RESEARCH ARTICLE

Description: Its meaning, epistemology, and use with emphasis on information science

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Abstract

This study examines the concept of "description" and its theoretical foundations. The literature about it is surprisingly limited, and its usage is vague, sometimes even conflicting. Description should be considered in relation to other processes, such as representation, data capturing, and categorizing, which raises the question about what it means to describe something. Description is often used for any type of predication but may better be limited to predications based on observations. Research aims to establish criteria for making optimal descriptions; however, the problems involved in describing something have seldom been addressed. Specific ideals are often followed without examine their fruitfulness. This study provides evidence that description cannot be a neutral, objective activity; rather, it is a theory-laden and interest-based activity. In information science, description occurs in processes such as document description, descriptive metadata assignment, and information resource description. In this field, description has equally been used in conflicting ways that mostly do not evince a recognition of the value- and theory-laden nature of descriptions. It is argued that descriptive activities in information science should always be based on consciously explicit considerations of the goals that descriptions are meant to serve.

1 | INTRODUCTION

Descriptions are important elements in everyday life, the professions, and sciences, including information science and related fields. A description is a result of the act of describing something, and the word "description" also used about the act itself.

Wiktionary (2022) wrote as part of its first definition that a description is an "enumeration of the essential qualities of a thing or species." Like most dictionary definitions, Wiktionary does not specify what counts as a description in contrast to other forms of predication. Nordquist (2019) provided an alternative definition: "In composition, *description*

is a rhetorical strategy using sensory details to portray a person, place, or thing." From our survey of the literature, we found that these two ways of understanding description represented competing conceptions. To reiterate:

- The broad, generic view: Descriptions are enumerations of properties of the things described. For example, "John is a lawyer" is a description of John.
- The narrow, specific view: Descriptions are enumerations of properties of the things described based on observations or inspections of those things. For example, "John is blue-eyed" is a description, whereas "John is a lawyer" is a predication, but not a description.

Description is often used for any type of predication but may better be limited to predications based on observations. Although the broad view corresponds to the etymology and is an often-used sense of the word, this study argues that the narrow view provides a better basis for distinguishing different types of processes. Such processes include representation, data capturing, categorizing, and evaluating. In information science, as we shall see, the broad definition makes it impossible to distinguish, for example, document descriptions from subject assignments.

The rest of the article is organized as follows: Section 2 presents issues in the epistemology of describing, including the challenges of description in different disciplines. It contains two subsections: 2.1 Lessons from natural history and 2.2 Epistemological principles. Section 3 focuses on description in information science, which is understood as synonymous with the broad interdisciplinary field of information sciences, including library and information science, knowledge organization, bibliography, archival science, museology, and other related fields. It is organized into the following subsections: 3.1 Document description; 3.2 Descriptive cataloging in libraries and descriptive bibliography; 3.3. The idea of complete descriptions of documents; 3.4 Metadata; 3.5 Description in archives; 3.6 Museal description; 3.7 Document description languages and 3.8. Automated descriptions. Section 4 presents the conclusions of the study, with a classification of four core epistemological positions and their associated views on description.

2 | THE EPISTEMOLOGY OF DESCRIPTION

Description is a process in which a subject (human or machine) describes an object.[1] Description in the narrow sense presupposes that the subject "observes," "perceives," "experiences" or inspects[2] the object (i.e., sees, hears, smells, tastes, and/or feels the object), either qualitatively or quantitatively, directly or through an instrument, such as a microscope or x-ray apparatus, and it may thus include measurements. Describing, in this sense, means to express observations in a language (e.g., in a natural language, using scientific or professional terminology, or a broader sign system). We do not have direct access to other people's observations, but only to their reports or data about their observations. Therefore, descriptions, rather than observations, are points of departure for scientists who analyze, compare, and interpret descriptions (as well as other forms of objects).

The process of describing an object (e.g., a bird or a book) is one of many possible acts which can be done in relation to that object, such as naming, comparing, classifying, or evaluating it, indicating its ownership, location, or provenance, or, in the case of a document, determining its subject. Some of these processes are often mixed up in the literature; however, it is important to distinguish them to optimize the functions of their individual descriptions (e.g., in information systems, as discussed later). Additionally, it is important to consider the different types of knowledge and expertise involved in optimally performing each process.

Furthermore, it is important to consider whether a description is (or can be) an objective representation of an object or whether it is bound to be subjective and hence influenced by the subject who makes the description. In the latter case, a new question arises: what is done/should be done to minimize unfruitful subjectivity in descriptions? The answers to these questions differ among scientists and philosophers of science, as we shall see below, and such answers have important consequences for how descriptions should be made, both generally and particularly in information science. Descriptions are important; however, the processes underpinning them are often ignored.[3] An important philosophical issue is the "theory-ladenness" of observations,[4] because if observations are not independent of the views of the observer, descriptions cannot be objective.

In philosophy, Bertrand Russell's theory (Russell, 1905, 1911) dominates writings about description (see, e.g., Ludlow, 2022; Neale, 1998). However, it seems that this theory has neglected the difference between description and other forms of predication and has focused on issues that have not been related to or contributed to the way descriptions are understood and applied in the empirical sciences. Therefore, we chose not to consider this theory further.

In rhetoric and composition, Crews (1977, p. 13) considers description as picturing one of four rhetorical modes along with narration (or telling), exposition (explaining), and argument (convincing). Crews defined (ibid.): "A *descriptive* essay aims to *make vivid* a place, an object, a character, or a group." Kane and Peters (1986, p. 95) distinguished objective description from impressionistic description: "Description is the art of translating perceptions into words. Thus, all description involves two elements: the object—that which is seen or heard—and the observer—he or she who sees or hears it. According to which predominates, description is of two basic types: objective and impressionistic."

2.1 | Lessons from natural history

Natural history occupies a prominent place in the epistemology of description by providing theoretical arguments about how best to describe organisms. Ogilvie (2006) traced natural history to the humanities, because Renaissance philologists began studying classical texts and compared the descriptions of plants and animals in

those texts with those they could observe in nature. Gradually, this developed to an interest in identifying and describing organisms independent of classical texts (and thus natural history evolving to become independent of philology). In the sixteenth century, naturalists developed complex observation technologies, including the use of field expeditions, gardens, herbaria, notes, and books. Their focus was not on the classification, but the description, of organisms (it was the successors of Renaissance naturalists, who faced the difficult problem of making sense of the many descriptions, and therefore introduced a new age of systems, rather than of descriptions). Ogilvie (2006, p. 207) wrote about this process of describing:

> [P]ractitioners seek to distinguish between the essential and the superfluous aspects of their objects of study and to represent only the former. But Renaissance naturalists carried this process to an extreme, providing an increasingly detailed account of the morphology of the natural world—especially of plants—while systematically eliminating or reducing the presence of color, odor, taste, and other qualities that had earlier been a vital part of description, when the scholarly study of plants was almost wholly a branch of *materia medica* [the study of substances used in the composition of medical remedies].

Although the above quote is sufficient to demonstrate that the descriptions made by Renaissance naturalists were not neutral representations of the described objects, another example further demonstrates the principle of the theory-ladenness of observations. Ogilvie (2006, pp. 265 ff.) explains that the Renaissance naturalists knew and described such carnivorous plants as the sundew, but that the idea that plants were sensitive and even had behavior directed to a specific end conflicted strongly with Aristotle's philosophy, and thereby also with the assumptions of the naturalists. They never described insects by the plants; their descriptions seem to be influenced by their theoretical assumptions.

Ogilvie (2006, pp. 268 ff.) further explored how the descriptions by Renaissance naturalists were formed by motives such as aesthetics and the desire to possess as many and varied things as possible, to describe and love the particular,[5] and toward a less immediate experience of nature in situ, but more inclination to study things in collections, such as gardens, herbaria, and books. This tendency supported the study of similarities and differences, and the placing in order of many individual species. Ogilvie (2006, p. 270):

> [I]n their scholarly publications naturalists took a scalpel to nature, cutting plants and, to a large degree, even animals out of their contexts. Naturalists were aware of some of the associations of plants and animals that comprised the ecology of Europe, but a science of ecology would have to wait until the nineteenth century.

We have now seen how the descriptions made by Renaissance naturalists were influenced by certain goals, technologies, and underlying assumptions—and, for example, how descriptions better suited for ecology had to wait until a later time in history.[6] What about contemporary descriptions of organisms? How are they made and what are the criteria for good descriptions? We note firstly that all new species are described (or diagnosed)[7] and recorded in the literature, and the first published description or diagnosis is simply the official recognition of that species. An important principle is that an original species description should include a reference sample (a "voucher specimen"). The type of an organism is the name bearer, which connects the voucher specimen with a name and published description. This stems from an epistemological insight that specimens that have been considered the same species could later be deemed different species. (This was first recognized after Linnaeus, who did not care to preserve the original specimens, but often replaced them with "better" ones).[8]

Winston (1999) presented how species are described today, with reference to concrete examples. Although some practices are recognized and influential, there is no consensus on the best way to describe plants and animals. According to Winston (p. 36), conflicting goals make total agreements impossible:

> [O]ur present system can never be perfected because it incorporates two conflicting goals: the need to provide each organism with a unique and stable name and the need to place that organism in a biologically satisfying classification. Until all organisms on earth are identified and described, it is clearly impossible to do both.

However, there are different epistemological ideals that influence biologists to describe organisms differently and which may imply that, even in the case that all species were identified and described, there would still be disagreements. Some biologists are more positivist/empiricist and want to let observations or data speak themselves, while others are more hermeneutic, deny that data speak, and therefore make descriptions informed by theoretical choices. The approach known as

numerical taxonomy (Sokal & Sneath, 1973) is a clear empiricist position, which does not, by principle, make a distinction between essential and non-essential properties. Conversely, the position of Charles Darwin (and his contemporary followers) is based on evolutionary theory, implying that certain characteristics (homologies) are considered more essential than other characteristics (analogies) (see further in Richards, 2016). Having illuminated the question of the objectivity versus subjectivity of descriptions in biology, we shall further explore issues in epistemology.

2.2 | Epistemological principles

Kröber and Segeth (1976, p. 214; translated from German) criticized the idea that descriptions should be complete:

> The mere description of facts, declared by positivism as the sole task of science, defines the concern of science too narrowly in the sense of what has been said above [not included in the present article]. In addition, the complete description of a phenomenon that positivism demands is not only impossible but also unnecessary. It is impossible because the phenomenon with its infinite variety of properties and relations to other phenomena would require an infinite number of descriptions, and it is unnecessary because scientific knowledge and the practical activity of people do not depend on an equally detailed description of the essential and inessential, the necessary and contingent, and the general and individual properties and relations of the phenomenon. Instead, it depends on knowledge of the essence of the general in the individual, and of the necessary and lawful in the contingent. The description can, therefore, only fulfil its function if it is not made absolute and detached from other scientific knowledge processes and means, such as explanations, hypotheses, and prognoses, but is seen and practiced in association with them.

What is described as "positivism" in the above quote may better be called empiricism, because logical positivism can be understood as a combination of empiricism and rationalism, each of which has different ideals concerning descriptions, as is further described in the conclusion of this study.

As already mentioned, Kane and Peters (1986) distinguished objective from impressionistic descriptions. However, it may be impossible to say with certainty that a description is not influenced by the describer, his/her context, purpose, and tradition. For example, many descriptions that were at one time thought of as objective, have been uncovered by feminist scholars as reflecting subjective, male perspectives (see Harding, 1992). Therefore, the view that something is objective is a hypothesis which possibly may later be uncovered as situated. Researchers trained in a "paradigm" (Kuhn, 1962) tend to take their own view for granted and thus be blind to their own situatedness. Daston and Galison (2007) described how the norms of description and objectivity change over time. For example, researchers were almost in consensus about depicted objects, ranging from snowflakes and falling drops of mercury, being symmetrical until the invention of the camera, and their book contributed to our understanding of objectivity as being a relative ideal, related to Kuhn's (1962) and others' view about how observations are "theory laden": We cannot observe or describe things from "a point of nowhere."

We saw in Section 2.1 how theory-ladenness has influenced and continues to influence the description of organisms in biology. Similar examples can be found in all other domains. In the field of arts history, for example, Ørom (2003) described how different "paradigms" in arts studies describe and organize works of art differently. In addition, art historian David Summers (1989, p. 372) found that although some of the language about art is unproblematic and iconography provides fairly definite procedures by which conventional subject matters in pictures may be restored and deciphered, art descriptions become more complicated when we approach what is called "form," which, however, cannot be avoided because it is at the "formal" level that we usually talk about both expression and style in art. Summers argued that contemporary art descriptions are based on different versions of essentialism, with a serious bias based on nineteenth-century metaphysical categories, and that art historians seldom examine the implications of their own habits of interpretation.

The lack of objectivity discussed so far does not however imply that we cannot differentiate between good and bad descriptions. Gerring (2012, p. 746) wrote about good descriptions in political science:

> Good description is closely hinged to normative judgements about the world—to what we think is important and what we think is right or wrong, desirable or undesirable. It is difficult to separate the concepts that govern theoretically driven description—concepts

like democracy, governance or stability—from these normative concerns. It follows that a re-engagement with description may also involve a re-engagement with the normative underpinnings of political science [...] a topic often swept under the rug in causal analyses.

Marcus, Love, and Best (2016, p. 6) wrote the following about bad descriptions:

> Bad describers observe, count, measure, copy, list, and catalog objects with either stultifying exhaustiveness or selective incompleteness that is often ideologically motivated. Bad describers aspire to detachment from their human limitations, or lack of insight, imagination, or intelligence needed to explain, predict, evaluate, or interpret. They sever what they describe from larger contexts or histories, seeking to pin things down and contain them rather than to capture their flux. They produce bad descriptions because they are pedants; because they seek institutional power and rewards through claims to objectivity; or because they naively believe that words, images, or numbers can adequately represent worlds.

In phenomenology and widely in qualitative research across disciplines, the term "thick description" is common, but often used in an unclear meaning. The concept was first used by philosopher Gilbert Ryle (1949) but not by that term, which appears for the first time in his two lectures, Ryle (1968a, 1968b). Ponterotto (2006, p. 535) found that Ryle's, "thick" description involves understanding and absorbing the context of a situation or behavior and ascribing present and future intentionality to the behavior. This example is also an indication that different positions in philosophy, for example, phenomenology versus logical positivism, and different methodologies (qualitative versus quantitative research) tend to have different ideals about descriptions.

Positivism is often described in elementary textbooks as a realist position, assuming an objective world that can be described objectively using positivist methods. This is, however, a problematic understanding, and we shall again refer to Harding (1992), who distinguished between the "weak objectivity" of positivism as contrast to her own "strong objectivity." She argues that claimed neutral and objective science has often produced rampant sexist and androcentric bias, "politics," in the dominant scientific descriptions and explanations of nature and society, versus

the surprising fact that politically guided research projects have been able to produce less partial and distorted results of research than those supposedly guided by the goal of value-neutrality. (See further Hjørland, 2020).

As already stated, a description considered objective must be deemed a hypothesis that may be falsified. In addition, an object can have an unlimited number of characteristics; therefore, any description of it is always incomplete. To say that a description should resemble the object is insufficient because, as Popper (2005, pp. 441–442) and others have pointed out, similarity is a relative concept; any two objects are similar in some ways and dissimilar in other ways, and there are no limits to the possible types of similarities. Therefore, it is necessary to determine the criteria of similarity relevant for a given purpose.

Bateson (1977, p. 147) wrote a clear statement about the epistemology of description that can stand as a conclusion for this section:

> You can never get away from theories of the nature of description whenever, wherever you have descriptions. All descriptions are based on theories of how to make descriptions. You cannot claim to have no epistemology. Those who so claim have nothing but a bad epistemology. And every description is based upon, and contains implicitly, a theory of how to describe. The Cartesian coordinates contain a theory of how to describe, and for many purposes, I believe, it is an inappropriate and dangerous theory.

Bateson's quote means that any description regarding a specific field does not only depend on the knowledge (theories) of that field, but also on the understanding (theories) of description itself. We have shown examples of how descriptions in different domains are influenced by different purposes, technologies, interests, traditions, and paradigms, and that descriptions are imbued with epistemological issues. The key points made correspond to theory-laden observation, incompleteness of description, historicity of knowledge, and the role played by interests, to which we return in the conclusion. Now, we consider descriptions in information science.

3 | DESCRIPTIONS IN INFORMATION SCIENCE

Terms like document description, descriptive bibliography, descriptive cataloging, descriptive metadata, and information resources description are well known examples of the use of the term "description" in information

science. This section of the article discusses the meaning of "description" in librarianship, bibliography, internet technologies, archives, and museums, and considers the epistemological challenges of providing and evaluating descriptions.

3.1 | Document description

In information science, the term "document" is used in a very broad sense about "any physical or symbolic sign, preserved or recorded, intended to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon" (Buckland, 2018, p. 426). Such a generalized concept is important because it allows consideration of the theoretical aspects of document description in general, although the term "record" is mostly used regarding archives, "publication" within libraries, "object" within museums and "data" or "information" in relation to digital resources. Here, "document description" is therefore an encompassing concept for descriptions in libraries, archives, museums, and databases, among other contexts.

"Document description and representation" was the title of a series of articles in the Annual Review of Information Science and Technology (ARIST): Artandi (1970), Vickery (1971), Richmond (1972), Batten (1973), and Harris (1974). ARIST was published from 1966 to 2011.[9] Before 1970, the topic was covered in articles labeled "Content Analysis, Specification, and Control" (e.g., Baxendale, 1966). After 1974, no articles including "document description" in their title were published in ARIST, but the topic was partly covered in a scattered manner under many different labels; for example, "Bibliographic Standards" (Schmierer, 1975).

Having a generic concept of document description (including pictures, music, and scientific formulas) is important. However, despite their inclusive outlook, the ARIST chapters did not fully cover the broad concept of document description,[10] and as described below, the concepts "description" and "representation" were used in ARIST in unclear, even conflicting ways.

Artandi (1970) used the broad sense of "description" and thus did not differentiate data originating from observations from data merely predicating properties to documents; it did not consider the traditional distinction between descriptive and subject cataloging, but (Artandi, p. 144) identified description with subject analysis (which is opposite to cf. Richmond, 1972, below). This first chapter titled "Document Description and Representation" does not indicate what the difference is between describing and representing a document. The second one, Vickery (1971, p. 113), however, maintained the traditional distinction, but included abstracting as a descriptive process.

Richmond (1972) stated that the six former ARIST articles focused on representation at the expense of description of documents, an omission she claims to be remedied in her article. Her differentiation between "description" and "representation" is, however, unclear, as she uses "description" for traditional "descriptive cataloging" in libraries and "representation" for "subject cataloging," which, as stated, is the opposite approach to Artandi (1970). Batten (1973) followed Richmond's concepts but declared that "the terminology of information science is still in a bad way." He included in document representation their surrogation, condensation, categorization, and classification. Finally, Harris (1974, p. 83) wrote:

> This reviewer has avoided choosing between description and representation as labels for these questions, since either choice seemed artificial. After some mulling over the dichotomy, the reviewer has tentatively concluded that a more valid distinction might be between access points (perhaps subdivided into subject and not subject) and document description.

We must therefore conclude that the articles in ARIST titled "Document Description and Representation" are confused about the meaning of these two terms and have not contributed to the aim of this study at clarifying the concept of description in information science. Here, the following clarification is suggested: A document may be represented in a database by, for example, its title, abstract, ISBN, or URL. In addition, a full bibliographical record (or entry) is a representation of a document. A full-text document may be represented in the index of search engines, where every word in the text (except stop words) is part of its representation. What is used to represent a document may be derived from the document itself, captured from other documents (e.g., cited documents), or assigned by information specialists or users (the latter by tagging). Processes used for producing elements for records may involve descriptive and other types of processes. For example, assigning a URL to a document, does not describe the document, as we have defined the narrow meaning of description.

Next, we consider how "description" has been understood in library cataloging as well as in descriptive bibliography.

3.2 | Descriptive cataloging in libraries and descriptive bibliography

In libraries, two process have usually been distinguished: "descriptive cataloging" on the one hand and "subject

cataloging" (classification and indexing) in contrast (see Dobreski, 2021). Reitz (2004) emphasizes the difference between the two processes in the following definition:

> **Descriptive cataloging**
> The part of the library cataloging process concerned with identifying and describing the physical and bibliographic characteristics of the item, and with determining the name(s) and title(s) to be used as access points in the catalog, but not with the assignment of subject headings and genre/form terms. In the United States, Great Britain, and Canada, descriptive cataloging is governed by Anglo-American Cataloguing Rules (AACR2) [and its successor Resource Description and Access, RDA].

The main reason for the differentiation between descriptive and subject cataloging is that the former is typically performed by general librarians trained, among other things, in the standards mentioned by Reitz, while the latter is typically performed by subject specialists, as emphasized by Reitz (ibid.) in her definition of subject analysis:

> Subject analysis: Examination of a bibliographic item by a trained subject specialist to determine the most specific subject heading(s) or descriptor(s) that fully describe its content, to serve in the bibliographic record as access points in a subject search of a library catalog, index, abstracting service, or bibliographic database.

Therefore, large libraries typically have had separate departments for descriptive and systematic cataloging,[11] staffed with respectively general librarians and subject librarians. A similar distinction can also be found in subject bibliographical databases such as MEDLINE.[12] These two library processes have their parallels in the field of bibliography, where a distinction exists between "descriptive bibliography," which describe documents as physical objects, and "subject bibliography," which compiles and characterize documents, emphasizing their subject. Whereas descriptive bibliography is primarily based upon knowledge about techniques of book production, subject bibliography is primarily based on subject knowledge (and some bibliographers, including Cowley (1939, p. 6), did not recognize subject bibliography as a type of bibliography).

It should be noted, however, that these two processes have not always been distinguished: there has also been a tendency to consider classification and indexing as just parts of descriptive cataloging. Correspondingly, the need for different types of expertise has not always been recognized, partly influenced by both economic issues and by conflicting interests between the two types of professionals. However, here our concern is determining which (if any) of the two processes fits the term "to describe" (or if they both do)? Within the context of our narrow definition of description, this issue becomes complicated.

One part of descriptive cataloging/bibliography clearly meets the condition for acceptance as description in the narrow sense, based on observation and inspection. There is a long tradition of emphasizing physical descriptions in both analytical bibliography and library cataloging, including properties such as size, number of pages, the presence of illustrations, maps, and/or accompanying material. This is clearly a descriptive process. However, in the analytic bibliographic tradition, the title, pages, colophons etc. of books were often precisely described or reproduced, e.g., using an approach known as quasi-facsimile (see Bowers, 1949, pp. 135 ff.) This raises the question whether copying (parts of) a document or transcribing (e.g., using another typography) are considered descriptions? Our suggestion is that a mechanical copying of a document or an automatic conversion of a text from one font to another are not descriptions (but rather copies and conversions).

Other parts of what has traditionally been called descriptive cataloging may include assigning standardized entries from "authority files," such as adding birth years to author names to disambiguate them or to provide other information by capturing data from other sources. Such activities are not based only on observing/inspecting documents; they assign predicates rather than genuine descriptions. We may therefore conclude that the widely established term "descriptive cataloging," is not well named because it includes processes that are not descriptive. Wilson (1989, p. 15) seems to have recognized this, when writing about a needed reconceptualization "of the task of what hitherto has been called descriptive cataloging" (without going further into this issue.) We are not aware that others have criticized this term. It must be emphasized, however, that it is still beneficial to consider "descriptive cataloging" in contrast to subject assignment because these processes, whether description, copying or capturing, are relatively independent of subject knowledge. To motivate the traditional distinctions, we suggest considering their different functions:

- Traditional "descriptive cataloging" in libraries mainly enable (1) precise identification of specific works, editions, and manifestations, and (2) known item

identification, which is the identification or verification of a work, about which some data are known, such as author, title, language, printing year, and/or place of publication (e.g., a translation of Shakespeare's Hamlet into Danish).

- Subject cataloging mainly enables identification of potentially unknown relevant documents for potential queries.

From a functional point of view every type of data provided in a record should be justified by its function, in contrast to what Kröber and Segeth called "positivism": to aim at a complete or neutral description of a phenomena. The functional principle was probably first used in relation to document description by Konrad Gesner[13] but more recently by Henkle (1946) (or rather by Lubetzky).[14] In Lubetzky (2001, p. 48), the editors wrote:

> Studies [Henkle, 1946] was a landmark in the history of Anglo-American cataloging. To begin with, it was notable for the approach it took. This was a systematic approach, which took its departure from the assumption that before describing a book it is necessary first to be aware of the objectives that description is to serve. Only then it is clear what is and what is not to be included in a bibliographic record. Only with an awareness of the objectives is it possible to evaluate existing rules and to make proposals for change.

We now consider subject classification and indexing. Are these descriptive processes? It is sometimes considered so: if the subject of a document is confused for the words and concepts used in the document, then subject cataloging could be considered a descriptive process. However, as Bernier (1980) explained, subject indexes are different from, and can be contrasted with, indexes of concepts and words. Subjects are, according to Bernier, indicative of what authors are working and reporting on. A document can have the subject of "chromatography" if this is what the author wishes to inform about. Papers using chromatography as a research method or discuss it in a subsection do not have chromatography as their subject. Indexers can easily drift into indexing concepts and words rather than subjects; however, this is not good indexing. Bernier provided an important clarification; nonetheless, it also needs to be considered in relation to the approach known as "request-oriented indexing" (see Hjørland, 2017). According to this view, the indexer should not just communicate what the author wishes to inform about; rather, subject indexing should consider what potential readers want to be informed

about (we cannot assume that users are always seeking documents for the same reasons they were written by their authors). Based on these insights, we conclude that subject cataloging is not a descriptive process (rather, it is a selection process). We have now established that only parts of so-called descriptive cataloging are description in the narrow sense, and that subject assignment cannot be considered document-description.

3.3 | The idea of complete descriptions of documents

Examples of the view that Kröber and Segeth called "positivist" include Bowers (1949, p. ix), who wrote that "there seemed every reason to attempt to consider in detail a complete description of large scope such as would be found in an ideal intensive bibliography." Another example is from the International Federation of Library Associations and Institutions [2021]: "National bibliographies are a permanent record of the cultural and intellectual output of a nation or country, which is witnessed by its publishing output." However, the idea of a permanent record is problematic because, as Wilson (1968, p. 33) argued, we cannot describe writings in sufficient detail to allow future evaluation on the basis of our descriptions alone, because we cannot know what characteristics of writings will be of decisive importance in future situations. Line (2005, pp. 110–111) also expressed a critical attitude toward "comprehensive or perfectly accurate bibliographic records":

> AACR2 [Anglo-American Cataloging Rules, 2nd ed.] is one of the most remarkable examples of trying to solve a problem by [a] committee, with predictable results. The committee did not even tackle the right problem—what users surely want is not comprehensive or perfectly accurate bibliographic records, but far better subject access to books, comparable with that provided for scientific journal articles by the large international databases.

Line's criticism points to the fact that subject bibliographical databases have made quite other priorities compared to library catalogs. It is surprising and alarming how poorly subject databases and other scientific information systems are included in textbooks about the organization of information (e.g., Joudrey et al., 2018) and how little the perspectives from such databases have influenced not only library cataloging but have gradually come to dominate large areas of information science.

There is a second way in which librarianship suffers from the completeness syndrome, with Cutter's (1904) rules playing an influential role. Among the rules is (Cutter, 1904, p. 10) that the role of catalogs is to enable users to find a book of which the subject is known or to show what the library has on a given subject. However, research in information science measuring "recall" and "precision" has shown that these are impossible goals. No subject search in a large collection can be 100% exhaustive, no single subject access point is sufficient (Hjørland & Kyllesbech Nielsen, 2001), and library catalogs provide much less granularity compared to subject databases. What classification and indexing can do, is to facilitate users' possibility of finding materials on chosen subjects, but this requires different types of access points compared to those offered by library cataloging. This problematic view of subject cataloging, that it can by itself satisfy requests and show what relevant documents a library contains, may be the reason libraries have hesitated to provide better subject access, for example, in the form of providing table of contents of books (Hjørland, 2022). There is much reason to believe that—although highly impracticable—the ideal of complete descriptions of document is pervasive. Therefore, significantly more detailed analysis of goals, and the means to obtain those goals in information retrieval systems is required.

3.4 | Metadata

Metadata, often defined as "data about data," is a term that became influential from the 1990s, in the wake of developments on the Internet. In information science and knowledge organization, metadata is now used to include data produced by "descriptive cataloging" and "subject cataloging"; however, it is used in a broader sense of "information resources description" (Joudrey et al., 2015, p. 15; Hider, 2018). It is widely understood as a new, but broader term for a task librarians and information specialists have always performed (and includes new types of data). Hence, much of what is discussed in this subsection is applicable to the other subsections.

Metadata are often, as noted by Zeng and Qin (2022, pp. 19–23), classified into administrative, descriptive, preservation, technical, and utility metadata (or related groupings). The authors state that descriptive metadata is the most prevalent and traditional type (Zeng and Qin, p. 20):

> Describing a publication, for example, means capturing essential information such as title, creator, keywords, date of creation or

publication, and type of resource. This process usually follows certain standards that control which data need to be captured and how that data should be entered into a computer-readable format. Cataloging records, finding aids, and curatorial information are all primarily descriptive.
> Descriptive metadata's main purpose is to assist users in finding, identifying, selecting, and obtaining information resources.

We see that Zeng and Qin (2022) and most of the literature on metadata do not distinguish between physical/bibliographic descriptions on the one hand and subject analysis and -assignment on the other side, as we saw in the case in librarianship and bibliography. The literature on metadata rather loosely portrays its concepts and does not aid our aim at clarifying the process of description. In addition, it is dominated by epistemological points of view which can be characterized as rather "positivistic." Dahlgren (2022), whose focus is on metadata images, supports this point.

Dahlgren compares the principles and practices of metadata assignment to images by information specialists (in library and information science, archival science, and museology) with the points of view of humanistic scholars who use images in their professional work. Additionally, she emphasizes the need to illuminate the epistemology of different ways of thinking about image descriptions. The article discusses "an ontological gap" between these two types of professionals and found that the perspectives of information specialists (and the literature about metadata standards and systems) are dominated by a view of metadata descriptions as aiming at being clean, clear, neutral, objective, standardized, universal, and effective. One of the influential theories is that of Shatford (1986), based on art historian Erwin Panofsky's image interpretation schema for image descriptions (Panofsky, 1939), on which Dahlgren (2022, p. 9) wrote:

> Panofsky's model comprises three levels of meaning in images; the pre-iconographic (natural subject matter, description), the iconographic (based on educated knowledge, analysis), and the iconological level (intrinsic meaning, interpretation). A clue as to why interpretation is downplayed in the information management discourse can be found here. As Shatford points out, the iconological level 'cannot be indexed with any degree of consistency' as it 'tends to represent a subjective analysis of the picture on the part of

the indexer'. However, the pre-iconographic and the iconographic levels are usable in the production of metadata and the preferred level is the iconographic as it will typically encompass the generic content included in the pre-iconographic level (Shatford, 1986, p. 47).

In contrast to information specialists' aim at objectivity, Dahlgren (2022) described how humanistic scholars presently base their research on an epistemology that emphasizes forms of subjectivity and historicity. She found that subjectivity cannot be avoided, as Shatford (1986) attempted, because "even the most 'basic' pre-iconographic description of an image is steered by one's individual expertise and interest."

Dahlgren's overall point is that a general shift has taken place in the humanities,[15] from an objectivist view influenced by information theory to a perspective influenced by, among other, semiotic views.[16] Her research contains an important criticism of the theory and use of metadata in what she calls "information management" (which can be understood as information science.) She wrote that the lack of insight in this decisive epistemological shift "may explain why the so-called information needs of humanities scholars may not be met by the way metadata is produced by cataloguers, archivists, and curators in [libraries, archives, and museums (LAM) institutions]." All things considered, the article represents a rather strong criticism of the way descriptions are performed in information science, and the theoretical assumptions governing such descriptions.

However, a more general conclusion seems to be that much of information science has lost contact with subject specialists and subject knowledge and tends to develop its own theory and practice based on challenging assumptions (see, e.g., Furner & Hjørland's, 2023 criticism of the Library of Congress Subject Headings). This criticism is not only relevant for the humanities, as examined by Dahlgren, but equally so for all domains of knowledge.

3.5 | Description in archives

Duranti (1993) provided an article about the history of the term "archival description," which makes it clear, that description is used in our broad sense. For example, citing Walch (1989, p. 442):

> Archival description is the process of capturing, collating, analyzing, and organizing any information that serves to identify, manage, locate, and interpret the holdings of archival

institutions and explain the context and records systems from which those holdings were selected.

This concept includes our narrow concept of description because in may include physical description as well as description of intellectual contents of records. Thus, in archival science there has not been the same the distinction as in libraries between descriptive and subject cataloging. There may be several reasons for why this is the case, one of which might be the educational requirement for archivists. According to a Danish educational guide, academics with a degree in history are often preferred as archivists,[17] which means that the split observed in librarianship between generalists and subject specialist may not have played the same role in archives.

Another reason is that the single documents ("records") in archives have typically not been recorded individually, but collections are described at a higher level, that is, the fonds level (Cook, 2013, p. 108). As Sweet and Thomas (2000) wrote:

> Unlike books, which are stand-alone products, archival documents can only be understood in the context in which they were created [...]. For this reason, archives have traditionally been described in terms of the organisation (usually a public body or private company) that created and accumulated them.

Archival descriptions, according to Pitti and Rush (2017, p. 1425), therefore normally have fonds as the point of departure and are described hierarchically in the priority of the levels: fonds, series, file, and item (i.e., it can progress to the item level, although it frequently does not).[18] A third reason may be that "archival descriptions," according to Duranti (1993, pp. 52–3), are not seen as a primary task of archives and have not formally been recognized as an important task with theoretical implications.[19] He wrote:

> By studying the origin and development of the concept of archival description, the main question addressed here was whether description has always been a major archival function. The conclusion is that description has never been an archival function. Instead, it has been one of the means used to accomplish the only two permanent archival functions: (1) preservation (physical, moral and intellectual) and (2) communication of archival documents, that is, of the residue and evidence of societal actions and transactions.

This is probably the reason why there is no universally recognized conceptualization of archival description, no steady progress in its use, and not even linear development in its application. Description has been carried out or not carried out depending on specific needs and conditions, attitudes and requirements, and its products have consistently reflected the conceptions about archives held by the society of the time.

Although descriptive data have not been differentiated from subject data as in librarianship and bibliography, archival descriptions include data corresponding to both our broad and narrow definitions of descriptions. We shall not go further into details here, but turn toward epistemological issues in archival descriptions. In archival studies too is often recognized that descriptions and representations cannot be neutral. For example, Yeo (2017, p. 173) wrote:

> Description is necessarily of its time and place. Despite erstwhile claims that archival principles or descriptive standards can ensure accurate and definitive representations (CUSTARD, 2002, Introduction; Duff & Haworth, 1990, 32; Haworth, 1992, 97), archivists increasingly recognize that representation is never perfect; that compromises must be made; and that standards are not universal but are localized products of particular societies. Some would argue that descriptions merely impose our own cultural perceptions onto phenomena that can never be described objectively.
>
> Growing numbers of critics affirm that descriptions reflect the worldview of the describer, or that they reveal as much about the minds of archivists as about the records themselves (Duff & Harris, 2002, 275–76; Hedstrom, 2002, 39). The structures and functionalities of the descriptive systems archivists employ also impact the descriptions they create (Evans, 2014, 15). Descriptions, and archivists who compile them, are not impartial or neutral.

In archival science there have been important discussions on the theoretical and philosophical bases of the field. Often, postmodernism has been suggested as a preferred position, (Cook, 2001a, 2013), Tognoli and Guimarães (2010), and criticism have characterized it as "fashionable nonsense" (see Cook, 2001b). For an introduction to postmodernism and the critics, see Aylesworth (2015). Postmodernism is one of many labels for different approaches to information science (among other fields). As such it deserves an independent article and debate. The question for the present article is the implication for the concept of description. About this issue Cook (2001a, pp. 22–23) wrote:

> *Arrangement and description* will accordingly concentrate less on physical record entities and groupings, which mean nothing for electronic media anyway, and develop instead (and share with researchers) enriched contextual understandings of the multiple interrelationships and uses of the records creation milieu, as well as incorporating related system documentation and functional metadata from the records' creator into archival descriptive tools.

This view on document description is rather vague. It is opposed to what has formerly in this paper been termed "positivism," and what in the conclusion are termed "empiricism" and "rationalism," and is not specific in relation to what is there called "historicism." Other interpretations of postmodernism are possible, for example, that it represents irrationality, but shall not be developed here.

Similar to librarianship, archival science has developed standards for descriptions, including encoded archival description (EAD)[20] and the General International Standard Archival Description, Second Edition (International Council on Archives, 2000). Such standards reflect certain epistemological views, which, however, are not further analyzed in this study.

3.6 | Museal description

Museum materials (like archival records) generally differ from library and bibliography materials in that they are unique, which means that efforts to describe them cannot be shared with other institutions having identical materials. They are different from archival records in lacking the contexts and goals that the records originally were parts of, and which provides a basis for the principles of description of archival records, such as the principle of provenance. Kjellman, Christensen and Eckerdal (2022, p. 106) found, based on Gill (2017), a central characteristic: "Unlike materials in libraries and archives, museum information requires outlying documentation sources: 'knowledge creation practices are based on attribution rather than transcription' (Gill, 2017; see also Bearman, 2008)." This conclusion seems, however, only to be correct disregarding the previously presented "request-oriented view," according

to which subjects are not inherent in documents but are attributed to them. Nevertheless, it is important that textual materials, in contrast to museal objects, provide data that is directly useful for retrieval. Bearman (2008, p. 37) makes another important point:

> Any museum object has several stories to tell: the story of having been collected might be thought of as their [its] stories as told by their [its] original collectors, while other stories are those told by subsequent curators or researchers. Yet too frequently our abstract frameworks for representing what we know assume a singular point of view about what is worth recording and how.

"Object labels" are a set of representations common in museums,[21] and although today's museums may provide multisensory experiences with intuitive digital media, such labels are still important. Currently, labels may be influenced by Internet technologies. Parry et al. (2007) reported a study to build, demonstrate, and evaluate a prototype of an in-gallery digital label system. Of special interest here is "the range of assumptions made by the curators involved—assumptions with particular implications for the way both Web-based and gallery-based content and interpretation were seen to be valued within the respective institutions." That is, the designs of such labels are based on epistemological assumptions and have implications for the success of museums in fulfilling their objectives. We conclude this section by considering Ørom (2003), who pointed out that representations of artworks in museums are influenced by social values, worldviews, and scholarly paradigms in art studies, and that the same paradigms influence the ways the artworks are organized in libraries, documents about art, and classification systems.

3.7 | Document description languages

The term "document description languages" is currently mainly used about forms of documents for computer technologies; however, it could, in principle, include cataloging rules and coding systems used for document description and representation. This, however, is not the case in practice; it is used in a narrower meaning, such as a generalization of a page description language, which is a programming language used to describe the structure and appearance of a page in a printer-independent manner. The standards for descriptive languages include ISO/IEC 29500-2:2021 (n.d.). Wilkinson et al. (1998, p. 25) wrote:

> Any document that is stored on a computer uses one or more document description languages. Some languages have been used to ease the task of document creation, such as the languages that sit behind word-processing programs such as WordPerfect and Word. Some languages have been designed to ease the task of presentation, such as PostScript and HTML. Some languages try to minimize space to reduce storage and transmission costs such as JPEG and MPEG. Some languages are used to explicitly support structure, such as OLE and SGML. There is no language that is best for everything, and there cannot be, if only because of the inherent trade-offs between space and readability.

Thus, just as epistemological views have pointed out that no description can be neutral, the quote extends the claim to include languages used to describe documents.

3.8 | Automated descriptions

The field of automated descriptions is a large field, which can only be treated superficially in this article. Throughout this article, it has been assumed that the epistemological problems involved in describing objects fundamentally are common for human and computer-based descriptions.

Smartphones today can recognize your face during login. Does the phone make a description of you face? In a way it does, as one step among others in the face recognition process. It may, for example, localize facial landmarks such as eyes, nose, mouth, and facial outline and represent their distances as vectors, which may be compared to other vectors in a database to identify a match (see Ding & Wang, 2011). The algorithms do not provide a verbal description of your face, but clearly use a kind of description in the process of making an identification of the person using the phone. It may also be argued that such algorithms are less useful for other purposes, such as diagnosing diseases based on automated picture analysis (e.g., x-rays, cf. Shen et al., 2017). This support the thesis that descriptions should align to the tasks for which they are made.

For automated document descriptions different techniques exist, such as supervised and unsupervised learning. If it is true that any natural or cultural object can be described in an unlimited number of ways, this means, that there can be no "neutral" descriptions and therefore, that human goals in one or another way must be involved in the training of the algorithms. To believe

otherwise corresponds to the empiricist epistemology "to let data speak themselves." But clearly, as unsupervised methods are widely used, this is a problem that needs to be further investigated.

4 | CONCLUSION

The concept "description" may seem trivial, but over the course of this article, we have shown that it has been used in unclear and even contradictory ways in many fields, including information science. There exists confusion regarding its meaning in relation to the term "representation," and the distinction between the broad and narrow views of "description" presented in the introduction has not formerly been considered. This study has also advanced the point of view that every description is based on certain epistemological assumptions. The main conflicting tendencies in understanding and using the concept "description" may be schematized in this way: Empiricism, rationalism, and positivism, on the one hand, aims at neutral descriptions, either by demanding complete descriptions, or by demanding descriptions, which provides essential properties of the objects described, where essential properties are understood as independent of interests and perspectives. Historicism, pragmatism and related philosophies, on the other hand, acknowledge the theory-laden observation, the incompleteness of description, the historicity of knowledge, and the role played by interests. For these positions, the ideal for descriptions therefore become to provide arguments for which properties should be considered for given descriptions.

More precisely, different theories of description are connected to core epistemological positions in the following way[22]:

- Rationalism: Descriptions should describe essential properties of their objects. Essential properties are understood in terms of objectivism (not relative to purposes, interests, or paradigms.) Example: Renaissance naturalists (Ogilvie, 2006).
- Empiricism: Descriptions should provide exhaustive listings of the properties of objects. Example: Bowers' (1949, p. ix) "ideal intensive bibliography." (Positivism may be considered a combination of rationalism and empiricism, and a common characteristic of an ideal description is objectivism: that descriptions should not be relative to values, purposes, and paradigms.)
- Historicism: Descriptions are influenced by the socio-cultural and paradigmatic background of the persons making the descriptions. To make good descriptions, the describer requires knowledge about the socio-cultural and paradigmatic backgrounds of the object(s) being described. Examples: (i) Ørom's (2003) descriptions of paradigms in art studies. Descriptions focus on essential properties, but these are relative to paradigms; (ii) descriptions in archival studies according to a postmodern view.
- Pragmatism: Descriptions are meant to serve certain purposes and functions; different purposes, functions, and values may require different descriptions. Descriptions are not "neutral." Before making descriptions, the purposes, functions, and values needs to be carefully explored. Example: Lubetzky's (2001, p. 48) functional approach to library cataloging. Again, descriptions focus on essential properties, which are relative to paradigms.

The article has emphasized the pragmatic theory which implies that descriptions are not neutral representations of the objects described, but always, whether done by humans or by computers reflect some interests and theoretical assumptions, although the subject doing the description may not realize this but may consider his or her description to be objective.

In information science, different subfields and institutions have different traditions describing documents. The article has provided examples of traditions that may be considered unfruitful, for example, in library cataloging, which seems to be lacking behind how scholarly bibliographical databases prioritizes subject access. Another example is the metadata assigned to pictures, which seems to fall short of the needs of the users.

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ENDNOTES
[1] Ogilvie (2006, pp. 18–19) described, however, how not all philosophers recognize the subject/object dichotomy.

[2] The German Wikipedia (2023) has an entry "Autopsie (Bibliothekswesen)," which defined (here translated to English): "In librarianship, an autopsy is understood as the cataloging (title entry with formal and subject indexing) based on the actually available documentary reference unit (the so-called 'Vorlage' [i.e., the copy or exemplar of a document available to the person making the description]." (See also Gantert, 2016, p. 221). It is a general experience that autopsy is important because copied data often contain errors, but modern cooperative cataloging means that libraries depend on descriptions made by other libraries. Here the point is that autopsy is not a defining characteristic for descriptions, also descriptions made by others counts as such. There is a difference between types of captured data which are descriptions, and which are not.

3 For example, Morawski (2016, p. 124) wrote about psychology: "Tellingly, 'description' is a term that is rarely used in psychology. No advanced handbooks, neither those devoted to theory nor those to methodologies, contain entries on description. Undergraduate textbooks are similarly silent on the subject."

4 Kuhn (1962), Hanson (1958), Feyerabend (1969), and Popper (1972) are among the philosophers who have argued that observations are theory laden. Popper (1972, 258), for example, wrote: "I believe that theory—at least some rudimentary theory or expectation—always comes first; that it always precedes observation." See further Boyd and Bogen (2021) about the relations between theory and observations in science. There exist texts that are critical about "Theory-centrism," for example, Wilkins and Ebach in relation to classification (Wilkins & Ebach, 2014, the word Theory-centrism appears p. 140). See also the book review of this text by Richards (2015).

5 The humanist epistemology with focus on particular properties has often been opposed scientific epistemology of the general, for example, by the German philosopher Wilhelm Windelband (1894), who introduced the distinction between nomothetic and idiographic approaches.

6 In an article about the descriptions of clouds, Daston (2016) characterized descriptions made by nineteenth-century scientists (here cited from Marcus et al., 2016, pp. 8–9): "Lorraine Daston offers a view of description as anything but encyclopedic and tautological. She shows how nineteenth-century scientists interested in developing a Linnaean system of cloud classification had to abandon the natural historian's comprehensive attention to detail in order to find a way to fix objects that were in constant motion and looked different to different viewers in different locations. In the place of description as endless enumeration, Linnaeans practiced description by subtraction or omission: only by ignoring 'siren details' could observers identify patterns and types and learn to recognize clouds as they would faces."

7 The biological literature distinguishes between a description and a diagnosis. A diagnosis specifies the distinction between the new species and other species and does not necessarily include, for example, a morphological description. A diagnosis may be used instead of, or as well as the description.

8 According to Friis (2008, p. 90) it was Martin Vahl (1749–1804), a student of Linnaeus, who was the first person, who, in 1794, argued about the importance of the original herbaria-material for determining a scientific name. He insisted on independently examining the preserved material from the botanist, who first discovered and named the species. Vahl's practice facilitated the development of the modern methodology for exact scientific nomenclature. A species name is no longer considered the essence of the species but is associated with one permanently preserved specimen from the original material. As described by Daston (2004, 155–156): "Like art historians writing a monograph on van Eyck or Cézanne, who travel to the museums holding original paintings, botanists travel to the herbaria containing the ur-specimens of the species under study—the type specimens or 'holotypes' to which the original description and name is anchored."

9 ARIST was relaunched in November 2011 with Lisa M. Given as editor and published under the banner of *Journal of the Association for Information Science and Technology* (JASIST). Although some articles have been published as part of the JASIST platform, no issues or articles have, on May 13, 2023 been indexed under ARIST's name in *Web of Science since 2011*.

10 In fairness should be said, however, that Artandi (1970, p. 160) presented problems about the description of chemical compounds. She also (p. 143) justified the narrow coverage as follows: "While the scope of the chapter is broad, its actual content was determined by the literature of 1969."

11 A strong tendency since about 2000 has been to save libraries own descriptive as well as subject cataloging and replace these with imported data. Therefore, departments for descriptive cataloging and subject classification have mostly disappeared today.

12 *National Library of Medicine*, for example, distinguish descriptive and subject cataloging processes: "The Cataloging and Metadata Management Section is responsible for review and development of cataloging policies for descriptive and subject cataloging and classification of modern print, audiovisual, and electronic resources acquired for the NLM collection." https://www.nlm.nih.gov/tsd/tsdhome.html. National Library of Medicine (2018) wrote: "A prospective indexer must have no less than a bachelor's degree in a biomedical science ...."

13 Gesner's view is here cited after Balsamo (1990, pp. 38–39): "To help readers choose freely and wisely, and to protect them from incompetent and fraudulent booksellers, the formula of the bibliographic description was developed more fully. Besides the author and the title of the work, printing data were given, (place, name of printer, date of printing) as well as the book's format, the number of pages and price. The name of the printer, Gesner explained, could be a useful element in choosing among several editions, since certain printer-publishers were known to be more accurate than the greater majority of mediocre printers. The date of printing was useful to the reader because newer editions, especially by well-regarded printers, were usually better than those which appeared earlier. The place of printing also directed the reader to the city where he would be most likely to find a copy of the book when the supply was sold out. Finally, Gesner was concerned with identifying internal works—those included in volumes of miscellanea ('plura simul impressa')—which were not mentioned in the title of the book and might escape the attention of the reader and even that of the careless bookseller."

14 Henkle (1946) is discussed in Lubetzky (2001, pp. 47 ff), in which the editors found that the principles were written not by Henkle himself, but by Lubetzky.

15 An anonymous reviewer commented: "I am quite doubtful, however, that a 'general shift' has actually occurred in the humanities [...]. In fact, the development of this field does not go in only one direction. Big data and IA are also topical, and their application in social sciences and humanities is now widespread. Some believe that 'numbers (or data) speak for themselves', and some instead believe that the very idea of 'raw data is an oxymoron' (e.g., Gitelman, 2013)."

16 Dahlgren (2022, p. 4) wrote: "A foundational idea in semiotic theory is that any piece of information, whether this is an image, a text or a sound, is always dependent on the viewer's/reader's individual knowledge, interest, experience and situation—in short, that the meaning or content of any information will be shifting, changing and individual. A seminal text in this context

is the essay The Death of the Author by French semiotician Roland Barthes, published in 1977. Barthes proposes that there is no ultimate meaning to a text, rather 'everything is to be disentangled, nothing is deciphered' [Barthes, 1977, 147]. Barthes, like other post-structuralist scholars, emphasized the polysemic nature of meaning production and the primacy of the interpreter, the end user."

[17] Retrieved April 28, 2023 from: http://web.archive.org/web/20230428090811/https://www.ug.dk/job/job-fordelt-paa-erhvervsomraader/akademiskarbogledelse/bibliotekarogarkivararb/arkivar.

[18] Bunn (2014) considered archival descriptions from the point of view of systems thinking and cybernetics and analyzed epistemological problems in describing archives, but in an abstract level, that is not easy to translate to actual procedures.

[19] Dowler and Walch (1989, p. 440) wrote, however: "Ask most archivists to define 'description' and they will probably begin by saying that it is one of the primary archival functions that falls somewhere in the middle of an archivist's active work with a body of records. It comes after the initial steps of appraisal and arrangement but before preservation and reference. Mostly, they will say, description has to do with the preparation of 'finding aids' to provide 'access' to the repository's holdings." (The article further argues that finding aids is a relatively narrow, product-oriented focus which have been replaced by providing 'control').

[20] *Encoded Archival Description* (EAD) is an international standard based on *Extensible Markup Language* (XML) for encoding descriptions of archival records and on the descriptive framework *General International Standard Archival Description* (ISAD (G)), developed by the International Council on Archives (2000). homepage https://www.loc.gov/ead/.

[21] Traditional Fine Arts Organization (TFAO) (2014) defined: "Labels (object labels) are identifying text for an artwork placed in a museum gallery room containing an exhibition. Label information may include the name of the artist who created the artwork, the title and dimensions of the object, its media, date of creation, owner, accession number, and, in some cases, a block of didactic (interpretive) text related to the artwork. Labels with didactic text are often named 'extended labels' or 'extended object labels.' Labels are also referred to as 'captions' or 'tombstones'."

[22] About the classification of epistemological positions into rationalism. empiricism, historicism, and pragmatism, see Hjørland (2021).

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