October 2005

Information as a Value Concept

Thomas Weissinger
University of Illinois at Urbana-Champaign, tweissin@uiuc.edu

Information as a Value Concept: Reconciling Theory and Practice

Thomas Weissinger
Afro-American Studies Bibliographer
328 Main Library
University of Illinois at Urbana-Champaign
1408 West Gregory Drive
Urbana, Illinois 61801

When the gulf between theory and practice in librarianship is discussed generally two themes emerge, which are that theorizing about librarianship is mostly non-existent and, when such theorizing exists at all, it is largely irrelevant to library practice. For instance, scholars have expressed concern about the relative absence of theory to explain librarianship's practices. As H. Curtis Wright observed, American librarians have never been comfortable with philosophy.[1] Antony Brewerton observed that the English also tend to "fight shy" of philosophy, finding that of 23 hits retrieved for "philosophy of librarianship" in a search of *LISA,* most were by Russian, Chinese, Japanese, Dutch, Polish or French authors.[2] Accordingly, librarianship risks intellectual isolation as it remains aloof from theorizing about itself and the nature of information.[3] The implication of this is either that librarianship's theory will never be articulated adequately or those who do the articulating will not be librarians.[4] On the other hand mathematical theories of communication, which focus on closed information systems and probability theory, pay scant attention to the semantics or meaningfulness of information content.[5] The failure of such theories to focus on information content raises questions about their relevance to the practices of librarians and library users.[6]

Since 1945 theorists have sought explanatory models and techniques for information retrieval from mathematical information theory.[7] The primary assumption this theory makes about the nature of information has been that it is characterized by selection, that certain information has value by virtue of the exclusion of other information, and such states of affair are represented by probabilistic description. Consequently, the predominant concept of information is that it is quantitatively measurable and thus "factual".[8] All the same, theories describing information are diverse. The several theories discussed in this article describe information either as a conduit model whereby signals carrying information are sent to a receiver which decodes the original message, as a nested relationship of intentionality between phenomena and their representations, as a organizational structure of thought in which perceptions are related to conceptual categories, or as a basic structure of thought that imposes a pattern on both what counts as acceptable knowledge and systems of social organization.

This article's central thesis is that the concept of information favored by materialist theories is not interchangeable with the concepts preferred by idealists and critical theorists. The materialist concept of information places too much emphasis on the factual nature of information, while demurring its evaluative component altogether. Idealists and critical theorists have been able to describe an evaluative concept of information; and it is this sense of information that threads throughout librarianship from its oral cultural beginnings to the present

day.[9] The idea that information has personal and social value resonates within librarianship and has been discussed in varying degrees by several important library thinkers. The discussion which follows is limited principally to selected works by librarian-theorists Michael K. Buckland, Jesse H. Shera, H. Curtis Wright, and Ronald E. Day. These theorists were selected because they have written about information as a value concept and represent materialist, idealist, and critical theory perspectives in librarianship.

This is a philosophical article and will analyze metaphysical theories about the evaluative nature of information. Neither historical nor social scientific procedures are used to collect and analyze data. Rather, analytic philosophy, whose aim is to resolve conceptual confusions and provide clear[10] representation of the use of language, is the primary analytical tool used here.Analytic philosophy is prominent in both Europe and the United States. This method of analysis involves the exegesis, clarification, critique, and synthesis of ideas and their relationships, whether these relationships are logical or materially dependent on their content. Commenting on the importance of philosophical reflection to librarianship, Antony Brewerton writes that:

> [Reflection] matters because it is *continuous* with practice: how you think about what you are doing affects how you do it or, indeed, whether you do it at all. Reflection can have a positive effect on how we function on a day to day basis. …Without reflection we get stuck in our ways and refuse to see the viewpoint of others. Without reflection our attitude can become negative and, as Goya entitled one of his satires, *The Sleep of Reason produces Monsters.*[11]

The particular ideas explored, which count as the data of this research, come from an interdisciplinary body of texts in librarianship, sociology, philosophy, and communications theory.

In an editorial for the *Journal of Academic Librarianship,* Charles Martell offers the following insight regarding the nature of information and its relation to personal and social values: "[Information] is but one step above raw, disaggregated and often trivial and meaningless data. The value of information begins when it serves a greater good."[12] As an editorial in a major professional journal this is a call to action, a mustering of arms, as it were. What intrigues about this editorial are three implicit assumptions pertaining to theory and practice. The first is that information is a material object, being a step above raw data. Second, information is neutral and value-free. Third, only when linked to personal and social values such as "honesty, love, happiness, creativity, generosity, freedom, and so on, does information itself become valuable."[13] All three of Martell's assumptions are matters of contention, depending upon how they are interpreted. H. Curtis Wright would place Martell's three assumptions within either of two philosophical currents of thought, emphasizing different aspects of the concept of information. The two currents of thought are called materialism and idealism.[14]

Materialism explains the world by studying empirical phenomena.[15] Idealism explains the world in terms of human thought.[16] While materialists focus on the empirical properties of information systems, idealists focus on the non-physical nature and content of information. Needless to say, the two views suppose rather different theories of human agency and interaction with the world. Materialists suppose that information represents states of affair in the natural world and idealists suppose that it structures the sensual experience of the world into meaningful categories. In addition to materialism and idealism, a newer school of thought called critical

theory is outlined.[17] Quoting Archie L. Dick, "Critical theory supplies the intellectual thrust for examining how librarians can gain an insight into their unavoidable involvement in cultural activities that promote certain perspectives and suppress others."[18]

The Materialist Idea of Information

The goal of materialist epistemologies is to naturalize metaphysical narratives about reality and to reduce the field of things considered knowable or, which amounts to the same thing, to distinguish facts from values. By "materialism" is meant those theories of information that emphasize notions of rationality and experimental method. While systems theorist Michael K. Buckland does not take information itself to be a material object, he does consider that the *process of becoming informed* is empirically observable.[19] For instance the signs and expressions which convey information and a recipient's response to having received such information both are observable, even though the intermediate happenings between signal and response are unknown. Buckland's idea of information as the process of becoming informed is expressed succinctly by the following quotation from Eva Jablonka who defines information in terms its most common features.[20] She writes the following:

> A source—an entity or a process—can be said to have information when a receiver system reacts to this source in a special way. The reaction of the receiver to the source has to be such that the reaction can actually or potentially change the state of the receiver in a (usually) functional manner. Moreover, there must be a consistent relation between variations in the form of the source and the corresponding receiver.[21]

Buckland acknowledges that referring to this whole thing as the "process of becoming informed" is cumbersome.[22] More than just being awkwardly worded, there are mental happenings such as thought, judgment, and categorization, which are tossed together indistinguishably except for their denotation as the process. What Buckland calls the "process of becoming informed" is no substitute for what one means by "information" in ordinary language.[23]

A non-systems theory version of materialism is described by Ellen Bonnevie, who appeals to Dretske's theory of semantic information as a bridge between mathematical information theory and library practice.[24] However, in order to make this link between theory and practice a possibility, a series of metaphysical entities or conditions must be supposed. First, information is understood as a physical object existing independently of signalers and receivers. Second, thought, beliefs, knowledge, etc., are taken to be mental states that are analogous to an inner language. Third, intentionality (meaningfulness) is a property inherent in both mental states and external reality, depending upon a recipient's prior information and ability to ascertain the context of things.[25] Because both sentences and inner language have referents (intended objects), information is characteristically *about things*. In other words, it is intentional, representing material things independent of the mind. Accordingly, Bonnevie writes, "By setting out how the formation of concepts and knowledge are based on perceptions, Dretske gives us the semantics of inner language by attaching meaning - a semantic content of an appropriate level of intentionality - to the inner states of an information-processing system."[26] Semantic information theory appeals to materialists who hope that, by naturalizing thought and meaningfulness, the path to designing artificial intelligence systems will be cleared.[27]

The Idealist Notion of Information

In an article entitled "Shera as a Bridge between Librarianship and Information Science," H. Curtis Wright outlines his and Jesse H. Shera's shared view that information scientists have distorted the meaning of "information," assuming that it relates "to the communication of knowledge rather than the transmission of signals."[28] Shera and Wright's point is that knowledge and information are not physical phenomena. Thus, Wright can say: "Information exists only in minds. It comes *through* the physical media of human expression, but does not originate or reside within them. It has no phenomenal basis in the material world, a fact that disqualifies it *sensu stricto* as a science."[29] However, in order to explain the abstract nature of information, idealists also find it necessary to posit the existence of things. Postulated are two distinct realities, a natural universe which contains material stuff such as data and the symbols by which they are expressed, and a cultural universe of the intellect. For every symbol expressing data in the natural universe, there is a corresponding symbolic referent in the cultural universe. In other words, "information" is understood in terms of a theory of dualism which explains the linkage between symbols (such as speech, writing, etc.) and their symbolic referents (ideas, concepts, etc.).[30]

In a related article, Wright clarifies his idealist concept of information. He writes as follows:

> [Information] is best defined, perhaps, from the word itself: the verbal meaning of 'in-FORM-ation' is "the production of form in." To "inform" someone is quite literally to "create form in" him…. This view of information is essentially Plato's broad approach to the myriad problems of noetic form. It is concerned with all of the human mentifacts, whether subjective, reified, effable, or ineffable, and pertains to humane concerns as well as to the objects of science. This is the long view of information which must ultimately resolve the complex problems of librarianship, if they can ever be resolved.[31]

From this standpoint, concepts, or the ideal forms of things, are standards. All things, whether material and perceived through the senses, or abstract and conceived through thought, are compared to- and evaluated by- their ideal types. One can think of a concept as the form (or category) of a thing. As such, both material and abstract objects are defined by the forms (or categories) to which they belong. Thus, Wright thinks of information as the "structure of thought."[32]

Critical Theory's Depiction of Information

Critical theory has its roots in the sociology of knowledge and the idea that one's social situation determines beliefs and knowledge. Accordingly, the method of analysis used favors revelation and disclosure of the interests underlying theory and social practice. The particular idea critiqued by Ronald E. Day is called the conduit model of communication. As described earlier, the conduit model interprets information to be a process, as "the flow and exchange of a message, originating from one speaker, mind, or source and received by another."[33] The purpose of critiquing the conduit model is to replace it with an alternative model that "stresses the site-specific and temporal nature of *affects* rather than the communicational *effects* of messages."[34]

In particular, Day finds fault with the idea that a message's source, its point of origin, determines its meaningfulness. To illustrate this point, he considers that when one language is translated into another, there is repetition of the original message. Moreover, the translated message can have meanings in the second language that were never intended by the original speaker. From this it follows that "meaning is rooted in and through series of responses that have no end and no origin" and that the meaningfulness of messages is independent of the identities (or people) to which they are attributed.[35]

As mentioned earlier, the job of materialist theory is to reduce the field of things considered knowable. In terms of the conduit metaphor Day interprets this to mean that all unexpected responses to messages are "noise" that information retrieval systems must filter out or eliminate. Regarding this, Day writes that "if noise would become the standard for language and communication, how then would it be possible to distinguish truth from sophism, science from rhetoric, and intentions of one person from the confusions of language in general?"[36] In other words, a normative rule implicit in the conduit model is that information retrieval systems must have criteria that limit the possible variations that responses can take.[37]

As with the idealists, Day also takes recourse in metaphysical dualism by supposing distinct realities which sometimes intersect. He postulates that humankind belongs to both the community of the animal and the community of human beings. Within the first community information is expressed in terms of simple values such as feeling threatened, being wondrous, in fear, or curious. In the second community information is articulated as fact, formalized affects, or knowledge. The problem is that the two types of information sometimes get mixed up. The threat of "noise" is that it may be indistinguishable from "true" information.[38]

Contrary to first impressions, this is not about different species, animals and human beings. Rather, it is about persons whose mainstream or peripheral identities are governed by different normative systems. Consistent with the idea of cultural diversity, differences between facts and values sometimes stem from cultural differences among people; whether information of one type or another has factual status is determined by social relationships of power. It is also clear that Day means to distinguish between dimensions of identity within the same person. He distinguishes thought and feelings on a subconscious level from articulation and awareness of them on a conscious level. So, for both social organizations and within one and the same person, in order for information as value to be confused with information as fact, a person mistakes the information valid in one normative system with that valid in another. Accordingly, Day describes information as value as "the trace of affective joining and also a series of bifurcations that humans make together with other humans and with other animals. Specificity is marked by difference in relation to shared lines of affect, and such differences give rise to pragmatic senses of time and space."[39]

Information as Value

In Martell's editorial, the importance of value in all of its varieties is emphasized. The several library theorists mentioned above, Buckland, Shera and Wright, and Day are unified in acknowledging that information has an evaluative sense even though they differ on what it is exactly. For instance, Buckland contrasts the factual sense of information with its non-factual nature.[40] The latter is attitudinal, understood as a value assertion in terms of a thing's perceived benefit or harmfulness to a person.[41] Accordingly, the values a person holds, such as the "desire to preserve unique specimens for the future," or "institutional pride," are attitudinal states which

cause one's engagement in preservation or acquisition activities.[42] On this view, the purpose of information in its evaluative sense is utilitarian; it serves to maintain or improve one's welfare or state of well-being.

Idealists such as Wright and Shera also have an evaluative sense of information. By taking information to be the very structure of thought, idealists define it as being both about the content of thoughts and the standard by which such thought is evaluated. Valuation is understood in terms of a person's ability to critically assess a thing's likeness to a standard in order to determine its purpose and whether it satisfies that purpose. Accordingly, Shera describes a normative system in which "certain types of information are rated on a series of scales of 'betterness' or 'worseness' as determined by the individual, organization, society, or culture."[43] Elsewhere he says that information has instrumental value and "it usually is communicated in an organized or formalized pattern, mainly because such formalization increases potential utility. Since it is instrumental, utility is its major criterion of social value."[44] The difference between the materialist and idealist idea of information as value is that idealists think the evaluative component of information is also factual. For idealists there is no notion of a fact/value distinction.

Philosopher Georg Henrik von Wright supplies the "nuts and bolts" for understanding the idealist's unity of fact and value.[45] Von Wright describes instrumental value in terms of a thing's being good for a purpose. The idea is that instruments do not have value in themselves, but only as they are associated with categories of thought and purposes. An instrument is good or poor when understood as a member of a given category of thought and depending upon how well it serves that category's purpose.[46] Moreover, information may be good for any number of purposes, e.g., as intelligence, news, a message, recreation, a joke, a narrative, as knowledge, etc., because the subjective settings of purpose may differ. Instrumental value also conveys a notion of rank and grade. The sense of information entertained here supposes that people use information to intelligently pursue options since there is a connection between comparative judgments and preference. According to von Wright, "We are more often interested in knowing whether one knife is, within a given subjective setting of purpose, better than another, than in knowing whether it is, in that setting, good *simpliciter*."[47]

The critical theory of Ronald Day is ambiguous with regards to the distinction between facts and values (affects). While on the surface Day appears to deny the efficacy of the distinction since he endorses conditions in which alternative interpretations and affects (values) are free to become theoretical knowledge, missing from his theory is an explanation about how alternative interpretations and affects can make this transition. In particular, what is missing is a delineation of the variety and types of values that may become the objects of self-conscious reflection and subsequent theoretical description. Arguably, the evaluative component of information is much richer than Day seems to allow. Values can be more than simple attitudinal states of mind. Some are hybrids having both pre-cognitive and cognitive components. A hunch, for example, is a strong intuitive feeling (value) about some future event (fact). Phenomena of this kind (intuitions, premonitions, epiphanies, etc.) are hybrids that blur the line between facts and values. Thus Shera and Wright were correct in thinking that value judgments can also be factual.

Certainly the array of values that Martell lists in his editorial includes more than simple attitudinal states. He lists a diverse set of values ranging from honesty, love, generosity, creativity, and happiness, to freedom. On reflection (as opposed to being overwhelmed by the

experience of the moment), this group of values belong to several different categories of thought, which are the categories of virtue, technical goodness, hedonic good, and things that are good as ends in themselves. The virtues such as honesty, love, and generosity are desirable character traits.[48] A virtue is a character trait that overcomes certain passions which obscure judgment.[49] Creativity is a form of technical goodness. A creative person not only has the ability to do a thing well but, secondarily, performs the kind of activity in question with excellence.[50] Happiness is a form of hedonic good, associated with pleasure and notions such as enjoyment and liking.[51] Last, having freedom is a state of affairs which is good for its own sake and worthwhile as an end in its self.[52]

Conclusion

The above discussion sets the stage for making a couple of inferences. First, the idealist theory of Shera and Wright seems compatible with Day's critical theory. To reconcile these theories (which is not necessarily a small feat) requires transforming the Platonic idea about reality and how it is known into the rubric that knowledge is a set of learned social practices. To be sure, idealism and critical theory make parallel assumptions about information as a value concept and each entertains versions of metaphysical duality. More importantly, as far as librarianship is concerned, the element of critical reflection on the values underlying social knowledge is already built into Shera and Wright's idealism. The idea of a critical librarianship, which explains the institutional interests and purposes underlying information, is entertained by Shera in his *Foundation of Education in Librarianship*.[53] Arguably, his proposal for social epistemology has only been partly realized.[54] A critical theory of librarianship also seems to spring from Wright's idealism.[55] Therefore, librarianship does not have to look beyond critical theory for a philosophical framework that explains the values inherent in information, library practices, and those of library users.

Second, the idea of information as value affords one an opportunity to reconsider certain futurist and historical notions about librarianship. The question of who benefits from a particular vision of the information future is certainly within bounds for a critical theory of librarianship. Materialist theory projects a misleading vision of human progress. The future presupposed by materialism takes the form of a global information society replete with artificial intelligence, cybernetics, teleportation, time travel, and so on. It is troubling that the projection of future information societies may not include librarians and that the profession itself may not be safe. To quote Brewerton:

> It is increasingly commonplace to hear that we do not need libraries, that we do not need librarians in the Internet Age. Detractors find these arguments come easily. What is possibly worse, without cogent philosophical arguments to the contrary, we can easily (but most unfairly) come across as Luddites, feared of the new technology and unwilling to accept our fate.[56]

Rather than leap into the dark, idealism and critical theory offer a more appealing scenario. Implicit in the views of these theorists is a projection of humanism, suggesting unlimited possibilities for the development of human value, thought, and actions. Wayne A. Wiegand has argued that the preoccupation with information technologies privileges forms of information favored by powerful societal groups and has "done a fundamental injustice to the democratic service goals of the profession."[57] This article makes essentially the same point when

it argues that materialist theories privilege information as fact over information as value; and that the values favored by library practitioners and library users have little relevance in such theories.

Now, regarding the historical assumptions thrown into question by the idea of information as value, assume that theoretical knowledge is not the only goal of librarianship and that librarianship was a service profession long before Melville Dewey's innovations in the 19 th century.[58] How does one explain the continuity of librarianship from its oral cultural roots in antiquity to the present? A critical theory of librarianship might respond that information as value precedes the materialist urge to focus exclusively on the factuality of information. In this respect Ronald Day is right in thinking that the root of information as a value concept extends back to antiquity, to social communities of the animal.[59] That is to say, pre-theoretical and practical expressions of information are a part of ordinary life. Accordingly, the information embedded in folktales, proverbs, oral narratives, and the like, is meaningful and has value because of its purpose (instrumental) or its benefit (utilitarian). When information's evaluative nature is considered, the emphasis shifts from a regard for its factualness to its appropriateness for addressing the contingencies of life. As Day rightly argues, there is a shift of emphasis from permanent expressions of thought (representing empirically verifiable states of affairs) to more temporal expressions which are appropriate responses to the situations arising from real life circumstances.[60]

The aim here has been to explicate the concept of information and several of its various meanings. It was argued that at least two uses of the concept differ and are not interchangeable. Saying that there are differences does not mean that information as a value concept must necessarily supplant its empirical counterpart, nor vice versa. What is clear, however, is that the concept of information makes sense even when partnered with non-empiricist criteria for truth. For example, in Ronald Day's critical theory information is meaningful in terms of normative responses by communities of persons. Additionally, the norms governing appropriate responses are themselves changing since, not being exclusively based on empirical standards of truth, allegorical and oral cultural forms of meaning are gaining propriety.[61] Accordingly, various sociological perspectives compete for status in determining what counts as information and, if tolerated within public spheres of discourse, are capable of synthesis and development into forms of information whose validating criteria are even broader and more pluralistic.

Because the materialist idea of information as fact is superimposed over the subjective settings of purpose inherent in ordinary library use and practice, the utilitarian and instrumental values important to practitioners and library users becomes theoretically irrelevant. Of course, in reality determining what counts as useful information is a task handled by the practicing librarian everyday and some way of describing this, to the satisfaction of users and practitioners alike, would be a quantum leap towards unifying what librarians do with how they are perceived. An adequate theory of information for librarianship should take this into account. A theory which does this may well embody H. Curtis Wright's reflection that the "natures of man and information are probably the same thing, just as librarianship and philosophy may turn out to be, not merely similar, but identical."[62]

Notes & References

1. H. Curtis Wright, "The Immateriality of Information," *Journal of Library History* 11, 4 (October 1976): 297. Both advocates for and against philosophizing about librarianship make

reference to Wright's observation. See, for example, Joseph Z. Nitecki's "The Concept of Information-Knowledge Continuum: Implications for Librarianship," *Journal of Library History, Philosophy and Comparative Librarianship* 20, 4 (Fall 1985): 387-407 and Jim Zwaldo's "We Don't Need a Philosophy of Library and Information Science: We're Confused Enough Already," *Library Quarterly* 67, 2 (April 1997): 103-121.

2. Antony Brewerton, "The Creed of a Librarian: a Review Article," *Journal of Librarianship and Information Science* 35, 1 (March 2003): 49.

3. Julian Warner, "W(h)ither Information Science?," *Library Quarterly* 71, 2 (April 2001): 249.

4. Wayne A. Wiegand, "Broadening Our Perspectives," *Library Quarterly* 73, 1 (January 2003): x. This article introduces a special issue of *Library Quarterly* responding to an earlier article by Wiegand ["Tunnel Vision and Blind Spots, What the Past Tells Us about the Present; Reflections on the Twentieth-Century History of Librarianship." *Library Quarterly* 69, 1 (January 1999): 1-32].

5. Rudolph. Stichweh, "Systems Theory as an Alternative to Action Theory? The Rise of 'Communication' as a Theoretical Option," *Acta Sociologica* 43, 1 (2000): 8; Eva Jablonka, "Information: Its Interpretation, Its Inheritance, and Its Sharing," *Philosophy of Science* 69, 4 (December 2002): 579-580.

6. Ellen Bonnevie, "Dretske's Semantic Information Theory and Meta-theories in Library and Information Science," *Journal of Documentation* 57, 4 (July 2001): 520-522.

7. Warner, "W(h)ither Information Science," 244.

8. Ronald E. Day, *Modern Invention of Information: Discourse, History, and Power* (Carbondale: Southern Illinois University Press, 2001), 39.

9. Thomas Weissinger, "The New Literacy Thesis: Implications for Librarianship," *portal: Libraries and the Academy* 4, 2 (April 2004): 245-257.

10. P.M.S. Hacker, "Analytic Philosophy: What, Whence, and Whither?" in *The Story of Analytic Philosophy: Plot and Heroes*, ed. Anat Biletzky and Anat Matar (New York: Routledge, 1998), 28-30.

11. Brewerton, "Creed of the Librarian," 50.

12. Charles R. Martell, "Must It Be?: Concept of Information as a Commodity," *Journal of Academic Librarianship* 22 (March 1996): 86.

13. Ibid.

14. Wright, "Immateriality of Information," 298.

15. "Materialism," in *Concise Routledge Encyclopedia of Philosophy* (New York: Routledge, 2000), 535. Materialism is "a set of related theories which hold that all entities and processes are composed of—or are reducible to—matter, material forces or physical processes. …In general, the metaphysical theory of materialism entails the denial of the reality of spiritual beings, consciousness and mental or psychic states or processes, as ontologically distinct from, or independent of, material changes of processes."

16. "Idealism," in *Dictionary of World Philosophy*, ed. Iannone, A. Pablo (New York: Routledge, 2001), 251. "[T]he term idealism denotes a family of doctrines sharing the view that,

somehow, reality is not independent of cognizing minds, but exists as a correlate of mental operations. These doctrines sometimes retain not only the epistemological but also the valuational connotation of ideal and idealism, indicating that reality somehow is, shares, or reflects perfection."

17. "Critical Theory," in *Cambridge Dictionary of Philosophy*, 2nd ed., ed. Audi, Robert (New York: Cambridge University Press, 1999), 195. Critical theory is described as "any social theory that is at the same time explanatory, normative, practical, and self-reflexive. …These requirements contradict the standard account of scientific theories and explanations, particularly positivism and its separation of fact and value. For this reason, the methodological writings of critical theorists often attack positivism and empiricism and attempt to construct alternative epistemologies."

18. Archie L. Dick, "Library and Information Science as a Social Science: Neutral and Normative Conceptions," *Library Quarterly* 65 (April 1995): 229.

19. Michael K. Buckland, *Library Services in Theory and Context*, 2nd ed. (New York: Pergamon Press, 1988), 95.

20. Jablonka, "Information: Its Interpretation," 580, 585. There are other ways to account for the multiple uses of the term "information". For instance, one could say that it is only when "information" primarily refers to the content of ideas and concepts shared by human beings that it is used in its primary sense, but when the term describes other things, not related to human thought, it is used as an analogy [Bonnevie, "Dretske's Semantic Information," 521].

21. Jablonka, "Information: Its Interpretation," 582.

22. Buckland, Library Services in Theory, 95.

23. Even though the process of becoming informed theoretically presupposes prior knowledge and suitable cognitive skills, what a person actually thinks is ambiguous at best. Materialist theory could just as easily suppose that information *compels* one to change or causes an increase in knowledge as to suppose that one uses information to reason and make informed judgments. In truth, however, information does not necessarily compel one's mind to change nor does it necessarily give one reason to think otherwise about a thing. One can be informed and not do anything about it [Jesse H. Shera, *The Foundations of Education for Librarianship* (New York: John Wiley & Sons, 1972),116].

24. Bonnevie, "Dretske's Semantic Information," 522.

25. Ibid., 527.

26. Ibid., 526.

27. Dretske's meta-narrative takes a one-sided view of information in terms of its factualness. This theory pays no attention to information as a value concept, supposing only that the relation between intentionality and referent establishes the truth or falsity of propositions [Fred Dretske, *Knowledge and the Flow of Information* (Oxford: Blackwells, 1981), vii, 45]. As Ronald Day would say, the theory avoids the aesthetic nature of information [Day, *Modern Invention of Information*, 115].

28. H. Curtis Wright, "Shera as a Bridge between Librarianship and Information Science," *Journal of Library History* 20, 2 (Spring 1985): 145.

29. Wright, "Immateriality of Information," 302.

30. Wright, "Shera as a Bridge," 149; Wright, "Immateriality of Information," 303.

31. Wright, "Immateriality of Information," 309.

32. Wright, "Shera as a Bridge," 146; Wright, "Immateriality of Information," 314, footnote 72.

33. Day, Modern Invention of Information, 38.

34. Ibid., 40.

35. Ibid., 52.

36. Ibid., 54.

37. Ibid., 31.

38. Ibid., 56.

39. Ibid., 57.

40. Buckland, Library Services in Theory, 103; Day, Modern Invention of Information, 54.

41. Buckland, Library Services in Theory, 102.

42. Ibid., 131.

43. Jesse H. Shera, *The Foundations of Education for Librarianship* (New York: John Wiley & Sons, 1972), 117, 130.

44. Ibid., 164.

45. Georg Henrik von Wright, *The Varieties of Goodness* (New York: Humanities Press, 1963), 29.

46. Ibid., 19.

47. Ibid., 44.

48. Ibid., 144.

49. Ibid., 150.

50. Ibid., 33, 114.

51. Ibid., 87.

52. Ibid., 96.

53. Shera, Foundations of Education, 112, 114.

54. Warner, "W(h)ither Information Science," 248.

55. Wright, "Immaterialism of Information," 304

56. Brewerton, "Creed of a Librarian," 52

57. Wiegand, "Broadening Our Perspective," vii.

58. Thomas Weissinger, "Competing Models of Librarianship: Do Core Values Make a Difference?," *Journal of Academic* Librarianship 29, 1 (January 2003): 33-34.

59. Day, Modern Invention of Information, 57.

60. Ibid., 40.

61. Weissinger, "New Literacy Thesis," 250.

62. Wright, "Immateriality of Information," 302.