the object in such a way that that will make the object word different from the concept word. Frege’s solution to this is that “Only with the definite article or a demonstrative pronoun does it [concept word] function as a proper name of a thing, but it then ceases to function as a concept word.” (Beaney FA §51) According to this premise a word is a concept word when it is used with indefinite article or in plural form. This is one of the most important premises in Frege’s logical construction of arithmetic since he does not use any other tool to distinguish numbers as objects in linguistic level. Consequently one can use the concept of cardinal number in general propositions but individual numbers are objects of arithmetic and according to Frege logical objects as well.

In order to distinguish linguistically a concept term from an object term (proper name) Frege uses the definite article. And this corresponds to the real (*sachlichen*) distinction according to Frege. (cf. CO p.184) When a concept word is used with the definite article it is made a singular term that purports to denote an object. And when this singular term denotes a logical object such as a certain number, it’s needed to be shown that this object is recognizable without appeal to intuitions.

\(^7\) Boolos proves that Frege actually has proved his result consistently without using the extension of concepts in FA §§ 68-83 and Wright proves what has Frege proved in these paragraphs without appealing to extension. Boolos’ result comes after reviewing Wright. For a brief argument on this topic cf. (Demopoulos 1995 p. 2)

\(^8\) I am using it in terms of “proper name” to make the difference clear.
Frege’s usage of definite article in this sense will yield to immense problems such as Frege’s 
having been forced to affirm the following proposition “the concept Horse is not a concept”. 
(cf. CO, p.185) Frege claims that in the sentence ‘The concept horse is a concept easily 
attained’, ‘the concept horse’ denotes an object because of the definite article. (cf. CO p. 184) 
It is an object that falls under the concept “… is a concept easily attained”. (cf. ibid) Although 
it can be part of the predicate it can never be made to denote a concept. For example in the 
sentence ‘I am talking about the concept horse’, ‘the concept horse’ is a part of the predicate 
‘... am talking about the concept horse’.

Frege states that “The matter is not so simple for the definite article, especially in the plural; 
but then my criterion does not relate to this case” (CO p.184) only the issue is problematic 
“when a singular takes a place of a plural”. (ibid)

Frege assumes these cases as exceptions and claims that they do not affect his definite article 
premise. He thinks either these are proper names of a group of things or expresses a universal 
judgement. For the former Frege gives the example:

‘The Turk besieged Vienna’ (CO p. 184) and for the latter the example is:
‘The horse is a four-legged animal’ (ibid) and the universal expression for this is ‘All 
horses are four-legged animals’ or ‘All properly constituted horses are four-legged 
animals’.

Frege’s explanation of ‘the concept horse’ denotes the object that falls under the concept “... 
is a concept easily attained” that we have mentioned above is a convincing way of 
formulating the matter. However when Frege is forced to admit that “the concept horse is not 
a concept” the problem starts to show itself. He states that:

It must be indeed be recognized that here we are confronted by an 
awkwardness of language, which I admit cannot be avoided, if we say that the 
concept horse is not a concept, whereas, e. g. the city of Berlin is a city, and the 
volcano Vesuvius is a volcano. Language here is in a predicament that justifies 
the departure from custom. (CO p. 185)

It is not the awkwardness of language that appears in there but a trouble in his theory, since if 
he cannot use the definite article in his defined sense (cf. FA §51, §57), he does not have a 
tool to produce singular terms that denotes recognizable inindividual logical objects such as
numbers. This indicates that he cannot define numbers as logical objects. Without classifying number concept words as object words, none of his claims could run in his thesis.

The distinction of the cardinal number as a concept and number as an object is quite crucial for Frege since he first starts to analyze the concept of cardinal number and then advances to the number as an individual logical object. (cf. FA § 18) He underlines that the general propositions are not about the individual numbers but they use the concept of cardinal number. (cf. FA § 18) Thus these two different entities must be linguistically distinguished.

Moreover if he has to affirm “the concept horse is not a concept” we cannot talk about the sharp distinction between the concept and object in terms of numbers if his only tool was definite article to distinguish concept of number from the object number. Also when Frege was giving the definition “the concept F is equinumerous to the concept G” he is applying to the definite article in order for a correct use of language. But then the term ‘the concept F’ (der Begriff F) here also denotes an object. He, as in “the concept horse” example, meta-linguistically, needs to define that F is the concept in this sentence. But since he used the definite article, he has constructed the term as referring to an object according to his claim.

I believe since the tool, namely the definite article, that Frege linguistically uses to distinguish the concept of cardinal number from the object cardinal number is ineffective, numbers as logical individual objects thesis is undermined. If he cannot form his theory of logical objects as recognizable individual objects without appealing to intuitions with the help of context principle and definite article premise, then mathematically saving his theory from the Russell Paradox does not save his thesis still. His theory is undermined logically. Then that means he was not able to define a logical individual object to be recognized devoid of intuitions. I believe this opens the passage way to intuitions to define the basic mathematical objects of arithmetic.

§5 – Kantian Intuitions in Acquiring the Knowledge of Individual Numbers
According to Kant when in affirmative judgements the relation of a subject to the predicate is thought then this relation is possible in two ways: the analytic and synthetic. In analytic way the predicate belongs to the subject as something contained in the subject, in synthetic way predicate lies outside the concept of the subject, namely there is a new concept created from the previous one. Kant gives example for the first one the judgements of clarification and the latter the judgements of amplification. (cf. CPR A7/ B11) A priori judgements are independent of all experience and a posteriori ones have their sources in experience (cf. CPR B2-3) and as an example for a priori judgements Kant offers propositions of mathematics (cf. CPR B5).

What Frege is against in Kant’s theory of mathematics is that arithmetic contains judgements all of which are synthetic. (cf. CPR B14) Frege claims that arithmetic is analytic in his way of terming analyticity. However they agree on mathematics being free from empirical intuitions and they both claim that propositions of mathematics are a priori in their way of terming a priori. Kant states that “It must first be remarked that properly mathematical propositions are always a priori judgements and are never empirical, because they carry a necessity in them, which cannot be derived from experience”. (CPR B15)

Kant also points out that mathematical cognition emerges through the construction of mathematical concepts and they are determinate. (cf. CPR A 714/ B742, also p. 630 fn. 5). He claims that in order to construct a concept one needs to exhibit the intuition corresponding to that concept a priori. For this reason pure intuition is required and Kant states that in order for construction of a geometrical concept one needs pure intuition of space and for an arithmetical concept pure intuition of time. They are present in the mind a priori which constitute the ground for cognizing objects. Imagination makes possible the synthesis of the manifold that is intuited by sense. (cf. CPR A95/B127) Finally Kant defines apperception as the faculty that gives the unity of the synthetic manifold which is synthesized by imagination. (cf. CPR A95/B127) In other words, imagination produces the reproductive representations and apperception gives the identity of these representations with the appearances in recognition. (cf. CPR A115)

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9 According to Kant, each appearance is representation but not each representation is an appearance. Appearance requires sensation. (cf. CPR B34)
Kant takes judgements as the functions that concepts rest upon. These concepts are related to objects by the representations that fall under the concept. And judgements are what one uses to cognize an object since judgements give the unity in the representations. For example in the judgement “All mammals are animals”, the concept of mammal is related to the concept of animal. And unity of the representation of the empirical intuition of mammals is given by the judgement. Moreover this concept is also related to some undetermined object such as a cow that will be cognized through the concept of mammal. For this reason without judgements one cannot give the unity of representation and neither cognize an object nor think through concepts. Judgements function in a way that one can understand the pure concepts of Understanding (categories) by analyzing them\(^\text{10}\). In “Özge is tired”, here the Quantity of the judgement is the Singular “Özge” and Relation of the judgement is Categorical, Quality of the judgement is Affirmative and finally Modality of this judgement is Assertoric. All judgements function in these four main ways in themselves. (cf. CPR A70/B95).

Categories in Kant\(^\text{11}\) are pure concepts of the Understanding. (cf. CPR, A67/ B92) They make the experience possible since without them nothing can be cognized, or constructed. The faculty of imagination gives the synthesis of representations through time as we have mentioned above and apperception gives the unity of these representations in recognition in time. Moreover Categories can be applied to empirical things through time by Imagination. Kant gives examples of how one can recognize Categories from empirical examples. The first example is about the category of quantity: Space is both a priori form of intuition and itself a pure intuition. When one has “the empirical intuition of a house” (CPR B162) the grounds are necessary unity of space, outer sensible intuition and I. And one transforms the empirical intuition of a house to a perception by the assistance of the manifold of the empirical cognition, as synthetic unity of this manifold in space. This is similar to drawing its shape as constituting its synthetic unity in space. If one abstracts this unity from the space then what is left is category of quantity (cf. CPR B162).

\(^{10}\) Judgements in the Understanding are: Quantity (Universal, Particular, Singular), Quality (Affirmative, Negative, Infinite), Relation (Categorical, Hypothetical, Disjunctive), and Modality (Problematic, Assertoric and Apodictic)

\(^{11}\) Categories are namely: Quantity (Unity, Plurality, Totality), Quality (Reality, Negation, Limitation), Relation (Of Inherence and Subsistence, Of Causality and Dependence –cause and effect, Of Community –reciprocity between agent and patient-) and Modality (Possibility –Imp possibility, Existence –Non-existence, Necessity – Contingency)
One can also analyze how Kant expresses his views on \( 7 \div 5 = 12 \) being non-analytic in order to understand what Kant understands from the numbers. Kant calls this synthetic since according to his definition, here from a concept, another concept that goes beyond the previous one is built. (cf. Koç 1997 p. 51) Moreover according to Kant, a concept cannot exist without the object and they are both constructed in the faculty of thinking “Judgement” which has its seat in the Understanding. How the concept number 7 is constructed can be explained as follows: When one has the empirical intuitions of 7 houses, the judgement is “There are seven houses”. The Quantity of the Judgement is Particular, the Quality is Affirmative, Relation is Categorical and Modality is Assertoric. In the categories these correspond respectively: Plurality, Reality, Subsistance and Existence. In order one to hold this unity of Judgement of Particular Quantity one needs the unity of synthetic representations through time which is given by apperception.

Now, when one considers the successor relation which its unity given by the synthetic apperception from time and abstracts the synthetic unity of the manifold from the space one can trace how the a priori object number 7 is constructed in ground of the category of quantity. The number 7 is constructed in the Judgement as an object when there is, for example, the empirical intuition of 7 houses and when it is thought in the Understanding it is a concept. Accordingly what constructs 5 and 7 are different cognitive processes and summing them up definitely goes beyond the concepts they were made and 12 is attributing another unity to the things that constructs 5 and 7. (cf. Koç 1997 p. 51)

I think Frege’s formulation of individual numbers starting from the concept “not identical with itself” can be taken as defining the non-empiric intuition of the number 0. Moreover it can give us a map of how the individual numbers are known a priori, fill the gaps in Kant’s theory of mathematics and can suggest a solution to the problem of basis in Frege’s theory of arithmetic.
Bibliography


Detlefsen, Michaell (1996) “Philosophy of Science, Logic and Mathematics in the Twentieth Century” pp 50-123 in Routledge History of Philosophy Volume IX


Frege, Gottlob (1953) Foundations of Arithmetics, Translated by J. L. Austin, Blackwell, Oxford


Frege, Gottlob (1962) Grundgesetze der Arithmetik I. Band, Wissenschaftliche Buchgesellschaft, Darmstadt

Frege, Gottlob (1962) Grundgesetze der Arithmetik II. Band, Wissenschaftliche Buchgesellschaft, Darmstadt

Frege, Gottlob (1964) Begriffsschrift und Andere Aufsätze, Georg Olms Verlagsbuchhandlung, Hildesheim

Dissertation for the Venia docendi in the Philosophical Faculty of Jena, 1874, in “Collected Papers on Mathematics, Logic and Philosophy”, pp. 56-92, translated by Hans Kaal

Frege, Gottlob (1984) *On a Geometrical Representation of Imaginary Forms in the Plane*


Klein, Jacob (1968) *Greek Mathematical Thought and the Origin of Algebra*, Translated by Eva Brann. New York: Dover Publications,

Abstract:
This essay presents three ways, not common in moral dilemma literature, in which a theory may allow moral dilemmas. These types of dilemma relate to our pre-philosophical assumptions or expectations of moral theory. It examines the claim that Utilitarianism is a plausible candidate for a dilemma-free moral theory in light of these additional forms of dilemma. The essay seeks to show that Utilitarianism is vulnerable to each of these types of dilemma, and that, were it to be so modified as to escape these dilemmas, it would have to become teleological in nature.
§1 – Introduction

Moral dilemmas received much attention in the latter half of the last century. Much of this attention focused on whether or not moral dilemmas do in fact exist. Alan Donagan (1993) proposes two questions that he feels are fundamental to understanding the impact of moral dilemmas on moral theory:

(1) Of the various moral theories taken seriously by philosophers, do some consistently allow moral dilemmas and others not? And (2) Of the various rationally defensible moral theories, can any consistently allow moral dilemmas?

It is Donagan’s view that the answer to the first question is ‘yes’ while the answer to the second is ‘no’. In other words moral dilemmas do exist in some theories and not in others. On this point I am in agreement with Donagan. In addition, it is my view that only a dilemma-free theory is adequate to satisfy our pre-philosophical expectations of moral theory. Deontological theories are generally more prone to dilemmas than consequentialist theories. The search for a dilemma-free theory will then most likely end with some form of consequentialism. While I am prepared to argue for these points elsewhere, I cannot do so here. In this discussion I will focus on the implications that can be drawn from them.

Ruth Barcan Marcus presents “unregenerate Act Utilitarianism [as] a plausible candidate for [a] dilemma-free principle” of moral decision (1980). I agree that Utilitarianism is immune to what I would call ‘dilemmas of decision’; situations in which there seem to be two equally right or equally wrong courses of action. However, it is my purpose in this essay to present three additional ways in which a theory may be dilemmatic, and to examine whether Utilitarianism will in fact satisfy our search for a dilemma-free theory.

The types of dilemma that I will discuss spring from our pre-philosophical assumptions about the function of moral codes. We generally believe that individuals who are acting rightly will not come into moral conflict (some forms of competition are beneficial, I do not consider these a counter-example to this assumption). Furthermore, we generally expect a moral theory to lead us to the implied goal. A theory that told us to follow the commandments in order to please the deity, but that the deity would probably not be pleased anyway, would hardly be compelling. Finally, we assume that the source of moral prescriptions is trustworthy. That is
we believe there are demonstrable reasons for calling an action ‘right’ or ‘wrong’, and that there are demonstrable reasons for reward or punishment.

These and other pre-philosophical assumptions are the reasons for which we engage in moral philosophy. We may come to have different views of the moral after examining the issues. Where a theory conflicts with these assumptions it would, presumably, give reasons for taking another view. However, I believe these assumptions are implied in the theories most commonly held by philosophers. I will assume for the purpose of this discussion that these assumptions are important and that a theory should measure up to them.

The argument will fall into three sections, according to the three possible types of dilemma that I will discuss. A first assumption regarding moral theory is that it will unite human action. If, however, a theory prescribes incompatible actions to two individuals or groups, then a conflict, one that cannot be resolved by the theory, will occur. In such a circumstance ‘might’ will ‘make right’. I will refer to this type of dilemma as an ‘inter-personal dilemma’. In the first section I will seek to demonstrate that Utilitarianism falls victim to this type of dilemma.

A second assumption is that a moral theory will, in fact, lead to what it identifies as its aim. Since a moral theory chooses its goal for itself it is important that it also achieve this goal. Failure to do so will result in what I will call a ‘teleological dilemma’. A theory that can be shown to fall short of its own chosen aim cannot be seen as a reliable moral guide. The second section will seek to show that Utilitarianism is unreliable in this way.

The final assumption I will point to here is that the source of moral law will itself be moral. A moral legislator or legislators must both keep the code that is given and have the authority necessary to make sense of its prescriptions and punishments. Where the moral source fails to demonstrate authority the theory will fall into what I will call a ‘dilemma of authority’. The third section will seek to show that Utilitarianism is subject to this type of dilemma.

It is always possible that a theory may only need to be reworked in order to cope with theoretical inconsistencies, and that it may not need to be discarded altogether. Alasdair Macintyre (1990) believes a theory to be falsified by the experience of a dilemma when ‘the reasons for redescribing and reclassifying the experience, so that it no longer falsifies the
theory, are outweighed by the reasons for treating it as a genuine counter-example to the theory’. I will conclude by arguing that, were Utilitarianism to be reworked sufficiently to be dilemma-free, it would then become teleological and not Utilitarian.

§ 2 – Utilitarianism and Inter-Personal Dilemmas

The first category of dilemmas that I will discuss here is that of inter-personal moral dilemmas. This type of dilemma occurs when a single theory prescribes incompatible actions to various individuals or groups. An inter-personal dilemma is allowed to occur by an ambiguity in a theory’s aims. Where the goal of a system lacks clarity conflict can occur.

The question at hand is whether Utilitarian theory allows for the same shortcoming. The single unifying principle of Utilitarianism is the maximising of Utility. If this principle can lead various individuals or groups to act in conflicting ways then it will be seen to allow dilemmas.

One problem that arises here is the definition of utility, which different thinkers have given as happiness, benefit, preference and pleasure. Each of these different definitions of utility can themselves be variously defined. For example, two individuals may have different definitions of happiness, or the same definition but believe in different means of achieving it. All of this could lead to a difference in belief about what actions are to be prescribed and prohibited. This would then represent a failure of the theory to unite human action, which is, in my view, one of the central aims of Ethics.

There are two ways in which one may address this difficulty. The most obvious is to say that where individuals have different definitions of utility, that is different goals for action, they are following similar but not identical theories. Therefore, it is two subtly different theories that are prescribing different action. This then would not be a failure of one particular theory. This would be a way out of the dilemma but would point to the fact, to be discussed below, that Utilitarianism does leave itself open to interpretation. This would not aid its ability to unite action.
A second response could be that difference of opinion would not be at all common. This does seem true on at least some major issues. To J.J.C. Smart the virtues of benevolence and impartiality are central tenets of the theory. He asserts that “we can sum things up by saying that if we are humane, kindly, benevolent people, we want as many people as possible now and in the future to be as happy as possible” (Smart & Williams, 1973). This seems clear. It is hard to imagine calling an individual benevolent if he wants as many people as possible to be as unhappy as possible. This fact leads to one of Utilitarianisms chief virtues: that it promotes cooperation towards obvious needs.

Peter Singer took up this concept in aid of Bengalese refugees (1972). He began with the non-controversial claim ‘that suffering and death from lack of food, shelter, and medical care are bad’. Singer moved from this to the conclusion that ‘if it is in our power to prevent something very bad from happening, without sacrificing anything else morally significant, we ought, morally, to do it’. Thus Utilitarian theory is used to unite individuals to prevent something that is ‘very bad’. Most, one would think, would not argue with these conclusions and so would be at least somewhat moved to help. So in some cases it may be possible to leave specific definitions of utility to one side in the interest of cooperative benevolent action.

Granting to Utilitarianism the ability to unite general benevolence is far short of endorsing it as an ethical system. Death by starvation is not the only moral issue that individuals face, each action has the potential to be a moral issue. This is particularly true in a consequentialist framework. Every action will have a consequence and each consequence may make us more or less happy. The ability of Utilitarianism to discuss starvation does not equate to an ability to guide every action.

Let us, for the moment, ignore the difficulty of defining utility and say that happiness, benefit, preference, etc. can all be included under the blanket term ‘fulfilment’. How are we to decide, on Utilitarian grounds, what actions are conducive to fulfilment? J.S. Mill (2001) suggests the suffrage approach. He asks: ‘What means are there of determining which is the acutest of two pains, or the intensest of two pleasurable sensations, except the general suffrage of those who are familiar with both?’ Mill’s means of determining right action then is to decide based on the general suffrage of those who have experience enough to know the various pleasures available (and likewise with wrong actions and potential pains).
It is clear that this means of determining right and wrong is insufficient. While most would agree that it is bad to starve to death, there is much disagreement on less obvious issues. This is not to say that disagreement is only on peripheral issues. The type of life one chooses to lead is possibly the most important of decisions, and is by all accounts at least very important. But not all individuals who are familiar with different types of life agree on the same means to fulfilment.

Socrates, for example, valued the just soul above all else. To him the fulfilment to be found in being just was greater than any other form available. This conviction led him to choose execution rather than to accept a means of escape that he saw as unjust. By implication we can say that he believed fulfilment to be found in a shorter, just life rather than in a longer, unjust one. It is not a controversial claim that continuing to live is more pleasurable than dying. To Socrates, however, this was not as important as the fulfilment he found in being just.

Blaise Pascal took another, non-utilitarian, approach to fulfilment. Pascal summarises human endeavours by saying: ‘[Humans] have a secret instinct driving them to seek external diversion and occupation, and this is the result of their constant state of wretchedness. They have another secret instinct, left over from the greatness of our original nature, telling them that the only true happiness lies in rest and not in excitement’ (1966). So to Pascal men seek pleasure that does not actually bring happiness. ‘The right way’ he believes ‘is to want what God wants’ (1966). This view raises the possibility that individuals may not know what makes them happy, and so cannot effectively seek it.

Arthur Schopenhauer took yet another view of fulfilment. In his conception the world is viewed as ‘the product of our own sins and therefore as something that had better not have been’ and ‘men are on the one hand the tormented souls and on the other the devils in it’ (2004). Schopenhauer viewed the experience of one who desires as oscillating between distress and boredom and the only means of freedom from this hell to be ‘denial of the will to live’ (2004). Seeking happiness in this view would be the surest way not to find it.

The point of all this is that three different men all have come to very different conclusions. Each of these three had experience of, or the opportunity to experience, different ways of life.
Each had access to privilege, education, drunkenness, asceticism, work, repose, influence and affluence and a multitude of other types of pleasures and supposed means to happiness. Though living in very different cultures the other aspects of their experiences may not have been different in the extreme, still they hold opposing views regarding what fulfilment means and what it consists in. Mill’s suffrage theory then does not hold. Those who have access to the same experiences may not hold the same views of their actual value.

A counter to this argument could be that these men were influenced by their own cultural and religious surroundings, and that these differences allowed biased views. Perhaps if they were Utilitarians or were not ‘under the stress of tradition, of superstition, or of unsound philosophical reasoning’ they would have come to a more Utilitarian position (Smart, in Smart & Williams, 1973). This argument, however, does not stand on a Utilitarian foundation. Utilitarian ethics values utility and not truth. If actions are right based on their ability to maximise happiness, then it doesn’t matter if they are ignorant of or in denial of truth, what matters is that they maximise happiness. A complete empirical proof of what does and does not bring fulfilment would be helpful, if such a proof were possible. This would allow for a critique of the above individuals according to the ability of their views to be fulfilling. Unfortunately, no such proof is available in current forms of Utilitarianism.

In the absence of such a study it is interesting that each of the three views of fulfilment listed above can be defended, at least somewhat, within a Utilitarian framework. Such a defence would depend largely on what is seen as necessary to human fulfilment. If it could be shown that justice is the most important virtue to human fulfilment, and just states of affairs are the most preferable to humans, then Socrates’ position would be Utilitarianly ‘right’. Of course, justice is not the only virtue valued in moral discussion. If virtues in general are important then the question is one of their varying degrees of importance and the type of actions that they each enjoin. If then it was the case that the possession and practice of the virtues were central to human fulfilment then Utilitarianism could quickly become virtue ethics.

This is possible because of the unique form of Utilitarianism. I have mentioned above that truth is not the most important factor to Utilitarianism. So it may be that virtues are not important in the way that virtue ethicists believe they are but that they still aid the maximisation of happiness. A further issue is that Utilitarianism prescribes those actions that maximise utility, but it does not tell us what they are. So if one believes the possession of
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virtues to be that which maximises happiness, then it is reasonable, on Utilitarian grounds, for her to seek the virtues.

Pascal believes that fulfilment is to be found in ‘wanting what God wants’. It hardly matters to the Utilitarian (at least it should not matter) whether or not God exists. If it could be demonstrated that the means to fulfilment was in fact ‘wanting what God wants’, then that would be the right type of action on Utilitarian grounds, even if such a God didn’t exist. Furthermore, since Utilitarianism does not have a complete theory of what maximises Utility it is up to Pascal to decide whether his theory is fulfilling, according to his own beliefs of what brings fulfilment.

This last claim shows the force of Mackie’s observation that the existence of an omnipotent and benevolent God ‘would entail that there is no practical discrepancy between what is morally good and what conduces to the most genuine happiness’ (1990). If belief in this omnipotent and benevolent God makes ethics more effective in maximising happiness, then, on a Utilitarian view, it is ‘right’ to believe even what one thinks is untrue.

A similar argument could be used for Schopenhauer. In Utilitarian theory it is not just pleasure, but also the minimisation of pain that is important. It may be, as Schopenhauer suggests, that the very act of desiring, or willing, brings about dissatisfaction. If this is the case then it is right not to desire, in fact it is right not to will to live at all. It could be argued that the pursuit of pleasure is more important than the prevention of pain, and that, therefore, Schopenhauer is wrong to focus on pain prevention. This would require that the Utilitarian maxim ‘that pleasure and freedom from pain are the only things desirable as ends’ (Mill, 2001) be rewritten. If the pursuit of pleasure increases the experience of pain then these two ends may be incompatible.

If Schopenhauer is correct in believing that the best type of life is one without desire then, on Utilitarian grounds, his other conclusions are justified. If there were an empirical study to show that this was not the case then a Utilitarian critique of Schopenhauer would be possible. The absence of such a study is one of the chief weaknesses of Utilitarianism, and allows for the variety of conclusions seen above. Where these conclusions do lead to a difference in action Utilitarianism is dilemmatic.
§3 – Utilitarianism and Teleological Dilemmas

The third type of dilemma discussed above is that of a system that fails to reach the aim it sets for itself. It is true that Utilitarianism does not explicitly claim to bring about happiness. The goal is only to perform those actions that maximise happiness. However, it is at least implicit in stating this goal that happiness will be a direct result of this type of action. A moral theory implicitly asks for our trust in its ability to reach the goal that it sets for human action. It is my view that if a theory cannot guarantee its stated goal it lacks the authoritative force expected of a moral theory. Utilitarianism, in my view, is unable to give this type of a guarantee.

One important aspect of decision-making in Utilitarian theory is the virtue of impartiality. The agent is meant to value his own happiness as neither more nor less important than that of another. This being the case it may be right, on Utilitarian grounds, to sacrifice one’s own happiness (or that of another) if by doing so the happiness of others is likely to be increased. While this kind of sacrifice is a natural product of Utilitarianism, the resulting happiness is not a guaranteed result.

It is not the case that self-sacrifice is only a remote possibility. Rather, it is the natural progression of Utilitarian morality. The world, as it is, includes a majority of individuals who lack basic needs such as food and shelter. The fact that they may be far away from us is not morally significant (Singer, 1972). On Utilitarian grounds it would be rational, and ethically right, for the affluent minority to sacrifice their own happiness to as great an extent as possible to improve the lives of the suffering majority. The extent and longevity of this sacrifice could be predetermined by whatever means is considered acceptable. Whatever the case, the requirement would surely be something quite different from the current situation. The point of this is not that this type of sacrifice is undesirable; it is simply that the sacrifice of the happiness of the individual or the minority is a possibility in Utilitarian thinking. It follows therefore that, by being a Utilitarian, one is not guaranteed one’s own happiness.

The above critique would not, perhaps, be as significant if it were guaranteed that the majority would always be happier after the sacrifice of the minority. This, however, is not the case. We
could imagine that a Utilitarian minority volunteers to work solely for the benefit of those less fortunate. In doing so they will be sacrificing their own happiness, not just for the sake of others, but for the sake of the happiness of others. Can they be sure that their actions will, in fact, result in increased happiness? It seems they cannot. There can be no guarantee of, or even a means of assigning probabilities to, happiness resulting.

Happiness cannot be guaranteed, for several reasons. The first is that, while the provision of basic needs is important, it does not result in happiness. Happiness is more complex than this and involves such things as mental states and relational interactions. The basic needs of the less fortunate could possibly be met without their happiness being an automatic result. It may be that other realities still impede their happiness. It could, of course, be argued that while happiness is not achieved, at least the prevention of pain has been achieved and this also is a Utilitarian aim. This would be plausible if those individuals who sacrificed their own happiness were happy to do so if only the prevention of pain were the result, and if there were not circumstances that hindered even the prevention of pain. There are other issues.

The second difficulty with guaranteeing happiness is the fact that each individual’s happiness depends on her own decisions. While an individual may not always be able to make herself happy, she can always make herself unhappy. Providing her basic physical needs may make her more keenly aware of relational difficulties or shortcomings present in her life in such a way that she is less happy when she is no longer hungry. It may be that a group of individuals who are given material goods choose to fight over them and end up in a worse state than before they were provided for. In each case the individuals themselves can ruin their happiness, despite the best efforts of those who make sacrifices for it.

It is true that in a group some will be more likely than others to be happy after being assisted in the way we have spoken of. Still there is a further barrier to Utilitarianism’s guarantee of happiness. It could be that, after a minority has been sacrificed to increase happiness, a war, or natural disaster or some other unforeseen event destroys that for which the sacrifices have been made. So it is not only the one sacrificing and the one for whom the sacrifice is made who are responsible for happiness resulting. Other individuals and nature itself also play a part in allowing for happiness. This implies that the happiness of others can never be guaranteed, and one cannot know that the sacrifice of her happiness will in fact result in the happiness of another.
Is it necessary to guarantee the end assigned by an ethical system? Is it enough to say that happiness is probable if one acts as a Utilitarian? It does seem that guarantees are important to Ethics, inasmuch as Ethics is directed toward telling us what life is all about. In Utilitarian theory life is about happiness. If happiness is only a possible, and not definite, result of Utilitarian action then more is needed. We also need to know how we can best live if happiness is not the actual result of our actions.

Other systems do not shy away from guarantees. Command theories may guarantee that if their maxims are obeyed the community will prosper, or the deity will be pleased, or whatever. In Kant’s system the goal is being rational. In either case, the theory is quite useless if it does not lead to its own stated goal. If life is about being happy, and Utilitarianism cannot guarantee a means to happiness, it is either incomplete or inadequate.

§4 – Utilitarianism and Dilemmas of Authority

The final type of dilemma discussed above is brought about by the source of moral law being either immoral or untrustworthy. This is the case when a moral lawgiver breaks the law or when the lawgiver lacks the type of authority that moral law implies. The relevant issues here are: the moral status of the lawgiver in Utilitarian theory and the question of whether Utilitarianism has the type of authority that an ethical system is expected to have.

Utilitarianism is one of relatively few systems in which each individual is (or may be) the source of her own moral law. This is so because there is not, as has been noted, a detailed description of the state (or states) that gives rise to happiness. Each individual is left to work toward happiness in the way that he sees fit. There is no independent standard by which actions may be judged. One may disagree with the actions of another on his view of happiness, but he cannot prove that the actions are wrong or that the other’s view of happiness is inaccurate. He can appeal to the feelings of the one with whom he disagrees but if she is unconvinced he cannot say that she has failed as a human or as a rational being.
Reason is not on the same par as happiness in Utilitarian theory. Someone who plants trees because he believes that they are happier than humans may be acting irrationally. Still, if his commitment to planting trees makes him and others happier then he is acting rightly. But what about one who acts irrationally and is not productive of happiness? Some believe that pleasure comes from certain types of pain and that pleasure is equal to happiness. Others believe that happiness is best found in drug-induced states of mind. One can say that they believe happiness to be found in another source, but there is no authority to which they may appeal to grant censure to their claim. It could be argued that drugs are detrimental to health and inhibit future happiness, and so they are less ‘fecund’ than more sober pleasures. To this the one who finds happiness in drugs need only reply that they prefer a shorter happier life to a longer more fecund one and that there is plenty for everyone so fecundity is not an issue. It appears to me difficult to find a rational Utilitarian argument that can dissuade them since happiness is preferable to reason.

It is also the case that humanity is not as highly valued as happiness in Utilitarian theory. The tree planter may change his mind and decide that happiness is a dog’s life. So he spends his days sniffing bums and chasing fire engines. Other dogs enjoy his company and people smile at times when they see him dodging traffic. He believes his life to be productive of happiness and to involve no serious potential to cause pain. His behaviour may be no more irrational than one who believes happiness is hitting a little white ball with a club. Certainly he is behaving in a way that is somewhat less than human. However, there is in Utilitarian theory no way to criticise his approach to life, other than to appeal to his feelings and hope that he see things in a different light.

The lack of an independent standard in Utilitarian theory is fatal to its effectiveness in guiding action. Without such a standard the means of choosing or evaluating actions is inconsistent with the explicit aim of Utilitarian theory. The aim is maximising happiness. This implies that actions are right only if they are best for the actual happiness of individuals. The aim is an objective one. But the evaluation of means toward this objective goal is the subjective view of individuals, even if those individuals happen to be in the majority. This subjectivity robs Utilitarianism of the authority needed to prescribe moral action.

It is at least conceptually possible that a system could function without this type of authority. If it could be demonstrated that everyone inherently knows what is good and bad or right and
Moral Dilemmas and Utilitarianism
by William Cunningham

wrong, then an authority to appeal to would be unnecessary. If this were the case it would also have to be the case, for the Utilitarian system to be convincing, that everyone inherently knows what will and will not produce happiness. It seems that if this step, or some similar approach, is to be taken, the burden of proof lies on Utilitarianism to make this clear. Other systems work from an authoritative base and then move on to how, from this foundation right and wrong can be determined. Utilitarian ethicists must show why they are able to proceed without this authoritative foundation, if they are to escape this dilemma.

In addition to the above, Utilitarianism also has to demonstrate its authority over individuals. Utilitarianism is at least one of the most likely systems to sacrifice individuals or groups. It is possible in the Utilitarian view that the severely handicapped be told that the most moral thing for them to do is to commit suicide. It is also possible that the innocent be asked to believe that it is right for them to be punished. These possibilities may not be common, and some Utilitarians may oppose them in specific instances. Nevertheless, they are possible in a Utilitarian framework. These possibilities may come about because Utilitarian theory values overall happiness to the exclusion of individual happiness. Those who are being sacrificed for the majority can be asked to believe that it is right for them to be sacrificed, because they are meant to value their own happiness neither more nor less than that of others. Where the happiness of many others is contrary to their own they should believe their own sacrifice to be morally right.

In allowing for the possibility of individual or minority sacrifice Utilitarianism is claiming authority in a very grave and specific way. It claims to be able to give a gradation of the varying values of human lives. A majority may be given authoritative control over a minority. This is not the same as political or cultural control. What is being discussed here is moral control, the ability to prescribe ways of life or death. Of course Utilitarianism is not the first system to claim this type of authority, various governments, cults, religious figures, etc. have made similar assertions. The fact remains though that a move of this magnitude can only be made after demonstrating sufficient (absolute) authority to justify it. I cannot find such a demonstration in Utilitarianism.

The authority claimed by Utilitarianism could be somewhat buoyed by empirical proof of what does bring about happiness. This would add the weight of reason to the prescriptions of the theory. However, this type of proof is elusive and is currently unavailable. The
effectiveness of the theory in guiding action is, therefore, questionable. Furthermore, it is difficult to see how Utilitarianism can defend its tendency toward absolutism. The moral control of one by another that is possible in Utilitarianism, is an extreme measure that is not without moral implications. Such a possibility requires an absolute and demonstrable authority to be justifiable. Without such an authority Utilitarian theory will remain unconvincing, particularly to those who find themselves in the minority.

§5 – Conclusion

I have presented three ways in which, I believe, Utilitarianism is subject to moral dilemmas. The first is an inter-personal dilemma. This takes place when a single theory leads two individuals or groups into different and incompatible actions. When this takes place a theory has failed to satisfy its implied purpose of uniting action and lifting social interaction above the realm of power struggles. Utilitarianism, inasmuch as it fails to clarify what does in fact result in happiness, is open to interpersonal dilemmas. A second possible dilemma is a teleological dilemma, in which a theory fails to achieve its own stated goal. Utilitarianism makes utility (variously defined) the goal, but is unable to guarantee that its maxims will achieve that goal. This being the case Utilitarianism falls victim to the teleological dilemma.

A final form of dilemma takes place when a theory fails to show sufficient authority for its prescriptions and punishments. In Utilitarian theory there is no independent, objective standard for judging happiness or the means to it. This makes each individual her own lawgiver, and demonstrates the lack of a moral authority in the theory. In addition, Utilitarianism potentially allows for the absolute authority of the majority over individuals and minority groups. However, the theory does not provide an adequate justification for such authority. It is my view, therefore, that Utilitarianism fails to demonstrate the authority expected of a moral theory.

These inconsistencies and inadequacies add up to a need to either rework or replace Utilitarianism, if we are to continue in our search for a dilemma-free moral theory. In order to escape these dilemmas Utilitarianism would have to do two things. The first would be to
provide a basis for evaluating an action’s utility that is central to humanity or rationality. This would be helpful in at least two of the above types of dilemma. It would provide a means for mediating inter-personal dilemmas in that there is a standard over and above our preferences to which actions can be compared. It would also provide an authoritative base for prescriptions and punishments, in that one could then be shown to be failing as a human or rational being. A possible candidate for an objective measure of utility is Aristotle’s *telos*.

A second necessary step in dealing with the above dilemmas is to frame the goal of moral endeavour in a way that is achievable. This would enable Utilitarianism to cope with the teleological dilemma. This is possible where the goal of morality is not only the consequences of action but also the good will and character of the agent. Where an agent is responsible for the happiness of others he can never be sure that his actions will be effective, even if he acts according to his theory. Where he is responsible only for his own character and will his moral efficacy cannot be undermined by another’s unhappiness. Teleology is a plausible candidate for a theory of this type.

Deontological systems are commonly regarded as deficient in coping with moral dilemmas. Consequentialism has the benefit of allowing a means for deciding between conflicting obligations. I have claimed that Utilitarianism, the most common form of consequentialism, has failed to eliminate dilemmas. Were it to be reworked to enable it to resolve these dilemmas it would look more teleological in nature. It is my assertion then, that if we are to hope for a dilemma-free theory of moral obligation, and if that theory is to be a consequentialist one, we must look to moral teleology in the hopes that it will be able to guide action where Utilitarianism cannot.
Bibliography:


Abstract:
There are many theories of Truth. Some deny the univocity of Truth, so that scientific truth is held to be different from moral truth or religious truth. We take the univocity of truth for granted. That is to say, the paper's title is not "Truth is One". We present the quite different and radical claim that truth is NUMERIC. We hold that truth is the NUMBER 1 and that this is akin to a scientific discovery. (Frege's "The True", as the referent of all true propositions, is thus the number 1). We therefore hold that "grass is green" + "snow is white" equals the number 2, and that "Sound is a fluid vibration" is a root of the equation $x^2 - 3x + 2 = 0$.

Certainly logicians often introduce their subject using truth tables filled with ones and zeroes. They try to cover themselves in later years by saying that "strictly speaking" they have been using a "valuation function" on a truth-value in an effort to simplify matters for logical neophytes. In fact the "valuation function" is just the identity function.

We show that ALL logical operators, without exception, to be arithmetical operators. We begin with the operators of propositional calculus and proceed to the axioms of Principia Mathematica and to the quantifiers, accounting for the existential and universal quantifiers in terms of Sigma and Pi functions from Arithmetic. In short, the entire apparatus of nineteenth and twentieth century logical notation is demonstrated to have been unnecessary from the very beginning, because of a misapprehension of the numeric nature of Truth.
§1 - How logicians represent truth

Logicians present the truth possibilities of combinations of propositions in truth-tables. Thus the truth tables representing negation and conjunction are:

<table>
<thead>
<tr>
<th>Negation</th>
<th>Conjunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p )</td>
<td>( \neg p )</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

In fact, however, lecturers in introductory (and other!) logic courses often follow the common practice of mathematicians and represent truth and falsity not by “T” and “F” but by the numbers 1 and 0\(^1\). The truth tables are thus presented to students not as above, but as:

<table>
<thead>
<tr>
<th>Negation</th>
<th>Conjunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p )</td>
<td>( \neg p )</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
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<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Now it is fortunate for logic lecturers that students generally accept what they are told and don’t raise the objection that what they are being presented with are not in any obvious sense, truth values, but rather tables of numeric values. Indeed, as defined in the two preceding tables, negation and conjunction are not specifically logical operations at all! Negation is just the arithmetic operation \( 1 - p \) and conjunction is just arithmetic multiplication, \( pq \), as can be verified by inspecting the tables. So just as we already have the symbols “+”, “-“, “X”, “/” for the basic arithmetical operations, we can include amongst them “¬” and “&” as two new arithmetical operators, that can only take the numbers 0 and 1 as operands and define their behaviour using subtraction and multiplication via the following rules:

\[
\neg p = _{df} 1 - p \\
(\text{that is to say; the number one less } p) \\
p \& q = _{df} pq \\
(\text{that is to say; } p \text{ multiplied by } q)
\]

\(^1\) Whether “1” and “0” represent arbitrary symbols or whether there are independent reasons for taking them to be numbers, is precisely the point of this paper.
The students, that is to say, are being taught arithmetic. It is in fact likely that precisely this is what has happened to members of this very audience. That is to say, it is in fact perfectly likely that listeners to this paper have only ever been introduced to arithmetical operators and their beliefs that someone once showed them something different – “logical operators“ or somesuch – whatever they were told by their instructors, are simply mistaken. I stress again that as commonly introduced, “~” and “&” are purely arithmetic operators on the numbers 0 and 1 and readers should disabuse themselves of any concept of some specifically different domain of logical connectives. All that the nominally “logical” operators clearly involve, at least for negation and conjunction (but as we shall see, for all of them) are subtraction and multiplication. What we are demonstrating is that the alleged “logical product” of two propositions is actually their arithmetic product, provided truth is 1.

We are presenting then, the perhaps rather startling suggestion that what Frege held to be “the True” - as the reference of all true propositions - is to be identified as the number 1. We are presenting this as a metaphysical discovery, just as it is a discovery that sound is an undulation in a fluid medium. And we argue on Ockhamist grounds that no other concept of Truth is actually needed in all other cases. Listeners might be familiar, for example, with recent attempts to account for Truth in terms of equivalence classes across possible worlds. None of it is necessary. The number 1 suffices and any other concept of Truth is Ockhamistically superfluous. We will first establish that everything logicians want to do can be done in Arithmetic alone, and after this, that nothing metaphysically further concerning Truth is necessary. The different Boolean models are in any case all equivalent via the standard isomorphism results, so Arithmetic will do all by itself to model any Boolean system whatever. That is to say, we deal here with arithmetic operators, in no way different from the familiar “+” and “–“ of primary school and argue that they suffice. We thereby reduce Logic to Arithmetic. Let us therefore label this position “anti-Logicism”.

Frege’s reference, the “Bedeutung” of all propositions, we thus hold to be the number 1. The sense, Frege’s “Sinn” of a proposition, we hold to be the mode in which a proposition equals 1. A United States citizen, for example, can become so in at least two ways: by natural birth on U.S. soil, or by a naturalisation process. There are thus at least two ways, or modes, in which a U.S. citizen can become such. Likewise, there is a “grass is green” mode of being 1 and a “snow is white” mode of being 1 and a good many other modes besides. And just as
U.S. citizenship is the same for all citizens, despite the manner in which it was made such, so “grass is green” and “snow is white” are equally the number 1, despite the differing ways in which they equal 1².

§2 Boolean functions in Arithmetic

As noted already, arithmetic negation is defined by subtraction: \( \neg p = df 1 – p \)

<table>
<thead>
<tr>
<th>p</th>
<th>( \neg p )</th>
<th>1 - p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

And arithmetic conjunction is defined by multiplication: \( p \& q = df pq \)

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>pq</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
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<td>0</td>
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</table>

We might wonder what happens if we simplify the arithmetic formula

\[ \neg (\neg p \& \neg q) \]

in accordance with the preceding rules. Blanking from our minds the name “DeMorgan” lest we be seduced away from arithmetic back to a false metaphysics of Logic, we find that

\[ \neg (\neg p \& \neg q) = p + q – pq \]

2 There is, of course, the complication here that only a “natural born” American citizen can become President,
Working out values for $p + q - pq$ as in the following table, we find that we have uncovered an *arithmetic* operation of $p \lor q$, (call it *Arithmetic* disjunction, though we are arguing that it is just what we have all along called disjunction) as $p + q - pq$

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>$p + q - pq$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>1</td>
<td>0</td>
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</tbody>
</table>

Note the table’s formal equivalence to the logical disjunction of the logicians’ “T” and “F” truth-tables. We argue that their tables are merely a notational variation of the true arithmetical version of disjunction given above. That is to say, disjunction of two propositions $p$ and $q$, really *is* just $p + q - pq$, which is actually best understood not as mere formal equivalence, but as *identity* What we know as disjunction, we are saying, is shown by the table above to really be just propositional sum minus product, *when the actual nature of propositions as numeric* finally dawns upon the initially non-comprehending consciousness.

That is to say, we have, since the origin of our species, been actually using the (arithmetical) sum less the (arithmetical) product of two propositions whenever we used the disjunctive “or”, and this in complete ignorance of the arithmetic nature of what we were all-along doing. Disjunction of two propositions, astounding as it sounds, just IS their arithmetic sum less their product. Granted, we do not recognize that “Snow is white” plus “Grass is green” is in fact the number 2, but then untold generations failed to recognise that sound was an undulation in a fluid medium also. Ancestral bog ignorance ought not be appealed to in order to avoid looking at a discovery, particularly when the truth discovered IS Truth. “Snow is white” plus “Grass is green” just IS the number 2 and “Water is wet” happens to be a root of the quadratic equation $x^2 – 3x + 2 = 0$. Sometimes realization of truth requires some imaginative effort on behalf of the enquirer, as with the “consciousness is a brain process” identity thesis that took a decade following Place and Smart’s seminal papers to dawn upon the Philosophical community as a serious possibility, rather than as a mere elementary category confusion.

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but the general point stands Congress can in any case confer honorary American citizenship, as I understand happened to Raoul Wallenberg and Winston Churchill, amongst others.
Let us use these reflections to derive an arithmetic operator that we will represent by “→”.

Using the form suggested by the logical equivalence of the material implication of two propositions as the negation of the first “disjuncted” with the second, we proceed arithmetically as follows:

\[\sim p \lor q = (1 - p) \lor q\]
\[= (1 - p) + q - (1 - p)q\]
\[= 1 - p + q - q + pq\]
\[= 1 - p + pq\]

Constructing the appropriate arithmetic table, we arrive at:

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>1 – p + pq</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>1</td>
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<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

In general, the formal equivalences to the truth-tables offered in what we think is the non-existent subject of Logic, are plain. Logicians mistakenly think that they study “truth-values” as something distinct from numbers, whereas we say, that, quite unbeknownst to themselves, they really deal only with numbers. Consider modus ponens, in the form

\[\text{IF } \{p \text{ AND (IF } p \text{ THEN } q)\} \text{ THEN } q\]

We write this as follows, simplifying each line using High School algebra (and the above result for material implication) to arrive finally at its numeric value:

\([p(p \rightarrow q)] \rightarrow q\]
\[= [p(1 - p + pq)] \rightarrow q\]
\[= [p - p^2 + p^2q] \rightarrow q\]
\[= [p - p + pq] \rightarrow q\]
\[= (pq) \rightarrow q\]
\[= (1 - pq + pqq)\]

3 Because we are dealing with Arithmetic, there is nothing untoward in the use of the equals sign here.
= (1 – pq + pq)
= 1

Modus ponens, as one might say, lives. And as with modus ponens, so all logical truths are likewise equal to 1. In particular the axioms of Principia Mathematica are equal to 1, as can be easily verified by the listener.

Let us then, try to derive an arithmetic analogue of the Sheffer stroke. The Sheffer stroke is defined within Logic as NOT P AND NOT Q. On our arithmetic model, we should consider the arithmetic function (1 – p)(1 – q). This multiplies out to

1 – p – q + pq,

which indeed gives us an arithmetic table of the proper form.

So we define Arithmetic Sheffer stroke as 1 – p – q + pq

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>1 – p – q + pq</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
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<td>0</td>
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<td>1</td>
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</tbody>
</table>

Definition of “p ↑ q” as “1 – p – q + pq”

We can continue similarly to derive arithmetic versions of common propositional calculus operations as follows:

<table>
<thead>
<tr>
<th>Propositional Calculus Operation</th>
<th>Arithmetical Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEGATION</td>
<td>~p = 1 – p</td>
</tr>
<tr>
<td>CONJUNCTION</td>
<td>p &amp; q = pq</td>
</tr>
<tr>
<td>DISJUNCTION</td>
<td>p v q = p + q – pq</td>
</tr>
<tr>
<td>MATERIAL IMPLICATION</td>
<td>p → q = 1 – p + pq</td>
</tr>
<tr>
<td>MATERIAL EQUIVALENCE</td>
<td>p ↔ q = 1 – (p – q)^2</td>
</tr>
<tr>
<td>EXCLUSIVE DISJUNCTION</td>
<td>p XOR q = (p – q)^2</td>
</tr>
</tbody>
</table>
There were in fact two different logical operators that Sheffer considered in his paper (Sheffer 1913). Sheffer also considered NOT P OR NOT Q. Its arithmetical form would be found by:

\[
\sim p \lor \sim q = (1 - p) \lor (1 - q) = [(1 - p) + (1 - q) - (1 - p)(1 - q)] = [1 - p + 1 - q - 1 + q + p - pq] = 1 - pq
\]

I shall call this arithmetic operator on the integers 0 and 1, the Sheffer2 Stroke and its Boolean arithmetical table is given following, together with the Sheffer stroke for comparison.

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>Sheffer2 stroke p ↓ p</th>
<th>Sheffer stroke p ↑ p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>1</td>
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<td>1</td>
<td>1</td>
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</tbody>
</table>

We can peruse some further arithmetical derivations of interest. In the table following:

<table>
<thead>
<tr>
<th>Propositional calculus expression</th>
<th>Sheffer stroke derivation</th>
<th>Sheffer2 stroke derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \sim p )</td>
<td>( p \uparrow p )</td>
<td>( p \downarrow p )</td>
</tr>
<tr>
<td></td>
<td>( = 1 - p - p + pp )</td>
<td>( = 1 - pp )</td>
</tr>
<tr>
<td></td>
<td>( = 1 - 2p + p^2 )</td>
<td>( = 1 - p^2 )</td>
</tr>
<tr>
<td></td>
<td>( = 1 - 2p + p )</td>
<td>( = 1 - p )</td>
</tr>
<tr>
<td></td>
<td>( = 1 - p )</td>
<td>( = \sim p )</td>
</tr>
<tr>
<td>( p \lor q )</td>
<td>( (p \uparrow q) \uparrow (p \uparrow q) )</td>
<td>( (p \downarrow p) \downarrow (q \downarrow q) )</td>
</tr>
<tr>
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<td>( = 1 - (p \uparrow q) )</td>
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<td>( = 1 - (1 - p - q + pq) )</td>
<td>( = 1 - (1 - p - q + pq) )</td>
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<td></td>
<td>( = p + q - pq )</td>
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</table>
Truth is 1
by Kim Cornish

\[ p \lor q = p + q - pq = p \lor q \]

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<thead>
<tr>
<th>( p \land q )</th>
<th>( (p \uparrow p) \uparrow (q \uparrow q) )</th>
<th>( \downarrow \downarrow (p \downarrow q) )</th>
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<tbody>
<tr>
<td>( = 1 - (\neg \neg p \land \neg \neg q) )</td>
<td>( = 1 )</td>
<td>( = 1 - (1 - pq) )</td>
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<td>( = 1 - (1 - p) - (1 - q) + (1 - p)(1 - q) )</td>
<td>( = pq )</td>
<td>( = p \land q )</td>
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<tr>
<th>( p \rightarrow q )</th>
<th>([p \uparrow p] \uparrow [p \uparrow p] \uparrow q )</th>
<th>( p \downarrow (q \downarrow q) )</th>
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<tbody>
<tr>
<td>( = [\neg p \uparrow q] \uparrow [\neg p \uparrow q] )</td>
<td>( = p \downarrow (\neg q) )</td>
<td>( = 1 - (1 - q) )</td>
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<tr>
<td>( = (p \land \neg q) \uparrow (p \land \neg q) )</td>
<td>( = 1 - p + pq )</td>
<td>( = p \rightarrow q )</td>
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<td>( = 1 - p + pq )</td>
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<td>( = p \rightarrow q )</td>
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</table>

All of the propositional connectives thus can be expressed arithmetically in terms of either version of the arithmetical Sheffer stroke. It follows that the propositional calculus axioms of *Principia Mathematica* can also be so expressed, from which it follows that all the theorems of *Principia Mathematica* that follow therefrom can be so expressed, for as Sheffer showed, it is also possible to use either of the Sheffer strokes to recursively generate any well-formed formula of propositional calculus. That is to say, the assumption that Truth is 1 allows us to develop a structure demonstrably isomorphic to propositional calculus, the very one that we are claiming is in fact what propositional calculus – despite appearances - actually is.

The standard move to avoid this is to invoke a “valuation function” from truth-values to numbers and say that while it is perfectly to O.K. to write \( V(p) = 1 \), the argument of this function is not a number, but a *truth value*. We should thus (so we are urged) better write our arithmetical version of disjunction not in the form \( p \lor q = p + q - pq \), but in the unobjectionable form.
This, however, is to obscure the fact that the nature of the “valuation function” is precisely the issue here and not its solution. That is to say, if truth is 1, as we are claiming, and p is true, then writing \( V(p) = 1 \) is no different from writing \( p = 1 \). The “valuation function” is entirely otiose, since \( V(p) \) is then just p itself. “\( V(p) \)” on our view, is indifferently “add 0” or “multiply by 1”. But whatever it is supposed to be, it has no effect on truth-values at all. The suggestion that it operates on truth-values as something different from numbers is thus a colossal (and unargued for) begging of the question that clarifies nothing. If Truth is not numeric, then yes, we must invoke a “truth-value to number” valuation function in an attempt to explain the striking arithmetic equivalences. If Truth is numeric in the first place, however, as we are claiming, then the “valuation function” is simply the identity function and its invocation calls up nothing at all.

§3 – The quantifiers as Arithmetic operators

What, then, are we to make of the quantifiers? Consider the n propositions:

\[
F_{x_1}, \; F_{x_2}, \; F_{x_3}, \; F_{x_4} \ldots \; F_{x_n}
\]

If they are all equal to 1, then their product equals 1. If any of them is equal to 0, however, then their product equals 0. Mathematicians standardly express such a product as

\[
\prod_{j=1}^{j=n} F_{x_j}
\]

But this is just an Arithmetic equivalent of the universal quantifier provided Truth is 1. We therefore define the universal quantifier arithmetically:
and assert, against the instincts of logicians, that this (the right hand side) is what universal quantification really *is*, with nothing left over or omitted. (Should quantification be over an infinite domain, we simply write it, as mathematicians do, with no bounded upper limit, as with Wallis’ famous infinite product formula for $\pi/2$:

$$\prod_{n=1}^{\infty} \frac{(2n)(2n)}{(2n-1)(2n+1)} = \frac{2}{1} \cdot \frac{2}{3} \cdot \frac{4}{3} \cdot \frac{4}{5} \cdot \frac{6}{5} \cdot \frac{6}{7} \cdot \frac{8}{7} \cdot \frac{8}{9} \cdots = \frac{\pi}{2}$$

That is to say, the true nature of universal quantification is shown by the right hand side of the definitional equivalence

$$\forall x(Fx) = df \prod_{j=1}^{j=n} Fx_j$$

and the shorthand using the upside-down “A” on the left of the equation is therefore just that: a totally eliminable shorthand. The universal quantifier, in other words, is entirely replaceable with the Arithmetic “PI” operator, which in any case carries the added advantage of requiring a domain specification concerning precisely which elements are being multiplied together. The work of Frege, Russell and Whitehead actually required no new notation at all, was symbolically superfluous, and indeed, lacking the domain specification, was a backwards step. Everything they did so far as predicate calculus is concerned, was better expressible using the well-known symbols of Arithmetic alone.

Indeed, because of the inter-definability of the universal and existential quantifiers, we can also use the PI operator to derive the existential quantifier. Thus
If all of $F_{x_j}$ equal 0, then the above expression equals 0. If any or all of $F_{x_j}$ equal 1, then the whole product equals 1, which is precisely the behaviour we want from an arithmetic equivalent of the existential quantifier. In short, if Truth is 1, the existential quantifier is thus also completely eliminable.

We note parenthetically that we can proceed further and also use the standard mathematical Sigma notation for existential quantification, with one refinement, involving the “smallest integer not less than” function, called the “ceil” or “ceiling” function by Mathematicians, represented as “ceil( )”.

$$
(\exists x)(F_{x}) \equiv \sim (\forall x) \sim (F_{x})
$$

$$
= 1 - (\forall x)(1 - F_{x})
$$

$$
= 1 - \prod_{j=1}^{j=n} (1 - F_{x_j})
$$
Note that \( \text{ceil}(0) = 0 \), that \( \text{ceil}(1) = 1 \) and that if \( x \) is any number between 0 and 1 then \( \text{ceil}(x) = 1 \). Now consider the \( n \) propositions:

\[
F_{x_1}, F_{x_2}, F_{x_3}, F_{x_4} \ldots F_{x_n}
\]

If they are all equal to 0, then their sum equals 0. In particular the \( \text{ceil}() \) function of their sum is also 0. If any of them is equal to 1, however, then their sum equals a number in the range 1 to \( n \). If we divide this number by the number of propositions we are dealing with (that is to say, by \( n \)) then we arrive at a number that is something greater than 0, and less than or equal to 1. If we apply the \( \text{ceil}() \) function to this, we end up with 1. In other words, we find the “mean” or average of the propositions we are dealing with and then apply the \( \text{ceil}() \) function to it. We express this function as follows:

\[
\text{ceil}\left(\sum_{j=1}^{j=n} (F_{x_j}) / n\right)
\]
To repeat, this function has the property of equalling 0 if all of \( Fx_j \) equal 0 and in all other cases equals 1. In short, it is the required form of the existential quantifier written \textbf{arithmetically}. We have then:

\[
\exists x(Fx) =_{df} \text{ceil} \left( \sum_{j=1}^{j=n} \left( Fx_j \right) / n \right)
\]

Indeed, a little reflection shows us that we can even add the \( \text{ceil}(\ ) \) function in front of our derivation of the arithmetic universal quantifier with no effect, so there is a perfect symmetry of definitional expression.

\[
\forall x(Fx) =_{df} \text{ceil} \left( \prod_{j=1}^{j=n} Fx_j \right)
\]

What matters is that we have arrived at two alternative arithmetic functions, defined using PI and SIGMA alone, that if Truth is 1, exactly fit the quantifiers. It is easy to show they satisfy the two crucial quantifier equivalence requirements

\[
(\exists x)(Fx) = \sim (\forall x) \sim (Fx)
\]

and

\[
(\forall x)(Fx) = \sim (\exists x) \sim (Fx)
\]

To see how this works in the case of the existential quantifier, consider the following demonstration:

Starting with our definition:
\[\exists x(Fx) =_{df} \text{ceil} \left( \sum_{j=1}^{\infty} (F_j x) / n \right)\]

We reason as follows:

\[\sim \exists x \sim (Fx) =_{df} \text{ceil} \left( \sum_{j=1}^{\infty} (\sim F_j x) / n \right)\]

\[= 1 - \text{ceil} \left( \sum_{j=1}^{\infty} (1 - F_j x) / n \right)\]

\[= 1 - \text{ceil} \left( \sum_{j=1}^{\infty} ((1/n) - (F_j x) / n) \right)\]

\[= 1 - 1 - \text{ceil} \left( \sum_{j=1}^{\infty} -(F_j x) / n \right)\]

\[= -\text{ceil} \left( \sum_{j=1}^{\infty} -(F_j x) / n \right)\]

\[= \text{ceil} \left( \sum_{j=1}^{\infty} (F_j x) / n \right)\]

This last equals 1 if and only if all of the \(F_j x\) equal 1 and is 0 otherwise, which is also the case with the right hand side of

\[\forall x(Fx) =_{df} \text{ceil} \left( \prod_{j=1}^{\infty} F_j x \right)\]

so the equivalence is proved.

We can state, then, the following conclusion: If Truth is equal to 1, then all the misleading
logical apparatus invented last century involving predicate calculus can be junked and
replaced by its metaphysically non-misleading arithmetic equivalent. The quantifiers can be
entirely replaced by the PI and SIGMA operators of Arithmetic. And metaphysical puzzles
about Truth can be consigned to wherever Bradley’s puzzles about “the Absolute” went. It is
not that our Numeric theory of Truth has to “fit in” with a Correspondence or Coherence
theory of Truth. The other theories are of 0 value and so can be discarded.

Should any deny that Truth is equal to 1, then the logical statement of their position
expressing this, is replaceable, symbol for symbol, by one in which Truth does equal 1. But
then the doctrine that Truth is 1 cannot be denied without contradiction. Here is the argument:

1. Predicate calculus is entirely modellable within arithmetic, symbol for symbol, on the
   assumption that Truth is the number 1.
2. If the proposition that Truth is non-numeric (that is to say, not 1) can be expressed in
   predicate calculus then it is thereby also expressed, symbol for symbol, arithmetically.
3. A consequence of Truth being non-numeric (that is to say, the current philosophical
   orthodoxy) is that the proposition "Truth is 1" is false.
4. In the arithmetic predicate calculus model expressing this, "Truth is 1" would therefore
   have value 0.
5. Therefore ~"truth is 1" = 1, in the arithmetic model
6. But given that the very nature of the arithmetic model is that all true propositions equal
   1, 5 turns out to be of the form "0 = 1" and this is not possible, not because of any fault
   in the model, but because of arithmetic. Truth is univocal; both one and 1.

One might be tempted to say "So much the worse for the model", but if the model falls, so
does predicate calculus, precisely because it satisfies the predicate calculus axioms and
shares PC’s theorems, symbol for symbol. Ergo, Truth is 1. Otherwise EVERYTHING
totters. Russell, Whitehead and the rest could have stayed with Arithmetic and omitted their
invention of specific logical symbols entirely. The work of twentieth century logicians was
done in an unnecessary and redundant symbolism. Truth is 1 and falsity is 0 and may all the
unnecessary rest be damned. There are not two things, Truth and the number 1, but only, as it
were, 1. So if asked “what is your 1, O?”, we reply “1 is 1 and all alone and ever more shall
be so.” Truth is 1. Q.E.D.

An addendum on why truth is not, say, 153
The curious listener might wonder, if is granted that Truth could be numeric, why its actual value has to be 1. Manufacturers of electronic logic gates for example, sometimes use a low voltage to represent truth and a higher voltage to represent falsity. In this “negative polarity logic” (implemented in programming languages such as C and BASIC) truth is represented as -1 and falsity as 0. The corresponding tables are:

<table>
<thead>
<tr>
<th>P</th>
<th>~P</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th>Q</th>
<th>P &amp; Q</th>
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</thead>
<tbody>
<tr>
<td>-1</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>-1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

In this, the p & q conjunction is no longer arithmetic multiplication, since -1 X -1 is +1 and not the -1 it has to be if p, q and p&q are all to have the same truth value when p and q are true. In this negative polarity logic, it turns out (check it!) that ~p = -1 - p and p & q = -pXq. We see, that is, that an arbitrary change in numeric assignments for Truth and Falsity forces changes in the arithmetic functions that we are saying are what the logical connectives actually are. In the general case, if we take truth to be “a” (say the number 153) and falsity to be “b” (say the number 147) then the tables look like this:

<table>
<thead>
<tr>
<th>P</th>
<th>~P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>b</td>
<td>a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th>Q</th>
<th>P &amp; Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>a</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>b</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>b</td>
<td>b</td>
<td>b</td>
</tr>
</tbody>
</table>

The tables come out truth-functionally O.K. if negation is defined as:

\[ \sim p = a + b - p \]

and conjunction as:

\[ p & q = \frac{(p-b)(q-b)}{(a-b)} + b \]

as can be easily confirmed by manually checking each row of the preceding tables. That is to

---

4 In BASIC, for example, the command PRINT 3+2=5 results in -1 appearing on screen, whereas PRINT 3+2=6 results in a 0.
say, it’s now a perfectly straightforward matter to define truth as 153 and falsity as 147 and have the interpretation model the theorems of predicate calculus. And if this is so, then in what lies our claimed exclusivity of 1 and 0, over, say, 153 and 147?

The point overlooked here is that there are natural ways that are not in any sense arbitrary of defining functions from a mathematical perspective. Thus we could work with logarithms to the base 10 exclusively, but e is the natural base to use in a perfectly objective sense for it produces the simplest expansions, with other bases best defined in terms of it, rather than the other way around. Thus e to the power of x is given by:

\[ e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots \]

Any other base, however, (for example, 10) requires that we use the power expansion

\[ 10^x = 1 + x \log_{10} 10 + \frac{(x \log_{10} 10)^2}{2!} + \frac{(x \log_{10} 10)^3}{3!} + \ldots \]

The simplicity in the former expression of the symbolism compared to the base 10 expansion, itself, as it were, forces upon us knowledge of the unique role that e plays over other bases in exponential and logarithmic functions. It is thus (and in many similar ways) that e reveals itself as the unique and natural base of logarithms.

Likewise, the sine of an angle is the Y-co-ordinate on a point on the unit circle the length of whose arc subtends the angle. Couldn’t the sine function be defined via some other circle, perhaps in terms of a circle of radius 153? Of course it could, but mutual interdefinibility doesn’t suffice to rule out a particular choice as the natural one to use on other grounds. On the unit circle, for example, an arc of length 2\(\pi\) units subtends an angle of 360°, one full circle. On a circle of radius 153 units, however, it subtends an angle of about 0.0007167°. That is to say, we pick a circle of radius 1 as fundamental to define the trigonometric functions on grounds of mathematical simplicity so far as interdefinibility with all other circles is concerned. The cosine and sine functions of a real angle are just the X and Y co-ordinates of a point on the (specifically) unit circle whose arc-length subtends the angle. Likewise we should pick 1 as the natural value for Truth on the grounds that other values are most simply expressed via transformations based on 1 and 0 as our fundamental Boolean ring values. In just the same way as e is the natural base of logarithms and the unit circle is the one with the
natural radius for trigonometric function definition, so 1 and 0 are the natural values for truth and falsity in defining any other similarly-behaving Boolean ring formulae. This simplicity is not in any sense a psychological matter, but resides in the symbolism itself. In short, if the listener can see the reasons for taking e to be the natural base for logarithms, then the listener can also see the reasons for taking truth to be 1. That is to say, e really is the natural base of logarithms and truth is likewise naturally 1. The logical symbolism in terms of which truth is 1 is precisely that symbolism allowing the greatest simplicity in its transformation rules. The arithmetic transformation of p AND q for example, as pq is simpler with 1 and 0 as the Boolean values than it is for any other numeric assignment. p AND q is a considerably more complicated function when truth is 153 and falsity is 147. Thus

<table>
<thead>
<tr>
<th>Negation</th>
<th>Conjunction</th>
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<tbody>
<tr>
<td>p</td>
<td>~p</td>
</tr>
<tr>
<td>153</td>
<td>147</td>
</tr>
<tr>
<td>147</td>
<td>153</td>
</tr>
</tbody>
</table>

And we have the corresponding arithmetic formulae:
\[ \sim p = 400 - p \] (Check it!)
and:
\[ p \& q = \frac{(p - 147)(q - 147)}{6} + 147 \] (Check it!)

Not all Boolean models, then, are on the same level and the 1, 0 model is the one at the pinnacle, everything else being most simply defined in terms of it, rather than vice versa. Compare the simplicity of \( p \& q = pq \) with
\[ p \& q = \frac{(p - 147)(q - 147)}{6} + 147 \]

That Truth is 1 is therefore exactly analogous to e being the natural base of logarithms. It is not that there are not other possible bases, but simply that none of the others are natural bases. Truth, then is not merely arguably 1; it is also naturally 1. Let us just say, then, that Truth is 1. There is, as it were, no better choice – the symbolism itself shows us that there is no better thing for it to be or that it could be. Truth, then, is not merely unitary; it is unity itself.
Truth is 1
by Kim Cornish

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Kimberley Cornish

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