



**The Haberdashers' Aske's Boys' School**  
Nurturing Excellence

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*Issue V*

*Spring Term 2017*

# VERITAS



*The Haberdashers' Aske's Boys' School  
Theology & Philosophy Journal*

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## INTRODUCTIONS

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MR CAWLEY

I HAVE HAD it in mind to do something on this theme of Music, Maths, Morality and the Structure of Reality for some time and am so grateful to Mr Lawrence and his team for bringing my initial musings to fruition.

It is both perplexing and exhilarating to consider the connectivity that exists at the most basic levels of reality. One's response will largely depend upon one's worldview assumptions about the extent to which such objective structures exist, whether they are accessible to human perception and the plausibility of alternatives which might propose, amongst other things, that such 'structures' are merely the constructs of the human mind.

So I'd better come clean and admit that I myself am convinced that such objective structures do exist, independently of the human mind. Moreover, I also maintain that the human mind has the capacity to perceive such structures. Granted this assumption, it then becomes a source of great excitement to consider how academic subjects relate to these structures and

whether such structures are useful for making links between disciplines.

Now it is perhaps not too difficult to see the connections between Mathematics and Music: the importance of symmetry, the way that adjusting ratios can generate harmony or discord in campanology (Bell ringing!) and so forth. As G.W. Leibniz said, ‘The pleasure we obtain from music comes from counting, but counting unconsciously. Music is nothing but unconscious arithmetic.’

It is also clear from moral arguments for the existence of God (such as those of C.S. Lewis and W.L. Craig) that many see moral structures as being as basic to this universe as the laws of physics. But how are we to connect music, maths and morality?

Perhaps it is through beauty. We speak of elegant solutions, noble character and music which resonates in the depths of our being. Could it be that the concept of beauty is fertile ground for making such connections? If that is true, our academic study should be about producing something beautiful; perhaps only then will we achieve real creativity and avoid being sucked into a quagmire of pragmatism. I hope that this edition of Veritas makes some contribution to that end.<sup>1</sup> Keep thinking!

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<sup>1</sup> Why not read CS Lewis, *Mere Christianity* and Tony Crilly, *The Big Questions: Mathematics*.



## MR LAWRENCE

LEIBNIZ DESCRIBED MUSIC as *'the pleasure the human soul experiences from counting without being aware that it is counting'*. The relationship between this journal's topic, Music, Maths, Morality and the Structure of Reality, for me boils down to the soul and the soul's encounter with the structures underlying Music, Maths and Morality.

While studying Music A-Level, I was mesmerised and left haunted by Music's ability to infiltrate the soul. One of my A-Level pieces was Berlioz's *'Harold in Italy'*. Imagine this: a melancholic character named Harold in the mountains, a love scene, a group of pilgrims and wild and dangerous company in a tavern. I was fascinated by the variety of movements and the marginalised solo viola portraying the character Harold as a distant observer to the intense human activity being presented. It was through the analysis of this piece that I became gripped by the way in which Music brings to life emotions, morality and human nature.

I have really enjoyed the passing conversations with students this term on the connections between Music, Maths, Morality and the Structure of Reality. The links between these will no doubt be dependent on your own worldviews and whether or not a structure to reality exists in your search for the truth.

Last year I played the violin with the Bridgewater Sinfonia, an orchestra in Hertfordshire made up of local professional musicians which aims to enrich the cultural life of the county. The repertoire included Ravel's *Le tombeau de Couperin*, Vaughan Williams' *Dona nobis pacem* with the Chiltern Chamber Choir and Elgar's *Cello concerto in E Minor* with soloist Matthew Sharp. I would urge anyone reading this to seize the opportunity to make Music and enjoy the pleasures that come with it. Relish the memories that Music creates and the Theological reflections that it provokes. As Plato said, *'Musical training is a more potent instrument than any other, because rhythm and harmony find their way into the inward places of soul, on which they mightily fasten, imparting grace, and making the soul of him who is rightly educated graceful'*.



## Word From The Editor

COVI FRANKLIN, EDITOR-IN-CHIEF



THE PROCESS OF compiling this year's edition of the school's annual Theology and Philosophy journal, *Veritas* has been a truly fulfilling one for both myself and my wonderful senior editing team of Adam and Gabriel. It has been wonderful knowing the extent of the enthusiasm for Theology and

Philosophy within the school, given the record number of volunteers offering to help edit the journal, along with another fine selection of scholarly articles.

It has always been the role of both Philosophers and Theologians to grapple with the great questions that the universe has to offer and thus we felt it was vital to allow boys this year to explore some of the most basic, yet fundamental aspects of our existence. This year's theme has baffled thinkers with the paradoxical nature of its utterly simple beauty and the incomprehensibly complex nature of the finished product of Maths, Music and Reality; three strands which stretch into the lives of all people across the world.

This year's theme has allowed, as it has previously been difficult to achieve, articles to pour in from interested pupils who are not limited simply to the Theology and Philosophy department. Philosophy, after all literally means 'a love of knowledge' and this is an interest which stretches far beyond the academic discipline itself, with boys specialising in both Mathematics and Music being given the opportunity to put forward their thoughts on how it is that the emotions of a human can be altered by a series of sounds being brought together into a single compilation, whether Music is simply an appealing Mathematical series or something more, with an innate aesthetic beauty.

It is necessary to give one final, yet crucial thanks as part of this editorial, for without the incredible commitment and hard work of our staff editor, Mr Lawrence, this showcase of intellectual thought would not have come to fruition. Through his consistent passion for the subject, he has made this journal into something that has exceeded everybody's expectations, by arranging and organising the publication from the editing of various articles to doing the jobs that nobody else has thought to do. On behalf of all those involved with this year's Veritas team, we thank you for everything and all agree that you deserve all the praise that will duly come your way.

I will leave you with a word from Ludwig Van Beethoven, one of humanity's greatest ever composers, a man who spent as much time contemplating the value of Music as

he did composing it. His words encapsulate exactly why it is that we are exploring Music in a journal dedicated to Theology and Philosophy.

*‘Music, in truth, is the mediator between spiritual and sensual life.’*

## THEOLOGY AND PHILOSOPHY DEPARTMENT DINNER, A REPORT

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LEWIS FORMAN, L6J1



ON 3 NOVEMBER 2016, I, along with 62 other students, Old Haberdashers and teachers, was lucky enough to attend the Sixth Form Theology and Philosophy Dinner 2016.

The evening started off with drinks in Aldenham House Reception, and we subsequently made our way into the Old Refectory for the meal. We were served our first three courses; this meal was of outstanding quality and a pleasant assortment of tastes was enjoyed by all.

During the meal, we were seated in groups of around eight, and since we were not with our friends, our known interests only overlapped in one area: Theology and Philosophy. This meant that the majority of the conversation that occurred was T&P related, aided by the philosophy related pictures and cards placed on our tables.

Everyone was welcomed by Mr Lawrence who gave thanks to Mr Cawley for his support of the evening's

event and for his outstanding contributions to the Theology and Philosophy department over the last ten years as he leaves us at the end of this term. Reverend Brandon said grace and by this time discussion was well underway.

Dr Green introduced our guest speaker, philosopher Nigel Warburton, famous for his work on “Philosophy Bites” amongst other things, was the highlight of the evening. He gave us the choice on what he would talk about: either Sartre’s Existentialism or Mill’s Liberty. However, the room being divided pretty much evenly between the two topics, he decided to talk to us about both of these within the time he had. The ideas and anecdotes he shared were first class, and thought provoking. After a short break for coffee and discussion, he opened the floor to questions, and as per usual, the questions that the boys asked were complex and posed an interesting challenge for Warburton to answer.

The evening was a superb opportunity for both Theology students and Philosophy students to combine and share ideas and reflections on the two subjects being studied at A-Level. It was excellent to welcome back Old Haberdashers currently studying Theology and Philosophy at university and to hear a philosopher speak on philosophy for life as well as the academic content he presented. On behalf of all the boys, I would like to thank Mr Lennon and all of the Theology and Philosophy teachers for making the Sixth Form Theology and Philosophy Dinner 2016 such an excellent occasion, and a special thanks to Nigel Warburton for his engaging and entertaining after dinner speech.

## A Level Conference for Year 12

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### STARTING A LEVEL THEOLOGY

*With Dr Peter Vardy, Dr David Webster  
and a live interview  
with Dr Bernard Hoose*

*Friday 10 February 2017, London*



Year 12 Theology students will love this intensive event exploring big questions in the Philosophy of Religion and Ethics with Dr Peter Vardy and Dr David Webster.

Designed to support the NEW 2016 GCE A LEVEL Theology course and focusing on topics specified centrally by the DfE for study at both AS and A Level, this event is designed to bring courses to life and open up the possibility of continuing the subject into higher education.

## Sessions will include...

- Religious Experience—Reflecting on the validity of basing religious belief on other peoples' accounts of religious experiences, including personal testimony, Scripture and the question of the places of authority and reason in faith.
- Arguing for God—Exploring Aquinas' famous ways to God, considering why he rejected Anselm's Ontological Argument and the strengths (and weaknesses) of his Cosmological and Teleological Arguments.
- The Problem of Evil & Suffering—Explaining the logical and evidential problem for religious believers and evaluating two popular theodicies.
- Natural Law—Analysing Aquinas' approach to decision making and finding out about modern developments of Natural Law from John Finnis and Bernard Hoose.
- Debate: "This house sees legalising Euthanasia as the most loving response to suffering!"

## GCSE DEBATE

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### IS THE FUTURE OF BRITAIN HUMANISM?

#### *Theology and Philosophy*

Wednesday 22 March 2017 - 9.15am in The Aske Hall

Years 9 and 10 T&P students

#### **Andrew Copson**

*Chief Executive, British Humanist Association*



President of the International Humanist and Ethical Union and trustee of the International Humanist Trust.

Andrew studied Classics and Ancient and Modern History at the University of Oxford.

#### **Max Jeganathan**

*Fellow at the Oxford Centre for Christian Apologetics*



Former Lawyer and Policy Adviser.

Max studied Law and Political Science at Australian National University.



## JUNIOR SCHOOL

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### Essay Competition For the Question:

**What is Music, what is its value, and what does it mean?**

**1st Place**

**RAGHAV KANWAR, 7C**

ACCORDING TO THE Oxford Dictionary, music is vocal and/or instrumental sounds combined to produce a beauty of form. It also states that music is a sound perceived as pleasingly harmonious, but this isn't necessarily true, and is subject to the opinion of people and individual perspectives. However, this meaning goes a lot further.

The *value* of music is subject to opinion, whether you like music or not, and depending which musical genre is in question. It also depends whether you are talking about the monetary value or thinking about musical value in a different way. Music can be seen as very valuable and contribute to general well-being and happiness, if you like it or find it relaxing. It is often used in therapy to help patients through recovery.

## A price on music

Can you put a price on music? Nowadays, you can. The monetary value of music is mostly dependant on the piece of music in question and the amount of people, including who, it appeals to. One of the most common examples of this in our day to day lives is pop music. All of us will have CD's or download music files at home, which we have purchased, and a large number of us listen to music on the radio. This is just a part of how music relates to our lives. Musicians, whether classical or contemporary who write and compose music can become very rich if their music appeals to the masses and so the value to them will be in monetary terms as well as their own satisfaction from the composition and performance.

Music as a part of our environment can influence our emotions and decisions. We see this in public places or shops where the volume can be turned up higher. This strategy coerces us into buying things because we feel good about ourselves.

Music is a means of communication and it is “The Universal Language of Mankind<sup>2</sup>”. No matter where you are from or what language you speak you can appreciate music. Music can be interpreted as many different things, depending on what is played. In Charles-Camille Saint-Saëns' *'Carnival of the Animals'*, all of the instruments are playing the part of an animal, whether this is the sounds they make, to do with how they move or their characteristics. For example, the swan is depicted in what seems to be graceful and calm (by a

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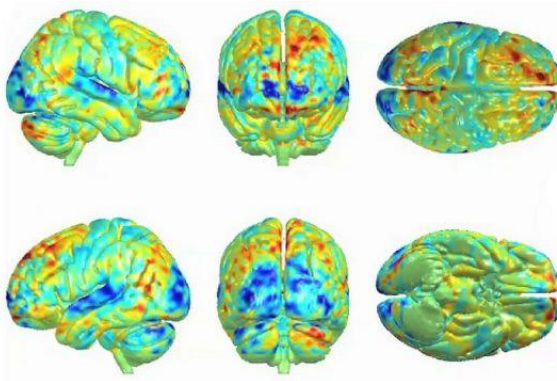
<sup>2</sup> Henry Wadsworth Longfellow

cello), which gives the effect of a swan effortlessly gliding over a lake. Picturing the swan, it can make some people feel calm and dishearten others, making them think that the swan is dying. 'The Swan' gives me the impression that the swan is gliding across the lake and the composition is relaxing.

Something slow and flowing, in a major key (mostly happy) can seem peaceful and harmonious, whilst something in a minor key (which seems sad) can be calming as well as sad. Different instruments and instrumental families can give different effects; a violin could play slow relaxing music or sound fired up and energetic, with a fast tempo. Music which includes vocals can usually be interpreted directly, just by listening to what is being sung, whether it is a pop song, opera or rock music, which often tell a story. To me, music can have many meanings depending on the piece. I find slower, sweet and flowing music relaxing and most fast pieces fiery and energetic. I would define music as a series of sounds brought together to form a composition.

## Music and Memories

Sometimes music can give you chills. When you hear a song that you haven't heard in a while, it stirs up memories of past events, people and places. The right song can give you real pleasure because your pupils dilate, your heart rate increases, blood flow increases, your temperature rises and neural pathways across your brain fire up and you get that tingly feeling down your spine<sup>3</sup>. Research has shown that this happens more for songs from the past that you hear infrequently than songs you hear on a regular basis. So you can be transported back in time and relive the emotions you felt.



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<sup>3</sup> The neural architecture of music-evoked autobiographical memories. Janata P. [Cerebral Cortex](#). Nov 2009; 19(11): 2579-94

Figure 1 shows the activation of neural pathways (red, orange, yellow and blue regions) across the green brain when listening to music.

Religions often have their own style of music, easily recognisable, along with their different musical instruments that accompany them. There are lots of types of different religious music which we see in our everyday lives; hymns are religious music. For example, a tabla or harmonium is used to play Sikh or Hindu music, whilst an organ is generally used to play Christian music like Jerusalem in a Church.

Through this essay I have highlighted the key points about the value and interpretation of music. In our lives we hear music all of the time whether it is bird song in the morning, shopping in a store or listening to it when we are relaxing at home. In my opinion music should be an important part of our lives and is immensely valuable. I also think that music does help our health, well-being and mood. In my personal opinion, music is incredibly valuable when I play, listen or dance to it, as it gives me great pleasure.



*Illustration by Hubert Bialek, 11C2*

## 2nd Place

VEYLAN SEBASTIAN, 8J2

*“Music’s only purpose should be the glory of God and the recreation of the human spirit.”*

*“Everything we do is for the purpose of pointing people to God”.*

MUSIC CARRIES OUT a vital role in our lives and almost all world religions. It is hard to find any religion without its own different music culture. From womb to grave, music grows an inseparable element of life cycle. From microbes to Michael Jackson, music has encountered very different forms. From the deep down depressing music of the ancient Egyptians to modern virtual reality music being a combination of traditional and today’s technology.

Music is a vivid structure of sound, like an ocean it can come in many different dimensions. Being vital to nearly every religion in the world, music is the key to harmony as there will be complete unity in silence when a beautiful music is being played. Music can differentiate between glee and sadness. Most slow music indicates a sad moment, while upbeat and cheerful music means happiness. It’s a creation or gift of God whilst being contemplated to be an art, a sport, or even a hobby.

*“Music is a powerful force. It can comfort us when we’re down and cheer us when we’re sad. Music can change our mood and even change the spiritual atmosphere.”*

These are the very own words of Johann Sebastian Bach, the musical genius composer of the 17th century. It is certain that music will be never-ending and eternal as there will always be some sort of sound. Music is so powerful that there is even music and sound in light. Music can express every feeling in the world; humans and even some animals too, can recognise patterns of music.

*“Music makes people to come together.....” (Quote from a song by Madonna)*

This is very true as lots of people from different walks and parts of life gather to hear wonderful music being played in concerts and recitals all over the world.

God can use any form of music.

He has no musical style or preference.

Jewish music is quite diverse and dates back thousands of years whilst Muslims’ belief is that the divine created melody and harmony of life created by Allah.

Music is a part of Christian worship (even ‘rap music’), thanksgiving and celebration showing how worshippers



feel towards God. Music unites the congregation so that God is worshipped with one voice. A wide variety of music is used in Christian worship including hymns, psalms, choral music, gospel songs, contemporary music and instrumental music, played for meditation and reflection.

Music being the heart of ancient Hinduism, it nurtures the belief that the first sound of music was the sound 'OM' or 'AUM' with which this entire universe was created. Music is a daily ritual in worship through '*bhajans*' (hymns) and '*kirtan*' (the musical chanting of mantras). Lord Shiva is depicted as a patron of music and hymns have existed since the oldest surviving text of Hinduism 'Rig Veda' dated between 1700 and 1100 BC. '*Isvara Gita*' (meaning Lord Shiva's song) has been found in the ancient Hindu Yoga texts.

Music is a very valuable item and an accessory in today's life, as people in this world today will respect you if you respect, play, and appreciate music. The better you are at music, the more recognition and praise you will get. In conclusion, music is an art of sound which expresses every emotion ever used. The value of music exceeds and is beyond any amount of monetary value or pleasures that money can give. Whereas money is a factor which can cause happiness, joy, and yet depression and sadness, music will always result in peace and harmony, which will always result in euphoria. Music is a language - a universal code to create unity in our lives.

### 3rd Place

ESHAN AMIR ZAFAR, 7S

To me music is important as food and water, one provides nourishment to the body the other enriches the mind and uplifts the soul!

MUSIC IS FOOD for the soul. It is a treat for the brain. It is the most ancient form of entertainment and self-expression, certainly, one of the most interesting. For centuries every culture has used

music to free and relax the minds of people. Hence, it is no wonder that musical instruments are among the oldest artefacts known to man. Almost all music has perfect structure, its collection of complex harmonies, melodies and rhythm makes most music, of one kind or the other, enjoyed by everyone. Music has been and will always be the most appreciated form of art and one that is continuously evolving and expanding into new realms. Music affects our state of mind in the most positive ways possible. I listen to music almost every day. For me and many others music is a form of relaxation, a pathway to escape the stresses of the real world. To me music is important as food and water, one provides nourishment to the body the other enriches the mind and uplifts the soul!

For many people music can prove to be an erstwhile companion. It is an abstract form that almost everyone can engage with. Music can be a source of motivation, inspiring you to constantly dig deep within yourself to make the impossible possible, to tap into that reservoir of strength you never knew you possessed, be it the field of battle or sport. Music constantly motivates us to do better at simple everyday tasks such as exercising and studying, to name just a few. It has the power to make boring tasks such as household chores and driving enjoyable. There is strong evidence that suggests that learning and listening music increases the listener's intelligence and creativity. Indeed many schools of thought will tell you that music can have healing powers. Music can teach great life-lessons and morals. Many songs even tell fascinating and historical stories. For me it's so astonishing that there are so many unique genres of music, such as pop, jazz and classical to name some. More delightfully it is an ever expanding universe to which new forms of music are constantly being developed and added.

Music is invaluable and has meaning for all its listeners, whether it takes the form of a devotional song or a pop anthem. I think of music as an 'abstract messenger' delivering simple life messages, often drawing your attention to important and profound messages. A simple song, like 'Don't Worry, Be Happy' by Bobby McFerron can instantly uplift you and has the power to wipe away all of ones' worries. Other songs like 'Africa' can draw

your attention to the plight and despair of those less fortunate than us.

Music is a natural and popular pastime; it can cheer you up in moments of distress, it can give you hope in moments of despair and it can bring people together. Think about a world without music. The confetti-covered dinosaur float wheeling down the road in silence, the empty concert stages and the silent barbecues. How empty would the world be without music? That is how important music is to the world. Music is so amazing and naturally lends itself to dancing which is the purest form of physical expression, is it any wonder babies dance before they walk, react to music before they talk. Can you visualise a world without dancing or music, wouldn't it be a gloomy and dismal world?

I think music is one of the greatest gifts that humanity has been given, and I think it is important that its power and utility not be underestimated.

## WHAT IS MUSIC?

THOMAS SHOOTER, 7J

What is music?

Is it just the playing of the violin,

The blowing of a tuba,

Or the strumming of the guitar?

No, because music is a feeling,

A way to show an expression.

Music can make one joyous,

It can make one melancholy,

But only if the piece is powerful enough.

In fact, music has supremacy,

Great wisdom in the world.

One should not master music,

For that means they have not let music arrive  
naturally,

One should let music master them.

So does music mean anything?  
Is it a true reality?  
Or is it just an unreachable dream?  
Music is one of, if not  
The most important aspects of many people's lives.  
It can mean peace and harmony,  
Along with war.  
What are music's emotional values?  
Can you put a value on emotion?  
Or can you simply give something up to get feeling?  
I believe that music does have a value,  
Though one greatly struggles to get it for a price.  
For music has unlimited value.  
Music has the power to control others with its beauty.  
And to both turn people weak  
Or make them stronger

For me, music is indefinitely important.  
I ponder about what I could do without it.  
Music is like an unstoppable force,  
That lives to serve our hearts.

## MIDDLE SCHOOL

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### **Essay Competition For the Question:**

**‘You have to be a good Mathematician to compose beautiful music.’ Discuss.**

#### **1st Place**

**HARJIVAN SINGH, 11H2**

MATHEMATICS AND MUSIC are intrinsically linked; the qualities of one are reflected in the other, whether it be the wave patterns of the notes in a major chord lining up, or searching for the ability to describe beauty and completeness in the elegance of the world. In general, those who show an aptitude for mathematics are commonly fascinated by the nature of music, and great musicians are often found to have a high level of innate mathematical ability - indeed, this is shown in their music itself - but the question of necessity of mathematical knowledge and ability for successful musical composition is slightly different. Is the ability to create beautiful music purely limited to the mathematicians among us?

The first question that arises when attempting to determine this relates to what a mathematician actually is, and what makes the difference between a good



mathematician and one who is not. An understanding of this word is not easy to obtain in this circumstance: a mathematician most commonly refers to someone engaging themselves in the study of mathematics or an expert in the study of mathematics, not necessarily related to the actual ability of the person, which does not help with the question of what makes a mathematician good. Does the amount of theory that a person has learned over time really determine their competence - surely their ability to know how and where to apply this knowledge is a better measure? Another question that begins to be raised is whether attained knowledge even matters at all, or innate ability is the single determining factor, both in mathematical and musical breakthrough.

This view seems to be appealing with regard to music, with evidence of many great composers such as Mozart and Rachmaninoff showing signs of brilliance from very early ages, and it seems that other great composers must have shared the same traits - we simply lack the evidence to show it. Alexis Weissenberg, one of the most innovative and most lauded pianists of the 20<sup>th</sup> century, when asked whether he had shown signs of being a 'child prodigy', stated that any person who shows a significant musical ability and understanding must have shown signs of this right from childhood. There also seems to be next to no evidence against this claim; there are very few, if any, people who turn out to be wonderful musicians without early signs of brilliance being noticed from them. One of the most interesting observations is that this evidence of brilliance is not always purely musical, like in the case of Lang Lang singing to his family before he could talk, but has been seen to often be mathematical, showing the strong link between the two

fields: Daniil Trifonov, a young, accomplished pianist and composer, memorised maps of cities in his infancy and early childhood. Memorisation itself is not a purely mathematical feat, and does not really correlate with mathematical ability, but in this particular instance, the spatial awareness and cognitive ability required to be able to memorise city maps with such ease at such a young age is telling, and he has said that as he travels the world from concert to concert it is rare for him to ever feel unfamiliar with where he is as he has already explored these cities in his mind.

There is an argument, however, that it is only the coupling of innate ability and theoretical knowledge that leads to a beautiful musical output, which could be more plausible. The history of musical and mathematical development, as well as just about anything, show a clear progression, with people looking to improve on the work of those before them, using methods that had already been developed to make breakthroughs. Without this method of progression, progression itself would not exist, because everyone is starting from scratch, and any breakthroughs made would make a negligible difference without people then looking to further develop upon that breakthrough. With music, it is hard to avoid being exposed to ‘theory’ - every sound you hear is having an impact on your musical understanding, however complex the sound or your understanding may be, and so people with an innate ability will achieve this coupling to an extent, and if they are formally musically educated, they will thrive and achieve this to an even greater extent. (When referring to ‘innate ability’, I consider mathematical and musical ability to be no different to one another - they are both based on the recognition of pattern and

striving to obtain order, and in this way, the subjects themselves are no different from one another.)

Is it possible for beautiful music to be composed without an extraordinary ability in a person though? Of course, a great piece of music can come about by chance, especially when the composer has been musically educated and is aware of basic ideas, as shown by Carl Orff's 'Carmina Burana', which is considered by many to be a coincidental strike of brilliance - a clear cut above his other works. Olivier Messiaen was no doubt a composer who possessed an extraordinary ability, but he also documented his methods behind his work, which are strikingly mathematical: his usage of modes of limited transposition and non-retrogradable rhythms, which are mathematical ideas developed in a purely mathematical way from the notes of the western scale and the simple nature of rhythms, form the basis of his work, almost in a way that he just placed these ideas together and a beautiful music came out of it, such as in his 'Vingt regards sur l'enfant-Jésus'. Of course his talent for placing these 'rules' together in such a profound way was what made his music so amazing, but Messiaen himself stated that the rules themselves were what made his music beautiful, so could anyone not just simply play with these ideas and compose beautiful music?

Returning to the original statement of having to be a good mathematician to compose beautiful music, it is true when looking at it from a number of ways: if a mathematician is considered to be a person who is simply theoretically well versed, then, if they are well versed in the theory of music, they have the tools that they need, and it is easily possible for them to compose

beautiful music, but if a good mathematician is considered to be a person with an extraordinary innate ability, then not only is it possible for them to produce beautiful music, it is likely that they will be able to have a sustained output of beautiful music, particularly if they have studied the work of previous composers (which is likely as such a person will likely take a deeper interest into the subject). However, without any of these things, it is much less likely for beautiful music to be composed, but it is still probabilistically possible, so it is not exclusively necessary to be a good mathematician in order to compose beautiful music, but it is considerably more likely for a good mathematician to compose beautiful music.

## 2nd Place

OBAYD KHAN, 11J1

“MATHEMATICS AND MUSIC, the most sharply contrasted fields of scientific activity which can be found, and yet related, supporting each other, as if to show forth the secret connection which ties together all the activities of our mind, and which leads us to surmise that the manifestations of the artist's genius are but the unconscious expressions of a mysteriously acting rationality.” -19th century German physician and physicist Hermann von Helmholtz, *Vorträge und Reden*, Bd. 1 (Braunschweig, 1884), p. 82

What is beauty? According to the Oxford Dictionary, beauty is defined as “A combination of qualities, such as shape, colour, or form, that pleases the aesthetic senses, especially the sight”. This seems to be somewhat unsatisfying; however, philosophers have been equally inconclusive about the true nature of beauty since the Ancient Greeks. In any case, there appears to be a vast incongruity between beautiful music and mathematics and yet these two seemingly contrasting fields are intrinsically linked - musical sound can be described by mathematically and many elements of fundamental music theory are closely related to time and frequency. But does that mean that one has to be arithmetically proficient to create beautiful music?

A mathematician might say that maths is pure truth, and is not specifically about anything. Equally, unlike other artistic mediums (such as paintings, poetry and literature) music does not necessarily resemble anything in the real world. Paintings look like things, poetry and

literature talk about things, and even television and film attempt to portray a real-life set of scenarios. This similarity has been further explored by Clifton Callender of Florida State University, Ian Quinn of Yale University and Dmitri Tymoczko of Princeton University in their "geometrical music theory" in the April 18 issue of the journal *Science*. This collective group conceived a mathematical technique which maps out music as coordinates as a graph. They concluded that for music made of chords with only two notes, all musical possibilities, in terms of a graph, takes the form of a Mobius strip (a surface with one continuous side formed by joining the ends of a rectangle after twisting one end through  $180^\circ$  - essentially a twisted rubber band). Chords containing three notes take the shape of a cone, and chords with 4 notes are mapped out as a pyramid. All given chords, with any given amount of notes, can be mapped onto this graph. Equally, the golden ratio (a number that allegedly is contained within nature - the shape of leaves for example - which explains why components of nature are aesthetically pleasing) also demonstrates a strong link between maths and music. The overtone series is a natural order of notes that is played by horn instruments and found in other instances in music, and if you divide an octave by a perfect fifth, ( $13/20$ ), you get the golden ratio. If you divide a perfect fifth by an octave, ( $8/13$ ), you get the golden ratio. Both these mathematical concepts demonstrate to some extent that music is simply mathematics that we listen to - "Music is the pleasure the human soul experiences from counting without being aware that it is counting" (German mathematician and philosopher Gottfried Wilhelm von Leibniz (1646-1716) who co-discovered calculus).

However, this does not therefore mean that you have to be a good mathematician to compose beautiful music - just because there is a link between two things does not mean that you cannot be good at one without the other. For instance, an oil painting might be made of oil, but its beauty is not because of the oil. The term “good mathematician” is ambiguous in itself. Is being good at maths an inherent talent, or an attribute that has to be learned? If being a good mathematician means practising maths and learning about the subject, then most composers who have created conventionally beautiful music (Beethoven, Mozart, Wagner etc.) were obviously not good mathematicians since they dedicated their time to music, not arithmetic. And if it is an intrinsic ability, then, hypothetically speaking, if Albert Einstein or Alan Turing did not have an education and did not even know what a number was, they would still be classified as good mathematicians. Additionally, the word “good” is a relative descriptor; does “good” mean achieving an A at GCSE maths or having a PhD at a world renowned university?

This question can be answered empirically (using observation or experience to support an argument, not by using pure logic), but only if one can show that a vast majority of composers who produced beautiful music were at least mathematically competent. However, this can only be done by defining what the word “beautiful” means. Beauty - the most elusive of abstractive concepts - is seemingly subjective (beauty is in the eye of the beholder, of course). However, there are certain pieces of music that have been accepted by society to be masterpieces. These beautiful pieces of music include “Requiem Mass in D minor” (Mozart) “Come Sweet Death” (Bach). Evidently, our individual

perception of beauty must have some relationship with others if certain pieces of music are collectively seen as brilliant. However, if what constitutes beauty as what many people think is aesthetically pleasing, it is logically unsound - just because many people believe that something is true or beautiful, doesn't mean it is. And even if the word can be defined, empirical evidence cannot "prove" anything, if proof literally is showing that something has to be the case - that there is no possibility for a contradiction. In any case, Einstein was proficient at both the violin and piano and was said to think in terms of music, and Johann Sebastian Bach, a man who has conventionally described to be among the greatest composers of all time, had an extremely rigorous mathematical approach to his music. Therefore, the argument could be made that mathematics is a key component in composing, and one that is perhaps subconsciously and unknowingly practised by other great composers.

And yet, beauty must be unexplainable. It is ethereal, ephemeral and alien to humanity. Beauty is outside the natural law, maths is surely too crude to enable us to understand an abstraction so complex. Music must be more than just numbers, or at the very least, an understanding of the maths behind music is not the understanding of music. A brilliant musician does not think in terms of mathematical theory, he imagines the harmony of a unified group of sounds and he groups them together in a way that brings joys to the ears that are blessed with the music. Being a brilliant composer seems to be an innate ability, one which goes past practice or musical theory, and instead a skill that cannot be learnt or understood. Perhaps a genius mathematician can become a competent composer, but



he cannot create beautiful music without a natural talent. Conversely, this commonly held belief may be just cognitive bias trap - we want beauty to be more than just maths because we need to feel that the universe is not so crude and mundane. However, from the conventional human perspective, beauty is transcendent and ineffable - and impossible to understand.

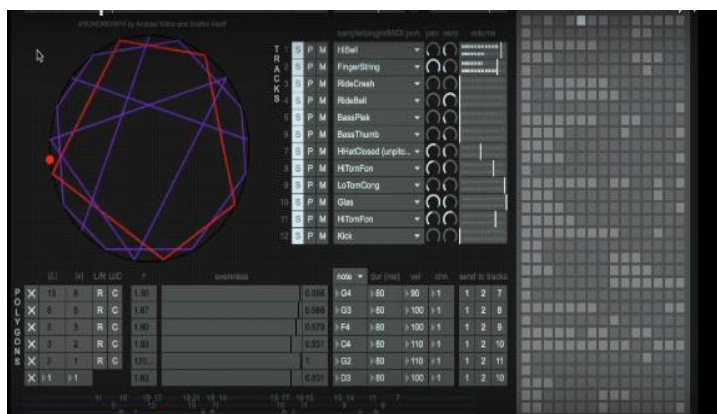
Clearly there is a link between maths and music in the very nature of musical sound waves and mathematics of how they “work”. The Golden Ratio is a simple example that demonstrates this link. Mathematics is pervasive in all things from physics to life itself and it is no surprise we see it in music. But the question is not one of maths being the prerequisite to music but more specifically beautiful music. The sounds of ocean waves rolling onto the shore has long been held as beautiful (if not music), and yet it is random and inconsistent. There are no mathematics involved and yet a human being hearing those sounds feels the beauty of the sea. This highlights why we cannot look for beauty. When one listens to beautiful music, be that Bach’s Brandenburg concerto or John Frusciante of the Red Hot Chilli Peppers playing Californication on guitar, what we hear maybe just soundwaves, but our perception of how those soundwaves make us feel is a different thing entirely. A composer does not have to be a good mathematician to compose beautiful music, the ability to produce such melodies is inherent and a special gift that the composer possesses.

### 3rd Place

JONATHAN GIBSON, 9J2

ALTHOUGH THERE ARE clear similarities between music and mathematics, there is no scientific evidence to prove a direct relationship between music and maths. However, the two fields are clearly connected in several ways. For example, music computer programs are using mathematical shapes to create pieces, which use specific mathematical concepts.

An example of this is XronoMorph which is a computer program used to easily compose music pieces. (Shown below)



The program was designed as a geometrical and visual structure of rhythm and repetition, based on two main mathematical principles: perfect balance and being well formed. It shows how shapes and patterns can be translated into musical pieces. Combinations of regular

polygons like equilateral triangles, squares, and regular pentagons are used to create new compositions.

Two hundred years ago, a mathematician called Evariste Galwar (1811-1832) discovered a new mathematical idea called field theory involving around prime numbers (the basis of a number of modern developments including phone calls, broadband and DVDs). Using this mathematical idea, John Costas (1923-2008), created a piece of music using prime numbers, which had absolutely no repetition this was the first piece ever to have such a structure.

A historical example of a classical composer introducing mathematical ideas into his music is the fugues of Johann Sebastian Bach (1685-1750).



Bach's Fugue No. 16 does not look like a very mathematical piece, however, when you look at the

lower piece, you see that Bach is inverting bars, (In the bass clef he has inverted the first two) and the three green and red bars each sound similar played in slightly different ways. When you listen to the piece, each time a pattern appears, Bach changes the combination of the two voices, weaving melodic themes and adding extra notes and patterns to make it sound appealing. This theme was taken up in a famous book by D Hofstadter: Gödel, Escher, Bach: An Eternal Golden Braid which links the music of Bach to the mathematics of Kurt Godel and the woodcuts of MC Escher.

Inici de la fuga en sol menor BWV 861

Resposta tonal

M1' M2

M1 M2

M2 invertit M1' invertit

Subjecte Contraresposta

Perhaps the most famous musical mathematician was Albert Einstein, who played both the violin and piano. He once said, *"If ... I were not a physicist, I would probably be a musician. I often think in music. I live my daydreams in music. I see my life in terms of music."* His second wife Elsa was also a strong mathematician and reported that if she was stuck on a hard maths problem, she would sit down and play the piano.

Although there does not seem to be a direct connection between music and mathematics, music definitely contains mathematical ideas in it. For example, an

octave is separated by a factor of two; a fifth interval (say C to G) by the ratio  $3/2$ , and two adjacent notes on the keyboard are separated by the twelfth root of two = 1.059463.

One might investigate the statistical link between people with musical and mathematical ability. If you want to show that professional mathematicians are on average better at music than other people, then you have to decide quite carefully who those ‘other people’ are (ie an appropriate control group). You might expect that the kind of person who becomes a professional mathematician is much more likely than average to come from the kind of family that would consider music to be an important part of a child’s education, so for that reason alone one would expect at least some ‘background correlation’ between the two groups. Identifying and controlling for these kinds of effects is difficult, and as far as I know, there has been no truly convincing study that has shown that musical ability enhances mathematical ability or vice versa.

However, just like becoming a skilled mathematician, in order to become a musician, you have to practise musical instruments for long hours and learn the theory of musical composition. As well as the dedication to long hours of study some people will be more musically gifted than others having a better ‘ear for music’. Just as problem solving in maths requires practice and is helped by solving other similar problems, so nobody can sit down and play a musical instrument well without tuition and practice. It is more likely that a musician to come from a family who have brought them up with music as part of their life seen this as an important part of the child’s education, just as a mathematician would have

had a strong mathematical education and probably have been encouraged to pursue the subject.

In conclusion, it is not necessary to be a good mathematician to compose beautiful music. However, it helps to understand the maths behind certain musical concepts. Although they both revolve around patterns, in music, even the best composers often use trial and error and estimation to find the correct note for the bar, however in maths trial and error is rarely used. Although there is no clear evidence showing a relationship between the two, mathematical ideas can certainly be used to help write music. There have been many beautiful and famous musical pieces, which have been written by musicians who were not good at mathematics, and there have definitely been musicians who have not excelled at maths and some who have hated it, therefore you do not have to be a good mathematician to compose beautiful music.

## SIXTH FORM

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### **Essay Competition For the Question:**

**‘Music, Maths and Morality all reflect the underlying Structure of Reality.’ Discuss.**

### **1st Place**

**JAMIE SLAGEL, L6J2**

WHAT IS REALITY? Is it physical, metaphysical or both? Can we even be certain that we exist at all? How do we know that we are not simply brains plugged into a computer which shoots electrical impulses into our brain, forcing us to live in a dream world?

From indirect realism to Berkeley’s idealism, there have been many arguments trying to answer these fundamental questions about what is - and what is not. Therefore, I think it is a fundamental matter of philosophy to approach the question of reality before answering any further questions.

In order to understand our relationship with reality, one must first find out what reality is. For when one asks the question, “How do we perceive reality?” the question

makes sense, but cannot be answered without an understanding both of what reality is and what perception is. However, it is very clear what perception is, since it is our immediate understanding of the world. When I watch Jack kick a football, I have a perception. But the question is, in *reality*, is Jack kicking a football - and do Jack or the football exist in reality at all? Do I exist in reality? What is reality?

In order to understand reality, let's work backwards from what we perceive. What I perceive is Jack kicking the football. Our supposed understanding of reality, according to physics and the amazing scientific advancements of the 20<sup>th</sup> and 21<sup>st</sup> century, states that there is actually no colour or solid here, as such. In fact, 99.9% of everything is just empty space. Atoms are all that exist, and 99.9% of them are space too. The only thing, therefore, that stops everything from collapsing is the specific characteristics of these particles, namely that they are held apart by special forces or energy. Indeed, light itself is bent around these forces, and so we do not just perceive empty space, but instead perceive colour and 'solid' objects. So reality has no colour and looks rather different to our perception. But, it is the same atoms in Jack that kick the same atoms of the football, supposedly anyway. Therefore, in our supposed reality, Jack and the football exist and Jack is kicking a football.

The question which most obviously follows asks how we can be sure that they exist? The most obvious answer is



that we perceive them through our senses. We can touch and feel the football and pick it up, much in the same way that we can hear Jack and see Jack (and smell Jack). This surely shows that they exist, since we can sense them. However, there are plenty of times during which our senses have failed us. When a thirsty man in the desert has a hallucination of an oasis, or when phantom pains strike amputees, our senses are no longer correct - they have failed us. Indeed, it is an analysis of phantom pains which shows that indeed there are actually “real sensations [which] originate in the spinal cord and brain.” (Mayo Clinic Staff, 2014) Obviously, there is no actual limb, although phantom limb is experienced by a number of amputees, so our senses are creating both a phantom pain and a hallucination of our limb still being there. Unlike phantom pain, hallucinations are far less understood. Although lots of research is going into them, there are no definite explanations for them. Most hypotheses and explanations regarding hallucinations focus on something being wrong in the brain, thus, supposedly, causing a mistranslation between senses and perception. There are no actual neurons or sensations causing the hallucination - that seems to be generally accepted.

What does this show us? It shows that there seem to be two types of misrepresentation of reality - one caused by neurons being fired incorrectly (phantom pain) and the other not caused by real sensations, rather it is caused by problems in the brain itself and thus the

interpretation of sensation by the brain. Of course, we do not know whether these sensations are actually misrepresenting reality or not, since we cannot check our sensations against reality - but that is exactly the point. Our sensations are simply not good enough to prove that Jack and the football exist - we are not even sure if they are accurate representations to reality, since we cannot check them against reality and even if they are then our sense of sight is wrong when we feel there to be a phantom limb - our feel and sight directly contradict one another.

So we do not know whether Jack exists. We do not know whether our sensations which show us Jack are accurate representations of reality, so we cannot trust them. In fact, in searching for reality, we have only come to one good, solid conclusion: we do not know what reality is. But, is this actually true?

Currently, whilst you are reading this, you are no doubt having a thought. Does this thought exist? The answer must be yes. Unlike Jack or the oasis or the phantom limb/pain, our thought must exist. We can be sure of its existence because we do not *sense* it, we just think it. We create the thoughts - we are their origin. Similarly, we know that we exist - if anything simply because "*cogito ergo sum*", Descartes' well-known phrase describing our existence, meaning "I think therefore I am". We cannot be sure that our physical body exists in reality, and even if it does, that it looks in reality as it appears to us. However, we can be sure that our mind

is in reality, since it must exist. If I am thinking, then my mind and its thoughts must exist. As Descartes once said: “Non posse à nobis dubitari, quin existamus dum dubitamus; atque hoc esse primum, quod ordine philosophando cognoscimus.” (Descartes, 1644) We cannot doubt our own existence - because to doubt our own existence, we must exist.

It does make sense though - something exists, that has to be certain, since there is something rather than nothing. Therefore, my mind exists, since we do perceive something, even if it is not reality. Therefore, the only thing we know exists in reality and which must do so is my mind, and along with it, my thoughts beliefs and knowledge.

One common pitfall is that since we all think; this therefore surely proves that we all exist. However, the problem is that we do not know that everyone thinks, unlike ourselves. They could be a construct of the mind and so could simply be false sensations which cause us to perceive people telling us that they think therefore they exist. We are only doing our own thinking, not theirs, and so we cannot do Jack’s thinking about Jack’s existence, so we cannot prove that Jack exists, unless one is Jack.

The original proof can be shown as such:

P1: To be able to think or doubt, one must exist.

P2: I doubt my own existence.

C1: Therefore, I exist.

It is true that I know premise two, and premise one must be analytically true. It is a valid argument, since the premises lead to the conclusion. Therefore, it is a sound argument.

On the other hand, the argument that everyone exists since we all think is as follows:

P1: To be able to think or doubt, one must exist.

P2: We all doubt our existence.

C1: Therefore, we all exist.

Although it is as valid an argument as above, it is not a sound argument since I do not know whether or not Jack really does doubt his own existence since I do not know whether Jack thinks as I do not think Jack's thought, but I do think my own thoughts. I do not directly perceive Jack's thoughts in the same way I perceive my own thoughts, so premise two is not necessarily true.

So, my mind and thoughts exist. However, they are not physical objects which exist. Therefore, they are metaphysical objects which exist. Therefore, there is a metaphysical ontological level, since metaphysical objects cannot exist without there being a metaphysical ontological level in existence. This non-physical level must exist since the mind exists and the mind includes beliefs, knowledge and memory and makes decisions, mulls things over and can work out basic logical

inferences and inferences from texts. All these things cannot be physical. A football is supposedly a physical thing - but a belief cannot be a physical thing. Similarly, it cannot be supposed that our ability to make decisions is held within neurons and brain matter, nor that our unique and individual way of looking at the world, or our perception of the world, since it is not what is supposedly there in reality, is not actually there at all.

When I close my eyes and imagine something, that imagination is clearly an image. And it is there - but it is on the non-physical scale, in the same way that beliefs and doubts and decision-making and emotions are non-physical. How can we suppose that these images exist if not in the non-physical scale? Clearly, they do not exist in reality (or so we think), so either they do not exist or they exist elsewhere. It is my belief that they exist in a non-physical ontological level, although the direct realist denies their existence at all. However, the conclusion which I come to is based on the following argument:

P1: I imagine an image of a dog.

P2: There is no physical dog.

C1: Therefore, the imagination and the image are not physical.

P3: The imagination of an image of a dog actually happens.

P4: The image of the dog has to be something.

C2: The image of the dog is something not physical, or non-physical.

C3: Therefore, a non-physical ontological level must exist.

Intuitively, with everything previously discussed, this argument can be refuted pretty easily. Think about premise 2 - "There is no physical dog." If we cannot be sure of the physical reality since we do not even know whether it exists, then how can we be sure that there is no physical dog? We cannot. Some indirect realists call this the "veil of perception" which we are trapped behind.

There is, however, an easy response to this question. Although it is possible that our understanding of reality is completely wrong and there is actually a physical dog there, that would be a complete matter of luck. I can conjure up an image of a dog in my head whenever and wherever I like and so it would be simply on account of luck if every time I did conjure up such an image there was a physical dog there. It does not matter whether or not there is a physical dog there, what matters is that the image is not explained as the physical dog. Because if there *is* a physical dog there, but the image is not explained as the physical dog, then the image has to be something other than the physical dog, thus continuing the argument. Perhaps the first three parts can be put clearer like this:

P1: I imagine an image of a dog.

P2: The image of the dog is not a physical dog.

C1: Therefore, the imagination and the image are not physical.

So the conclusion that we can come to is that other than our own mind and ideas, we cannot know anything else about reality. We do not know if the universe exists or whether we simply live in a Matrix like world. It is perhaps a startling thing to realise, but at the same time, it is logical that all we can deduce about reality is this.

## 2nd Place

ALEX COHEN, L6H2

RECENT ADVANCES IN technology such as new Virtual Reality headsets are becoming widely available throughout the world and have multiple uses from gaming to education. These vastly change the reality of whoever is using them; they encompass almost all the senses, perhaps creating a new reality. From this the question of the truth of our reality arises. You may be sitting at home reading this article in hard copy, or may be reading it on a computer screen: how do you know that this experience is real? How do you know that in reading the article you are not in fact part of an advanced computer creating virtual reality in a style akin to The Matrix film series? In these films humanity is trapped in computer programs that simulate what the program thinks to be reality, such that we exist “behind a veil of [our] own perception”. To quote Freddie Mercury’s opening lyric of Bohemian Rhapsody “*Is this the real life, is this just fantasy?*” How can we know what is reality and what is not?

At first glance, surely scientific evidence can prove our reality? It is easy to identify tangible objects - for instance, chairs, tables, trees exist as they can all be proved to exist via scientific experimentation, at least in the opinion of a realist. Intangibles may be harder to identify but they still exist - for example, an easement



(a right benefiting a parcel of land), a right to be repaid if you lend money. Intangibles can include self-confidence, responsibility and a recession. These are all recognised situations and concepts used umpteen times in our society. An abstract concept can be difficult to define but it is still real. Take legal concepts such as rights and obligations - or mathematical concepts such as Pi. It may be difficult to use scientific evidence to prove that some of these abstract concepts are real. They can come into existence on their creation and usage.

Conversely, if something is not real, it may be conjured up in our imagination - for instance, witches, ghouls, Quidditch - the sport from the Wizarding World of Harry Potter. An idealistic idea of something - for instance an imaginary dream holiday on a desert island - is not real. The idea can exist but the imaginary activity itself does not exist.

A supposition (assumption, hypothesis, estimate or theory) is not real until shown to be correct. Non-veridical perceptions such as dreams and hallucinations are also not real, although they can appear to be so. Experiences such as these have a deceptive appearance. They can confuse reality leading to an illusion or false idea or belief - for instance, mirages and visions. Sometimes our minds can play tricks on us. We can be so desperate for a certain result that we can believe we have achieved it when in reality we have not. As humans we are not infallible we can be guilty of selective

hearing, selecting the facts to suit our own goals and aspirations - thereby creating an illusory position which does not in fact reflect reality.

Our subconscious wants and desires can dictate our reality to a certain extent. An example of this would be supporting a failing football team; I could convince myself that the team are successful even if they have lost their last ten fixtures. Once we put human personality into the picture, the question then arises; can one person ascertain what is real? If we do not have all the facts to hand, how can we make an accurate assessment? Even if we do have all the facts, our assessment of them may be affected by our own feelings and thoughts, prejudices and biases - take for instance, Hitler's delusional behaviour. This can be illustrated by the distinction often used in law between an objective and subjective interpretation. An objective interpretation is not influenced by personal feelings, bias, prejudice etc. It is based on facts, things external to the human mind, rather than thoughts or feelings. Conversely opinions are subjective - as not everyone will agree whether the moon is beautiful. As people's imaginations act in different ways, people's ideas of what is real may differ. What is real should therefore be limited to an objective assessment. Emotions should be removed from any scientific conclusion in order to obtain a more accurate picture of reality.

Some thinkers have suggested that collective common opinion can indicate what is real and what is not. But if

a large group believe in something, this does not make it real. They may have been brainwashed or influenced by stories. A famous example would be the Loch Ness monster; there is no scientific evidence to prove the existence of this mythical beast except for a few obviously fake photographs, however this has not stopped many from actually believing in its existence. The character of Super Hans from the hit Channel 4 sitcom Peep Show quite humorously summarizes that: *“You can’t trust people, they like Coldplay and voted for the Nazis.”* However if we take the example of the shape of the Earth, it was once believed that the Earth was not round but flat. The concept was widely accepted as fact in Indigenous American, Greek and Early European cultures. For these cultures, this was the reality, as they truly believed they had evidence to prove it (looking out onto a flat horizon for example). Although their beliefs were ultimately debunked, this was their reality at the time. This does indeed suggest that reality is not about scientific truth, but more about the common beliefs of a society: people collectively deem what reality is, at a moment in time. We can conclude that, with hindsight, certain historic beliefs can be disproved and our current beliefs about reality may be debunked as false in the future.

Rene Descartes went on to say in his Meditations that the only thing that he knows exists was his mind, and his mind only. He concluded this by firstly very simply stripping away all of his prior knowledge and beliefs so that he had no evidence to prove any reality exists at

all. He then realised that this very process in itself was proving one thing: that he must exist in order to be thinking about stripping away his reality. According to Descartes, there is no world around us, and everything that we know is untrue.

### 3rd Place

FAI LI, L6S2

WHILST BEING QUESTIONED about morality, many people would agree that there are *subjective* morals, because morality is seen as private and exclusively personal. But when questioned about *objective* morals, people find it much more difficult to intellectualise that there are absolute Truths that are objectively moral. This then begs the question: Do moral Truths actually exist? Throughout this article I will say "Truths" and "moral Truths" and by this, I of course mean *objective* moral truths, as "Truth" by definition is objective so it is a tautology to say "objective moral Truths"; thus I'm referring to *objective* moral codes when I talk about moral Truths, not *subjective* moral codes.

A common argument used to establish objective morals is as follows:

Premise 1: If God does not exist, *objective* moral values and duties do not exist.

Premise 2: Objective moral values and duties do exist.

Conclusion: Therefore, God exists.

One can disprove any valid syllogism by showing one of the premises to be false. The most disputed premise is premise 2: "Objective moral values and duties exist". In order to proceed further we must define what we mean by "objective moral values and duties" (premise 2). To

say that these certain moral values and duties exist, is to say that our universe and reality contain good and evil (values) and right and wrong actions (duties), that exist independently of our own beliefs and opinions and that these values and duties apply to everyone. In this article I intend to question ontology- whether these values and duties exist, and also to question epistemology- how we know these values and duties.

I have encountered many who say that moral Truths *must* exist because God, our creator, implemented our "in-built" sense of right and wrong and our conscience, and that God commands what is definitively right; this is known as divine command theory. God *created* moral Truth. However, this opinion leads on to be challenged by the Euthyphro dilemma. This dilemma questions whether these Truths exist solely because they are believed to have come from God.

### The Euthyphro dilemma

1. If morality is whatever God wills, then if God wills what is (now considered to be) morally wrong, then what is wrong will become right - if God commands us to murder children, then murdering children would be morally right. What is morally right is right because God wills it.

2. If morality is independent of what God wills, then God cannot make what is wrong be right - murdering children is wrong whatever God commands. But then, to be good, God must conform his will to something

independent of him. God wills what is morally right because it is right.

The answer must be either 1 or 2 but both pose problems. I do not wish to dwell on this dilemma as it concerns God's omnipotence and omnibenevolence and does not strictly answer whether moral Truths exist, but it demonstrates that by using God to justify the existence of objective morals, it only weakens one's overall claim. Either God can make anything "good" and this compromises his omnibenevolence as moral Truths become arbitrary, or God is not omnipotent as Truths are independent of God and therefore the concept of Truths are possible without God and we therefore do not need God to have moral Truths. In summary, if God loses a divine attribute, God is not God and does not exist and if God is not responsible for objective morals then we do not need him to have our own sense of objective morality; therefore using God as evidence to demonstrate that Truths exist is not advantageous.

So, if God cannot be used to justify that objective morals exist, then what else could one propose to support their views? Quite frankly I do not know. These objective Truths are not written down and they have not been perceived, nor do we have any empirical evidence to support the idea that they truly exist. This comes under epistemology- how can we know that these Truths exist. The simple answer is that we cannot, especially if attempting to do so through using reason and logic. Like most of reality, we are without access to it beyond our

senses. On the other hand, not *knowing* if Truths exist in reality does not entail its non-existence.

An article I read recently was in support of the existence of moral Truths. It said that "Christianity teaches that we should love our enemies, and as much as it is possible, we should live in peace with all men. Some branches of Islam believe that one should behead their enemies. For this point, which view is correct is irrelevant; but in order for anyone to have a meaningful conversation about which view (if either) is correct, one must assume that a correct view does in fact exist. This requires an objective moral standard." At first glance this may seem logical and seems to prove the existence of moral Truths. But the phrase "in order for anyone to have a meaningful conversation about which view (if either) is correct, one must assume that a correct view does in fact exist" does not prove the existence of moral Truths at all. All the article says is: in order to say if something is "right", a standard of "right" must exist. So, In order to know if something is right, you must *assume* that right exists in order to compare things to distinguish between what is right and what is wrong. My blunt yet valid reply is: why do we need to assume something has to be right? Why does something have to be right or wrong? The argument that the article proposes presupposes that right and wrong exists in the first place to prove that right and wrong exists, but this does not in the slightest prove that absolute right and wrong exists. It only presents that, *if* right and wrong exists, there must be an objective standard of right and wrong



to discuss if an action is right or wrong; *if* moral Truth exists, moral Truth must exist necessarily. This echoes with the objections to many ontological arguments; ontological arguments presuppose God's existence in order to prove his existence.

Another example the article brought up, which I think to be flawed, was about not what we disagree on, but what we agree on. The writer explains that both his wife and he himself see colours differently, but both agree that there is colour. And if colour did not exist then their arguments about what colour the object really is are meaningless, unexplainable and could only be called "delusional". So far I agree with this, but it is the next few sentences that seem to be flawed. The writer then goes on to say that "whether politician, priest, parent, or protester, all make the claim that men should behave in a certain way. It seems remarkably myopic to consider all who hold such views to be sharing the same delusion!" I would say that politicians from all around the world have different policies and different beliefs about the way we should conduct ourselves and I would say that they do not follow the same Truths, if they do in fact exist. Some believe that we should treat females equally; others believe they are inferior to men. So by saying that all men and women follow the same Truths (which they do not) proves the existence of Truths, as surely not everyone can be delusional, is an extremely weak argument. As Bertrand Russell said in his book *The Problems of Philosophy*, "whoever wishes to become a

philosopher must learn not to be frightened by absurdities".

Before I conclude I would like to give my views concerning *why* people support the idea that we have objective morals, even without physical evidence nor any substantial arguments to support the view. Firstly, I believe that if someone was to propose that morality is subjective, the interlocutor may respond that morality is just pointless and arbitrary. But it is not; subjective does not mean arbitrary, as our emotions and attitudes are rooted into human nature and a product of evolution and genes. None of that is arbitrary. Most humans have a fear of snakes and spiders and most humans enjoy other people's company; this is evolution, not random coincidence. In addition, an interlocutor may explain that if morality was subjective then anyone's opinion is "just as good" as each other's. Wrong again. Morality is decided by a broad consensus, so if a psychotic killer clown murdered a child, his opinion would not be regarded "just as good". This does not make a morality objective though, it simply means that we humans have moral codes that overlap strongly. Furthermore, it seems utterly nonsensical to believe in objective morals as we humans are a speck in the infinitely large cosmos. There are trillions of galaxies in the known universe, and each with trillions of stars and trillions of planets, and for all we know there may be trillions of species on many of those planets. And yet, funnily enough the "objective" moral systems that people argue for are all about human welfare and just happen to bear a striking

resemblance to the morals of that one species of ape on just one planet around a fairly unexceptional star in a fairly unexceptional galaxy. People consider one species alone from one planet alone and project that onto everything else. Looking at the concept of morality and its purpose, morality is a way of maintaining human well-being. This may be valid, but who decided that human well-being is what is important? Yes, we did. Human well-being is all about our emotions and preferences and therefore has to be subjective.

To conclude, will we ever know if moral Truths exist whether we follow them or not? The answer is simply no. There is no doubt in my mind that we humans follow subjective morals, however it is unknown to us truly if objective morals overlap our own morals. Truths are similar to God. Their existence cannot be proved using logic and reasoning as there is no concrete, empirical evidence for their existence. If it is argued that Truths descend from God, it simply leads back to the Euthyphro dilemma I explained earlier. The question "Do objective moral exist?" may be unanswerable with clear evidence like many other philosophical questions, but existence does not cease to exist because it is undiscovered.

## INTERVIEW

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### Interview with the Headmaster

MR HAMILTON



Veritas' Jonathan Stelzer (JS) interviewed the Headmaster (HM) on this year's journal theme.

JS: Do you play any musical instruments?

HM: No, I never have. The reason really is because I didn't have the opportunity growing up. However, I would most certainly change that if I could. I feel that not actually being able to play has allowed me to appreciate other's musical talent to a greater degree.

JS: What is your favourite piece of music?

HM: It would have to be Debussy's Preludes and Nocturnes. However, Schubert's Song Cycles in

German contain an element which I appreciate due to its representation of different periods of time. Also from a more relaxed, jazzy perspective, I enjoy Billie Holiday.

JS: What is the importance of music to you?

HM: Obviously the downtime is a key part, but attempting to look into the mind-set of a composer appeals greatly. Music is something that essentially transposes language.

JS: Is there an overlap between maths and music?

HM: Absolutely. Maths, music and linguistics are all codes.

JS: Where do you see maths in your day to day life?

HM: I don't see it as much as I should. My Tesco shop is the only time really.

JS: Do you believe people have an inbuilt sense of Morality?

HM: I don't believe that people are born evil, but they can become evil. Environment has a strong impact on morality.

JS: Who's your favourite philosopher and why?

HM: Friedrich Nietzsche. His language is poetically stunning. He truly is a master of words.

JS: What do you think holds more importance: Music and its creativity or Maths and its certainty?

HM: Maths is certain to a point which can be comforting for some, whereas music can often be unsettling. However, I would say that as a combination, they hold admirable merit.

JS: What is your favourite quote?

HM: “Plus ça change, plus c'est la même chose” - Jean-Baptiste Alphonse Karr.

JS: Who is your role model?

HM: This may not be a popular answer, but I would say Napoleon. At the height of his power he brought about great change to society. His social and cultural impact and his very successful campaigns during the Revolutionary Wars can only be admired.

## INTERVIEW

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### Interview with the Chaplain

REVEREND BRANDON



Veritas' Gabriel Wheway (GW) interviewed Reverend Brandon (MEB) on this year's journal theme.

GW: What is your favourite piece of music?

MEB: Bruckner's 8<sup>th</sup> Symphony.

GW: What is the importance of music to you?

MEB: It says more than words.

GW: How would you sum up reality in three words?

MEB: Live to hope.

GW: Is there an overlap between maths and music?

MEB: Yes. Music is the echo of numbers.

GW: Where do you see maths in your day to day life?

MEB: My travel card to and from school is £59.50 a week.

GW: Do you believe that people have an inbuilt sense of morality?

MEB: Yes. Because I want to.

GW: Who's your favourite philosopher and why?

MEB: Wittgenstein, because of his beetle box.

GW: What do you think holds more importance: music and its creativity or maths and its certainty?

MEB: Music, because it frees you.

GW: What is your favourite quote?

MEB: In John's Gospel, Pontius Pilate asks "*What is truth?*"

GW: Who is your role model? How have they affected your view of morality?

MEB: Stanley Baxter. He was actually the first person to impersonate the queen.





**Letter From Oxford:**  
**Studying Maths and Philosophy At**  
**University**

YONI STONE, OH

*Dear Reader,*

The drabbit is a simple line drawing, which is well-known to many students of philosophy. Commonly employed as an example of an illusion, it depicts a figure which can either be interpreted as a duck or a rabbit. When entering the philosophical realm however, its meaning deepens, as it is used as an example of how our mind carves out an understandable image from what on paper is simply lines. Richard Rorty in his book, *The Mirror of Nature*, presents it as an argument for the cultural relativity of knowledge, in particular listing our language and concepts as the tools which interpret the underdetermined lines. It is this which leads him to claim that we employ ‘language as a tool rather than a mirror’. Our use of language does not simply reflect and

relay what we perceive, it is the tool which forms that perception. Without it, the raw empirical inputs are nothing but a ‘blooming, buzzing confusion’ (William James).



This type of argument is also presented by Wittgenstein and can be formulated as follows:

1. When I hold up a pen and explain, “This is tove”, you have a private mental image of ‘tove’.
2. If a private mental image is sufficient for meaning, you would know the meaning of ‘tove’.
3. You do not know the meaning of ‘tove’ for you do not know whether it means blue, pen or plastic.
4. Therefore, private mental images are not sufficient for meaning, but must be interpreted by our concepts.

It shows how our prior knowledge shapes our perception of the reality around us.

As part of the Maths in my degree, I have opted for a double module which focuses on Mathematics Education. The first of the two modules provides a broad framework to help us in the second, which involves teaching in a local school. It includes questions ranging

from ‘What does it mean to learn Maths?’ to how the disciplines of psychology and sociology impact the teaching of Maths in the UK. Within this first module, we came across an interesting idea, which echoed back to the drabbit. For many primary school students, when learning what a triangle is, they experience their teacher drawing a horizontal line, a second arbitrary line from one of the endpoints, and then finally completing the three sided shape as we would expect. As a result, their concept image of a triangle necessarily includes the original horizontal line and so in some cases, they refuse to give the label ‘triangle’ to a three-sided shape which does not have this line.

In this case, it is specifically their mathematical concepts which have shaped their perception and conception of a triangle. This can also be illustrated in other examples, such as primary school students refusing to identify a square rotated by 90 degrees as a square, because according to them, it is a diamond. Whilst some argue that Mathematics is at the basis of the reality of our universe, philosophers like Rorty and Wittgenstein in conjunction with psychological studies help to show that our knowledge of mathematical concepts is very much at the centre of our perception of reality.

Yours sincerely,

Yoni Stone

University of Oxford

## LETTER FROM MR GARVEY



Dear Haberdashers,

Greetings from the other side! I'm delighted to have been asked to scribble a few reflections on life after Habs and especially if that means I've been forgiven for moving to Merchant Taylors'. I'm fascinated by your theme for Veritas this year: *Music, Maths,*

*Morality and the Structure of Reality.* I guess you're exploring things like the rhythm of life and the patterns which we find when we investigate the world around us. Moving to a new school has meant lots of new rhythms for me as I've had to adjust to a new place, new lesson timings and the absence of bells (it's so quiet!). It's been great fun trying to blend the best of Habs with the routines and ideas that Taylors' have, as I've tried to establish a new structure for my new reality too.

I enjoyed seeing lots of you at the odd fixture this term, although I'm not sure I've forgiven Mr Kerry and Mr Charlwood for banning the 1st XI cricketers from speaking to me when I came over to say hello! My new reality over in Northwood has many similarities to the one I enjoyed at Habs: bright pupils asking challenging questions, a mix of sport, music, arts and academia, and a similar cultural mix too. My new T&P department are

keen to investigate the same challenges that we enjoyed at Habs: what is the meaning of life? How should I live? How can I know the truth? It's these questions that I put to the Sixth Form in my first assembly of the year as I challenged the lads to be living wholehearted, flourishing lives, full of the virtues which Aristotle espouses. It can be a challenge to juggle all the competing demands on our time, be those music, maths or just trying to live a moral life. Each one of us needs to find a rhythm which works for us and keeps us engaged and enthused, without being ground down or exhausted. Once we work out what we can accomplish in the time we have, then the structure of our reality will become self-evident and we can flourish as we were intended to.

Good luck with your continuing studies, and keep asking those challenging questions. You may not always get all the answers you want, but the process of asking them and developing your understanding is as important as the end result.

Press on!

RCG

## ACADEMIC ARTICLE

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### IS PHILOSOPHY THERAPY, OR IS IT SIMPLY A SEARCH FOR TRUTH?

Nigel Warburton is a writer, philosopher and podcaster. His most recent book is *A Little History of Philosophy*. Jules Evans is policy director at the Centre for the History of the Emotions at Queen Mary, University of London. He is the author of *Philosophy for Life and Other Dangerous Situations*.

**Nigel Warburton:** There's been a lot of interest in reviving Stoic philosophy recently, particularly the therapeutic aspects of it. I'm skeptical about this, as in my view philosophy is primarily the attempt to understand, and as such is an activity of enquiry. There's no guarantee that discovering how things are will benefit us psychologically: it might in fact make things much worse. As Friedrich Nietzsche pointed out, it might not even be possible to confront the deeper truths of reality head-on. That would make human existence unbearable. What do you think?

**Jules Evans:** Personally, I'm not arguing that all philosophy is therapy, but rather that ancient Greeks and Romans viewed philosophy that way, as did many Indian philosophers. They developed various

practical techniques which they said would help transform suffering, that were part of a comprehensive ‘philosophy of life’. These techniques weren’t simply positive thinking, rather they argued that we need to see the world as it is, in all its instability and adversity, and accept it. Some of these techniques have now been rediscovered and tested out by empirical psychologists, who have found that they do indeed transform emotional suffering. I want to communicate this as much as possible, because ancient philosophy really can help people overcome suffering - and that’s to the credit of philosophy, which as you know is a much-maligned and under-funded subject these days. Don’t you think the more we communicate that, the higher philosophy’s standing and relevance in the world will be?

Now, do I think that wellbeing is a higher value than truth? No. I hope I would never cling to something because it made me happy, if I suspected it wasn’t true. Philosophy involves a restless search for the truth, an unceasing examination of one’s assumptions. I enjoy that search, which is why I didn’t stop at Stoicism, but have kept on looking, because I don’t think Stoicism is the whole truth about reality. But what gives me the motive to keep on looking is ultimately a sort of Platonic faith that the truth is good, and that it’s good for me. Why bother searching unless you thought the destination was worth reaching?

**NW:** Obviously, not all philosophies of life work equally well. You mentioned that there is some empirical support for the psychological techniques that you find in some ancient philosophy. Could you be more specific about this?

**JE:** Cognitive behavioural therapy (CBT) is one of the few talking therapies that is approved by the UK's National Institute for Health and Care Excellence (NICE) and provided by the National Health Service. Its two inventors, the US psychotherapists Albert Ellis and Aaron Beck, both told me they were directly inspired by Stoicism. Specifically, CBT is based on the Stoic idea that our emotions are connected to our thoughts and beliefs, and we can learn to attain a 'cognitive distance' from our automatic beliefs and see them as just thoughts rather than the truth. CBT also took specific practices for transforming our thoughts from ancient philosophy, such as: using a journal to track and challenge habitual thought patterns; using maxims to memorise and habituate insights; using visualisation techniques to change perspective; using fieldwork or behavioural 'homework' to turn new beliefs into habitual actions, and so on.

**NW:** Isn't that an argument for using psychological techniques such as CBT rather than for going back to ancient Stoicism? Aristotle was a significant proto-scientist, but present-day scientists would be ill-advised to base their practice on his...



**JE:** If you have an acute emotional disorder, CBT is certainly the place to start. However, CBT leaves out important stuff. Firstly, it's less beautifully written than the works of, say, Marcus Aurelius, Lucretius or Seneca, and beauty has a power over the soul. Secondly, CBT instrumentalises the ancient techniques and leaves out any idea of the ethical goal (happiness, inner peace, virtue, justice, etc). Thirdly, CBT doesn't consider how ethics is connected to physics - the ancients try to answer and at least remind us that this is an important question. Fourth, CBT is designed to be a short-term, eight- to 16-week intervention rather than a philosophy for life, ie something you practise your whole life. But it wouldn't be appropriate for a therapist to impose an ethical philosophy on you as a cure for depression or anxiety - they give you the basic self-change techniques, but it's for you to choose your broader life-philosophy.

**NW:** I suppose this all turns on what you think philosophy is. I see philosophy as an activity of thinking critically about what we are and where we stand in relation to the world, an activity with a long and rich history. Philosophy is concerned with how things are, the limits of what we can know, and how we should live. It is anti-dogmatic and thrives on questioning assumptions. No serious philosophy is likely to leave the philosopher unchanged, but that doesn't mean that the change will be for the better or more consoling: to think otherwise is begging the question. There are huge dangers of self-deception here, in thinking that philosophy is some kind

of panacea that will make us all better, saner people. Just to give one example, impeccable logic from false premises can lead you very far astray. How do you see philosophy?

**JE:** I approach philosophy as a sort of pragmatism - I have a set of values and an idea of how the world is, and I try it out and see if I can live by it, if it fits reality, if it leads to an expanded sense of flourishing. And reality (including other people) feeds back to me, lets me know if I'm living wisely or foolishly. That two-way process is always changing, you're always adapting and revisiting assumptions. But no one can be entirely anti-dogmatic - one needs a set of values and opinions to live by. I think you must have one too, no? I'm sure it has changed over time but if you were a complete skeptic, like Pyrrho, you wouldn't know whether to get out of bed or not.

**NW:** Yes, of course we must take some things for granted. But everything in principle can be questioned, though some beliefs are more firmly rooted than others. I like your idea of a reflective equilibrium between ideas and lived experience. What values do you try to live by as a result of this approach?

**JE:** I try to live by humility, kindness, reverence and creativity. But if you knew how badly I lived by those values you would laugh at me. How about you?

**NW:** I like Bertrand Russell's message to the future, delivered on the BBC in 1959. He boiled down his

philosophical values to two principles. First, try to look solely at the facts on any issue, rather than at what you would like to be true. No easy task, of course. Second, and this is another hard one to live up to: ‘Love is wise, hatred is foolish.’ We have to learn to put up with the fact that people will say things that we don’t like, detest even. To live together, we need to be able to speak freely, and tolerate others who do that too. Like you, I obviously fail to live up to these values much of the time, but these are good principles, nevertheless.

This interview was originally published online (<https://aeon.co/>) and kind permission has been given by Nigel Warburton to include in this edition of *Veritas*.

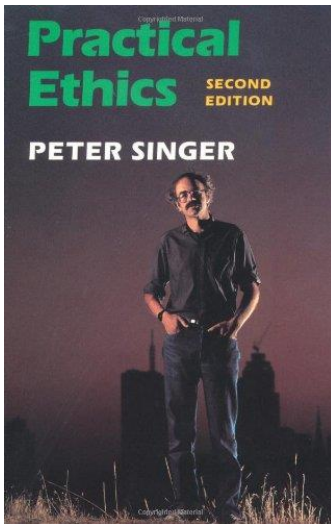
## GOOD READ

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### Practical Ethics: What's Wrong with Killing?

JOSHUA DJABA, L6S2

*“People often say that life is sacred. They almost never mean what they say”*



Peter Singer's *“What's Wrong with Killing?”* is an eye-opening read in many ways. He doesn't attempt to reach one all-conclusive, argument-ending answer of why we should or shouldn't kill- he realises that such a task would be impossible. Instead, he looks at the idea of killing from a wide variety of different angles. He questions our basic intuitive ideas: of the 'sanctity' of

life; whether we have a right to life; what a human being, or a person (between which, he argues, there is a sharp difference) actually *is*, and our ideas of personal identity. He draws on the knowledge, beliefs, expertise and writings of a number of philosophers: from Plato and Aristotle in Ancient Greek times, to contemporary

American philosopher, Michael Tooley. He examines, scrutinizes and, at times he even criticises, popular thought.

He begins this chapter of his book, “Practical Ethics”, by defining, in his own secular way, what is actually

Peter Singer is an Australian moral philosopher, who specialises in applied ethics, approaching most problems from his own secular, utilitarian perspective. He is also Professor at the Centre for Applied Philosophy and Public Ethics, at the University of Melbourne, and some of his most famous works include “Animal Liberation” and his essay “Famine, Affluence and Morality”

meant by the “sanctity of life”. He writes: “People often say that life is sacred. They almost never mean what they say...If they did, killing a pig or pulling up a cabbage would be as abhorrent to them as the murder of a human being. When people say that life is sacred, it is human life they have in mind...We may take

the doctrine of the sanctity of human life to be no more than a way of saying that human life has some special value, a value quite distinct from the value of the lives of other living things”. He moves on to consider what exactly do we mean by the term ‘human being’, and comes to 2 definitions: a member of the species *Homo sapiens* (which can be examined scientifically), and a being who possesses ‘indicators of humanhood’, such as “self-awareness, self-control, a sense of the future...”

The clash between these 2 definitions gives birth to a problem for popular societal beliefs- a foetus is clearly a human being in the biological sense, but it is far from self-aware, or with any measure of self-control. So, is a foetus a human being? Is it a person? Does it have the same rights as fully functioning adults? Singer differentiates between the two definitions by referring to the biological being as a 'human being', and the self-conscious, self-aware being as a 'person'

Singer finds that there is actually no value in the life of a human being in his sense of the word- during Greek or Roman times, there was no respect whatsoever for the lives of slaves and 'barbarians'; disabled, or 'deformed', babies were left to die on hilltops, exposed to the elements; Plato and Aristotle both supported state-enforced killing of deformed babies. Although popular attitudes towards disabled people have changed, this is just one example of how being a human being is not enough to spare one from being killed- it is in fact, being a person, which does the trick.

When assessing the value of a person's life, Singer touches on both classical and preferential utilitarian views, which cover ideas such as we can't kill a being with a sense of the future, as then we could be denying them their chance to fulfil their desires for this future they can imagine (a being which is not aware of the future cannot be denied this chance). He discusses the views of R.M. Hare on the two types of moral reasoning we have at our disposal- intuitive and critical, and how

these types of reasoning interact with, and have shaped, popular attitude towards killing. Singer explores whether a person has a *right* to life and, by extension, the question of ‘what is a right?’ He examines the difference between conscious life (the life of most animals) and self-conscious life (the life of humans), and then considers whether these lives can be compared in value.

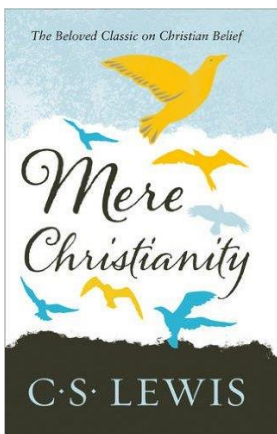
Singer’s approach to such a controversial topic makes this article a fantastic read- he questions every belief we hold so dear as a society that we never even stop to question them. We all agree that killing is wrong, but Singer digs deep into this psyche and questions where these beliefs come from, how they came about, and whether they actually stand up to critical analysis, rather than just intuitive analysis. His logic is clearly explained, and at times, hard to disagree with. A short read which I would highly recommend to anyone with an interest in Ethics, or anyone who has ever questioned popular social beliefs.

## GOOD READ

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### Mere Christianity

JAMIE LESLIE, L6R2



C. S. Lewis' *Mere Christianity* provides an insight into the concept of faith and an opportunity for believers and nonbelievers to consider a rational case for the Christian faith. Lewis explores the liberalism accounted to Christian belief, and the increased freedom of belief which it permits him, subsequently to his conversion from Atheism to

Christianity.

Lewis considers arguments for the existence of God from morality, which ultimately persuaded him from Atheism to Christianity through an awareness of a moral law of right and wrong. A puzzling outlook from an unusual perspective is provided; Lewis appears not to seek to disprove any faith, nor does he seek to discredit any as false. The exciting perception of the world and faith created by Lewis provides the reader with a well-rounded view of the common misconceptions that are



apparent within the conflicts facilitated by religion. The questioning of one's own beliefs proves to be an underlying theme contributing to the sense of questioning oneself in one's entirety.

C. S. Lewis (1898 - 1963) was a British novelist, poet, academic and Christian apologist. He held academic positions at Magdalen College, Oxford and Magdalene College, Cambridge. He is best known for his fictional work, especially *The Screwtape Letters*, *The Chronicles of Narnia* and for non-fiction Christian apologetics such as *Mere Christianity*, *Miracles* and *The Problem of Pain*.

## QUIZ

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### **MUSIC, MATHS, MORALITY AND REALITY**

Four words which all mean very different things about life and humanity. Although, are they more similar than meets the eye?

1. Which person said the following- 'Music is the mirror of reality'?
  - a) John Lennon
  - b) Karl Marx
  - c) Friedrich Engels
  - d) Ludwig Van Beethoven
  
2. The earliest evidence of mathematics so far is notches in an Ishango bone in Africa representing tallies. The Ishango bone is the fibula of what animal?
  - a) Deer
  - b) Baboon
  - c) Wolf
  - d) Goat

3. Which famous mathematician said- 'There is geometry in the humming of the strings, there is music in the spacing of the spheres'?
  - a) Euler
  - b) Archimedes
  - c) Pythagoras
  - d) Euclid
- 
4. Who attacked the 'regression of listening', which they believed to be in the whole of modern America?
  - a) Walter Benjamin
  - b) Theodor Ardono
  - c) Jürgen Habermas
  - d) Sigmund Freud
- 
5. Who said, 'Music is a moral law. It gives a soul to the universe, wings to the mind, flight to the imagination, a charm to sadness, and life to everything'?
  - a) Socrates
  - b) Aristotle
  - c) Plato
  - d) Heraclitus

**Answers: BBCBC**

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