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The classification of Harris: Influences of Bacon and Hegel in the universe of library classification

Abstract
The studies of library classifications generally interact with a historical approach that contextualizes the research and with the ideas related to classification that are typical of Philosophy. In the 19th century, the North-American philosopher and educator William Torrey Harris developed a book classification at the St. Louis Public School, based on Francis Bacon and Georg Wilhelm Friedrich Hegel. The objective of the present study is to analyze Harris's classification, reflecting upon his theoretical and philosophical backgrounds in order to understand Harris's contribution to Knowledge Organization (KO). To achieve such objective, this study adopts a critical-descriptive approach for the analysis. The results show some influences of Bacon and Hegel in Harris's classification.

> *Every scheme of classification rests upon some philosophical system as its basis.*
>
> *W. T. Harris*

Introduction

In the 19th century, the North-American philosopher and educator William Torrey Harris (1835-1909) developed a book classification at the St. Louis Public School, based on the philosophical ideas of Francis Bacon (1561-1626) and Georh Wilhelm Friedrich Hegel (1770-1831). The objective of the present study is to analyze Harris's classification, reflecting upon his theoretical and philosophical backgrounds in order to understand Harris's contribution to Knowledge Organization (KO), specifically to the epistemology of KO. To achieve such objective, we conducted a critical-descriptive analysis of the article entitled *Book Classification* – published originally by Harris in 1870 in *The Journal of Speculative Philosophy* – based on works on classification and Philosophy. Thus our analysis was partly descriptive, focusing on the classification published in the aforementioned article Book Classification, and partly critical in the sense that it related the classificatory perspectives of Bacon and Hegel with Harris's classification.

Although Harris is significantly recognized in the areas of Philosophy and Education in the United States, in Library Science (LS) and in Knowledge Organization (KO) Harris's name is seen just as the creator of the classification that influenced Melvil Dewey's classification. And very few studies have attempted to analyze Harris's classification (Leidecker 1946, Graziano 1959, Eaton 1959, LaMontagne 1961, Comaromi 1976, Wiegand 1996 and 1998, Olson 2011).

Whereas Eaton (1959), LaMontagne (1961) and Comaromi (1976) presented Harris's contribution in works that tell the story of the classification developed in North-American libraries in the last century, Liedecker (1946) and Wiegand (1996) highlighted Harris's contribution when they wrote Harris's and Dewey's biography respectively. Based on a more philosophical perspective, Olson (2011), on the other hand, compared Harris's and Dewey's classifications with Bacon's and Hegel's ideas. She reflected on the theory for conceiving a classification logic for library classifications, especially for the Dewey Decimal Classification. Differently from these authors who indentified in their works the influence of Bacon in Harris's classification, Graziano (1959) argued that Harris's and Dewey's classifications did not have points in common with the development of subjects proposed by the Baconian classification, but they were nearer to the logic of Hegel's classification.

This study aims to contribute to this discussion in mainly two aspects: a) highlighting exactly where Bacon's and Hegel's influences are in Harris's classification; and b) highlighting the importance of Harris for the KO studies..

Critical-descriptive analysis of Harris's classification
Harris developed the argument of his classification referring to the ideas of Francis Bacon. According to LaMontagne (1961), Harris had contact with the catalogue available at the St. Louis Mercantile Library, which was elaborated by Edward Willian Johston, who was a librarian and a professor strongly influenced by Francis Bacon. Moreover, as Eaton (1959) and La Montagne (1961) state that the logic of Bacon's classification had been already applied in other important classification schemes, such as Thomas Jefferson's classification (in 1815). Besides, it was previously used as the basis for the classification arrangement of D'Alembert and Diderot's Arts and Science encyclopedia in the second half of the 17th century. Maybe this explains the fact that an idealist philosopher and follower of Hegel took Bacon's empiricist perspective as a starting point for his classification. According to Harris (1870), although Bacon did not have the objective of classifying books, he ended up presenting the starting point for the development of the human knowledge, which was distinctively fundamental to classify knowledge. Such starting point was based on distinct mental faculties, which, according to Bacon, consisted of *Memory, Imagination* and *Reason.* Based on such distinction, Bacon defined three large areas: History related to Memory, Poetry related to Imagination, and Philosophy related to Reason.

Bacon decided to lead his scheme with the "History" group, which would occupy an eminent space in his classification. According to Olson (2011), the Renaissance influence on Bacon's thinking was complemented by a dialectic method. Bacon "considered that Memory was a basic experience repository that when compared and contrasted via Imagination, it could be processed by Reason and transformed in knowledge" (Olson 2011, 7).

Table 1

Bacon's scheme classes

HISTORY
  A Natural History
  B Civil History
  C Appendix to History
POETRY
  A Narratice or Heroic
  B Dramatic
  C Allegorical. Fables, Mithologies
PHILOSOPHY
  A Theology or Divine Philosophy
  B Natural Philosophy
  C Philosophy of Man

Source: Harris (1870)

Although Harris explicitly stated Bacon's influence on his work in 1870, Graziano (1959) emphatically states that Harris's classification is far from Bacon's classification. In fact, Graziano states that his background was fundamentally Hegelian. Graziano's (1959) perspective seems to be supported by the development of subjects in their main classes. This aspect is evident when he shows how the subjects related to *Arts* in Harris's work are closely related to Hegel's *Fine Arts,* but distant from the subjects related to Bacon's *Poetry.*

In any way, as shown hence, Bacon's influence on Harris's classification is dialectic and it refers to the forming idea of knowledge based on the mental faculties of man. In fact, Bacon had the intention of building a knowledge method (an inductive method with an empirical perspective). His main divisions fulfilled the methodological divisions (LaMontagne 1961) and acted as forms of knowledge. Thus, according to Bacon, *form* means "way" and the possibility of approaching knowledge.

The Hegelian idealism focused on the "how" and the "process" may have encountered in Harris's interpretation the dialogue for the Baconian conception of "form" as in "form of knowledge". Authors such as Leidecker (1946), Eaton (1959), LaMontagne (1961) and Olson (2001) already pointed out that Harris combined Hegel's idealist dialectic (based on Being-Essence-Idea) with Bacon's methodological dialectic (based on Memory-Imagination-Reason). Whereas, other authors, such as Graziano (1959) preferred to approximate Harris's classification essentially to Hegel than Bacon.

We prefer to interpret that the universalism of knowledge and the belief in classifications having something natural and non-artificial claimed by Bacon and Hegel, something that is able to reflect or represent reality,, got both philosophers close

in Harris's classification. Thus, we will henceforth highlight how such influences manifest in Harris's classification.

According to Harris (1870), the smallest subdivisions and sections of Bacon's system were *content-oriented,* whereas major classes were *form-oriented.* For example, the general class **History** (way of approaching knowledge) was divided into the classes *Natural History*, *Civil History* and *Appendix to History* (History contents). Similarly, the general class **Philosophy** (way of approaching knowledge) was divided into the classes *Theology*, *Natural Philosophy* and *Philosophy of Man* (Philosophy contents).

However, Harris agreed with the adoption of such division principles, but disagreed with the order established by Bacon. According to Harris (1870), *Philosophy*, which in his time had the form of *Science* "*should come first on account of its furnishing the method and principles*" (p. 119). Hegel's influence on Harris brought a prominent emphasis in Reason. Thus, according to Harris, Science would be the main form of knowledge.

Hegel's logic, which considered three categories of existence, namely *Being, Essence, and Idea* was explained in "Hegel's logic: a book on the genesis of the categories of mind: A critical exposition", published in 1890. In this work, by conceptualizing the *Being* as an illusory condition (that is immediately perceived), the *Essence* as part of a mediation condition (that is apparent and not an independent reality) and, the *Idea* as a superior category, Harris (1890) correlated History to Being as an illusory observation; Arts to the Essence as disillusioned mediations; and Science, Philosophy, and Religion to Idea, as a category that transcends illusory and mediation (Olson 2011). It can be observed that Harris struggled to deal with Bacon's classification under a Hegelian perspective in the sense that Hegel stated that knowledge should be treated like Science to accomplish its truly role (Hegel 2011). Unlike Bacon, who understood that first people remind (memory) themselves, then imagine (imagination), and finally reason (reason), Harris under a Hegelian perspective preferred to give priority to Reason in his scheme, understanding that the rational action should begin with a knowledge classification followed by imagination and memory.
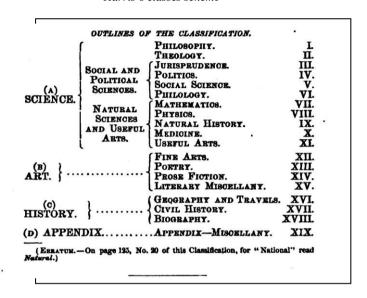
Harris claimed that the classification principle should not be simply based on the objects of study, as it was done in the sciences classification, but in a principle consisting of *form* and *content,* which encompassed concreteness and practicality. To achieve this, Harris (1870) defined some rules (guiding principles) for the construction of *main divisions*, *final divisions*, *appendices,* and *hybrid works*.

After that, Harris presented the structure of his classification based on the following divisions[1]: *Developments of Science (first general division); Developments of Art*

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[1] Harris chooses the term *divisions* over *classes* due to Hegel's influence on his work. In the *Science of Logic*, Hegel adopted this term in the *general division of the logic*, *the division of being* and *the division of concept* to discuss ideas about classification.

(second general division); Developments of History (third general division); and Appendix. Table 2 presents the draft of Harris's classificatory scheme as follows:

Table 2
Harris's classes scheme

OUTLINES OF THE CLASSIFICATION.			
		PHILOSOPHY.	I.
		THEOLOGY.	II.
	SOCIAL AND POLITICAL SCIENCES.	JURISPRUDENCE.	III.
		POLITICS.	IV.
		SOCIAL SCIENCE.	V.
(A) SCIENCE.		PHILOLOGY.	VI.
		MATHEMATICS.	VII.
	NATURAL SCIENCES AND USEFUL ARTS.	PHYSICS.	VIII.
		NATURAL HISTORY.	IX.
		MEDICINE.	X.
		USEFUL ARTS.	XI.
		FINE ARTS.	XII.
(B) ART.	·············	POETRY.	XIII.
		PROSE FICTION.	XIV.
		LITERARY MISCELLANY.	XV.
		GEOGRAPHY AND TRAVELS.	XVI.
(C) HISTORY.	·········	CIVIL HISTORY.	XVII.
		BIOGRAPHY.	XVIII.
(D) APPENDIX	·········· APPENDIX—MISCELLANY.		XIX.

(ERRATUM.—On page 125, No. 20 of this Classification, for "National" read *Natural*.)

Source: Harris (1870)

Some influences of Bacon and Hegel

Harris did not only inherited the formative and structuring idea of Bacon, that relied on the organization of knowledge according to the faculties of the mind, but also the belief that the phenomena or the existing things had the characteristics of being disposal and dynamic, and these characteristics were able to be formally captured. According to Bacon, natural phenomena consist of two parts:

> In one hand, they have a certain disposition, conformation or structure (latent schematism, according to Bacon). On the other hand, they have a dynamics aspect, which make them present themselves in permanent transformation (latent process). Both aspects are connected and have as principle the "form", essential principle of individuation and law that reacts to generation, or production, and movement of the phenomena (Andrade 1999, 16).

According to Bacon, "form" would be the final point of the inductive method, that is, the formalization and consolidation of knowledge coming from an empirical approach that is able to take account of both static and dynamic dimensions of the natural phenomena.

Bringing Bacon's logic to the reality of knowledge classifications, it can be observed that the formalization of Bacon's general classes could be based on the

empirical approach that comes from that kind of thinking that the philosopher used to justifie that man *reminds first*, then *imagines*, and then *reasons.* It can be observed in this justification that the empiricism that is typical of Bacon could be manifested in the idea of knowledge or reason being possible due to the creative experience. Here, the memory-imagination-reason form could capture this path. As stated by Harris (1870), Memory, represented by the class *History*, had a precedence in Bacon's classificatory structure because of the historical approach that in the 17th century was more consolidated than the scientific approach, that was not well defined yet. Imagination is represented by the class of Poetry, whose etymological meaning, according to Harris (1870, 117-118), was "to give determinations to something" or "to shape" and that thus well expresses, in his view, the creative works of the "Productive Intellect"[2].

However, it is worth to mention that if through empiricism Bacon adopted an inductive logic for ordering general classes, he also employed a deductive hierarchical logic that goes from the most general to the most particular. If Harris agreed with the possibility of formalizing the classification of knowledge by means of a structure that is based on the faculties of the mind, and by means of an internal hierarchy that goes from the most general to the most particular (something that is present in Bacon and Hegel works), he certainly disagreed with the empirical order proposed by Bacon, preferring the Hegelian idealism led by reason.

In the Hegelian logic, the universal and the individual should be particular, as the individual content should, by means of particularity, be generalized to the universal (Hegel 2011). Thus, when thinking about the aspects of ordering, and guided by three quantitative moments, namely "individual" (I), "particular" (P) and "universal" (U), Hegel defended the need of adopting a deductive logic (from the general to the specific) and an inductive logic (from the specific to the general). This hierarchical relation *universal-particular-individual* or *individual-particular-universal* would affect not only the classification of Harris, but also the diverse classification schemes that would come after, particularly in the *genus-species* and *whole-part* relations.

To deal with these relations, Hegel (2011) adopted a process of "division" that Harris (1890) interpreted as a process of "classification".

According to Harris (1890), "Classification is a synthetic operation in which is expressed the necessary relation of all the determinations of the universal" (p. 394). To

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2   This etymological interpretation of Harris's for the word *poetry* differs from the idea that the word Poetry is derived from French *poetrie*, from Latin *poesis* and from Greek *poiein and póiesis*, that means "to make, to do, to compose". Probably, Harris's interpretation might be related to Hegel's dialectic, fro whom Poetry was "older than the artistically formed prosaic language", being a "representation of the truth, a knowledge in which the universal was not yet separated", where "the end and means were not yet opposed to be then interconnected by reasoning again" (Abbaggnano 2007, 768). According to Hegel, "Poetry (as all art forms) continues to fall short or below philosophy, for it is only on the later that the absolute Idea reveals itself"(Abbagnano 2007, 768). In this sense, Harris's interpretation of Bacon's and Hegel's poetry emerges as a clear mediating function.

deal with such determinations, the philosopher should look for problems of his own time based on his predecessors and on his contemporaries. According to the North-American philosopher,

> Just as natural science progress by the accumulation of observation and reflection, so philosophy, too, progresses by combining the results of human speculation. In science each observer sees nature through the eyes of all preceding observers, and makes of their reflection in classification and explanation. In philosophy each thinker refines on the systems of those who have gone before, and uses contemporary thought to assist his own definitions (Harris 1890, 17)

Hegel believed that the division of a concept was determined by the concept itself. Thus he assumed that "*division* should be connected to the *concept* or reside in it [...] the concept is not indeterminate, but determined in itself (Hegel 2011, 40). According to Hegel, division would be the judgment of the concept, determined by itself.

Ferrer (2009) appropriately explains this vision of concept division, stating that Hegel's classification is partly empirical, partly rational, and also revealing important aspects at the conceptual level. According to Ferrer (2009), when referring to the classification of beings, Hegel believed that it waspossible to define a "concrete universe" that would be reached by means of an objective process composed by the principle of sociability and recognition of the species. The determination of the specie was not carried out by an external observer, but by the living organism itself. In this aspect, Hegel shows his view against the arbitrarily and artificiality of classifications.

> The living being classifies himself and shows knowledge of his specie as an objective behavior of belonging and recognition. For that reason classification is not an external procedure attributed to a classifier, but it corresponds to an objective reality. Against the "artificial systems", Hegel understands that the determination of the specie is not a simple comparison and weighing of similarities and differences, but it depends of an objective reality of the living being (Ferrer 2009, 39).

In this sense, the classification system would exist because of an objective self-classification, as this would be the only possible way to express a universal knowledge. The arrangement of species that are empirically existent would be captured by a rational scheme with a conceptualization that is inextricably linked to reality. The specie would be at the same time a universal element that is classified together with other empirical singular individuals, and a real determination of nature. Thus, Hegel's living specie would have an ideal and real value, being at the same time knowledge and being (Ferrer 2009).

In Hegelian idealism, the system is treated more as a general universal and such totality is at the same time ideal and real.Here the ideal is determined by the objective relationship of each real moment and the real moment receives a place of its own in the universal system. In this perspective, while thinking about the philosophical classification of concepts, Hegel stated that the philosophical division is not an external classification of an available subject matter based on division foundations, but the differentiating characteristics that are inherent to the concept itself (Ferrer 2009).

Inserted in such idealist conception, Harris designed his classificatory scheme moved by the will of organizing thematically the book collection of St. Louis Public School Library, reflecting upon the book subjects and how they were related to each other at the universal system of knowledge (as shown in Tables 2 and 3). Although unstated, the idealist influence of a universal whole, which captured the rational ideal as the empirical real, was present in the class definition of Harris's system.

Olson (2001) explains that one of Hegel's influences on Harris's classification relies in the correlation between Hegel's three categories of existence and Harris's three general categories: *History* associated to *Being* (how something is immediately perceived); *Art* with *Essence* (as a mediation condition) and; *Science* with the *Idea* (category which transcends perception and mediation). Thus, it is possible to observe that Harris classified his subject universe according to a perspective in which *Science,* when transcending perception and mediation (Harris 1890), became the main class and responsible for the archetypes of knowledge (Harris 1870) similarly to the category *Idea,* which is the main and absolute category in the Hegelian idealism. This would be the main reason for Harris's inversion of Bacon's order.

Knowledge such as *Philosophy, Theology, Social Sciences* and *Natural Sciences* would not be mere mediations or perceptions, but knowledge responsible for defining models.

As for the *Fine Arts, Poetry, Prose* and some *general works of Literature, they* fulfill the role of creative and productive imagination and they were considered knowledge of mediation (*Essence* category) that belong to the second general *Art* class. *Geography and Travels, Civil History and Biography,* that belong to the general class *History,* play the role of knowledge responsible for the memory in Harris's classification, immediate perception (*Being* category).

Table 3

Harris's classes

SCIENCE
Philosophy
Theology
Social & Political Sciences
 Jurisprudence

 Politics
 Political Economy
 Education

 Social Science
 Philology
Natural Sciences & Useful Arts
 Mathematics
 Physics
 Natural History

Medicine
Useful Arts and Trades

ART
Fine Arts
Poetry
Prose Fiction
Literary Miscellany

HISTORY
Geography and Travels
Civil History
Biography

APPENDIX Miscellany

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Based on Harris (1870)

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It can be observed that the first general class *Science* was more developed than the other two general classes *Art* and *History*. Just like Hegel gave prevalence to the category *Idea, that* transcends the immediateness of perception and the illusion of mediation, Harris gave especial attention to the class *Science*. According to the American author, such class defines models and forms, provide schemes of knowledge possibilities, and create methods. Harris's philosophical formation and the latent Hegelianism on his ideas possibly prevented him from taking another way than giving *Science* (associated to Hegel's *Idea*) a fundamental prominence in the classification of knowledge, and giving *Art* and *History* the roles of mediation and perception. Thus, it can be observed a Hegelian-oriented classification, that also had Bacon's historical and empiricist perspective as a starting point.

In other words, Harris classification, that is based on the belief that it is possible to define a universal as a whole, composed by the real and the ideal, formalizes an idealist view of the universe of knowledge based on Bacon and Hegel formative ideas. Thus, Bacon's empiricist dialectics and Hegel's idealist dialectics are translated to the library classification by means of Harris's book classification, that can be understood as a significant relation between Philosophy and Library Sciences in the 19th century.

Based on this analysis, it can be stated that using Bacon, Harris adopted the formative idea of knowledge based on the faculties of the mind and the deductive hierarchy, that order the subjects internally from the most general to the most specific. It should be mentioned that Bacon and Hegel believed that it was possible to capture a form that defined the structure and dynamics of knowledge.

Based on Hegel, Harris inherited the focus on the *Idea,* reason modeled by *Science, that* made his classification logically idealist. This focus on sciences led Harris to

invert the Baconian classes, giving more importance to reason, as it was prominent in the 19th century and in the Hegelian perspective.

Questioning as conclusion

The universalism claimed by Bacon, present on his *latent schematism* and *latent process*, and by Hegel, present on his *idealism* of a *rational conception* combined with an *empirical reality*, brought both philosophers together in the belief in the possibility of classification that has something natural and non-artificial, something that is able to reflect or represent reality as it is and in a rational way. Such idealist ambition of classifying a universal knowledge to represent the reality of things is strongly present in Harris's classification.

However, since the 20th century Western academic thinking has been questioning universal systems of knowledge. For instance, Émile Durkheim (1858-1917) stated that the categories of thought would be in constant movement and definitely linked to time and space (Burke 2003), that is, classifications would be cultural. Another example is Michel Foucault's (1926-1984) idea of classification. When approaching Natural History, he makes evident the arbitrariness in naming, structuring, and characterizing the elements that classified.(Foucault 2007). These are just two examples of how in the 20th century classification cultural and non-natural aspects were discussed and taken into account.

In the 21st century, Knowledge Organization (KO) scholars such as Olson (2001) and Mai (2004, 2011) clearly present cultural influences to classification too, as a result of reflecting on theclassification that best meets the contemporary demands of information.

If the theoretical universe of KO has been properly denying universalism to knowledge, and especially, denied naturalness to classification, what would be the actual legacy of Harris in the epistemology of KO? What would be the contribution of a classification based on Bacon and Hegel to the current epistemological discussions of KO?

Far from aiming to reconnect the prevailing idealist views of the past with the development of current Knowledge Organization Systems (KOS), our study considers that Harris's legacy for the epistemology of KO is in the historical dimension of one of the main fields of knowledge organization, namely library classification. In fact, Harris can be seen as one of the main characters responsible for relating Philosophy and library in the history of library classification. Thus, this study just intended to present how the relation between Bacon's and Hegel's ideas became present in Harris's classification.

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