

 Open access • Journal Article • DOI:10.1353/LIB.2015.0011

The Fallacy of the Cognitive Free Fall in Communication Metaphor: A Semiotic Analysis — [Source link](#)

Martin Thellefsen, Torkild Thellefsen, Bent Sørensen

Published on: 01 Jan 2015 - Library Trends (The Johns Hopkins University Press)

Topics: Cognitive models of information retrieval, Models of communication, Metaphor, Cognition and Semiotics

Related papers:

- [Metaphor Comprehension as Problem Solving: An Online Study of the Reading Process. \(1\)](#)
- [The essence of semiotics as a mediator of communication and cognition](#)
- [13 On what is Cognitive about Development](#)
- [Cognitive Mapping in Literary Analysis](#)
- [Cognitive Aspects of Understanding Alien Text](#)

Share this paper:    

View more about this paper here: <https://typeset.io/papers/the-fallacy-of-the-cognitive-free-fall-in-communication-3k3i30hp52>

The Fallacy of the Cognitive Free Fall in Communication Metaphor: A Semiotic Analysis

MARTIN THELLEFSEN, TORKILD THELLEFSEN, AND
BENT SØRENSEN

ABSTRACT

This paper is a theoretical analysis of the cognitive free-fall metaphor, used within the cognitive view, as a model for explaining the communication process between a generator and a receiver of a message. Its aim is to demonstrate that the idea of a cognitive free fall taking place within this communication process leads to apparent theoretical paradoxes, partly fostered by unclear definitions of key information-science concepts—namely, tokens, signs, information, and knowledge and their interrelatedness—and a naïve theoretical framework. The paper promotes a semiotically inspired model of communication that demonstrates that what takes place in communication is not a cognitive free fall, but rather a fall from a pragmatic level of knowing or knowledge to a level of representation or information. The paper further argues that the communication process more ideally can be expressed as a complex interrelation of emotion, information, and cognition.

The essential office of the copula is to express a relation of a general term or terms to the universe. The universe must be well known and mutually known to be known and agreed to exist, in some sense, between speaker and hearer, between the mind as appealing to its own further consideration and the mind as so appealed to, or there can be no communication, or “common ground,” at all. The universe is, thus, not a mere concept, but is the most real of experiences.

—Charles Sanders Peirce (1933, p. 396)

INTRODUCTION

This is the third article in our series about the semiotic view in library and information science (LIS). The first, “Emotion, Information, and Cognition and Some Possible Consequences for Library and Information Science” (Thellefsen, Thellefsen, & Sørensen, 2013), concerned two aspects: the meaning-creation process and the communication of meaning. We successively argued in favor of a semiotic-inspired information concept, that information always causes emotional effects, and that interpreted information is to be considered knowledge. Additionally, we developed our concept of information in relation to the information systems-oriented, user-oriented, and community-oriented perspectives in LIS. In our second article, “The Information Concept of Nicholas Belkin Revisited: Some Semiotic Comments” (Thellefsen, Thellefsen, & Sørensen, 2014), we analyzed Belkin’s concept of information as it is expressed in his “Information Concepts for Information Science” (1978). Based on Belkin’s eight requirements for an information concept, we deduced a model of communication, and compared this model with our semiotically inspired communication model, the Dynacom. Based on our analyses, we concluded that Belkin’s model ignores both the effect caused by information when perceived by an interpreter and the structural relation existing between information and knowledge. This third article is inspired by one of the key suppositions within the cognitive view: the mechanism of the “cognitive free fall” as suggested by Ingwersen and Järvelin (2005a, 2005b). In their book *The Turn*, they argue that the cognitive free fall preconditions communication and happens whenever a message is communicated between a sender and a receiver, regardless of whether the sender is a human being or machine. Consequently, the idea of a cognitive free fall seems to be important in the definition of *communication* within the theoretical confines of the cognitive turn. The cognitive free fall is a factor determining the circumstances and probability of successful communication; it is a critical factor in any information-seeking process. The aim of this article is to look into the theoretical assumptions of the cognitive free-fall metaphor. We will do this by determining the consequences leading from the conception of the cognitive free fall, and will analyze the conception in relation to our semiotically inspired model of communication, the Dynacom (Thellefsen, Sørensen, & Thellefsen, 2011), in order to demonstrate that communication is pragmatic by nature and that the idea of a cognitive free fall seems to be a dead end. Based in a pragmatic semiotic viewpoint, we argue that communication takes place within a universe of discourse and in relation to shared collateral experience between the utterer (sender) and the interpreter (receiver). Consequently, defending the idea of a cognitive free fall that conditions any communication process does not seem reasonable.

THE COGNITIVE VIEW AND WHY THE COGNITIVE FREE FALL IS AN IMPORTANT CONCEPT

There is no doubt that the work of Ingwersen and Järvelin (2005a, 2005b) has had, and still has, a vast influence in determining the direction for research in LIS. According to Talja, Tuominen, and Savolainen (2005), the constructivist ideas of information science (IS) are commonly labeled under “the cognitive viewpoint.” The cognitive viewpoint, as initially formulated by Belkin and colleagues (Belkin, 1984, 1990; Belkin, Oddy, & Brooks, 1982), Brookes (1980), and Ingwersen (1982, 1992) does not, however, represent *cognitivism*. Cognitivism is an approach that is significantly related to artificial intelligence in drawing straightforward analogies between human information processing and computing (Ingwersen, 1992, pp. 19–25, 227). The cognitive viewpoint in IS differs from cognitivism by laying major emphasis on the way in which knowledge is actively built up by the cognizing subject—that is, by the individual mind—to serve the organization of internal and external reality. Consequently, the cognitive viewpoint emphasizes the concept of *knowledge*, and in particular an idea of knowledge that somehow is confined to the individual mind. Knowledge thus differs from external reality (considering that information retrieval [IR] regards relevance as a match between internal and external knowledge structures); in other words, the cognitive viewpoint prioritizes individually constructed knowledge structures. The idea of the cognitive free fall plays an important role in describing this relation and has been formulated by Ingwersen and Järvelin (2005b), whom we quote at length:

The most important dimension of the cognitive view is that during any act of human or computerized communication the viewpoint regards all communicated messages as signs transferred at a linguistic surface level. The signs may be transformed into information at a cognitive level only via perception and interpretation by the individual recipient's current cognitive state in context. The interpretation or association then transforms the cognitive state into a new state and the second condition is fulfilled.

Consequently, this view implies an immediate cognitive “free fall” of a message into the lowest levels of linguistic nature. The consequence is that any intentionality, meaning, implicit context and potential informativeness underlying the generated and communicated message are immediately lost. They have to be rebuilt and recovered, i.e., interpreted and constructed, by the recipient by means of those presuppositions in context, which make him/it participate in the communication act. . . . If a recipient cannot perceive the message, although he wishes to do so, information transfer does not take place. The message prevails at sign level containing all its potentials of meaning, information and cognition hidden from that recipient. If perceived, the signs may develop through some or all of the processing levels from morpho-lexical to pragmatics, as guided by the recipient's world model in context. The meaning of a message may hence be disambiguated at a semantic level into a common semantic value and sense, either because the message itself supplies adequate and understandable context, and/or the recipi-

ent adds his own context, probably but not necessarily also shared by other actors. (pp. 36–37; emphasis added)

According to Belkin (1978) and Ingwersen and Järvelin (2005a, 2005b), any act of communication involves a generator (or sender), a message, and a recipient. Therefore, according to Ingwersen and Järvelin, when the generator communicates something to a recipient, the message becomes stripped from intentionality, meaning, implicit context, and potential informativeness of the generator and falls on to a linguistic surface level. This is shown in figure 1.

In their article “The Sense of Information: Understanding the Cognitive Conditional Information Concept in Relation to Information Acquisition” (2005a), Ingwersen and Järvelin write that “the signs in the message fall back to a morpho-lexical state. They become data. The original (linguistic) conventions binding them together like grammar, cases and meaning (sense) are also present as signs themselves or have disappeared completely. A text or oral message simply becomes a string of signs, which have to be decoded by means of interpretation of a recipient, e.g., a reader” (p. 10). Success in communication depends on whether or not the recipient is capable of reconstructing the intentionality of the generator, the meaning of what is communicated, its context, and its potential informativeness. However, in order for the recipient to reconstruct the communicated, he, according to Belkin (1978), also needs to request or desire what is communicated. This line of reasoning we can illustrate with the communication model based on Belkin’s eight requirements for communication detailed in his classic article “Information Concepts for Information Science” (1978) (fig. 2).

In Ingwersen and Järvelin (2005a), the information concept is developed further: “On the one hand, information being something which is the result of a transformation of a generator’s knowledge structures (by intentionality, model of the recipients’ states of knowledge, and in the form of signs), and on the other hand something which, when perceived, affects and transforms the recipient’s state of knowledge” (p. 10). And they add four situations in which man/machine relations occur, and conclude that it is only when the receiver is a human actor that communication of information may take place. The four situations are the following:

1. *Human actor/machine communication*: the conveyed data (message or potential information) remain signs at a linguistic surface level.
2. *Human actor/human actor communication*: the data (message or potential information) may turn into information in a cognitive sense, depending on the state of knowledge of the recipient actor.
3. *Machine/human actor communication*: the conveyed data (message or potential information) may turn into information in a cognitive sense, depending on the state of knowledge of the recipient actor.

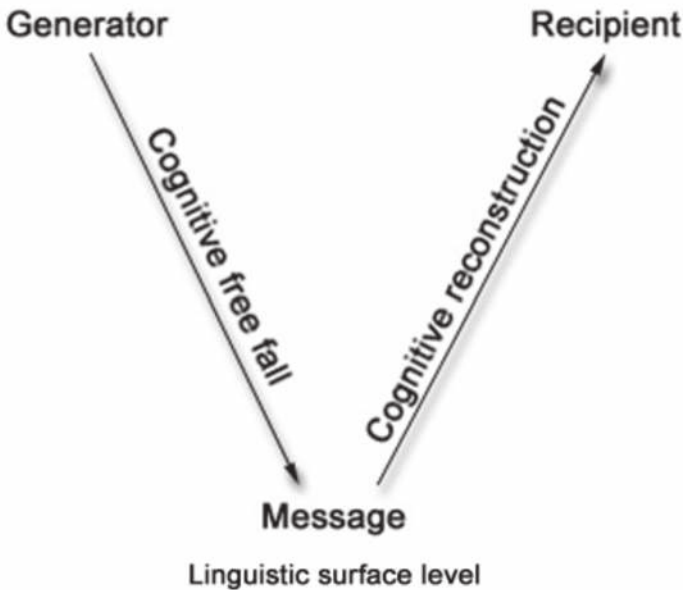


Figure 1. The cognitive free-fall metaphor illustrated. According to Ingwersen and Järvelin (2005b), the only way the recipient can pick up the message from the cognitive free fall is by reconstructing the message based on his own cognitive abilities.

4. *Machine/machine communication*: the conveyed data (message or potential information) remain signs at a linguistic surface level (pp. 10–11).

We agree with the fact that communication involves an active interpreter. However, we are amazed that there are no sufficient definitions of *data*, *potential information*, and *information and its inherent relations*.

The conception of the cognitive free fall suggests that the fall comes to a stop at a linguistic surface level, which must be identical to the morpho-lexical level mentioned by Ingwersen and Järvelin in the above quotation. From a linguistic perspective, they must assume that the cognitive fall takes place on a pragmatic level (language use) through a semantic landing on a linguistic surface level (in principle, the level of formal semantics). They must also assume that language is a unified code that structurally attaches to cognitive or mental knowledge structures, and that the mental activity of human beings follows that very same structure. Our question is: Why should the cognitive free fall occur, if such a fall exists at all? Is it possible to imagine language or even words without purpose or meaning? Language may be reduced to tokens (the linguistic surface level), but this would only be the case between artificial quasi-minds—for example, computers. Human agents always approach language from a pragmatic level, using it to communicate meanings, also in written form. Texts are

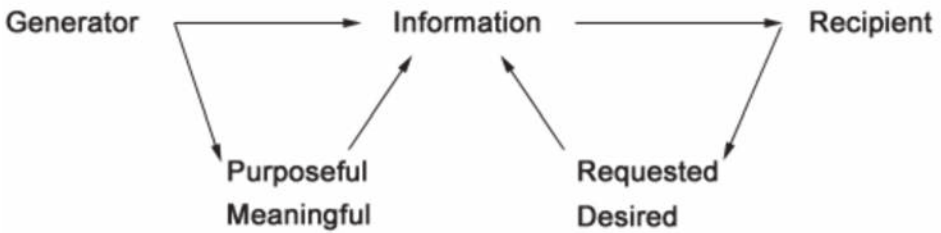


Figure 2. Belkin's communication model based on his article "Information Concepts for Information Science" (1978).

thus intentionally formulated. Stripping texts from their intentionality is possible by means of tokens or lemmas that, in principle, render texts meaningless. Here, statistical methods can be used in order to express semantic frequency and relations among semantic units—as, for example, in automatic indexing. Thus, from this viewpoint, human agents must ascribe meanings and interpret the tokens in order to reconstruct what is communicated. This view is strong because it renders texts objective at the surface level and is controllable.

According to the four situations mentioned above, we agree that machines do not possess cognitive ability; therefore, the human agent as receiver is mandatory for communication to take place. Success in communication depends on whether or not the recipient is capable of reconstructing the intentionality of the generator. In our view, human agents are, in contrast to computers, language users, and the purpose of language is to communicate meaning; therefore, the use of language, and understanding the meaning of language communicated among human agents, takes place on a pragmatic level of linguistics. As human agents, we learn, understand, and use language before we even consider grammar, sentences, and semantic units. Actually, human agents may communicate perfectly without even knowing semantic structures and grammar. Consequently, because human agents are pragmatic language users, the idea of a cognitive free fall among human agents is unlikely.

A cognitive free fall can only take place if the text is stripped from intentionality and possible meanings, which is the case with statistical methods. If texts are reduced to groups of words, they no longer express the intentionality of the generator (author); in principle, the text parser has become a new generator. However, even groups of words, stripped from their original intentionality, are meaningful to human agents because they now possess new intentionalities; namely, the purpose of being data sets. Consequently, for human agents at the receiving end, a cognitive free fall seems implausible. A cognitive free fall between computers also seems implausible, simply because computers do not possess cognitive ability.

In our view, we would say that a fall in cognition takes place from a knowledge level to an informational level. Ingwersen and Järvelin (2005a, 2005b) seem to imply that cognition only takes place via natural language. However, in our semiotic view, cognition can be *prior* to language and involve sign systems other than language alone. Several studies suggest that these sign systems (for example, nonverbal language) are much more universal and fundamental than our verbal and written languages, as Zaltman and Coulter (1995) write in their article “Seeing the voice of the Customer: Metaphor-based Advertising Research,” referring to studies within linguistics, anthropology, neurolinguistics, and so on:

The growing understanding of the role of all basic senses in learning and communication processes reinforces the assumption that nonverbal communication is dominant. . . . An important part of this understanding is the growing knowledge of the role of interactions (called synesthesia) among sensory modalities in our “making sense” of our world. . . . It is also of significance that verbal language developed only recently in the context of human evolution and written language developed even more recently. Thus, the human brain did not evolve to favor verbal functions, especially not written communication functions. Rather, emphasis was placed on the elaborate production of nonverbal channels of communication. (p. 37)

As previously mentioned, we find it problematic that Ingwersen and Järvelin do not provide or refer to a theoretical framework, nor do they offer a thorough analysis of the interrelation and differences among data, potential information, information, and knowledge. Furthermore, it is unclear what they mean by the concepts of signs and tokens. These concepts are not defined or justified by references, and, additionally, when the authors argue in favor of a cognitive theoretical approach—or to be precise, a cognitive view—there is a surprising lack of references. Cognition and language, and the relations between these two important concepts, have occupied human beings for millennia, and semiotics is a broad and heterogeneous field in which numerous definitions of *sign* can be found, but it is unclear how Ingwersen and Järvelin define it.

In our view, it is pointless to operate with the cognitive free fall as the fundamental premise for communication. In his 1868 article “Some Consequences of Four Incapacities,” Charles Sanders Peirce provides us with the following definition of the sign: “No present actual thought (which is a mere feeling) has any meaning, any intellectual value; for this lies not in what is actually thought, but in what this thought may be connected with in representation by subsequent thoughts; so that the meaning of a thought is altogether something virtual” (p. 289). We will return to this definition when we discuss an example of a library user searching “belkin, nicholas” when making a query. In the next section, we will demonstrate how the cognitive process in communication is more appropriately un-

derstood from a semiotic perspective, which involves emotion, information, and cognition.

COGNITION IN A PHENO-SEMIOTICAL PERSPECTIVE

According to our semiotic view, cognition involves two other elements: emotion and information. In order to understand the nature of these concepts in relation to our analysis of the conception of the cognitive free fall, we will define emotion, information, and knowledge and show how they are related and what role they play in the meaning-creation process and hence in communication. We will argue that the cognitive free-fall metaphor should be understood in relation to information rather than cognition. Ingwersen and Järvelin use the division of syntax, semantics, and pragmatics; this division was originally made by the American philosopher and semiotician Charles Morris, who was inspired by the medieval concept of the *trivium* and by his fellow American philosopher Peirce. However, the division made by Morris is not exclusively related to language but developed within a general semiotic framework. However, we have a suspicion that the cognitive free-fall metaphor in Ingwersen and Järvelin's *The Turn* (2005b) is understood primarily within language, since the authors argue that it is an important element in communication, and all examples used in *The Turn* regarding communication is based on spoken and written language. However, as noted above, language is not the only sign system used in cognition; rather, we believe that the division consisting of syntax, semantics, and pragmatics can be seen as an elaboration of verbal-language information; furthermore, we believe that the division can be understood in relation to a trichotomy of emotion, information, and cognition. Therefore, the cognitive free-fall metaphor is not a fall in cognition but a fall from a pragmatic level to a morpho-lexical level within information. Let us take a closer look at this trichotomy and place the division of syntax (we use *syntax* here synonymously with *morpho-lexical*), semantics, and pragmatics in relation to the concept of information.

EMOTION, INFORMATION, AND COGNITION

The trichotomy of emotion, information, and cognition follows the logic of Peirce's phenomenological classes: firstness, secondness, and thirdness—emotion being firstness (potentiality); information, secondness (actuality); and cognition, thirdness (mediation). (See Thellefsen, Thellefsen, and Sørensen [2013] and Sørensen, Thellefsen, and Thellefsen [2014] for further elaboration on these concepts.) Understanding emotion as firstness entails that “an emotion of the mind is real, in the sense that it exists in the mind whether we are distinctly conscious of it or not. But it is not external because although it does not depend upon what we think about it, it does depend upon our state of our thoughts about something” (Peirce, 1958a, p. 209). Consequently, emotion is real though

internal, what Peirce also calls *ego*. Likewise, information has a real being and place in secondness; information is facts. Consequently, information is both real and external—that is, it is non-ego. Being non-ego, information is the only thing that can create emotional effects. As Peirce states, “Every stimulus to action is derived from perception” (1986, p. 265). (This is accentuated by Smyth [1977]: “Every idea that can end as a clear idea must begin as an idea that is made in us by the things that force themselves to our attention and stimulate inquiry” [p. 101].) Furthermore, according to Peirce, “Everything in which we take the least interest creates in us its own particular emotion, however slight this may be. The emotion is a sign and a predicate of a thing” (1934, p. 184). We may conclude that any stimulus is caused by information.

Therefore, we have emotion as the internal and information as the external. Let us present some examples: A given book is full of information independent of what you may feel or think about it; it may just sit there on the bookshelf unread. Still, it is full of information. Imagine a twig broken in two by the wind; even though no one hears the sound, the sound is still information. A deer running across a plain is information, even if no one sees it.

Information at this level of cognition does not entail interpretation. The information in a given database is there, independent of what you may think or feel about it. However, if someone reads the book, hears the twig break, sees and hears the deer run, or searches a database, the information will cause emotional effects in the interpreter. However, there is only one element that can bridge the gap between the internal and external worlds—the third element, cognition. We believe this is what Peirce says in the following: “The past is the inner world, the present the outer world. Now, this joined with feeling (which it involves or requires) might be called consciousness and would be the world, were it not for the phenomena of error and ignorance, which forces us to reflect that there were two worlds in that two-sided consciousness” (1958b, p. 199). It is cognition that creates the relation between some given information and the emotions it causes intelligible. This is shown in figure 3. Returning to the cognitive free-fall metaphor, Ingwersen and Järvelin (2005a, 2005b) state that it falls from a pragmatic level, through a semantic level, and ends on a syntactic level. However, we think that by applying these concepts, they have outlined a perspective of information caused by language alone (fig. 4).

Information as verbal language has a morpho-lexical level: grammatical rules; it has a semantic level: the meaning of the word; and it has a pragmatic level: the use of the word. These all refer to information. If someone says to you in Danish, *Se, en hund!* (Look, a dog!), while vigorously pointing in the direction of the dog and you do not understand Danish, this information may be useless to you; however, it is still information (compare the above examples of the book on the bookshelf, the

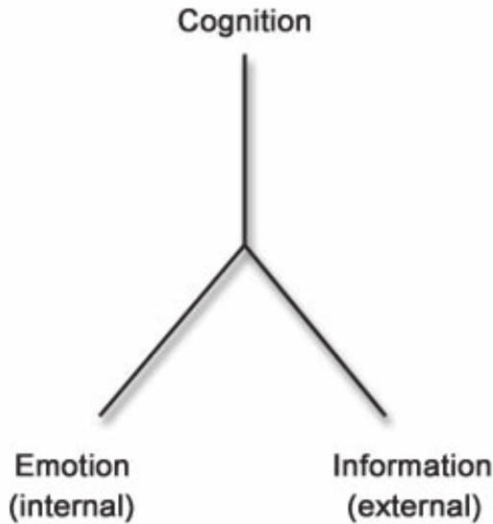


Figure 3. It is cognition that bridges the gap between the internal world (emotion) and the external world (information) and makes the relation general, stable, and, thereby, intelligible. Consequently, the model depicted is cognition par excellence.

twig, and the deer). If you do not know what the information informs you about and you are unsure of the contextual settings surrounding the information, you should experience, according to the cognitive free-fall metaphor, a cognitive free fall. The information should fall from a pragmatic level, through a semantic level, and to the linguistic level, where the interpreter should start picking up the language by piecing the letters together. Is this really the case? Does “Look, a dog!” fall from a pragmatic level to a linguistic surface level when it leaves the speaker’s mouth and strikes the hearer’s perceptive apparatus? We think the answer is no; instead, we think the phrase “Look, a dog!” is knowledge within the head of the speaker laden with intentionality, informativeness, and so on. When the words leave the mouth of the speaker, they become meaningful information, and because the interpreter does not possess collateral knowledge (background knowledge) and hence cannot create the right universe of discourse (the contextual setting), the words remain information, but they become stripped from meaning (from the interpreter’s perspective). However, since language is not the only sign system used in cognition, the speaker may use different kinds of nonverbalized communication in order to make the interpreter understand the message. Since nonverbalized communication, in many cases, transcends cultures, the speaker can make the interpreter understand the message even if he does not understand the spoken language. This is exactly the case here. The pitch

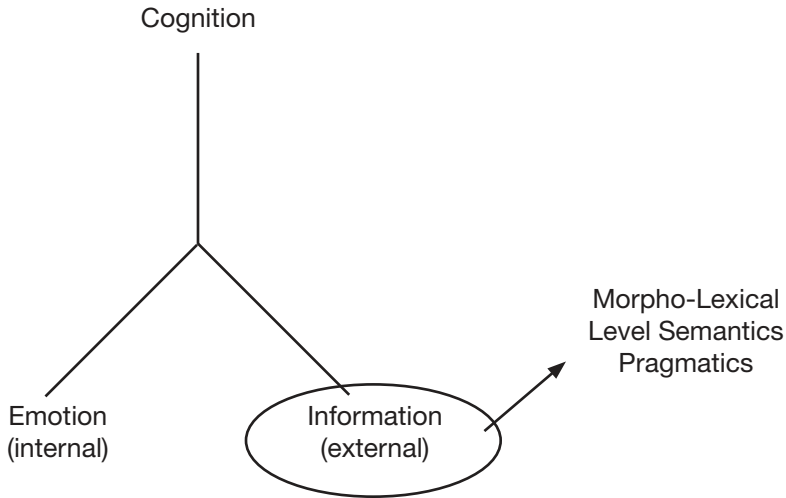


Figure 4. In our semiotic view, the trichotomy of syntactics, semantics, and pragmatics is related to language and thus information. We believe that all language is information, but that not all information is language. Information is signs of the type: icon, index, symbol. It is information that causes emotions to occur, and, when cognized, may cause knowledge to occur.

of voice carries information, as does the tone of voice. These qualities of the voice suggest something more than the mere syntactic and semantic content of the phrase “Look, a dog!” The speaker points vigorously at the dog; the pointing finger is a universal indexical and pragmatic use of sign language that points something out in time and place (*deixis*). The finger points to some semantic level of the language—namely, the presence of a dog. In this example of communication, no explicit morpho-lexical level is necessary in order for the interpreter to interpret and understand the communication.

Let us use another example clarifying that there is something pragmatic present in communication that is not tied to a morpho-lexical level. Say, a person needs a book about IS and knows that Belkin is a key figure in the field. Consequently, he searches the Web of Science database for references and documents by Belkin using the words “belkin, nicholas.” According to the cognitive free-fall metaphor, when the user plugs in “belkin, nicholas,” the name takes a cognitive fall down onto a linguistic surface level because now it is just letters at a computer screen organized in accordance to some given morpho-lexical rules. This is the first step in the communication process between the library user and the search engine (fig. 5).

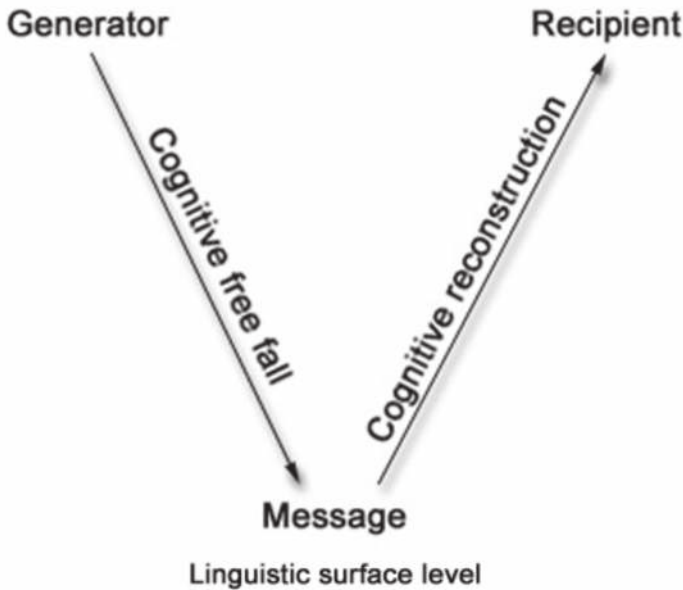


Figure 5. This figure shows the idea of the cognitive free fall in communication: the generator sends a message; the content of the message takes a cognitive free fall; and the recipient must make a cognitive reconstruction of the message in order to understand the communication of the generator.

The user (generator) communicates a message “belkin, nicholas” to the information system; now it is the computer’s task (the recipient) to reconstruct the intentionality of the generator, the meaning of what has been communicated, its context, and its potential informativeness. This is, of course, a task the computer cannot perform; cognition presupposes consciousness, but the computer lacks consciousness and hence cannot perform a cognitive reconstruction. We believe that Ingwersen and Järvelin (2005a) will agree, since they write that in relation to human/computer communication, the conveyed data remain signs at a linguistic surface level inside the computer (pp. 10–11).

However, the computer can match the query with documents containing the author “belkin, nicholas,” and this matching takes place on a morpho-lexical level. Consequently, it is the user who has to make the cognitive reconstruction of his query by analyzing the findings of the computer. This does not imply a cognitive free fall; instead, the query (that is, the message in the communication model) “belkin, nicholas” is a sign that represents the works of Belkin that is at least based on the user’s knowledge about Belkin and confers Peirce’s definition of the sign cited above. However, whether or not the words “belkin, nicholas” are in

the mind of the user or are written in the search formula, it is still a sign and represents aspects of Belkin. In the head of the user, it is knowledge; in the search formula, it is information representing the knowledge and intentions of the user. When it returns to the user, the user uses his knowledge about Belkin to evaluate the relevance of the documents found in the database.

Nowhere in this description has a cognitive free fall been taking place. Instead of such a free fall, there is a change in cognition happening when the speaker communicates a sign, which in some way creates an effect in the interpreter. The sign is knowledge when it is in the head of the speaker; the sign becomes information when it leaves the head of the speaker; and it becomes knowledge again when it is interpreted by the hearer. However, it is important to add that it will not be the same knowledge as was in the head of the speaker. Based on the collateral experience of the interpreter, he will interpret aspects of the sign communicated, and it is these aspects that he, through cognition, transforms to knowledge.

With respect to our example of the library user and his communicating the sign “belkin, nicholas” to the library database, when it leaves the user’s mind it becomes information. It is true, as Ingwersen and Järvelin (2005a) write, that the sign will remain at a morpho-lexical level in relation to the computer, but this is not the interesting part here. The sign “belkin, nicholas” will remain a sign representing aspects of Nicholas Belkin in relation to the collateral experience of the library user; and it is the collateral experience he uses when he evaluates the result of the search. The user is in some way having a dialogue with himself that is mediated by the computer. Also, it is only the library user that can evaluate the results of the search. In this sense, the library database becomes a kind of quasi-interpreter, and the search process is a kind of quasi-dialog between the library user and his future critical self. In figure 6, we present our semiotic-inspired communication model. (We will not go into detail about it here; see instead Thellefsen, Sørensen, and Thellefsen [2011] and Thellefsen, Thellefsen, and Sørensen [2013, 2014] for further information.)

The presence of collateral experience, held by the speaker and the interpreter, prevents a cognitive free fall. Humans always share some collateral experiences (for example, universal sign gestures). Humans have an inherent tendency to make representations, and this potential is unique and great. Hence, they can develop and discover representations of their inner worlds, social worlds, and outer worlds, and the continuous and complex contacts among these, in an infinite number of ways.

CONCLUSION

According to Ingwersen and Järvelin (2005a, 2005b), the cognitive free fall is a central element in communication. The cognitive free fall takes place from a pragmatic level, through a semantic level, and lands on a

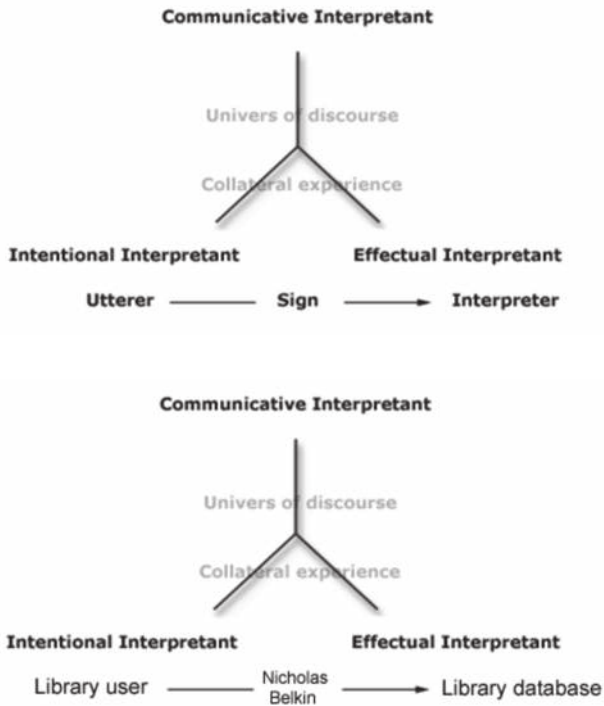


Figure 6. The Dynacom in action.

syntactic surface level, which is identical to a morpho-lexical level, whenever a speaker or generator communicates a message. When an interpreter or recipient receives a message, he must reconstruct it from a morpho-lexical level into a pragmatic level, where he may be able to understand what was communicated. We have argued that this is not the case; that instead, cognition is not exclusively tied to a verbal language but is often prior to language, and cognition involves many more aspects than what can be identified in a verbal and written language. By applying our semiotic-inspired communication model, the Dynacom, we have argued that there is a change in signs from a knowledge/cognitive level to an information level. In our view, information is secondness, non-ego, and of the nature of icons, indices, and symbols, whereas knowledge is the result of interpretation involving signs of thirdness: rhema, dicisigns, and arguments. Whenever a sign is communicated and leaves the originator, it falls from a knowledge level to a level of information. And, when interpreted by the interpreter, it becomes knowledge again. This is a continuous semiotic process of externalization and internalization that presupposes that the interpreter possesses collateral experience regarding the sign, where

collateral experience frames the contextual conditions, such as accepted theories, axioms, discussions with colleagues, or networks of thoughts (Hausmann, 2012a, 2012b). Based on our analyses, we conclude that the conception of a cognitive free fall taking place in communication is a fallacy.

REFERENCES

- Belkin, N. J. (1978). Information concepts for information science. *Journal of Documentation*, 34(1), 55–85.
- Belkin, N. J. (1984). Cognitive models and information transfer. *Social Science Information Studies*, 4(2–3), 111–129.
- Belkin, N. J. (1990). The cognitive viewpoint in information science. *Journal of Information Science*, 16(1), 11–15.
- Belkin, N. J., Oddy, R. N., & Brooks, H. M. (1982). ASK for information retrieval: Part I. Background and theory. *Journal of Documentation*, 38(2), 61–71.
- Brookes, B. C. (1980). The foundation of information science: Part 1. Philosophical aspects. *Journal of Information Science*, 2(3–4), 125–133.
- Hausman, C. R. (2012a). Peirce's dynamical object: Realism as process philosophy. In D. R. Anderson & C. Hausman (Eds.), *Conversations on Peirce: Reals and ideals* (pp. 75–99). Bronx, NY: Fordham University Press.
- Hausman, C. R. (2012b). Peirce on interpretation. In D. R. Anderson & C. Hausman (Eds.), *Conversations on Peirce: Reals and ideals* (pp. 114–131). Bronx, NY: Fordham University Press.
- Ingwersen, P. (1982). Search procedures in the library: Analyzed from the cognitive point of view. *Journal of Documentation*, 38(3), 165–191.
- Ingwersen, P. (1992). *Information retrieval interaction*. London: Taylor Graham.
- Ingwersen, P., & Järvelin, K. (2005a). The sense of information: Understanding the cognitive conditional information concept in relation to information acquisition. In F. Crestani & I. Ruthven (Eds.), *Context: Nature, impact, and role: 5th International Conference on Conceptions of Library and Information Sciences, CoLIS 2005, Glasgow, UK, June 4–8, 2005. Proceedings* (pp. 7–19). Berlin: Springer.
- Ingwersen, P., & Järvelin, K. (2005b). The turn: Integration of information seeking and retrieval in context. Berlin: Springer.
- Peirce, C. S. (1933). *Collected Papers of Charles Sanders Peirce: Exact Logic (Published Papers)* (Vol. 3). C. Hartshorne & P. Weiss (Eds.). Cambridge, MA: Harvard University Press.
- Peirce, C. S. (1934). *Collected Papers of Charles Sanders Peirce: Pragmatism and Pragmatism* (Vol. 5). C. Hartshorne & P. Weiss (Eds.). Cambridge, MA: Harvard University Press.
- Peirce, C. S. (1958a). *Collected Papers of Charles Sanders Peirce: Science and Philosophy* (Vol. 7). A. W. Burks (Ed.). Cambridge, MA: Harvard University Press.
- Peirce, C. S. (1958b). *Collected Papers of Charles Sanders Peirce: Reviews, Correspondence, and Bibliography* (Vol. 8). A. W. Burks (Ed.). Cambridge, MA: Harvard University Press.
- Peirce, C. S. (1986). *Writings of Charles S. Peirce, A Chronological Edition: Volume 3, 1872–1878*. Peirce Edition Project/C. J. W. Kloesel, et al. (Eds.). Bloomington, IN: Indiana University Press.
- Smyth, R. (1977). The pragmatic maxim in 1878. *Transactions of the Charles S. Peirce Society*, 13(2), 93–110.
- Sørensen, B., Thellefsen, T., & Thellefsen, M. (Forthcoming). The meaning-creation process, information, emotion, knowledge, two objects, and the significance-effects: Some Peircean remarks. *Semiotica*.
- Talja, S., Tuominen, K., & Savolainen, R. (2005). "Isms" in information science: Constructivism, collectivism and constructionism. *Journal of Documentation*, 61(1), 79–101.
- Thellefsen, T., Sørensen, B., & Thellefsen, M. (2011). The significance-effect is a communicational effect: Introducing the Dynacom. *Sign Systems Studies*, 39(1), 209–223.
- Thellefsen, T., Thellefsen, M., & Sørensen, B. (2013). Emotion, information, and cognition and some possible consequences for library and information science. *Journal of the American Society for Information Science and Technology*, 64(8), 1735–1750.

- Thellefsen, T., Thellefsen, M., & Sørensen, B. (2014). The information concept of Nicholas Belkin revisited: Some semiotic comments. *Journal of Documentation*, 70(1), 74–92.
- Zaltman, G. (2003). *How customers think: Essential insights into the mind of the market*. Boston: Harvard Business School Press.
- Zaltman, G., & Coulter, R. (1995). Seeing the voice of the customer: Metaphor-based advertising research. *Journal of Advertising Research*, 35(4), 35–51.

Martin Thellefsen is an associate professor in the Department of Information Science at Copenhagen University. His main research interests are knowledge organization, socio-semiotics, the history of science, information science, and Charles S. Peirce. His publications have appeared in *Journal of the American Society for Information Science and Technology* and *Journal of Documentation*. His article “The Semiotics of Knowledge Representation: Profiling Conceptual Knowledge” was published in the edited volume *From First to Third via Cybersemiotics* (2011).

Torkild Thellefsen is an associate professor at Copenhagen University. His main research interests are the semiotics of Charles S. Peirce, branding theory, knowledge organization, and information philosophy. His publications have appeared in *Knowledge Organization*, *Journal of the American Society for Information Science and Technology*, and *Semeiosis*. He was coeditor of the 2013 special issue on branding, “Signs, Brands and Communities,” in *Social Semiotics*; and the volume *Charles Sanders Peirce in His Own Words: 100 Years of Semiotics, Communication and Cognition* (2014).

Bent Sørensen is an independent scholar. He has a particular interest in philosophy (Charles S. Peirce, American Pragmatism, Umberto Eco), communication research and theory (advertising, branding), and library and information science (the concept of information). His publications have appeared in *European Journal of Pragmatism and American Philosophy*; *Semiotica*; and the 2013 special issue on branding, “Signs, Brands and Communities,” in *Social Semiotics*. He was coeditor of the 2012 special issue on “The Scientific Metaphysics of Charles S. Peirce,” in *Cybernetics and Human Knowing*; and the volume *Charles Sanders Peirce in His Own Words: 100 Years of Semiotics, Communication and Cognition* (2014).