UPDATE

Diagrammatic reasoning: the art of good thinking to think about the greater good

Enidio Ilário[1], Alfredo Pereira Júnior[2], Valdir Gonzalez Paixão Júnior[2]

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1. Universidade Estadual de Campinas, Faculdade de Ciências Médicas, Campinas/SP, Brasil. **2.** Universidade Estadual Paulista Júlio de Mesquita Filho (Unesp), Programa de Saúde Coletiva, Departamento de Educação, Instituto de Biociências, Botucatu/SP, Brasil.

Abstract

Models are conceptual constructions, with some degree of simplification, that keep a partial match with the phenomena they aim to address. The Principialist model, which is based on a matrix formed by four principles: Beneficence, Non-Maleficence, Autonomy and Justice, stands out in the Bioethical field. When addressing a conflict between ethical guidelines, this model makes it possible to evaluate those guidelines that are more appropriate to the specific concrete situation. Based on the logical diagram, we sought to deepen the theoretical-conceptual foundation of bioethics, considering the standard Principialist model, which is an important heuristic tool. Logical relationships underlie all thoughts, and diagrams show such relationships in integrated spatial structures, representing the topology of concepts. The logical relationships, present in the structure of the models, allow one to understand the conceptual field of principles that operate within bioethical reasoning. The diagrammatic reasoning thus allows us to observe that, in the face of problem situations, there is no incompatibility between the Principialist and Personalist concepts - on the contrary, they complement one another and have synergy.

Keywords: Bioethics. Logic. Heuristics. Cognition. Linguistics.

Resumo

Diagramática: a arte do bem pensar para pensar o bem

Modelos são construções conceituais com certo grau de simplificação que mantêm correspondência parcial com o fenômeno que se pretende abordar. Na bioética destaca-se o modelo principialista, baseado em matriz formada por quatro princípios: beneficência, não maleficência, autonomia e justiça. Diante de conflito entre diretrizes éticas, esse modelo possibilita avaliar aquelas mais adequadas à situação concreta. A partir do diagrama lógico procurou-se aprofundar o projeto de fundamentação teórico-conceitual da bioética, considerando o modelo padrão principialista importante ferramenta heurística. Relações lógicas são subjacentes a todo pensamento, e os diagramas dispõem essas relações em estruturas espaciais, representando a topologia dos conceitos. As relações lógicas, presentes na estrutura dos modelos, permitem compreender o campo conceitual de princípios que operam no raciocínio bioético. A elaboração diagramática permite, portanto, observar que diante de situações-problema não há incompatibilidade entre as concepções principialista e personalista – pelo contrário, há complementaridade e sinergia.

Palavras-chave: Bioética. Lógica. Heurística. Cognição. Linguística.

Resumen

Diagramática: el arte del buen pensar para pensar el bien

Los modelos son construcciones conceptuales con cierto grado de simplificación que mantienen una correspondencia parcial con el fenómeno que se pretende abordar. En la bioética se destaca el modelo principialista, basado en una matriz formada por cuatro principios: beneficencia, no maleficencia, autonomía y justicia. Ante el conflicto entre directrices éticas, este modelo posibilita evaluar aquellas más adecuadas para la situación concreta. A partir del diagrama lógico se procuró profundizar el proyecto de fundamentación teórico-conceptual de la bioética, considerando al modelo estándar principialista como una importante herramienta heurística. Las relaciones lógicas subyacen a todo pensamiento, y los diagramas disponen dichas relaciones en estructuras espaciales, representando la topología de los conceptos. Las relaciones lógicas, presentes en la estructura de los modelos, permiten comprender el campo conceptual de los principios que operan en el razonamiento bioético. La elaboración diagramática permite, por lo tanto, observar que frente a las situaciones-problema no hay incompatibilidad entre las concepciones principialista y personalista – por el contrario, existe complementariedad y sinergia.

Palabras clave: Bioética. Lógica. Heurística. Cognición. Lingüística.

Declaram não haver conflito de interesse.

A quick look at the academic production in bioethics allows us to note the diversity of orientations, chains of thought or schools on the topic, each one seeking to be the most appropriate expression of the thinking in this field. Although harmonious coexistence of different approaches is not uncommon, a fact that reflects the characteristic of a transdisciplinary field par excellence, conflict is inevitable. The presence of distinct philosophical traditions in bioethical thinking is far from being a problem in itself – indeed, it is highly desirable, but such a characteristic makes epistemological treatment imperative.

Even if the term "ethics of life" appropriately and necessarily places the approach beyond biomedical ethics, it cannot be denied that when dealing with environmental issues, for example, bioethics maintains an anthropocentric bias, as in the case of future generations' rights. In one way or another, the central object of bioethics is in the world of culture, and it is also in the image of being human that the origin of dissension is often found.

This is enough to affirm the need to have in the reflections on bioethics a reasonable domain of essential notions of anthropology and philosophical ethics - for example, the image of the human, worldviews (cosmoviews) and value theory (axiology). To escape such a prescription is to expose oneself to the risk of serious errors, such as reducing bioethical practice to the dictates of instrumental reason, although the need not to transform reflection into a purely amateurish exercise must be recognized.

Faced with the scope of a transdisciplinary field par excellence, the natural profusion of theoretical references and polysemic concepts tends to transform the bioethical debate into the tower of Babel. In such conditions dissensions proliferate and there is a risk that technoscience will eventually disdain the one that once sought to impose limits on it.

In order for bioethics not to have the same fate as metaphysics, but rather for it to impose itself as a legitimate normative discipline in the field of science, the scientific method must be respected. However, this does not mean surrendering to methodological naturalism, or the reduction of bioethics to mere rubber stamping the approval of research or even to procedural discussions at the foot of hospital beds. Without underestimating the importance of these last two practices for legitimate applied ethics, what is intended is more than this, that bioethical reflection itself can generate increasingly transforming knowledge.

Scientific language and bioethics

Identity is a prime condition for a particular discipline to be recognized as science. This presupposes the possession of a common language which, duly translated, makes possible the interlocution with other areas of science. This is a challenging task in a field in which, it is no exaggeration to say, it would be impossible to elaborate a comprehensive and at the same time more concise dictionary than the most complete of the philosophical encyclopedias. That is to say, that to its countless entries should be added many others from areas such as psychology, medicine, biology, sociology and so on. For example, in bioethical discourse the use of the term "principle" immediately calls attention, and if it is precisely under this notion that the most varied theories are developed, we must first elucidate it.

When one speaks of principles, common sense somehow indicates that it is something tacitly accepted, and this refers to the way Descartes describes them: *they must be so clear and evident that the human mind cannot doubt their truth when it attentively concentrates on them; and secondly the knowledge of other things must depend on them* [1].

It is evident that in bioethics, with the formulation of principles, we intend to account for reality, and, in this case, the principles would have ontological character, without necessarily being first. In their plurality, even without reaching the full axiomatic condition, while still premises in the cognitive field, it is assumed that principles have logical validity.

In fact, one of the arguments for the bioethical discourse to be elevated to the condition of scientific discourse is the logical validity of its propositions. After all, logic is regarded as the basis of all other sciences, as Tarski writes: *if only for the fact that all arguments make use of concepts specific to this discipline and that all correct inference proceeds in accordance with their laws* [2].

In bioethics, the term "model" is also quite usual; however, in the field of positive sciences there are different meanings for it, depending on the area in which it is used. In logic, "model" is understood as a structure in which the theorems of a given theory are valid. If in logic the definition seems simple, Bunge [3] presents the ambiguity of the term in philosophical and scientific literature. This same author considers it convenient to replace the

expression "theoretical model" (or "mathematical model") with "specific theory".

Another meaning of the term "model" is associated with the idea of moral value and, in this sense, it was understood by several authors, among whom Scheler is worth highlighting. For the author, models (*Vorbilder*) do not exert pressure on their peers; rather, their way of acting proceeds from being paradigms to which one aspires to imitate. In this sense, they presuppose antithesis *(gegenbilder): uninterruptedly, the soul is dominated by the basic personal tendency of love and hate, by this preference or that postponement of values* [4].

The principlist model object and the personalist theoretical model

Although different notions of model are relevant to the field of bioethics, this study is concerned with a specific type of model - indeed, one from which the terms "modeling" or "molding" derive. We understand that the standard principlist model falls within the category of model object proposed by Bunge [3], which distinguishes it from a theoretical model or a specific theory. According to the author, in order for a model object to become a theoretical model, it must fit within a theoretical framework. By being absorbed by it, it inherits its peculiarities and, in particular, its laws.

Conceived by Beauchamp and Childress [5] and by members of the Kennedy Institute of Ethics, the standard principlist model is heir to the Belmont Report, a product of the US congressional discussions following the Tuskegee affair. The principlist model is based on four principles, interpreted by its authors as *prima facie*, that is, without defined hierarchy: the principle of beneficence, non-maleficence, autonomy (originally conceived in the Belmont Report as respect for persons) and of justice, the latter being also known as the *principle of equity*. These principles constitute a synthesis of theoretical references: the principles of beneficence and non-maleficence are inspired by the Hippocratic corpus of medical tradition and by the utilitarian ethics of Stuart Mill [6]. The principle of autonomy derives from Kant's [7] moral philosophy and the principle of justice is based on Rawls's contractualist approach [8].

Because it is derived from these theories, the principlist model is not in itself a theoretical model, instead it is a heuristic model. As Bunge points out, *there is nothing to prevent us from considering that occasionally the same model can serve different*

theories [9], from which arises its flexibility and functionality in approaching problem situations. This can be seen in the field of health care and biomedical research, as scholars of the subject contend [10,11]. On the other hand, contrasting with the "principlist model" the personalist model [11] is found in bioethics in a philosophical tradition chain, which includes theorizing about the values discussed by Max Scheler.

As a specific theory, the personalist model is based on the notion of the human person, a category that Mounier [12], in a small volume entitled "Personalism", summarized as having the following attributes: 1) psychophysical structure, "embodied existence", " incarnate existence"; 2) transcendence of the person in relation to nature; 3) openness towards others and to the world, the means of communication; 4) dynamism: it is considered that personal existence would be the search for perceived unity; 5) vocation: each person has a significance that cannot be replaced; and 6) freedom: it would not be condemnation, as Sartre would affirm, but a gift, since the person can accept or reject it.

Strongly affirming anthropology as the foundation of bioethics, however, the personalist model is still in the process of structuring, with little impact on clinical practice. In the opinion of the Portuguese bioethicist Patrão Neves [13], this is probably due to the distance of the model from a normative plane.

Heuristic models in ethics and bioethics

We can understand models as tools for the rational and explanatory process, which establish structural correlation between systems. Thus, known systems can act as analogies that represent phenomena observed in partially unknown systems. In his article "Theoretical Models in Information Science: Abstraction and Scientific Method", Sayão maintains:

The models, in a risky generalization, seek the formalization of the universe through means of expressions controllable by human beings; derived from the human need to understand the seemingly complex reality of the surrounding universe. They are, therefore, simplified and intelligible representations of the world, that allow one to glimpse essential characteristics of a realm or field of study. The need for idealization is, therefore, a traditional reaction of mankind to the apparent complexity of the reality in which we are submerged [14].

There is often doubt about the possibility that mathematical logic models adequately represent phenomena in the field of the human sciences in general, and bioethics in particular. On this issue, Bunge[3] observes that social processes were considered intractable by mathematical models. This attitude would indicate, according to the author, an erroneous understanding of both mathematics and sociology. In his view, the dichotomy between *Naturwissenschaften* (natural sciences) and *Geistewissenschaften* (sciences of the spirit) does not hold:

Now, we know better. We learn that pure mathematics is neutral and, when applied, it is applied to our ideas regarding judgments about facts and not regarding facts themselves: what is mathematized is not a piece of reality, but some of our ideas about it[15].

Even if such artificial barriers are broken, allowing the approach of human phenomena with logical and mathematical conceptual instruments, it is worth asking: in view of the complexity of bioethics, would health professionals be able to work with models? The answer may be affirmative, as it is not necessary to know logic as a philosophical discipline - or mathematics as a specific discipline - to think correctly, since the human mind spontaneously applies the laws of inference. An eloquent example is that not all mathematicians have a deep knowledge of the logical laws, but use them in their deductions.

It is intended to show that the principlist model could be a tool to facilitate ethical reasoning in the field of bioethics for all health stakeholders. From this perspective, through diagrammatic logic, this study will try to evaluate the logical consistency of the bioethical models themselves. However, for this we will be content to construct a mathematical logic diagram that represents this field of knowledge.

As Bachelard has pointed out, it would be a primary task of the scientific mind *to render the representation geometric, that is, to delineate phenomena and to order in series the decisive events of an experience*[16]. This type of geometric reasoning has always been a widely used feature, since ancient Greece. When we deal with this type of representation, it is essential to refer to the classic "Ethics demonstrated in geometrical order" by Spinoza[17], who proposed to use geometry as his method of demonstration.

The philosopher attributed to mathematics, considering *more geometric*, the property of extending finite understanding in order to obtain the intelligibility of what is rational. As the geometrical method is synthetic, unlike pure mathematics, which is primarily analytical, Spinoza intended the same validity for his demonstrations. However, it is worth noting that while geometry deals with abstract entities, what interests us, as happened to the great rationalist philosopher, is dealing with beings that physically exist.

Diagrammatic modelling

To present the conceptual field used in bioethics, we work with the resource of diagrams. Of Greek origin, the term "diagram" etymologically means "across the line," arising from the concept of *dia* (through) and *gramma* (line). The use of diagrams is disseminated by the sciences in general, although it seems to be a simple visual representation of the form of the object to be studied. *Schematic diagrams* are figures that seek to represent functions and relationships. They find applications in logic, showing the chain of statements. In bioethics, we resort to Gardner's definition:

The logical diagram is a two-dimensional geometric figure that shows isomorphic spatial relationships with the structure of a logical statement. These spatial relationships are usually of a topological character, which is not surprising in view of the fact that logical relationships are primitive relationships underlying all deductive reasoning, and that topological properties are, in some sense, the most fundamental properties of spatial structures[18].

A diagram can allow a joint view of the relationships, providing a synthetic approach. It is a heuristic process, since the researcher can operate freely on an ideal substrate, which makes it possible to discover new relationships of interest. In addition, it may contribute to a better understanding of cognitive processes. It was up to Charles Sanders Peirce[19] to draft a system of diagrammatic logic that allows making formal deductions visually, through icons. Diagrams would be an iconic system of intelligible relationships. Putting himself in accord with the philosopher from Königsberg, who inspirered him, Peirce says:

Kant is entirely correct in saying that the mathematician uses what in geometry is called a "construction," or a general diagram, or a visual arrangement of characters or lines. Such

a construction is formed according to a precept provided by the hypothesis. Once formed, the construction is subject to the scrutiny of observation, and new relationships are discovered among the parts not presented in the precept by which it was formed [20].

In the diagrammatic model we developed, structural relationships are determinants of functional explanations. In this regard, the linguists Greimas and Courtés say that the semantic universe is structurable, that is, it requires *the prior establishment of homogeneous levels of analysis and must include the interdefinition of the structured elements, in terms of logical relationships* [21]. It was Greimas who revalued the primitive spatial notions, horizontality and verticality.

The structuralist method allows us to identify the relationships present in the discourses. For example, Kant used as an epigraph in his "Anthropology from a pragmatic point of view" the Latin expression *opposita iuxta se posita magis elucescunt* [22], that is, "*placed side by side, opposites are more clearly distinguished*". Such notions are not unknown in psychology and were extensively theorized, among others, by Carl G. Jung and, before him, in the comprehensive phenomenological line of thought, by the philosopher and psychiatrist Karl Jaspers:

Intellectually, polarity comes to complete opposing evaluations: the true and the false, the beautiful and the ugly, the good and the bad, the positive and the negative. The mind captures all contrasts that will not even happen, by themselves unconsciously, recognizes their meaning, contemplates them as symbols, from the space poles, up and down, left and right, through darkness and light, to the biological poles (whether, masculine and feminine) and also captures the psychological antagonisms: pleasure-displeasure, joy-sadness, mourning-exaltation, and ruin [23].

These notions, also used in communication theory, can be formalized as syntax of visual language, composing a plane called a "structural map" - a square divided by two orthogonal axes, in four quadrants, such as the Cartesian plane, and the quadrants, in turn, are divided into eight spaces, distributed over two additional orthogonal axes. The central point is the one of greater stability and rest, and also of attraction and repulsion.

The structural map can be interpreted as a vector topological space whose center is the one in which the forces balance and cancel out, making the vector sum zero. According to Dondis, in the expression or visual interpretation, the search for equilibrium occurs in terms of a vertical axis and a secondary horizontal reference, which together determine structural factors:

This visual axis is also called the "sense axis," which best expresses the invisible but preponderant presence of the axis in the act of seeing. It is an unconscious constant. (...) The horizontal-vertical reference is a primary reference for mankind in terms of well-being and maneuverability. Its most basic meaning has to do not only with the relationship between the human organism and the environment, but also with stability in all visual issues [24].

The hyperdiagram

Following the same principles, this modeling is designed based on orthogonal axis metrics, which allows one to exercise topology for abstract concepts, used in different fields of knowledge [10,25]. This is basically a topology with essentially heuristic characteristics in which diagrams allow key concepts to be situate in a semiotic space, a kind of epistemological plane. In such diagrams, concepts gain intelligibility, insofar as the searching eye can observe relations that would otherwise remain veiled. It is in this sense that the diagram, as a semiotic tool, acts in a comparable way to the microscope or telescope, allowing a closer approximation to the view of the semantic-structural relationships of concepts, categories, propositions and judgments.

We know that from both the psychological point of view as well as from the linguistics and semiotics perspective, the discourse manifests a series of polarities, and it is by the teleological precept (purpose) that, in this method, each concept is assigned its place and function in the whole. The teleological precept can be understood, for example, in the Peircian sense of *directionality*, but, in the field of ethics and bioethics, the Schelerian phenomenological sense of attraction to the "world of values" would be the most appropriate. Although there has been systematic attempts to abolish teleology from science in general, in the field of ethics there is no way to explain the "becoming" exclusively from "being", which brings us back to the issue of the Aristotelian "final cause", which has been the subject of several controversies throughout the history of philosophy and science.

From this assumption, the theoretical-conceptual sorting can be established by situating the concepts in the orthogonal axes, which represent basic polarities delineating the human condition. The horizontal axis represents the relational dimension between the individual and the universal, or between the one and the multiple. In this axis, the individual-society polarity and its connatural principles of auto-teleology and heteroteleology, which can be translated, respectively, as "individuation" and "association", assume a fundamental role. The principle of individuation concerns the establishment of values and action goals by the individual entities modeled, while the principle of association can be understood as both material (exchange relations) and psychic (communication or intersubjectivity).

Although defined and inhabited by concepts and categories common to the field of anthropology, the horizontal axis delimits a relational dimension that does not yet include values and their judgments. These concepts and categories find their *locus* in the plane of verticality, since it is in this axis that the dimension of what is humane is delimited (Figure 1).

Figure 1. The orthogonality on which the hyperdiagram was based
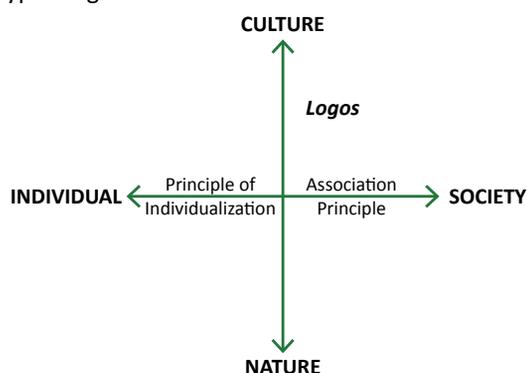
In order to synthesize this problematic axis, the metaphysical categories *logos and conatus* will be used, while recognizing some arbitrariness in the choice, inevitable in the face of the number of polysemic concepts. However, while the choice of concept locations and directionality for the poles is arbitrary on the horizontal axis, the same cannot be said of the direction and polarities up and down the vertical axis. In this, value judgments are fundamental, hence the inevitability of choosing metaphysical concepts

and categories of ethics and philosophical anthropology.

The concept of *conatus* (effort, endeavor) [26] presents particularities, as used by Hobbes, Leibniz and Spinoza. From the topological point of view, it must be understood in the sense conferred by Aristotle, as effort and action corresponding to natural impulse. More complex is the definition of *logos* [27], since this concept can be understood in several ways (in the theological, metaphysical, logical and epistemological sense); but here we interpret it only as a determinant impulse towards the cultural dimension.

The orthogonal axes delimit the quadrants, occupied with concepts from the field of ethics and philosophical anthropology. The two dimensions include integrating categories, in the process of concept synthesis. These are located at the intersection of perpendicular lines drawn from the original axes. It is worth noting that the potential of this space originated from the orthogonality of configuring many possibilities. One can then phenomenologically place the world of life in "hyperdialectics", a term that refers to the well-founded critic of Merleau-Ponty regarding the dialectic of the Sartrian hue:

In other words, what we exclude from the dialectic is the idea of the pure negative, what we seek is a dialectical definition of being that can be neither the being for itself nor the being in itself— rapid, fragile, labile definitions, which, as Hegel rightly said, lead us back from the one to the other— nor the In-Itself- for-itself which is the height of ambivalence, [a definition] that must rediscover the being that lies before the cleavage operated by reflection, about it, on its horizon, not outside of us and not in us, but there where the two movements cross, there where "there is" something [28].

Although these spaces in the plane can accommodate the different concepts and categories of ethics and philosophical anthropology, we highlight four paradigmatic categories, each in their respective quadrants (Figure 2): 1) in the upper left, the concept of the *human person*, which constitutes a synthesis of the concepts "individual" and "culture"; 2) in the upper right, the concept of *community*, constituting synthesis of the concepts "society" and "culture"; 3) in the lower right, the concept of mass, synthesis of the concepts "society" and "nature"; 4) in the lower left, the concept of *solipsism*, as a synthesis of the concepts "individual" and "nature".

Figure 2. The hyperdiagram and the anthropological categories
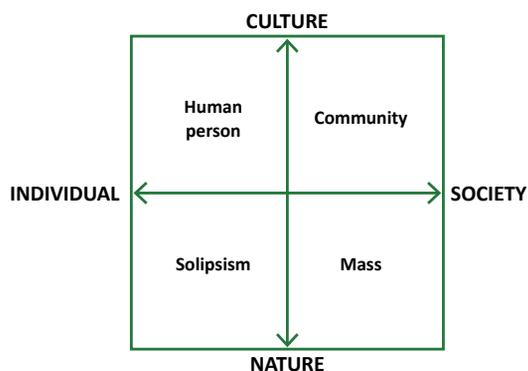
In this way, the occupation of the quadrants is done with surprising naturalness. Even in the face of difficulties in finding an adequate concept, the diagram itself shows, so to speak, the alternatives. For example, when we searched, among a myriad of concepts, one that counteracted community, we realized that formulations of the field of psychopathology would reduce meaning to exceptions, such as the nosological term "sociopath", or the concept of "egoism". This finding forced the use of the term "solipsism", which, although being almost a neologism, would be more adequate to characterize the lower quadrant, derived from the synthesis between the concepts of individual and nature. It is important to clarify at this point that the solipsism to which we allude is not that methodological or linguistic, but the metaphysical solipsism, equivalent to metaphysical egoism.

Diagramming the standard principlist model

In this section, diagrammatic features will be given to the standard principlist model object, in order to show some of the relationships between the concepts that compose it. For this, its basic principles are translated into the concepts and categories of the hyperdiagram constructed in the previous section. Once the hyperdiagram is able to accommodate all the concepts of the fields of anthropology and ethics, we will also evaluate the compatibility between the principlist and the personalist models, in what refers to bioethics.

Such a topology is not arbitrary, but based on well-established studies in areas such as psychology, anthropology and ethnology, among which it is worth highlighting Levi-Strauss' approach [29], which, in the framework of all human societies, emphasizes the polarity of nature and culture. The overlapping of the model objects will be based on the same

semiotic criteria adopted for the construction of the hyperdiagram.

Thus, in Figure 3 we observe that the principle of beneficence and the principle of non-maleficence must be situated on the vertical axis. It is on the upward pole, directed by the *logos*, that the principle of beneficence finds its place; according to the principle of opposition, maleficence lies at the opposite pole.

Figure 3 shows that the principle of non-maleficence must lie on the same vertical axis and be directed by the *logos* on the same upward pole of the beneficence principle. However, in the diagram, one can note the conceptual position of the principle of non-maleficence, since negation can only be in the center, where the axes intersect and the principles cancel each other out.

Figure 3. Topology of the vertical axis principles
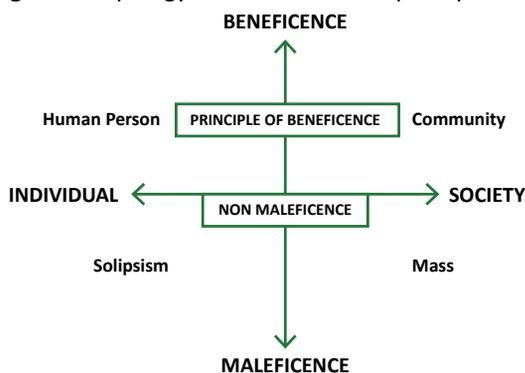
The horizontal axis represents another dimension, that is not contradictory to the vertical, but diverse and able to define the identity in terms of the individual and species. The horizontal dimension, although complementary to the vertical, as already seen, is not capable of engendering or harboring specific categories regarding the field of ethics and bioethics. Since such notions refer specifically to phenomenology, they refer back to the specific field of human culture, and in that sense, the vertical dimension is always anthropocentric. Only in a dimension that contains the intentionality and the value hierarchy, can such categories find their function. This is the case with the principles of autonomy and justice.

Both the principle of autonomy and the principle of justice are synthetic; that is to say that they derive their essence from both the vertical and the horizontal dimensions, and therefore, in their completeness, they cannot be situated in any of them. It is only by dimensional complementarity that this class of principles finds its *locus* in the territory of the quadrants. The principle of autonomy, corresponding to the synthesis of the concepts "individual" and "culture", is located in the upper left quadrant, the same in which we find the category of *human person*.

The principle of justice, which is a synthesis of the concepts "society" and "culture", will find its correct locus is in the upper right quadrant, the same in which the *community* category dwells (Figure 4):

In this diagram, the principle of beneficence would be the synthesis between the principle of autonomy and the principle of justice and, dialectically, would occupy a hierarchically superior position, which raises questions about the *prima facie* criterion of the principlist model. The confirmation of a value hierarchy should not be surprising, given that in the medical tradition, beyond the confrontation between autonomy and justice, the Hippocratic values, expressed in the principle of beneficence, prevail.

The isomorphism between Figure 4 and the famous logical square, a figure that gives a diagrammatic feature to the Aristotelian logic, is remarkable. This makes it easier to visualize the classic modal oppositions. Curiously, the figure was conceived at the beginning of the Christian era by Apuleius of Madaura, a philosopher initiated in the mysteries of Asclepius and, therefore, also a physician [30].

Just as the logical square expresses modal oppositions in classical logic, the diagram exposes the deontic oppositions, remembering that this logic added, to the Aristotelian logic, the Kantian theorization about the categorical imperative, thus making it possible to logically approach moral reasoning.

The aforementioned isomorphism allows us to name the last figure as a logical principlistic square, since it includes the opposites and contradictions of the principles of beneficence, justice (equity) and autonomy, which are, respectively, maleficence, iniquity and paternalism. As antiprinciples, they are logically situated on the lower plane of the diagram, in a type of vector analysis. For example, it is evident that iniquity and paternalism, in short, induce maleficence.

Figure 4. Topology of the standard principlist model
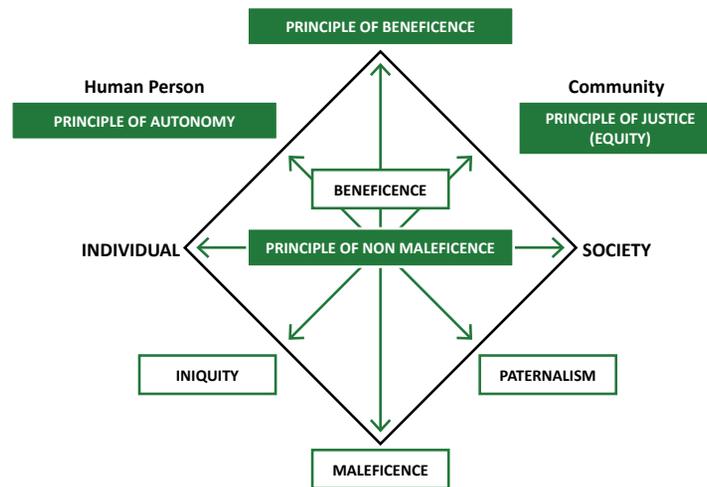
Final considerations

A new theoretical model of ethics and bioethics did not emerge from the Belmont Report, but rather a model object of great heuristic power. Its success does not lie in one or another theoretical framework, but in its ability to provide health professionals and researchers with a tool capable of leveraging moral reasoning in concrete situations. The choice of certain principles in the model of Beauchamp and Childress [5] is based on the recognition of its universality. From the axiological point of view, the values underlying the principles of beneficence, autonomy and justice are structurally analogous to the principles of the French Revolution: equality, liberty and fraternity, not necessarily in the same order or with the same understanding.

All these principles are linked to values that come from ancient Greece, through Christianity, Roman positive law, and Renaissance humanism, gaining momentum in the Age of Enlightenment, to this day, in its various international norms, of which the *Universal Declaration on Bioethics and Human Rights* [31] is an example.

In this perspective, the personalist model would indeed be a specific theory in the field of ethics and bioethics, based on the same sources as the principlist. As a theoretical model, ethical personalism is based on the notion of the *human person* and it constructs around it all its theorization. However, even being able to influence public policies at a global level, the personalistic model is not operational in the daily life of biomedical ethics.

The principlist model object has the capacity to be used precisely where personalism finds its limits. However, it is subject to different interpretations, in accordance with philosophical and cultural traditions. For this reason, faced with problematic situations in the field of bioethics, one cannot lose sight of the fact that models only make sense when they presuppose dialogue with the concrete world.

Respecting such assumptions, what is evidenced is not the lack of a common denominator between rival approaches of bioethics, but rather the difficulty in establishing relationships and legitimating what is best in each of them. For this, the diagrammatic feature given to the principlist model can serve as a tool to overcome both dogmatism and relativism in bioethics.

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Correspondência
Enidio Ilário – Universidade Estadual de Campinas. Faculdade de Ciências Médicas. Departamento de Saúde Coletiva. Rua Tessália Vieira de Camargo, 126, Cidade Universitária Zeferino Vaz, Caixa Postal 6.111 CEP 13083-887. Campinas/SP, Brasil.

Enidio Ilário – Doutor – enidioil@fcm.unicamp.br
Alfredo Pereira Júnior – Doutor – apj@ibb.unesp.br
Valdir Gonzalez Paixão Júnior – Doutor – valdirpaixao@ibb.unesp.br

Participation of the authors
Enidio Ilario was responsible for the authorship and preparation of the text. Alfredo Pereira Júnior and Valdir Gonzalez Paixão Júnior collaborated in discussing and reviewing the concepts and diagrams used, as well as translating the abstract into foreign languages.