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Critically assess the claim "The events that led to the trial of Galileo by the Catholic Church can only be understood within the scientific, theological and political context of the early 17th century."

The trial of Galileo is one of the most mispresented, and therefore misunderstood, events in the history of science and religion. It has always been portrayed as a start of a cosmic conflict between science vs religion, in this case, the Catholic Church. This entire affair was not just a result of Galileo going against the theological doctrines, but it also involved other historical events unfolding at the time. This essay would emphasise on the events and draw together an existing history that could have played a factor in Galileo's trial.

Galileo Galilei was born in Pisa in 1564. Around the time Galileo was born, all of Europe was going through significant social and religious changes because of the Protestant Reformation. Before the Protestant Reformation, Roman Catholicism was the only form of Christianity, with the Roman Catholic Church with supreme power over it. Protestants believed that the Bible was the ultimate truth, but the Church controlled the entire printing system and translation. The sale of indulgences was one of the key reasons in the growing distrust between the people and the Church[1]. Protestant Reformation changed this entirely and fractured Catholic Europe. The Protestant Reformation gave rise to various kinds of Christianity with a different interpretation of the Bible, who denounced the Roman Catholic Church. This posed an immense threat to the Roman Catholic Church and its hierarchy. The Council of Trent (1545-1563), the 19th ecumenical council of the Catholic Church was held as a response to the doctrinal challenges of the Protestant Reformation[2]. By the end of 1563, the council had made decisions which would modify the Church and its system for the better. The council rejected the doctrine of Sola Scriptura, and the Church's interpretation of the Bible was final. All these conflicts had already weakened the authority of the Church, and Galileo's issues were developing around this time, which would have also brought him into the Church's attention.

Galileo finds himself writing various documents based on his beliefs of the universe which contradicted the Church doctrines. He believed that everything in the physical realm could be proved

[1] Papazian, Mary Arshagouni. John Donne and the Protestant Reformation
[2] H Jedin, A history of the Council of Trent

through scientific experiments[3]. Galileo differed in his views about motion and falling objects from Aristotle and made strident criticisms against Aristotelian-Ptolemaic views about the world. Since Aristotelian-Ptolemaic philosophy had become a crucial part of the university curriculum and had also integrated itself into Church theology, this seemed more like a conflict between Aristotelian science and new experimental observations which could have raised questions against the Church and its teachings. Galileo's principle undertaking was to challenge the geocentric view of the solar system, according to which the Earth is at the centre of the solar system and is not in motion. This went against Copernicus's theory of heliocentrism, which placed the Sun at the centre and Earth in constant motion around the Sun. Although Copernicus's theory was considered a hypothetical one since many counterarguments could be made with Aristotelian physics as their bases. Even though this theory was met with scepticism, Galileo had already developed a keen interest in it, at his time at the University of Padua; this is because the heliocentric model had better explanations about the transitioning phase from day to night and vice versa. This concept also contradicted passages from the Holy Bible[4]. By 1609 Galileo had perfected his telescope and started to make fascinating observations; all of these were published in his The Sidereal Messenger[5]. These observations brought him a lot of attention as well as criticism. For this, he received both scientific and biblical criticism from many philosophers and theologians. The Copernican system was seen more like a mathematical theory by the Church, but the invention of the telescope helped Galileo to make more solid arguments in its favour. The Jesuit astronomers and mathematicians also confirmed these observations at the Roman College, which gave Galileo more hope to bring the Church to his understanding. Athanasius Kircher, a Jesuit scholar, also confirmed that Clavius and other Jesuits did not disapprove Copernicus's theory but were obliged to follow and write in favour of Aristotelian views[6]. In 1613, Benedetto Castelli, former pupil and friend of Galileo, alerted him of an exchange with Duchess Christina of Tuscany in which she raised scriptural arguments against the motion of Earth[7]. To this, Galileo responded by writing a letter to Castelli explaining his observations and putting forward his arguments concerning heliocentrism. In this letter, he also singles out three errors

[3] Kenneth J. Howell, 'Copernicans and the Bible in Catholic Europe,' God's Two Books: Copernican Cosmology and Biblical Interpretation in Early Modern Science Notre Dame, Indiana: University of Notre Dame Press, 2002. Pp 187.
[4] Joshua 10:12–13;
[5] The Trial of Galileo, pp 16
[6] A. Favaro 1968, *op*. *cit*., XV, 254
[7] J.D. Moss, Galileo's letter to Christina: Some Rhetorical considerations, pp 549

committed by Christina concerning her biblical objections to the geokinesis theory[8]. This letter became Galileo's first statement to the authority and legitimacy of the Holy scriptures. Also, this formed the basis for his subsequent letter to Grand Duchess Christina of Tuscany in 1615. In February 1615, Father Lorini, who believed Copernican doctrine violated Scripture forwards a copy of Galileo's letter to Rome[9]. This version of the letter sent out to the Roman inquisition was believed to have been modified which put Galileo in more trouble. A month later, Caccini charged Galileo with suspicion of heresy based on the letter to Castelli in 1613 and also his book Sunspots.

In the letter to Grand Duchess Christina, Galileo quotes Cardinal Baronius's famous words "The Bible teaches us how to go to heaven, not how the heavens go". He stands with the Copernican view and states his reasons clearly. This is also viewed as a political move to gain the support of an influential despot. He also targets theologians, philosophers and influential groups which also included people who were open to the idea of the Copernican view, but by doing so created more problems for himself. He instantiates that if a true statement about nature conflicts with an interpretation of the Holy Scripture, it should be reinterpreted since Scripture and nature cannot contradict. He cites Augustines's De Genesi ad litteram imperfectus liber "we are struggling for our opinions and not for those Scripture, and that we wanted to make scriptural opinion conform to ours, when we ought to make ours conform to that of Scripture."[10] He further adds to solidify his argument that no proposition goes against faith unless it is shown to be false and if it goes against it but can be demonstrated it is just because of human ignorance. Galileo was not found guilty of the accusation made against him but could not prevent the condemnation of Copernicanism. His scientific views were condemned by a committee of eleven theologians who believed Copernicus's views were theologically heretic and scientifically false[11]. This was presided over by Cardinal Bellarmine who was the most influential and respected theologian then and also someone who was in good terms with Galileo. Galileo was not allowed to pursue, follow or teach Copernicus's view directly both verbally and written. All this also contributed towards Galileo's condemnation.

Galileo was always in conflicts with other scientists and theologians, conflict with his philosophy colleagues at Padua about the exact location of novas, a dispute with philosophers in Florence on

[8] *Finocchiaro, Maurice (1989).* The Galileo Affair
[9] Galileo's letter to Castelli of 21 December 1613
[10] Augustine, Saint, On the Literal Interpretation of Genesis
[11] Finocchiaro, Galileo affair, pp147

about why bodies float in water, a dispute with Orazio Grassi, an Italian astronomer, about the nature of comets and many more. This gives us an insight into his personality, from which we can deduce he must have had a hard time keeping close relations with fellow scientists and even influential personnel[12].

The tempestuous nature of the political landscape due to the Thirty-Year War could also be observed as a factor in his condemnation. The war between Catholics and Protestants had already weakened the Roman Church and any more opposition, whether scientific or theologian would not favour them. Galileo's trial came at a critical time of the war which did not work in his favour. Cardinal Maffeo Barberini was elected as the Pope in 1623 after the death of the previous Pope. He was referred to as Pope Urban VIII and was also a great admirer of Galileo. In 1616, he was instrumental in preventing the direct condemnation of Galileo. Pope VIII did not consider Copernicanism to be heresy and so allowed Galileo to discuss it but only as a hypothesis[13]. Galileo started working on the 'Dialogue Concerning the Two Chief World Systems' over the next five years (1624-1629) which was eventually published in 1632. This discussed all aspects of the Copernican view and answered varied questions related to it. This book also made elegant arguments against Aristotelian sciences. The intriguing thing about the book was the way he wrote it, in the form of an exchange between three men. The three men in the discussion are Salviati, someone who speaks for Galileo; Sagredo, a wealthy man in search of truth and Simplicio, someone who believes in Aristotelian philosophies and argues with Salviati. This was done since Galileo cannot write and discuss Copernican views directly due to the inquisition of 1616. In 1633, the Holy Roman Empire was suffering from setbacks in the war, and Pope VIII was being accused of sympathising with France who was against them. This could be seen as an indication of distrust between the Empire and the Pope. Galileo in his book, ridicules the Pope by referring him to as simple-minded because of the Pope's argument[14]. This damaged their relationship and the Pope decided to solidify his stand as a catholic and prove his credentials. Galileo was finally ordered to turn himself in to the Holy Office where he would be put on trial for going against the Church doctrines and promoting Copernicus's heliocentric view of the world.

In conclusion, we can identify events from history that could be political, scientific or theological and have contributed to Galileo's fate. People with different thoughts and ideological differences will

[12] Finocchiaro, The trial of Galileo: Essential documents, pp6
[13] Finocchiaro, The trial of Galileo: Essential documents, pp34
[14] Finocchiaro, The trial of Galileo: Essential documents, pp21

always exist across time. The Roman Catholic Church was already weakened and did not want to lose its authoritarian influence. This could be related to the typical human issue of not losing power and control, even in today's world, we would not accept to be something real which might go against our religious or personal beliefs. Galileo was advocating that everything that is argued should be supported by evidence without much depending on the Scriptures. This would call for the re-interpreting the Scriptures if something went against it, which would again increase the distrust between the people and the Catholic Church and strengthen the Protestant's view.

Some scholars will argue that it was nothing more than an endless conflict between science and religion, and the Church asserting its power. This is not wholly true, as discussed in previous paragraphs to see it as a conflict between orthodoxy and progressiveness in science just seems propagandas. Jesuit scholars and other influential people of the time were interested in Galileo's views but the cultural shift in Italy, power struggle between the Catholic Church and the Protestants and the Thirty Years War was creating distress among everyone. It is essential to notice here the change in the outlook of the Church towards Galileo's stubborn advocacy of Copernicanism from 1616, before the Thirty Years War, and 1633, most chaotic time during the war. This could be seen as a way of the Church trying to control opposition within their system. Another critical point was the damaged relationship between the Pope and Galileo. Pope Urban VIII had been a supporter of Galileo and even helped his case in 1616, but the remarks made by Galileo in his book about the Pope could not allow him to protect Galileo any longer.

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