

73. Re-Reading *The Humans* Within The Context of The Theorem and Philosophy of Pythagoras

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Abstract

In *The Humans*, published in 2013, Matt Haig tells the story of a ‘commissioned’ alien sent to Earth from an extra-terrestrial planet. The extra-terrestrials have solved the mystery of prime numbers and have gone far beyond humanity in every sense. On the other hand, the humans living on Earth have just solved the secret about prime numbers that started with Pythagoras and continued for centuries. A professor named Andrew has reached the solution; with this solution, people will make significant progress in many fields, especially in areas related to technology. This transformation is seen as a danger to the world, and the extra-terrestrials try to prevent it. An alien lands on Earth and tries to eliminate Professor Andrew and the people who know this solution. At this point, the reader not only witnesses the struggle between an alien and humans, but is also confronted with an action-packed science fiction with traces of the famous philosopher and mathematician Pythagoras in the background. The author indirectly references Pythagoras’ mathematical theorem, calculations, philosophy, and thought in his narrative, which he tells as humor independent of all this intensity. This study aims to address Haig's work with Pythagoras in the background by making Pythagoras more visible. It aims to examine in detail the direct and indirect references to Pythagoras in his work, which is mathematical and philosophical.

Keywords: Matt Haig, The Humans, Pythagoras, Pythagorean theorem, philosophy

İnsanlar’ı Pisagor’un Teoremi ve Felsefesi Bağlamında Yeniden Okumak

Öz

Matt Haig, 2013 yılında yayımlanan *İnsanlar*’ında dünya dışındaki bir gezegenden dünyaya gönderilen ‘görevlendirilmiş’ bir uzaylının hikayesini anlatır. Dünya dışındaki varlıklar asal sayılarla ilgili sırrı çözmüş ve her anlamda insanlığın çok ötesine geçmişlerdir. Dünyada yaşayan insanlar ise Pisagor ile başlayıp yüzyıllar boyunca devam eden asal sayılarla ilgili hesaplamaları henüz çözmüşlerdir. Andrew adında bir profesörün çözüme ulaştığı ve bu çözüm ile insanların birçok alanda büyük ilerleme kaydedeceği düşünülür. Bu dönüşüm dünya için bir tehlike olarak görülür ve bunun

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önüne geçmeye çalışılır. Bir uzaylı dünyaya iner ve bu çözüme ulaşan Profesör Andrew ile bu çözümü bilen insanları ortadan kaldırmaya çalışır. Tam bu noktada okur, sadece bir uzaylı ile insanların mücadelesine tanıklık etmekle kalmaz, bir taraftan da arka planında ünlü filozof ve matematikçi Pisagor'dan izler taşıyan aksiyon dolu bir bilim kurgu ile karşı karşıya kalır. Yazar, dolaylı olarak Pisagor'un matematik ile ilgili teoremine, hesaplamalarına, felsefesine ve düşüncesine dair çokça referans yaptığı anlatısında tüm bu yoğunluktan bağımsız bir mizah gibi anlatır. Bu çalışma, Haig'in Pisagor'un arka plana alarak oluşturulan eseri, Pisagor'u daha görünür kılarak ele almayı amaçlamaktadır. Hem matematiksel hem de felsefi bir okuma ele alınan eserde, Pisagor'a yapılan doğrudan ve dolaylı referansların detayları ile incelenmesi amaçlanmaktadır.

Anahtar kelimeler: Matt Haig, İnsanlar, Pisagor, Pisagor teoremi, felsefe

Introduction

Turning into a full-time writer after running his own internet marketing company and working in a nightclub, English writer Matt Haig has written science fiction and stories in addition to novels and books of thought for children and adults that are popular for the last years. His *Reasons to Stay Alive* was among the top 10 books for 46 weeks in the UK, making it *Sunday Times* bestseller. *Father Christmas and Me*, one of the best-selling novels in the category of children's books, was adapted to a movie. Another bestselling children's book, *A Boy Called Christmas*, has been translated into more than forty languages. He has written for various national newspapers, especially *The Guardian* and *The Independent*. His bestselling and award-winning adult novels include *How to Stop Time*, *the Radleys*, *the Humans* and *the Midnight Library*. Combining the genres of science fiction, psychological fiction, bildungsroman and humor, *the Humans* tries to explore the meaning of being human, the necessity of pain and the healing power of love, what it means to pursue happiness and love without any calculations, the concept of family and what it means to have reasons to bind people to life.

In *The Humans*, the main character is an alien sent from the planet of Vonnadorian to the earth to fulfil a mission. His job is to disguise himself as Andrew Martin, the top mathematics professor at The University of Cambridge. He has accomplished many successful attempts and destroyed the Riemann hypothesis before other people learn about it. In his hypothesis, Martin uncovered the secret of prime numbers and thus took a step forward by solving the mysteries of the universe, ending sickness and death for humanity, and guaranteeing a giant leap forward. The protagonist of the novel, the alien, finds himself naked when he wakes up in the image of the murdered mathematics professor Andrew Martin. The only thing he learns about the Earth from the planet he came from is the greed and helplessness of the earthlings. He searches for Andrew Martin's house downtown and on the university campus but gets strange looks from people for being naked and is later arrested by the authorities. He is thought to be mentally ill due to his behaviors and is taken to the hospital. The alien abhors the world and people's irrationality, primitiveness and bigotry. After being discharged from the hospital, he goes to the professor's office, destroys all evidence of the hypothesis from his computer and kills his teacher with whom he talks about the hypothesis. His next target is to kill Professor Andrew's son, Gulliver, and his wife, Isobel.

As he waits for the right time to kill them, he begins to realize the differences and beauties on earth. He begins to love music, poetry, the family dog Newton, Gulliver, his wife Isobel, and peanut butter, which makes him happy. He begins to feel emotionally attached to people and things in the world. This is an unacceptable situation on the planet he came from, and he receives warnings from the planet to correct

this situation. Although human emotions he feels frighten and excite him, he cannot prevent this situation. The Alien, who is attached to Isobel and Gulliver, protects them, and shows them interest and affection, this surprises them very much because the professor has always been a person who is dependent on his work, indifferent, obsessive, and does not show his love.

When Andrew realizes that he cannot kill them, he tries to convince his fellow countrymen that Isobel and Gulliver are harmless and know nothing about the hypothesis. Still, they refuse and say he has to complete the mission. Realizing the healing power of family intimacy and love, Andrew decides to stay on earth at the cost of giving up his superhuman powers. Andrew, who has never experienced any emotion, commitment and pain in his previous life, experiences these when he becomes human and tries to adapt. Still, he cheats on Isobel one day, not knowing cheating is wrong. He suspects another alien has been sent from his home planet to kill Isobel and Gulliver. He is convinced when his best friend Ari is killed. When the alien tries to kill Gulliver and Isobel as the next mission, Andrew intervenes and kills the alien. He leaves his family and moves to California because he thinks staying with Isobel and Gulliver will hurt them, and he thinks they will not believe his story. He has built an isolated and a quiet life for himself, but his longing for Isobel never goes away. When he goes to England for a conference, he apologizes to Isobel and attempts to be a family again.

Back to Pythagoras; the Great Transformation Beginning with Pythagoras

With Pythagoras stepping into philosophy, philosophy has become a way of life rather than the search for the primary substance or the questions of why and how the universe came into existence. The main goal of Pythagoras is to protect and save humanity in the light of science and philosophical views rather than seeking answers to these questions about the universe or nature. He was born on the island of Samos in the 590s (B.C.) and it is known that he has many teachings in the philosophical and scientific world. Pythagoras believes that animals, like humans, have souls and that souls will be judged for their sins (Morrison, 1956: 136). The most famous of his teachings is the doctrine of transmigration. According to him, the soul is a separate entity from the body, superior to the body, a substance in its own right. It has the potential to transition into the body of another human or animal in this world. Many bodies are successive dwellings of souls (Luchte, 2009: 6). For this reason, Pythagoras forbids his followers to eat meat. The human soul, which can pass from body to body, can be in an animal body at that moment. The soul in the animal body may belong to a dead person or an animal. And this requires a gentle approach to animals. This approach has opened the door to the belief in vegetarianism. Kerry S. Walters argues that vegetarianism has been a lifestyle for thousands of years, and appeared first with Pythagoras, who first defended staying away from animals (1999, p. 12).

Another teaching of Pythagoras, known as the creator of arithmetic in the Greek world, is related to the science of music and sound theory. Pythagoras and his followers used music to protect and purify mental health as people take medicine to protect their physical health. He is said to be the creator of acoustics. He realized that music and mathematics are united around the same goal (Bibby, 2006: 14). Based on the numbers 1, 2, 3 and 4 and the ratios between them, he discovered that at that time only the sound ranges that the sensitive ear of musicians could detect empirically and practically could be expressed with a mathematical expression (Arslan, 2022, p. 149). Based on this, he formed the doctrine that the primary substance of the universe is numbers. The universe and its contents are made up of numbers and can express everything with numbers. Putting numbers at the centre of his life, Pythagoras sought numbers and harmony in the universe. He also describes the harmony in the universe with music. According to him, harmony consists of opposites, and the universe is the cosmos, which means harmony.

In fact, contrary to the established assumptions of his time, Pythagoras argued that the entire universe had been created according to a mathematical harmony, and that therefore there were numerical principles at the origin of everything. (Tarhan, 2020, p. 4)

One of the most debated topics of philosophy is the universe, also known as the cosmos. The first name that springs to mind while thinking about this idea is Pythagoras, credited with numerous 'firsts' and known as the founder of the many 'things.' He is the first philosopher in recorded history to use the term 'cosmos.' Literally, the cosmos means 'everything.' Pythagoras was the first to organize this mathematically. This 'first' is just one of many firsts he came up with. Pythagoras, who linked many factors and components from the universe's formation to its functioning within the logic framework and made use of mathematics in doing so, also had remarkable ideas about the functioning of life in the universe. The great philosopher also believed that the two elements are the foundation of everything in the universe. The first one is 'Peros,' which means 'Fire,' and the second one is Apeiron and which is 'Air.' While Peros is limited, the Apeiron, in other words 'Air' is limitless, and all these have something in deep. Making a conceptual evaluation in the light of these Pythagorean concepts, Yıldırım elaborates on the issue as follows:

Pythagoras' image of the universe consists of unlimited air, which pervades everything, and limited fire, which is at the center. According to Pythagoras, the number is the union of the limited and the unlimited, the 'one and the many.' So, according to this, a number is like a physical object. It is composed of fire and air. The basis of everything is number, and the basis of number is unlimited and limited. The basis of the number is air and fire. Limited (fire) is the active one. Unlimited (air) represents more passive things. He takes this example from sperm and egg. Like the sperm fertilizing the egg. Fire is the active substance in them. Limited and unlimited combine to form 1. But this number has mass; it is an object. (Yıldırım, 2019)

Pythagoras' approach to the limited and unlimited components that make up the universe and the formation of the universe continues with some interpretations of numbers and the meanings assigned to each number. Intricately, some profound thoughts and claims have been debated for centuries. As one of the greatest physiologists of ancient Ionia and whose name is also identified with the science of mathematics is also one of the most influential names in western philosophy. Pythagoras, whose thoughts led to the establishment of a system of study such as Pythagoreanism, also created a school arguing that everything is related and related to mathematics with the Pythagorean Theorem. This school had important students and defenders of the idea and gave a name to a highly appreciated formation. Pythagoras, who influenced not only the West but also the thoughts of names such as Plato and Aristotle, can be the basis and influence different thoughts, studies and discussions even today. So much so that it is possible to see his traces even in recent fiction. Although legends have overshadowed much of what is told about Pythagoras, it has inevitably affected the scholar and his teachings and led to different interpretations. Despite this, Pythagoras is one of the names that cannot be thought of and discussed in a way free from the inventions, thoughts, and methods caused him to be 'Pythagoras.'

Haig visits Pythagoras

Matt Haig's novel *The Humans*, which contains more than its envisaged influence and indirect references, is based on Pythagoras' system of interpreting the world and numbers. The book, which everyone who read the book, even the back cover commentary, commented that it could be interpreted as a myth, attracted attention as one of the successful fictions created between fiction and reality. The novel, which everyone who read, even the back cover commentary, interpreted as a myth, attracts attention as one of the significant works created between fiction and reality. *The Humans*, which drew

the attention of powerful platforms and organizations related to literature shortly after its publication and found a place among the most-read books, can be considered philosophically based fiction. Arousing the interest of powerful platforms and organizations related to literature shortly after its publication and finding a place among the most-read books, *The Humans* may be considered philosophically based fiction. One of the essential richness of the novel, which can be defined as a novel about human beings in its essence and an alien finding the details that make humans the natural human, is that it has sections that frequently refer to Pythagoras. All but two of these references are indirect. One of the essential richness of the novel, which may be regarded as a text about humankind in its essence, is constructed on an alien protagonist finding the details that make humans the natural human. Another noteworthy feature of the novel is having frequent references to Pythagoras, all but two of which are indirect.

The first of these is given in one of the notes found on Prof. Andrew's computer by the alien from outer space who tries to manipulate the discovery of prime numbers. Finding the original document on the computer and impersonating Andrew with identical physical characteristics, the alien reads the following passage from the Zeta received copy: "*People joke, in our field, about Pythagoras and his religious cult based on perfect geometry and other abstract mathematical forms, but if we are going to have religion at all then a religion of mathematics seems ideal, because if God exists then what is he but a mathematician?*" (Haig, 2013, p. 58). This manifestation can be read as a funny detail within the fiction. Underneath the assumption that mathematics is a religion based on formulas and that a mathematician is a God, some facts about Pythagoras are probably the background of Haig's reference.

As is known, Pythagoras is seen as the founder of a school of thought, and at the center of many of his works, there are kinds of calculation that begin with the square root of two and the studies and discussions shaped around it. This school of thought was also based on the knowledge that all numbers are composed of integers and rational numbers. In this sense, the square root of two is critical in this calculation. However, it is stated that Hippasus had a regrettable incident after one of Pythagoras' students put forward a different approach to this issue and questioned the 3-4-5 relationship between the sides of the triangle. It is said that Hippasus was thrown into the sea and killed by Pythagoras (and, according to some interpretations, by his students) after he made some inquiries and made a question and suggestion that would disrupt this set of equations. The justification behind this is presented with the following words: "The followers of Pythagoras were fearful that the conclusion of Hippasus would be revealed and people would see the failings of Pythagoras' philosophy and religion. Legend has it that the other students of Pythagoras took Hippasus out to sea and threw him and his irrational ideas overboard" (Yanofsky, 2016, p. 168). Returning to the book's humor, the damage to Pythagoras' philosophy, and the damage to mathematical ideas, which are seen as a religion, is envisioned as a catastrophe. If the undermining of faith means undermining authority, the removal of this name means preserving authority. Therefore, in the above quotation given under the title '*Proof of The Riemann Hypothesis*' after Professor Andrew solved the puzzle about prime numbers, one can find details about a murder involving Pythagoras in jest. Although the execution is different, in the book, a murder is committed based on accessing and questioning knowledge.

Moreover, this murder is very similar to the murder of his student attributed to Pythagoras. Namely, Hippasus, who inquired on the sides of a triangle and the square root of two, is thrown into the sea and killed. Because this questioning could be a match struck at the foundation of an idea that took many years to be grounded. In *The Humans*, Haig commits the same murder at the hands of an alien who replaces Prof. Andrew Martin and comes to earth with the same physical characteristics as him. The fake Andrew has learned that the original Andrew has solved the unknown formula for prime numbers and

that humankind has accessed the secret that will change the course of the world. More precisely, people living in a universe beyond the world have acquired this knowledge. According to them, it is dangerous for humans to access this knowledge, and anyone who uncovers the mystery must be eliminated. Because while going through the professor's computer, he sees/recognizes the formula $\xi(1/2+it)=[e^{\frac{1}{2}\log(r(s/2))}\pi^{-1/4}(-t^{2-1/4})/2]x[ei^{\frac{1}{2}\log(r(s/2))}\pi^{-it}/2\zeta(1/2+it)]$ (Haig, 2013, p. 60) and greets it with the words "A moment of sheer terror" (60).

The alien and new Prof. Andrew, sent to earth to discover this formula and prevent its spread, starts by erasing the records of the actual professor who was murdered. While erasing these records, he sees that the professor has already shared this knowledge with another math professor named Daniel Russell. Russell, who works at the University of Cambridge, has become a new target because of this information. After gathering some information, he learns the details of her relationship with Russell, goes to her house and kills her because she knows the details of the hypothesis. Just as Pythagoras killed Hippasus, the alien disguised as Professor Andrew kills Russell, who knows the secret of the formula:

He lurched backward, bumping into his desk. I was, to his eyes, Andrew Martin again. But he had seen what he had seen. I only had a second before he would begin screaming, so I paralyzed his jaw. Somewhere below the panic of his bulging eyes, there was a question: how did he do that? To finish the job properly I would need another contact: my left hand on his shoulder was sufficient. Then the pain began. The pain I had summoned. He held his arm. His face became violet. The color of the home. I had pain too. Head pain. And fatigue. But I walked past him as he dropped to his knees and deleted the email and the attachment. I checked his sent folder, but there was nothing suspicious. (p.84)

This murder is the alien's first murder on Earth. However, the forces that sent him to earth tell him this is not the end and that he must access more information and even kill Professor Andrew's wife and son. Although the murder of Professor Russell does not leave any impact, the event lights the first sparks of the transformation to humanity at the end of the book. Although the murder of Professor Russell does not significantly impact the novel, it may be assumed as the event that lights the first sparks of the alien's attempt at the transformation at the end of the book. Russell's behavior before his death, the pain he suffered as he was about to die, and the tremendous pain and grief experienced by his wife immediately afterward all lead to some emotions in the alien, yet he is not sure about it. Then the unraveling and transformation begin.

Another episode in which Pythagoras is visible is when the fake Prof. Andrew is locked up in a hospital due to his strange behavior. After his peculiar behavior and harmful surroundings, he is thought to have a mental disorder and is hospitalized. People in the hospital have psychological disorders. He meets a young girl, Zoe, in his hospital bed. She recognizes him, but he does not. Meanwhile, trying to discover whether he knows her through a few dialogues, his mathematics studies help the subject progress. Just as the conversation on mathematics begins, the following dialog passes between them:

'Are you one of my students?'

She laughed again. 'No. No. GCSE maths was enough for me. I hated it.'

This angered me. 'Hated it? How can you hate mathematics? Mathematics is everything.'

'Well, I didn't see it like that. I mean, Pythagoras sounded like a bit of a dude, but, no, I'm not really über-big on numbers. I'm philosophy. That's probably why I'm in here. OD'd on Schopenhauer.'

'Schopenhauer?'

'He wrote a book called The World as Will and Representation. I'm meant to be doing an essay on it. Basically, it says that the world is what we recognize in our own will. Humans are ruled by their basic desires, and this leads to suffering and pain because our desires make us crave things from the world,

but the World is nothing but representation. Because those same cravings shape what we see, we end up feeding from ourselves until we go mad. And end up in here.' (Haig, 2013, p. 41-42)

The sentence, "*Pythagoras sounded like a bit of a dude*" (p.41) by Zoe suggests that it is known that Pythagoras was an outstanding thinker. Nevertheless, he needs to provide more information. Being aware of this, the author makes it interesting with different philosophical and sociological references rather than putting Pythagoras in the foreground. One is about Schopenhauer, mentioned in the same paragraph as Pythagoras. When Zoe talks about Schopenhauer, she says that man is ruled by his desires, and as a result, man suffers. It is possible in thought and practice to relate this statement directly to Haig's protagonist, the alien. However, the fake professor, who does not take people seriously at the beginning and cannot make sense of what people feel at the thought of an alien, prefers to turn into a person ruled by his desires. He does this even knowing that he will suffer. The alien, who comes to earth on a mission, wants to live in this designed world (according to Schopenhauer) despite the realities. In the end, after the failure of those on the planet he comes from to fulfill the mission, the mortality will turn after he decides to turn into a human being and the suffering of human beings. The alien, who discovers the deep meaning of being human despite the endless desires and self-consuming process of humans, replaces Prof. Andrew, who is eliminated at the novel's beginning and continues to live the professor's life.

In the other parts of the work, no sections refer directly to Pythagoras and his views. However, many passages can be directly linked to the ideas that refer to Pythagoras and indirectly point to him. In this sense, although it is not known whether Haig deliberately shapes his work within the framework of Pythagoras' beliefs, his direct influence is quite evident when these examples are considered. It is possible to take Haig's *The Humans* with different genres, approaches, theories, and currents of thought in literature. Many of the studies have been realized in this manner. However, the Pythagorean influence based on his work is an essential topic that needs to be visible. Even the writing of a novel based solely around a piece of knowledge and thought about prime numbers would be the most prominent and correct example because the book is written in fiction 'where' numbers are at the center of life from the beginning.

Examining the universe from a rational point of view, Pythagoras is a mathematician who also explores the order within the universe in terms of numbers, especially prime numbers. However, this connection with mathematics may be a misinterpretation to limit him to a mathematician, for Pythagoras was not only a mathematician but also a philosopher with a considerable historical record. Moreover, Pythagoras was the first to use 'philosopher' as a word and a title, and there is a depth even in the name Pythagoras used in this sense. This naming is described as follows:

As a young man from a prosperous family, Pythagoras was educated by the mystic Pherekydes and the founders of the Ionian school, Thales, Anaximander, and Anaximenes of Miletus, who influenced him greatly. Like Pherekydes and the Ionians, Pythagoras mixed myth and logic, theology, and the search for wisdom. Yet Pythagoras also demanded of wisdom that it should be a rule of life. With his amazing breadth of outlook, he constructed a system combining thought and conduct, to provide a rational explanation of the universe and also satisfy the religious craving for union with the divine. Unlike the other sages, Pythagoras refused to describe himself as "wise." For no one, he said, is wise except God. Thus, he invented the word "philosopher" to describe himself: a "lover of wisdom." (Violin, 1990, p.122)

Pythagoras, who identifies wisdom with God and defines himself as a philosopher, puts forward many ideas and theses that would cause and support his acceptance as a physiologist. One of these is about numbers, the universe, and the place of numbers in the universe. In this school of thought, where math's

is very much at the center of the belief system, also there is a system of principles, and within this system, numbers and the concepts formed by numbers all have deep meanings:

Pythagoras expressed his thoughts and ideas using words and symbols rather than numbers as we know them today. Instead, his ideas were based on many of the ideas we associate with numbers today. For example, a point is the essence of a circle. A series of symbolic forms were constructed to reflect the concepts of the universe. Mathematical philosophers created these symbolic representations using compasses, straightedges, and writing instruments. (Hobgood, n.d.)

Prime numbers, unsolvable equations, the nineteenth-century German genius Bernard Riemann, and many other details are frequently found between the lines of the novel. These are the details that link Haig's narrative to Pythagoras. As to the story created in the novel, people living on another planet have solved the secret of prime numbers, but people living on Earth have not. Thanks to cracking the secret, aliens can simultaneously transfer thousands of pages of information into their minds, travel rapidly between universes, and have bionic abilities and all other differences. However, the aliens think that humankind will pose a severe danger due to this discovery. As a result, the fact that prime numbers are the main problem of humans is emphasized in the world. The alien who comes to Earth realizes that people are seriously thinking about these numbers and learns that many names have gone crazy in the past to reach the mystery of the prime numbers. When he learns this, he shares the following details:

Primes, quite literally, sent people insane, particularly as so many puzzles remained. They knew a prime was a whole number that could only be divided by one or itself, but after that they hit all kinds of problems. For instance, they knew that the total of all primes was precisely the same as the total of all numbers, as both were infinite. This was, for a human, a very puzzling fact, as surely there must be more numbers than prime numbers. So impossible was this to come to terms with; some people, contemplating it, placed a gun into their mouth, pulled the trigger, and blew their brains out. (Haig, 2013, p. 58)

After living in the world for a while, the alien makes some conclusions about the world. The first detection is that humankind has also made progress in numbers in a sense. For example, the information that primes are the same as the sum of all numbers is infinite, and primes are very similar to the earth's weather is shared in many sections. Nevertheless, the essential information that will untie the knot has yet to be reached. Although people know about the atom, the atoms that make up the molecule, and many other things, they are deprived of some things:

However, people had struggled to explain the apparently random pattern of primes. They thinned out, but not in any way that humans could fathom. This frustrated the humans very much. They knew that if they could solve this they could advance in all kinds of ways, because prime numbers were the heart of mathematics and mathematics was the heart of knowledge. (p.58)

Pythagoras' relationship with numbers is far beyond what can be imagined, and his interpretations are far beyond the possible variations. In his system of thought, every number has a meaning, and when these meanings come together, they form the main idea or meaning. Numbers are included from unlimited air and limited fire and each number has a meaning:

Not surprisingly, the number 1 is generally considered a symbol of unity. The number 2 symbolizes many of the fundamental dualities. The number 3 is a very mystical and spiritual number featured in many folktales (three wishes, three guesses, three little pigs, three bears, three billy goats gruff). The number of order in the universe is 4—the four elements of earth, air, fire, and water; the four seasons; the four points of the compass; the four phases of the Moon (new, half-moon waxing, full, half-moon waning). The sum of the first even and odd numbers ($2 + 3$) is 5. (To the Pythagoreans 1 was not a number and was not odd.) By a wonderful conjunction of mathematical coincidences, 6 is both the sum ($1 + 2 + 3$) and the product ($1 \times 2 \times 3$) of the first three numbers. The sum of the spiritual 3 and the material 4 is 7. In medieval education, students pursued the trivium (grammar, rhetoric, and

logic) and the quadrivium (music, arithmetic, geometry, and astronomy), a total of seven subjects, collectively known as the liberal arts. The number 8 is generally considered to be an auspicious number by numerologists. In contrast to 8, the number 9 often represents pain or sadness. As already stated, 10 was the Pythagorean symbol of perfection or completeness. Humans have ten fingers and ten toes. Counting on fingers probably led to the decimal number system, with its symbols 0–9 and its place values whereby the 7 in 703 counts as 7 hundred, but in 173 it is 7 tens and in 507 it is 7 units. (Tikkanen, n.d.)

All these numbers, multiplications, and other calculations clearly show that numbers are of great importance in Pythagoras' basin of the universe and creation. Numbers are brought together with vital factors such as fire and air and placed at the center of life. Not but what, Pythagoras asserts that it is quantities that made and created everything. Pythagoras also had faith that everything was composed of amounts. Since everything is composed of numbers, mathematical expressions allow us to comprehend the workings of the cosmos. The foundation of modern science is this. Some conclude that the universe and the human soul have the same structure since the universe is thought to have a mathematical form.

Another common ground that makes it possible to talk and discuss Haig's work on the same ground as Pythagoras is the connection between numbers and music and the treatment of this subject in *The Humans*. In this regard, it is possible to find interesting information that combines Pythagoras with *The Humans* and the science of mathematics with music. Pythagoras, the pioneer of many ideas and the inventor of many firsts in his time, is also considered the first in music. Music is among the doctrines studied and put forward in Pythagoras' school of thought. Based on these ideas, Pythagoras is regarded as the founder of Ancient Greek music theory. Pythagoras' teachings on numbers also lie in the background of the beginning of music theory:

The characteristic synthetic genre of Greek music is the Kora (χορεία) - a combination of dance, poetry, and music. What we call the art of autonomy of sublime sound forms was generally absent in Greece during the classical period. Two essences of music: 1) spiritual - artistic and 2) natural-physical - were strangely recognized by the Greeks: on the one hand, it was presented as a gift from the gods (according to legend - a gift from Apollo and Muses to humans) and on the other - as a theoretical understanding of the numerical principles of musical harmony by the legendary scientist Pythagoras (the story of the hammers he heard in the forge³). The combination of divine and earthly, spiritual and sound, inspiration and technical work can be seen in the expression 'musical skill', and 'musical art' (Боецкий, 1995: 10-11, cited in Orujov-Orujova 2020, p. 996).

The legend that led to the emergence of Pythagoras' relationship with iron and music is quite interesting. As reported, one day, he passes by a blacksmith's shop through the bazaar; the blacksmith's hammer is striking the anvil, and various sounds are created with this striking. This series of sounds attracted Pythagoras' attention. Pythagoras stops for a while to listen to sounds and tries to make sense of them. Then he makes requests to the blacksmith. He asks the blacksmith to strike the hammer more slowly or harder. After these experiments, he realizes that the mass of the hammer, not its intensity, makes a difference in the change of sound. Interpretations that combine this with the symbols and notes in today's music system are formed. These mathematical ratios, discovered and organized by Pythagoras and his students, have helped define every intonation system throughout history. (Gedik, 2021)

Moreover, it is known that there is a difference between the thickness of a C struck with a heavy hammer and the C produced by a light hammer. A hammer with a lighter mass causes a thin C. The situation is continued with a mathematical calculation and mathematical meanings such as the ratio of 1 to 2 or the percentage of one number to another. By conducting many experiments like this, he explained music

with mathematics and formed the basis of his views on establishing a connection between the two sciences. The relationship between mathematics and music was found in this period:

Although Pythagoras is best known for his mathematical theorem, he also made extraordinary advances in astronomy and geometry. He also developed a theory of music and founded a school of philosophy and religion in Croton, Italy. He taught that 'the whole universe is a scale and a number,' according to the University of St. Andrews. While playing his lyre, an ancient Greek stringed instrument, Pythagoras discovered that when the string lengths were integers, the vibrating strings produced a pleasant sound and that this was true for other instruments as well. He combined this discovery with his understanding of the planets and devised the theory that when the planets are in harmony, they create music that is too beautiful for humans to hear. (Akyl, 2022)

This music theory and the discovery of the expression of music by a system have created a relationship between right and wrong. Pythagoras' thoughts and discoveries in this sense have been interpreted as the search for the beautiful, not the true, in music; on the other hand, in mathematics, it has been concluded that the true, not the beautiful, is sought. Despite these differences, it was stated that there should be a search and accumulation in both fields. These differences between the two sciences could find a place in the same evaluations by considering the system and harmony in the universe's formation. For this reason, in Ancient Greece, music was classified among the four main sciences, including mathematics. In addition to music and mathematics, the Pythagorean school also included geometry and astronomy in this group, placing these four sciences at the center of life.

In *The Humans*, Haig has created a fiction centered entirely on these sciences. The alien from an extraterrestrial planet does not only tell the story of killing a human and replacing him. He also gains impressions about the existence of the world, astronomy, geometry, mathematics, music, art, literature, and many other fields. Virtually, at the center of his visit to Earth is a door that numbers will open for humans after a hypothesis is solved and will provide unlimited possibilities. This door wanted to be closed. However, while this is done, the alien discovers human beings and the beauties that make them human. Prof. Andrew Martin is replaced with someone who does not like music and reads poems. On the other hand, the alien is a man who is supposed to be devoid of emotions, shows a serious interest in music and poetry bizarrely. He discovers this interest in an episode titled *Dog and Music*. After arriving on Earth, the alien professor experiences a series of events and has to rest at home, and so does. During the day, only he and his dog are at home. At first, he does not like the dog Newton, but he starts a dialog with him in time. Then his interest in music begins. One day he turns on music while sitting at home. He listens to 'The Planets' by the artist Gustav Holst. Interestingly, it is shared that this song is about the solar system. Then he listens to songs and music about the sun, the Earth, astronomy, and the planets. Then he listens to more different music. Finally, after listening to music one after the other, he emphasizes the beautiful side of music and shares the following words:

I was intrigued to discover the sounds that could make it on to music – the strange talking radio voice on 'I Am the Walrus' by the Beatles, the cough at the beginning of Prince's 'Raspberry Beret' and at the end of Tom Waits songs. Maybe that is what beauty was, for humans. Accidents, imperfections, placed inside a pretty pattern. Asymmetry. The defiance of mathematics. I thought about my speech at the Museum of Quadratic Equations. With the Beach Boys I got a strange feeling, behind my eyes and in my stomach. I had no idea what that feeling was, but it made me think of Isobel, and the way she had hugged me last night, after I had come home and told her Daniel Russell had suffered a fatal heart attack in front of me. (Haig, 2013, p. 91)

Haig makes this connection as he has a reason for it, and that reason is Pythagoras and Pythagoras' views on the relationship and harmony of music with mathematics. An alien specializing in mathematics, who has solved all the secrets of mathematics, also loves music, the output of a harmony

system, and becomes addicted to it. That kind of change attracts the attention of his wife, Isobel, who knows that her husband never listens to music. Unaware that her husband has been killed and replaced by an alien who looks exactly like him, Isobel marvels at his listening to music, eating peanut butter, and changing habits. One of these surprises is that her husband, Andrew, who used to eat meat, has suddenly become a vegetarian. The conversation between the two about making meat dishes is presented as follows:

‘That looks like meat,’ I said.

‘I’m going to make a stir-fry.’

‘With that?’

‘Yes.’

‘The breast of a chicken?’

‘Yes, Andrew. Or are you vegetarian now?’

The dog was in his basket. It went by the name of Newton. It was still growling at me. ‘What about the dog’s breasts? Are we going to eat those, too?’

‘No,’ she said, with resignation. I was testing her.

‘Is a dog more intelligent than a chicken?’

‘Yes,’ she said. She closed her eyes. ‘I don’t know. No. I haven’t got time for this. Anyway, you’re the bigmeat eater.’

I was uncomfortable. ‘I would rather not eat the chicken’s breasts.’

Isobel now clenched her eyes closed. She inhaled deeply. ‘Give me strength,’ she whispered.

I could have done so, of course. But I needed what strength I had right now.

Isobel handed me my diazepam. ‘Have you taken one lately?’

‘No.’

‘You probably should.’

So I humoured her.

I unscrewed the cap and placed a pill on my palm. These ones looked like word-capsules. As green as knowledge. I popped a tablet in my mouth. (p.73)

There are several dialogues and various interrogations of the alien about humans eating meat. In particular, he finds it very strange that humans eat meat, and he shares comments that reveal his amazement about it. At one point, the alien shares a passage about the peculiar behavior of humans:

When I first arrived here I needed help understanding certain things. For instance, I needed clarification on why clothes were so important. Or why a dead cow became beef, or why grass cut a certain way demanded not to be walked upon, or why household pets were so important to them. The humans are scared of nature, and are greatly reassured when they can prove to themselves they have mastery over it. This is why lawns exist, and why wolves evolved into dogs, and why their architecture is based on unnatural shapes. But nature, pure nature, is just a symbol to them. A symbol of human nature. They are interchangeable. (p.114)

When Pythagoras and Haig’s work are put side by side, it is obvious that this is not casual questioning. Considering the apparent Pythagorean influence in the book, Pythagoras’ ideas about meat consumption are also behind the strange notion of humans consuming meat. Namely, in Pythagoras’ philosophy, there is the idea of reincarnation. In other words, he believes there is a transition process from one soul to another. Therefore, it may be asserted that according to Pythagoras, the soul constantly moves around the world and passes from one body to another. This soul can also pass from human to animal. As

Pythagoras and the followers of his school believed that the soul could move from a human to an animal, they did not eat animal meat and did not deem it appropriate. Therefore, Pythagoras, who is believed to have spoken with Zoroaster and had serious discussions with him before the formation of this idea, is considered to be one of the pioneers of vegetarian nutrition:

Pythagoras, a Greek philosopher and mathematician, is thought to have made a connection between reincarnation and vegetarianism. In the 19th century, many philosophers and scientists were influenced by his views and adopted a vegetarian diet. Pythagoras is also considered the father of ethical vegetarianism (being vegetarian for ethical reasons). However, the reasons for adopting a vegetarian diet have changed over the past 2500 years. In ancient Greece, they believed that animals could communicate with humans (Son & Bulut, 2016, p. 832).

A belief in this is able to find a place in Haig's work after thousands of years. Between the lines of *The Humans*, one of the most widely read books of recent times, thoughts, ideas, and even philosophy from thousands of years ago have formed a foundation. The fact that Pythagoreans did not consume meat is one of the details that form this foundation. A series of details like this have been presented and tried to be elaborated on with examples. Finally, it may be emphasized that Pythagoras' thoughts and philosophy are evident in Haig's *The Humans*. However, it is unknown whether the author put Pythagorean thought in front of him and shaped the fiction around it.

As a result, the prime number system, the secret of prime numbers, the relationship between mathematics and music, and the views revealing that mathematics is at the center of the universe have been tried to be matched with Haig's fiction. At the end of *The Humans*, both the transformation of a creature from outer space into a human being and the choice of an alien with all the possibilities to live in a world are shared as a lesson or a conclusion about philosophy and understanding human beings, which can be considered as one of the essential details that make the book rich in philosophical terms. While this idea creates a relationship between the novel and Pythagoras, it turns into a horse of another color in fiction. In addition to Pythagoras' concept of soul transmigration, Haig takes it further and makes the same soul wander between the same two bodies. In a sense, it becomes a process like different bodies living in similar souls. Professor Andrew, the alien's replacement, is eliminated; the aliens create a new body, and the alien's soul moves to a different body. This small detail is incompatible with Pythagorean thought but reflected differently in the novel.

Conclusion

Matt Haig's *The Humans* is a fiction based on the different meanings of being human. It is a work that can be evaluated at the point where an alien comes to earth and learns the details about the creation of human beings, arrives on earth with a heavy prejudice about humans, turns into a human being, and discusses the good and evil in human beings. Haig's work, which embellishes its theme with successful fiction, has already become the most widely read and recommended novel of recent times. The author's innovative way of thinking and writing has led him to be at the forefront of many awards and award nominations. However, people are not the most critical aspect that constitutes the subject and purpose of this study. Indeed, in the end, despite the evil in human beings and the mortality of humanity, the transformation of human beings has a significant meaning.

Nevertheless, the main point that makes the work more important and valuable is that the projections from Pythagoras' philosophy are hidden between the lines or within the meanings. Matt Haig has placed Pythagoras at the center of his work by giving the reader only a few clues. Pythagoras, the first name that comes to mind when one thinks of a philosopher, the first to use the term philosopher as a title, is

one of the most important names in the history of philosophy. However, he is more commonly associated with mathematics. Pythagoras defined himself as a person who seeks knowledge and tries to reach knowledge by hesitating to put himself in the place of God even though mathematics seems like a religion due to his thoughts and the school he founded, which has become almost a cult due to his fundamental numerical analysis, especially his theorem. Despite the law chance, he has been the pioneer of concepts that are discussed even today. In this respect, Pythagoras, who had a share in the formation of ideas such as the first vegetarian thought settling in human life, the first transformation of music into a system, and especially the fact that his work on mathematics changed the fate of humanity, is actually at the very center of the work with these aspects. Matt Haig uses all these ideas of Pythagoras as hidden building blocks at the center of his fiction while constructing *The Humans*. These Pythagoras-related narratives, which add an austere depth to his fiction, reinforce his search for human beings and create a more mysterious atmosphere. In this fiction inspired by Pythagoras' systems of thought, the connections are made so strong that many of the actions and thoughts put forward are now thought to have a philosophical approach. This study, written based on many connections and ideas, is based on one of the high-level fictions of recent times. In this study, both Pythagoras' principles and Haig's high-level fiction are discussed in a single study and revealed with many examples.⁴

Works Cited

- Akyıl, Güzin. (2022). *Matematik ile Astronomiyi Birleştiren Pisagor Kimdi?*. Retrieved from <https://arkeofili.com/matematik-ile-astronomiyi-birlestiren-pisagor-kimdi/>
- Arslan, A. (2022). *İlkçağ Felsefe Tarihi-1*. İstanbul: İstanbul Bilgi Üniversitesi.
- Bibby, N. (2006). *Turning and Temperament: Closing the Spiral*. R. F. John Fauvel içinde, *Music and Mathematics: From Pythagoras to Fractals* (s. 14). Oxford: Oxford University Press.
- Gedik, Saime Nur. (2021). *Pisagor ve Müzik*. Türkiye Zeka Vakfı. Retrieved From: <https://www.tzv.org.tr/#/haber/6142>
- Haig, Matt. (2022). *İnsanlar*. İstanbul. Domingo.
- Haig, Matt. (2013). *The Humans*. Edinburgh. Canongate Books.
- Yanofsky, Noson S. (2016). Paradoxes, Contradictions, and the Limits of Science. *American Scientist*. 104(3):166.
- Hobgood, Kate. (bt)b. *Pythagoras and the Mystery of Numbers*. Available at <http://128.192.17.191/EMAT6680Fa06/Hobgood/Pythagoras.html> archived <https://archive.vn/TJeeN>
- Kerry S. Walters, L. P. (1999). *Ethical Vegetarianism: From Pythagoras to Peter Singer*. New York: State University of New York Press.
- Luchte, J. (2009). *Pythagoras and the Doctrine of Transmigration: Wandering Souls*. London: Bloomsbury Publishing.
- Morrison, J. (1956). *Pythagoras of Samos. The Classical Quartley* (s. 136). içinde Cambridge: Cambridge University Press.
- Orujov, İgbal & Orujova Taravat. (2020). *An Analysis of Ancient Greek Music Theory And The Armony Concept*. International Journal of Social, Humanities And Administrative Sciences. JOSHAS Journal. Vol:6, Issue:27 / pp.994-1005
- Tarhan, Ezgi Diler. (2021) On The Relationship of Music and Mathematics in Pythagoras Philosophy. *Felsefi Düşün Akademik Felsefe Dergisi*, Sayı: 15/Müzik ve Felsefe, Ekim 2020: 203-224

⁴ The statements and assessments of the Turkish authors mentioned throughout the article have been translated into English by the author of this article and included in the article.

- Tikkanen, Amy. The Editors of Encyclopaedia Britannica. (1998, July 20). crescent | symbol. Encyclopedia Britannica. <https://www.britannica.com/topic/crescent-symbol>
- Tunçay Son, G. Y. & Bulut, M. (2016). *Yaşam Tarzı Olarak Vegan ve Vejetaryenlik*. International Journal of Human Sciences, 13(1), 830-843.
- Violin, Mary Ann. (1990). *Pythagoras-The First Animal Rights Philosopher*. Nicolette Perry. London: Blandford. (963) 122 p.
- Yildirim, Omer. *What is the Pythagorean Doctrine of Number (Cosmopolis)?* Retrieved from: <https://www.felsefe.gen.tr/pythagorasci-sayi-ogretisi-cosmopolisi-nedir/>
- Боецкий, 1995, “*De institutione musica*”,1. Kitap, başlık 10-11; çeviri Герцман Е. В. s. 310-311.