

PROBABILISM

A Cultural Environment that Led to the Creation of Random Probability?

Leticia Mayer
IIMAS-UNAM

Introduction

Probabilism is a trend in the moral philosophy of Christianity that developed in the 16th century. Within probabilism, “probable” opinions or those issued by an “honest” authority are accepted. This contrasts with probabiliorism, the trend that only accepted the Scriptures and what was said by the elders of the Church. A central feature of probabilism is that certainties are impossible. This moral theory produced a crack in determinism, thereby permitting the development of doubt, uncertainty and moral risk.

One can assume that probabilism began at the University of Salamanca, with the theological discussions of the Dominicans, particularly Francisco de Vitoria (1482/1486-1546).

The central hypothesis of this article is that probabilism gradually created meanings for the moral doubt that arose when Europe had to face the existence of The Other. This happened in the 16th century as a result of European expansion to both the American continent and the Far East. We regard the missions as an ideal place for meeting with the Other. In them, tensions materialized between the center and periphery, discipline and resistance, production and circulation of orthodox and foreign knowledge.

Any discussion of the history of probability invariably involves Ian Hacking (1995). According to this author, the concept of probability emerged in the 1660 when an idea of internal evidence of nature had already been developed in Europe. Nevertheless, in recent years, an enormous controversy has arisen over Hacking's statements.

On the subject of probabilism, Hacking (1995, p. 38-40) states, somewhat dismissively, that it was “a doctrine that could have prevented the rational theory of probability.” Later on, he states that he will say “a few superficial words about probabilism” that are in fact extremely superficial. In Hacking's view, it is a principle of casuistry formulated by the Society of Jesus in the 16th Century, which was fairly successful but eventually destroyed in the 17th century. Later on, he qualifies this remark by saying: “It should not be inferred that the emergence of probabilism was unrelated to that of probability. Probabilism is a symbol of the loss of certainty that characterizes the Renaissance.

As we shall see throughout this paper, probabilism was not created by the Society of Jesus but by the discussions of the Dominicans, particularly those of the University of Salamanca, who were in close contact with news and people coming from America. At the same time, probabilism was extremely successful during the 16th and much of the 17th century, declining in the 18th century. We cannot assume that it was defeated, however, but rather that, from a moral perspective, it gave rise to the meaning of the ideas of relativity.

At the same time, Hacking says that probability is bifrontal or rather should be understood as a dual idea. On the one hand, it is statistical and concerns the stochastic

laws of random processes. On the other hand, however, he also calls it epistemic probability, saying that it involves estimating the reasonable degrees of beliefs in scenarios lacking a statistical basis.

He hypothetically posits that probability is “trifrontal.” On the one hand there is random probability and on the other, epistemic probability, which we will also call reasonable and linked to this we have “probability by authority.”¹ Epistemic probability is based on rationality but at the same time, is linked to a principle of authority. A person is “reasonable” insofar as he acts within a set of values, signs and symbols that have similar meanings for a set of individuals. In other words, being reasonable is implicit in a particular culture. When a person behaves “reasonably,” he argues in favor of particular features and authorities in a specific culture.

What we suggest is that the emergence of probability not only depended on the notion of internal evidence, but also on a socio-cultural complex and historical events: the discovery of America and Western expansion through the new maritime routes, which led Europeans to experience the first instance of globalization. One of the key elements of this expansion was encountering the Other. One can assume that the Other produces rejection, fear and repression although it also causes confusion, doubts and the rethinking of Western culture itself.

The issues dealt with in this chapter are extremely diverse. On the one hand, there is the central problem of probability and its possible genesis. This idea originated as a result of the expansion of Europe and the role of the missions in countries far from the Mediterranean. This brings us to a central problem: intercultural contact and relations between America, Asia and Europe. Probabilism reframes the discussion of what has come to be called center-periphery. Significant features of Mediterranean culture arose in countries and cultures a long way from Europe.

Foreign missions: a problem outside Europe.

Evangelization occurred in many different ways. Probabilism was one of the trends that helped explain human beings that developed in cultures outside Europe. In other cases, similar phenomena were called “accommodation.” This same term, *acomodatio* is used to explain the attitude of certain missionaries that involved studying native languages and adopting the manners, rules of coexistence, clothes and eating habits of the learned class in China and the Brahmins in southern Asia.²

This principal of accommodation is one of the tenets of probabilism as an aspect of theological openness in the 16th century. Nevertheless, Europe played an implicit role in the contact between Asia and America. This enables us to see the interconnection or network of contacts that began to emerge in the 16th century.

1. The Missions in America: on the verge of uncertainty

For Europe, the discovery of America, with its subsequent conquest and colonization, was a meeting with what was truly unknown, with the Other. And even more so for the inhabitants of America. It is a well-known fact that contact not only implied cultural and social changes for both sides of the Atlantic, but also biological contact such as the smallpox epidemics that decimated the American populations.

¹ Sixteenth century casuists called it intrinsic probability in the case of probability by reasoning and extrinsic probability when it was based on authority.

² Corsi, 2008, p. 40. Subsequently, and from the field of anthropology, Aguirre Beltrán (1970) called it a process of acculturation.

The American experience opened the limits of the European world by exposing a new western continent. This vital experience was relatively forgotten after the wars fought by Spain, particularly against England and which, during the 18th century, created a sort of “black legend” and overlooked the crucial interest of the writings of the West Indies.

The accounts of travelers and the early missionaries reveal the impact that otherness caused on Europeans: repugnance at human sacrifices and cannibalism, rejection of homosexuality and fear of the unknown together with admiration for foreign cultures and their organizations.

In addition, contact between America and Europe problematized Western philosophy, particularly as regards the tenets of law and justice. In the case of some of the earliest missionaries in New Spain such as Juan de Zumárraga (1468-1548), Vasco de Quiroga (1470-1565), Bartolomé de las Casas (1474-1566) and Julián Garcés (1452-1546), the conquest involved a genuine moral dispute. These figures predate the tenets of probabilism and were heavily influenced by the humanism of Erasmus of Rotterdam (1466/69-1536).

In his later works, Erasmus became interested in the colonization of the Western world. In one of his works, he suggested that, just as the Apostles had done with the early Christians, whom they relieved of the burden of the Mosaic Law to prevent resistance, in the 16th century, he would still “remove the obligation of certain things without which the world began to be saved and could still be saved today.”³ While Erasmus was writing this, in New Spain, a small army of missionaries was being deployed. Known as “The Twelve Apostles,” they were captained by the Franciscan Martín de Valencia, 1534). These missionaries were not scandalized by Erasmus' writings and moreover, were far more than reformist friars. Soon afterwards, the bishops began to arrive, men with enormous training and bravery such as the Dominican Julián Garcés and the Franciscans Juan de Zumárraga and Vasco de Quiroga. These members of religious orders wanted to convert the natives to Christianity, without destroying their qualities.

The long discussions on just war and the right to conquest are well known. The reports and *relaciones* of the New World that arrived from Spain, from the aforementioned authors, were the factual information that contributed to the reflections of early probabilists such as Francisco de Vitoria, Domingo de Soto (1494-1570) and Melchor Cano (1509-1560).

The conquest and the discussions of a just war served as a particular source of inspiration for Francisco de Vitoria. He was not only in contact with some of the missionaries that arrived in the New World, but due to his knowledge of America and his writings and reflections on these lands, he is regarded as the father of international law.

Vitoria lived in Salamanca in the monastery of San Esteban, one of the largest centers for the reception of documents on America and news of the people that came from there. Vitoria also supported the right of the infidel to own properties and govern the native states.

Julián Garcés was a Dominican from the preaching order. He studied at the universities of Salamanca and Paris. At the age of seventy-five, he was appointed bishop of the first diocese in New Spain in Tlaxcala.⁴ On his way to Mexico, he stopped off at the Island of Santo Domingo. There he met other Dominicans who also fought for

³ Cited by Bataillon, 1996, p. 817.

⁴ This distinction for the Tlaxcala region was to thank the inhabitants of Tlaxcala for their support in the capture of Tenochtitlán.

the rights of the natives in the New World: Antonio de Montesinos⁵ (1480-1540), Tomás Berlanga (1487-1551) and Bartolomé de las Casas.

In late 1536 or early 1537, Julián Garcés wrote a letter to Pope Paul III. The letter concerned the settlers of the New World and denounced the abuses committed against them. This account encouraged the pope to adopt a clear position regarding the natives of America.

This missive resulted in the Paul III bull, *Veritas Ipsa*, which declares that although the indigenous peoples of Mexico are outside the Christian faith, they cannot be deprived of their freedom or assets. Moreover, they must be attracted to the true religion through the word of God and good example, rather than by force. These writings were undoubtedly available to Francisco de Vitoria and served him in his discussions at the University of Salamanca.

In view of these articles, it seems feasible that the meeting with the Other, through conquest and colonization, made European theologians doubt the single rationality that emanated from their tradition.

The origins of probabilism, in the figure of one of its main exponents, Francisco de Vitoria, seems to indicate that encountering otherness really introduced doubt, uncertainty and the notion of moral risk essential to the development of epistemic probability, the theory of decisions and random probability.

2. The Far East Missions: the mirror of European inferiority.

We should recall that nearly thirty years elapsed between the arrival of the first generations of missionaries in America and the first Jesuits in the Orient. This period saw heated debates on just war and natives' rights. Moreover, Vitoria and several members of the University of Salamanca were discussing the nascent principles of probabilism.

Francisco Javier (1506-1552), the first Jesuit missionary, set off for the Orient in 1541. Mateo Ricci (1552-1610) and Roberto di Nobili (1577-1656) were several generations later. It was during this period that Asia fired the missionaries' imagination: a place with superior cultures, where it was impossible to wage a war –whether just or not– where they had extensive knowledge of mathematics and other sciences.

Ever since Francisco Javier arrived in India in 1542, the Society of Jesus constituted the avant-garde of the Portuguese missions, which in turn were the most significant in the Orient. Among members of the Society of Jesus, close contact was supposed to exist between the superiors and other brothers, as a result of which they were obliged to send monthly reports from the missions. The letters were carried from household to household and copied out at the Jesuit residences; they were then read out at mealtimes.

In the 16th and 17th centuries, and as we saw in the case of New Spain, letters were the most important form of communication. They were waited for impatiently at the royal courts, universities and in private homes.

Both Brazil and Mexico were stopping-off points for reaching the Far East. One of the Portuguese routes stopped in Bahía, Brazil, before leaving for Goa. The Spanish route went to New Spain, the port of Acapulco and subsequently, the Philippine Islands.

Mateo Ricci belonged to the first group of missionaries that managed to establish themselves in China. It settled permanently in that country in 1601. The first

⁵ In 1511, Fray Antonio de Montesinos gave his famous advent sermon in Hispaniola, during which he attacked the *encomienda* system and the enslavement of the natives in America. As a result of this sermon, Dominicans were forbidden to preach on the island.

missionaries that were allowed to enter China had a very limited knowledge of what the Great Empire of the Far East was at that time.

One of the most significant misunderstandings occurred in 1600. Ricci was carrying a crucifix in his baggage which, by his own description, was small but quite realistic, carved in wood and with painted blood to make a deep impression. This religious object was discovered by the eunuch Ma Tang, who thought it involved black magic. This caused such a scandal that the army was called in and the Jesuits' luggage checked to find more objects that would reveal the missionaries' evil intentions. Ricci proved unable to provide a satisfactory explanation of the meaning of the crucifixion: on the one hand, he could not say that this was the image of God they wished to spread around China and on the other hand, he realized the horror that had been caused by the cruelty reflected in the image. The Jesuits' Chinese friends recommended that "they grind the other crucifixes they had with them to dust so that no trace would remain of them." In view of this hostile rejection, Ricci and his group decided to focus on the images of the Virgin and the Child. (Spence, 2002, p. 244). This need not to show the mysteries of Christ's passion elicited the Jansenists' most heated debates and rejection of the Jesuits.

In order to offset the rejection of the groups in power, in 1594, the Jesuits adopted the dress and manners of the learned Chinese. They also boasted of their knowledge of mathematics, astronomy and mapmaking and took them Western devices such as: watches and telescopes.

In 1697, a Chinese translation of the first six books of Euclid's *Elements* by Ricci in collaboration with Chinese intellectual Xu Guangqi (1562-1633) was published in Peking. By the time Ricci died in 1610 in Peking, he was held in great esteem by the intellectual elites. Shortly afterwards, Jesuit astronomers and mathematicians Johann Terrenz (1576-1630), Giacomo Rho (1592-1638) and Johann Adam Schall (1591-1666) translated European books on mathematics and astronomy into Chinese.. Eventually in 1692, the Jesuits achieved the edict of freedom to preach, which was what they had been waiting for. (Cervera Jiménez, 2008, p.159).

In 1630, Chinese convert to Christianity Xu Guanqi, a collaborator of Ricci's and formerly vice-president of the tribunal of rites, threw his support behind the old project to update the calendar. The opportunity arose on June 21 1629, when an eclipse of the sun occurred. A competition was held between the three existing schools of astronomy: the traditional Chinese, the Muslim and the European. The calculations using European methods were carried out by the Jesuit Terrenz and proved far more accurate than those of the other schools. It was agreed that the only solution was to totally reform the calendar. The astronomic model used was designed by Tycho Brahe (1546-1601) and used by Jesuits all over the world.

Another Jesuit missionary who caused a great stir in Europe was Roberto di Nobili, who arrived in the south of India in 1605 and lived in Madura for forty years. Nobili adopted the Brahmans' dress, their eating habits and their culture. In Indian terms, Nobili was a *sannyasi*. He only ate once a day and his diet consisted of: rice, milk, herbs and water. He wore a yellow gown, a red or white veil on his back, a turban and two and a half inch high wooden sandals. He also sported the five cords the Brahman wore at the neck: three gold and two silver ones. Hanging from the cords was a cross. But perhaps the most important aspect of his adaptation process was the study of Hinduism and the mastery of Tamil in which he wrote several important works include *Dialogue in Eternal Life*. This is a text written in the form of a conversation between a master, *guru* and his disciple, *sisya*. This dialogue presents some moral

principles and introduces theological elements adapted to the cultural and religious context of the south of India (Clooney, 1999, p. 402).

However, this spiritual work of tolerance entailed two extremely polemic aspects for rigorous European mentalities. On the one hand, there was the acceptance of Confucius. This brilliant Chinese philosopher was acknowledged and honored almost as a saint. The Jesuits pointed out that this was not a religious form of worship, but one that was totally civilian in nature. However, the way the Chinese revered Confucius was in a sort of nearly sacred temples, which made Europeans think that the Jesuits were accepting idolatry.

In the case of India, Nobili agreed that the Brahman converts use certain symbols that were important within their caste. They also took ritual baths in public, which Nobili permitted, together with certain ritual objects.

These adaptations or processes of acculturation caused a great stir in Europe. In about 1621, Pope Paul V allowed mass to be said in Chinese and adapted to Chinese rituals. These rites were subsequently condemned by the Vatican, however, becoming the target of attacks and accusations of probabilism and lax morals.

Missions in the Orient contrasted with those in America. The first missionaries to New Spain opened up the processes of uncertainty and questions about otherness. In addition to introducing discussions and major debates about the rights of non-Europeans. The missions in the Orient had already been closely examined as a result of the discussions in America. In particular, missions in the late 16th century and throughout the 17th century were able to adapt to the cultures of others. During this period, probabilism had already invaded moral theology. Francisco Suárez and Luis de Molina had introduced their ideas and marked a change and the full acceptance of probabilism in moral theology and therefore in missionaries' attitudes to cultures unrelated to the Mediterranean one.

Probabilism and Jansenism: A European Discussion

1. Probabilism

The term "probabilism" was coined late, beginning to be employed in the mid-16th century and were commonly used by moralists in the 17th century.

When Augustine of Hippo moved away from Manichaeism, he was tempted to embrace the probabilistic philosophy of Academia. Nevertheless, he abandoned this thought and opposed concepts such as fortune and chance. For Augustine, morals could not afford to have any cracks because this would open up a chasm that would permit murder and sacrilege. He also pointed to the existence of an "eternal law," a sort of order outside man, whose rules were written by God in the heart of human beings.

At the same time, Thomas of Aquinas (1221-1274) shored up the natural law, saying that "insofar as men are rational beings, they know the natural law." (Reale, 2005, vol. 1, p.492). Hence St. Thomas' verdict: "Any action against the law is always bad and cannot be excused by obeying one's conscience." (Delumeau, 1992, p. 111). This principle opposed what was subsequently defined as probabilism, meaning that the new moral traditional was forced to resort to different sources of authority. Probabilism constitutes a sort of system based on reasonable grounds, in addition to the study of specific cases, to find solutions to problems in the moral sphere.

Although in the 16th century, Thomist doctrine dominated the world of education and moral discussion, first the Dominicans and then the Jesuits found that

they did not have enough weapons to combat Protestant trends, particularly the problems experienced by missions outside Europe.⁶

In the 16th century, at the school of Salamanca, Dominican authors suggested increasingly subtle formulae regarding the complexity of moral problems. The works of the theologians from this school were the origins of probabilism.

The most distinguished figure in this group of Dominicans, Francisco de Vitoria, pointed out: “We must stop these obscure human conjectures that provide no evident certainty and instead achieve apparent certainty and human probability.” (Delumeau, 1992, p. 115).

For his part, the General of the Society of Jesus openly opposed the lay clergy, adding that although St. Thomas was a praiseworthy author, it would be an intolerable burden to attempt to follow him to the letter in every respect, without considering other opinions.

Confession and frequent communion were two of the problems the Jesuits tackled with most alacrity with the rest of the Catholic community. At the same time, from 1545 onwards, they were granted several papal privileges, which gave them broad powers.

Probabilism came of age through the Dominican Medina, a professor at Salamanca, and the Jesuit Suárez, who taught at various universities such as Rome, Alcalá, Salamanca and Coimbra. This moral revolution involved saying that in the event of doubt, one could follow any opinion that was simply probable.

At the same time, according to Gabriel Vázquez, moral probability could be divided into intrinsic and extrinsic. The former “is born of the internal reasons that virtually persuade one of the truth of a proposition, while extrinsic probability is based on the authority of other men that have been accredited in the subject.”⁷ Here we explicitly find what we have called reasonable or epistemic probability, which coincides with intrinsic probability. There is also probability by authority or extrinsic probability.

Probabilists pointed out what could be called “the silences of the law” which permit individual free determination. In this respect, it was Suárez who provided the clearest definitions. For this author, although one can consider it likely that no law prohibits or prescribes an action, one may assume that this law is not sufficiently proposed or enacted. This is where the principle of personal awareness comes in: if an opinion is probable, then one is allowed to follow it, even if the opposite opinion is more likely. It is therefore not permitted to act against one's own feelings in order to follow the opinion defended by extremely learned men. (Delumeau, 1992, p. 119).

The probabilistic thesis of the late 16th and the first half of the 17th century dominated the teaching of moral theology and the practice of confession. Jesuit Antonio de Escobar y Mendoza (1589-1669) –one of the best known probabilists and the main proponent of the attacks on Pascal-, published *Liber teología moralis* in 1644. This work was a compendium of the main authors and theses on probabilism at the time. The book was enthusiastically received and within a few years' time, had been printed forty times. (Santos del Cerro, 1999, p. 52.)

⁶ It is odd to note that views on the domination of Thomism, Augustinian fatalism and probabilism will depend on the author in question. For example, Brockliss (2002), p. 163, an Oxford professor, declared that 17th century Europe was a world dominated by pessimism and the Augustinian vision of predestination and that only a handful of men followed the Jesuit Molina. Conversely, Delumeau (1992), p. 117, a French historian, declared that probabilistic theses dominated theology teaching and that from the mid-16th to the mid-17th century, at least 600 treatises on casuistry were written. The first is a Protestant English vision of what Europe was like at that time. The second is a French Catholic vision of the same period. Interestingly enough, both authors generalize their views to the entire continent.

⁷ Vázquez, Gabriel, quoted by Santos del Cerro, 1999, p. 40.

Although Escobar has been the most vilified of all probabilists –by both Pascal and subsequently Voltaire (1694-1778)– he was not the laxest author. Baltasar Gracián (1601-1658) was perhaps the greatest exponent of this trend. According to Caro Baroja (1978, p. 530), Gracián would have frightened Pascal, “who, incidentally, seems to have been unfamiliar with many of the texts of the authors he quotes or others that could have given him as many or more reasons to be scandalized.”

During this period of probabilism, Dominicans in Rome were forbidden to spread “contemptible, new, unsure opinions or to accept the paradoxes and monstrosities defended by certain modern authors.” In 1656, Pascal's first letter, *Provincial* was published. This period saw an increase in the number of criticisms against laxism and probabilism and a strict disciplinarian wave was felt that lasted well into the Enlightenment.

Generally speaking, one can say that probabilistic reflection cast doubt on natural law and placed a growing value on individual conscience. These elements were and are necessary for coping with otherness, the value of the Other regarding his person and culture.

2. Jansenism

In Europe, probabilism was set against Jansenism, which was another theological trend and a strictly disciplinarian one in this case, which was initially condemned by Pope Urban VII and subsequently declared a heresy on March 31 1653 by Innocence X.

Jansenism was based on the work of Cornelius Jansen (1585-1638), *Augustinus*, published posthumously in 1640 in Louvain. However, it varied a great deal depending on the country involved: Belgium, Holland, France or Spain. In Spain in particular it was said that Jansenism was unimportant or virtually non-existent (Herr, 1979). However, this was not quite true. Among other things, Jansenism was a reaction to the positions of the Spanish Dominicans and Jesuits of the 16th and early 17th century.

In France, the main promoter and thinker was Antonio Arnauld, also called “The Great Arnauld,” the most outstanding French theologian of his time. Arnauld is also reputed to be the author of the last part of *Logic of Port Royal or the Art of Thinking*. This important book is regarded as the first example of deductive logic written in Europe.

The Jansenists' main sanctuary in France was the convent of Cistercian nuns from Port Royal in Paris. On Duvergier's death, they sought refuge in the monastery of the same name near Versailles, whose abbess was Arnauld's sister, Angélique. The nuns at this convent had a strict disciplinarian conception, both in their religious life and in the interpretation of spiritual acts. In the abbess' view, God could only be conceived of with terror, Catholics should only rarely take communion and after a rigorous examination of conscience and should revitalize the old penitential discipline. All this contrasted with the frequent communion of probabilism.

Nevertheless, I believe that the main problem occurred in the missions. This also had consequences for diplomatic and trade contacts. In this respect, Jansenists were harsh critics of the policy espoused by Richelieu, who established alliances with both Protestant states and the Turks. The Jansenists were therefore persecuted by the Vatican and Louis XIV, who banished Arnauld for political reasons and destroyed Port Royal between 1710 and 1712.

3. Blas Pascal

Although there were many important persons in Port Royal, who were called “loners,” the most brilliant of these was perhaps Blas Pascal, acknowledged as a physician, mathematician, probabilist and philosopher.

Pascal’s worldly life began in 1653. During this period, he made friends with a couple of players of games of chance. According to Hacking (1995, p. 78), a famous phrase by S.D. Poisson (1781-1840) has commonly been used to explain the emergence of probability: “A problem regarding games of chance proposed to an austere Jansenist by a man of the world was the origin of the calculation of probabilities.” This was also the time of the famous correspondence between Pascal and Fermat where they discussed the rules of games and probabilities in games of chance.

Western culture has developed within the tensions of the deterministic thought: man’s freedom, together with random events. Ian Hacking also developed this paradox in his book *The Domestication of Chance* (1991). According to this author, despite the emergence of the internal evidence of nature and random probability, determinism continued to dominate thought and only disappeared during the 19th century in order to give rise to the sciences of chaos in the 20th century.

Nevertheless, I posit that this confrontation was intimately linked to the traditional religious contradiction of predestination vs. free will. Which brings us, among other problems, to probabilism and Jansenism.

As from 1655, Pascal, who was very closely linked to Arnauld, began to write *Provincial letters*. These writings were widely publicized. Apparently, *Provincial Letters* was reprinted over sixty times. Lortz, p. 9). Although the letters were initially anonymous, everyone realized that the author of these controversial writings was Blas Pascal.

Provincial Letters is an excellent literary work with dramatic irony, written in classic French prose, meaning that it had an enormous influence over its readers. Voltaire said of *Provincial Letters*: “They are a model of grace and eloquence. Molière’s finest comedies had no more grace and elegance than the first Provincial Letters and Bossuet has written nothing more sublime than the last ones.”⁸

The 5th and 6th letters are the most significant ones regarding probabilism. In the 5th, Pascal explains:

Ainsi ils en ont pour toutes sortes de personnes, et répondent si bien selon ce qu’on leur demande que, quand ils se trouvent en des pays un Dieu crucifié passe pour folie, ils suppriment le scandale de la croix, et ne préchent que Jésus-Christ souffrant, comme ils ont fait dans les Indes et dans la Chine, où ils ont permis aux chrétiens l’idolâtrie même par cette subtile invention de leur faire cacher sous leurs habits une image de Jésus-Christ, à laquelle ils leur enseignent de rapporter mentalement les adorations publiques qu’ils rendent à l’idole Chacim-choan et à leur Keum-fucum [...]

Voilà de quelle sorte ils se sont répandus par toute la terre à la faveur de la doctrine des opinions probables, qui est la source et la base de tout ce dérèglement. C’est ce qu’il faut que vous appreniez d’eux-mêmes.⁹

It is obvious that for Pascal, it was an aberration to accept the customs of other cultures and I believe that salvation is not only for the Christians chosen, but for all

⁸ Quoted by Ruiz Contreras, Pascal, undated, pp. 308-309.

⁹ Pascal, *Les Provinciales*, s/f, pp. 58 y 59.

men. This criticism of the missions in the Far East would be a constant in both the 17th and the 18th century.

Nevertheless, and despite his strict disciplinarianism, Pascal was already in a world that tended to become lay and irreverent in the face of the sacred. This was true of the bet on the existence of God. Despite Pascal's religious strictness, he could speak of God in relation to a gamble in games of chance. On the other hand, he frames a problem of conjectures in terms of random probability, in which he approaches the epistemic probability developed by probabilism.

Final Considerations

Most of the authors that have written about the history of probability say that it emerged in the 17th century. However, although they provide many different kinds of reasons, the puzzle remains unsolved. I would like to add a new element to this collage of ideas about the genesis of probability. The discovery of America and its subsequent colonization presented a closed Europe with a world of cultural diversity.

As we have pointed out, otherness produced a range of feelings, from horror to the understanding of the Other. Nevertheless, it was also inevitable that it should introduce doubt, uncertainty and the notion of moral risk. And that it should create a moral principle such as probabilism that opened up to the logic and rationality of other cultures.

Indeed, the idea of probability –so important for current science– is multicausal, like most of the great trends of thought. In the specific case of probability, it is essential to examine a specific socio-cultural context: what happened in the 16th century with European expansion to both the American continent and the Far East regards the problem of encountering, judging and living with the Other.

The earliest missionaries arrived in America at the beginning of the 16th century. This stage saw the development in Europe of the first stages of probabilism. The authors of this trend were very closely linked to the news and figures that arrived from America. By the time the early missionaries arrived in the Far East, probabilism had matured in university discussions. Encountering cultures that were more developed than the American culture meant that the missionaries were more ideologically and morally prepared to coexist with them. The 16th century implied a moment of openness for Europe yet in the 17th century, it closed in on itself again. The strict trends gained ground. However, despite this reaction, the ideas of uncertainty and moral risk had already gained a place in European thought.

Bibliografía sobre probabilismo

Acosta, Joseph

2006 *Historia natural y moral de las Indias*. México: Fondo de Cultura Económica. Primera edición en FCE en 1940.

Artes de México

2003 *Misiones jesuitas*, número 65. México: Artes de México.

Aguirre Beltrán, Gonzalo

1970 *El proceso de aculturación en México*. México: Universidad Iberoamericana.

Bailey, Gauvin Alexander

1999 “*The Truth-Showing Mirror. Jesuit Catechism and the Arts in Mughal India*”, en *The Jesuits. Cultures, Science and the Arts, 1540-1775*. Toronto: University of Toronto Press.

Bataillon, Marcel

1996 *Erasmus y España*. México: Fondo de Cultura Económica. Primera edición en francés 1937.

Beuchot, Mauricio

1991 *Estudios de historia y de filosofía en el México colonial*. México: UNAM. Instituto de Investigaciones Bibliográficas.

Bergin, Joseph

2002 *El siglo XVII. Historia de Europa Oxford*. Barcelona: Crítica

Bernard, Carmen y Serge Gruzinski

1992 *De la idolatría. Una arqueología de las ciencias religiosas*. México: Fondo de Cultura Económica. Primera edición en francés en 1988.

Brockliss, Laurence W.B.

2002 “La era de la curiosidad”, en Joseph Bergin, *El siglo XVII. Historia de Europa Oxford*. Barcelona: Crítica

Burke, Peter

2000 *Historia social del conocimiento. De Gutenberg a Diderot*. Barcelona: Paidós.

Cameron, Euan

2006 *El siglo XVI. Historia de Europa Oxford*. Barcelona: Crítica.

Caro Baroja, Julio

1978 *Las formas complejas de la vida religiosa. (Religión, sociedad y carácter en la España de los siglos XVI y XVII)*. Madrid: Akal.

Cervera Jiménez, José Antonio

2008 “Giacomo Rho, S.J., y su obra matemática en chino”, en Elisabetta Corsi, *Órdenes religiosas entre América y Asia. Ideas para una historia misionera de los espacios coloniales*. México: El Colegio de México.

Clooney, Francis X

1999 “Roberto de Nobili’s *Dialogue on Eternal Life* and the Early Jesuit Evaluation of Religion in South India”, en “*The Truth-Showing Mirror. Jesuit Catechism and the Arts in Mughal India*”, en *The Jesuits. Cultures, Science and the Arts, 1540-1775*. Toronto: University of Toronto Press.

Concina, Daniel

1772 *Historia del probabilismo y rigorismo*. Dos tomos. Madrid: Oficina de la viuda de Manuel Fernández.

Correia-Alfonso, John

1980 “Contactos indoamericanos a través de los misioneros jesuitas”, en Ernesto de la Torre, *La expansión hispanoamericana en Asia siglos XVI y XVII*. México: Fondo de Cultura Económica.

Corsi, Elisabetta

2008 *Órdenes religiosas entre América y Asia. Ideas para una historia misionera de los espacios coloniales*. México: El Colegio de México.

2008 “La retórica de la imagen visual en la experiencia misional de la Compañía de Jesús en China” en Perla Chinchilla y Antonella Romano, *Escrituras de la modernidad. Los jesuitas entre la cultura retórica y cultura científica*. México: Universidad Iberoamericana.

Cruz Barney, Óscar

1998 *El riesgo en el comercio hispano-indiano: préstamos y seguros marítimos durante los siglos XVI a XIX*. México: UNAM. Instituto de Investigaciones Jurídicas. Serie C: Estudios Históricos, Núm. 78.

Chinchilla, Perla y Antonella Romano

2008 *Escrituras de la modernidad. Los jesuitas entre la cultura retórica y cultura científica*. México: Universidad Iberoamericana.

Delumeau, Jean

1992 *La confesión y el perdón. Las dificultades de la confesión, siglos XIII al XVIII*. Madrid: Alianza Universidad. Edición original en francés en 1990.

Fabre, Pierre-Antoine

2008 “Ensayo de geopolítica de las corrientes espirituales. Alonso Sánchez entre Madrid, Nueva España, Filipinas, las costas de China y Roma, 1579-1593” en Elisabetta Corsi *Órdenes religiosas entre América y Asia. Ideas para una historia misionera de los espacios coloniales*. México: El Colegio de México.

García, Genaro

1982 *El clero durante la dominación española*. México: Porrúa.
Documentos inéditos y muy raros para la historia de México, número 58.
Primera edición en español en 1905.

García Secades, Marta

2002 “Antecedentes de la concepción subjetivista de la probabilidad”, en
Javier Martín Pliego, *Historia de la Probabilidad y la Estadística*.

Gernet, Jacques

2005 *El mundo chino*. Barcelona: Crítica. Primera edición en francés 1972.

Gluckman, Max

1963 “The Reasonable Man in Barrotes Law”, en *Order and Rebellion in
Tribal Africa*. Londres: Cohen and West.

Gómez Camacho, F.

2002 “Probabilismo y toma de decisiones en la Escolástica española”, en
Javier Martín Pliego, *Historia de la Probabilidad y la Estadística*.

Gómez de Liaño, Ignacio

2001 *Athanasius Kircher. Itinerario del Éxtasis o las imágenes de un saber
universal*. Madrid: Siruela.

Gómez Robledo, Antonio

2007 “Introducción” a Francisco de Vitoria, *Relecciones del Estado, de los
indios y del derecho de la guerra*. México: Porrúa, colección “Sepan cuantos...”,
Núm. 261. Primera edición 1974.

Guardini, Romano

1996 “La lucha de Pascal” en Blas Pascal, *Pensamientos y otros
escritos*. México: “Sepan Cuantos...”, núm. 577. Editorial Porrúa.

Hacking, Ian

1995 *El surgimiento de la probabilidad. Un estudio filosófico de las ideas tempranas acerca de la probabilidad, la inducción y la inferencia estadística.* Barcelona: Gedisa. Edición original en inglés 1975.

1996 *La domesticación del azar. La erosión del determinismo y el nacimiento de las ciencias del caos.* Barcelona: Gedisa Editorial.

Herr, Richard

1979 *España y la revolución del siglo XVIII.* Madrid: Editorial Aguilar.
Primera edición en inglés 1960.

Huang, Xiang

2005 “The Trading Zone Communication of Scientific Knowledge: An Examination of Jesuit Science in China (1582-1773)”, en *Science in Context*, vol. 18, núm, 3, pp. 393-427.

Küng, Hans

1996 “¿Creo, luego existo? Descartes y Pascal” en Blas Pascal, *Pensamientos y otros escritos.* México: “Sepan Cuantos...”, núm. 577. Editorial Porrúa.

Lisón Tolosan, Carmelo

2005 *La fascinación de la diferencia. La adaptación de los jesuitas al Japón de los samuráis, 1549-1592.* Madrid: Alcal Ediciones.

Lortz, Joseph

El Jansenismo, página de Internet: www.conoze.com

Lozano Navarro, Julián J.

2005 *La Compañía de Jesús y el poder en la España de los Austrias.* Madrid: Cátedra. Historia/serie menor.

Martín Pliego, Javier F. (Coordinador)

2002 *Historia de la probabilidad y la estadística*. Memoria de las ponencias presentadas en las Primeras Jornadas de la Historia de la Estadística y la Probabilidad. Madrid: Universidad de San Pablo CEU, ServiRed y Caja Castilla La Mancha.

2002 “Los probabilistas españoles en los siglos XVII a XIX”, en Javier Martín Pliego, *Historia de la Probabilidad y la Estadística*.

Mauriac, François

1996 “El cristiano Pascal” en Blas Pascal, *Pensamientos y otros escritos*. México: “Sepan Cuantos...”, núm. 577. Editorial Porrúa.

Mesnard, Jean

1996 “El hombre, el pensador, el artista” en Blas Pascal, *Pensamientos y otros escritos*. México: “Sepan Cuantos...”, núm. 577. Editorial Porrúa.

Morales, Francisco

2008 “De la utopía a la locura. El Asia en la mente de los franciscanos de Nueva España”, en Elisabetta Corsi *Órdenes religiosas entre América y Asia. Ideas para una historia misionera de los espacios coloniales*. México: El Colegio de México.

Nauert, Charles

2006 “Mentalidad” en Euan Cameron, *El siglo XVI. Historia de Europa Oxford*. Barcelona: Crítica.

O’Gorman, Edmundo

2006 “Prólogo, tres apéndices y un índice de materias”, en Joseph de Acosta, *Historia natural y moral de las Indias*. México: Fondo de Cultura Económica. Primera edición en FCE en 1940.

O’Malley, John, Gauvin Alexander Bailey, Steven Harris y T. Frank Kennedy.

1999 *The Jesuits. Cultures, Science and the Arts, 1540-1775*. Toronto: University of Toronto Press.

Palerm, Ángel

1974 *Historia de la Etnología: los precursores*. México: SEP INAH.

Pascal, Blas

1841 *Las provinciales*. México: Imprenta de Ignacio Cumplido

s/f *Pensamientos seguidos de las Provinciales*. Madrid: Librería Bergua

s/f *Les Provinciales*. París: Ernest Flammarion, Éditeur.

1996 *Pensamientos y otros escritos*. México: "Sepan Cuantos..." núm. 557, Editorial Porrúa.

1988 *Tratados Blaise de Pascal. Pneumatica*. México: El Libro de Bolsillo. Alianza Editorial.

Pavone, Sabina

2007 *Los jesuitas desde los orígenes hasta la supresión*. Buenos Aires: Libros de la Araucaria. Original en italiano 2004.

Pieronni Francini, Marta

2002 "Los jansenistas y la escuela", en *Cuadernos de Historia Moderna Anejos*, Vol. 1, pp. 127-150. Madrid: Universidad Complutense

Ranke, Leopold Von

1993 *Historia de los Papas*. México: Fondo de Cultura Económica. Primera edición en alemán en 1834-1836.

Reale, Giovanni y Dario Antiseri

2005 *Historia del pensamiento filosófico y científico. Antigüedad y Edad Media*. Volumen I. España: Herder. Primera edición en italiano, 1983.

Ruiz Contreras, Luís

s/f Prologo del traductor de las cartas *Provinciales*, en Pascal, *Pensamientos seguidos de las Provinciales*. Madrid: Librería Bergua.

Santos del Cerro, Jesús

1999 *Historia de la probabilidad: Aportaciones españolas a su proceso de conceptualización*. Tesis de Doctorado, Toledo, España.

2002 “Probabilismo moral y probabilidad”, en Javier Martín Pliego, *Historia de la Probabilidad y la Estadística*.

Shapin, Steven

2000. *La Revolución Científica. Una interpretación alternativa*. Barcelona: Paidós.

Spence, Jonathan D.

2002 *El palacio de la memoria de Matteo Ricci. Un jesuita en la China del siglo XVI*. Barcelona: Tusquets Editores. Primera edición en inglés 1990.

Torno Sanz, Leandro

1980 “Algunas ideas rectoras de las relaciones entre las indias españolas y los países del extremo oriente durante el siglo XVI”, en Ernesto de la Torre, *La expansión hispanoamericana en Asia siglos XVI y XVII*. México: Fondo de Cultura Económica.

Torre Villar, Ernesto de la (compilador)

1980 *La expansión hispanoamericana en Asia siglos XVI y XVII*. México: Fondo de Cultura Económica.

St. Clair Segurado, Eva María

2000 “Las misiones jesuitas del extremo Oriente en los dictámenes de los obispos españoles (1769-1770)”, en Revista de Historia Moderna, número 18, pp. 341-364. (Consulta por Internet).

Subrahmanyam, Sanjay

2005 *Explorations in Connected History. Mughals and Franks*. Oxford: Oxford University Press.

Tomsich, Maria Giovanna

1972 *El jansenismo en España. Estudios sobre ideas religiosas en la segunda mitad del siglo XVIII*. Madrid: Siglo XXI España.

Vitoria, Francisco de

2007 *Relecciones del Estado, de los indios y del derecho de la guerra*. México: Perrúa, colección “Sepan cuantos...”, Núm. 261. Primera edición 1974.

Yates, Francis

1974 *El arte de la memoria*. Madrid: Taurus.