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RELEVANCE AS A CONCEPT OF PRAGMATICS OF LOGIC

The study introduces "relevance" as a basic concept of the pragmatics of logic, its conceptual epistemological model of analysis. Based on the concept of relevance by Birger Hjørland and Frank Sayer Christensen, the study aims to characterize "relevance" as something relevant to a task if it increases the probability of accomplishing the goal implied by the task. The higher the relevance, the more reliable, efficient, and optimal something is as an instrument of task accomplishment, and the higher is the obligation, necessity, and guarantee of the result achieved. In addition, the concept of adequacy is characterized as something adequate to a task if it increases the probability of accomplishing the goal implied by the task to 1 (in terms of probability theory). If logic (formal or informal) is used within its established and tested scope of applicability, then this logic is adequate. If logic (formal or informal) is used beyond its established and tested scope of applicability, then this logic must be considered in terms of relevance. The relevance of logic indicates that logic is used as a heuristic.
Keywords: *adequacy, heuristics, logic, pragmatics of logic, relevance, semiotics of logic, sign.*

The current study is a continuation of developing a conceptual epistemological model for analyzing the pragmatics of logic, specifically, and the pragmatics and semiotics of logic, generically. As of this writing, creating this model has involved incorporating basic concepts of logic and semiotics, such as "sign", "system of signs", "use of signs (and systems of signs)", "user of signs (and systems of signs)", "subjectivity in a system of signs", "(sign) situation", "(sign) context", "performance" and "competence". ***This paper introduces the concept of "relevance" to the set of basic concepts of this model. The paper discusses what "relevance" is and the advisability of introducing this concept into the model.***

Before explaining the concept of "relevance" as a basic concept in the conceptual epistemological model for analyzing the pragmatics of logic, I should clarify what I mean by "semiotics of logic" and "pragmatics of logic".

The semiotics of logic is the study of logic as a system of signs. To study the semiotics of logic, one needs training in both semiotics and logic to understand the specific nature of logic. For this reason, the semiotics of logic is sometimes indistinguishable from the philosophy of logic, which seeks to answer the question, "What is logic?"

The semiotics of logic is fundamentally multimodal; it examines logical texts as articulated texts that produce or facilitate the production of complex and diverse meanings. From this perspective, logics understood as texts are on the same level as other multimodal texts, such as newspapers, magazines, comics, and combinations of video, audio, and written texts.

Multimodal text is inherently synonymous with creolized text, which

consists of a heterogeneous structure of verbal (linguistic/speech) and nonverbal elements that belong to other sign systems, besides natural language.

Semiotics of logic studies logic as a multisemiotic construction[1], or more precisely, the products of logic as discourses formed by selecting functional signs from natural language, logical symbols, and visual representations of data. These discourses are primarily written texts, though logical, philosophical, and scientific practices are not limited to this form of semiotic activity. They can also take the form of lectures, reports, software, laboratories, and other forms.

Within the framework of the semiotics of logic, the systems of signs of natural language and writing, logical symbolism, and visual data representation are considered as semiotic resources of logic, i.e., as actions (practices), materials, and artifacts that are used for communication purposes (in a broad scope) and are produced either in a psychophysiological way – for example, using the human voice apparatus, muscles used for facial expressions and gestures – or technically, for example, using a pencil, ink, or computer, along with the forms in which these resources can be organized. These resources exhibit semantic potential based on their past use and a set of affordances that may be leveraged in their future use.

Multimodal semiotics of logic is characterized by two dimensions: the intrasemiotic and the intersemiotic. The intrasemiotic dimension involves considering each semiotic resource as a distinct, immanent system of signs. For instance, symbolic formal logic combines natural language sign systems, logical symbolism, and visual data representation. Investigating symbolic logic in its intrasemiotic dimension means considering each semiotic resource separately.

The intersemiotic dimension of logic considers logic as a relationship between semiotic resources. For example, logic can be considered in terms of another semiotic resource (for instance, logical symbolism can be regarded as in terms of writing: logical symbols can be incorporated as ideograms into writing). Logic's semiotic resources can also be viewed as a mechanical combination to solve a specific problem. Here, the combination is simply the sum of its parts. Finally, logic's semiotic resources can be considered as an integration of these resources. Here, integration means a whole whose parts give rise to new properties. In essence, integration implies the emergence of a new resource that leverages these existing resources.

These dimensions, both intrasemiotic and intersemiotic, can be examined from the perspective of the three typical semiotic dimensions of each system of signs: 1) syntactic: the position of one sign in relation to other signs within a system and its implementation. In the intrasemiotic dimension, the arrangement of signs within a single semiotic resource is considered. In the intersemiotic dimension, the arrangement of signs from one semiotic resource in relation to signs from another semiotic resource is considered; 2) semantic: the relationship of signs to a particular reality. In the intrasemiotic dimension, the relationship of signs from one semiotic resource to a specific reality is considered. In the intersemiotic dimension, the relationship of a set of semiotic resources to a particular reality is considered; 3) pragmatic: the relationship between signs and their users. It includes the origin,

articulation, reconfiguration, borrowing, and distribution of signs. The intrasemiotic dimension examines the relationship between the signs of each distinct semiotic resource and their users. The intersemiotic dimension examines the relationships between the signs of a set of semiotic resources and their users, including the correlations between these semiotic resources.

The semiotics of logic is concerned with "logical semiosis", or the sign process involving logic. It encompasses the forms of activity and behavior related to the signs used by logicians when employing the semiotic resources of a particular logic. At least two models of semiosis, and therefore of logical semiosis, can be proposed. The first is Charles William Morris's model, in which syntax, semantics, and pragmatics are presented as equally important sections of semiotics that can be treated independently [Morris 1955]. The second is Rudolf Carnap's model, in which syntax is included within semantics, which in turn is included within pragmatics [Carnap 1955]. In the second model, semantics is not possible without syntax, and pragmatics is not possible without syntax and semantics. Notably, in Carnap's model, pragmatics is equated with semiotics in its full scope.

According to the preferred model of semiosis, logic can be considered as a specific system of signs either separately or from the perspective of semiotics as a whole. The latter perspective is structured like a Matryoshka doll, with sections of semiotics integrated into one another.

Proceeding from the above, the semiotics of logic has three sections: the syntax (syntactics) of logic, the semantics of logic, and the pragmatics of logic. The scope of this study is mainly focused on the latter.

The pragmatics of logic is a section of the semiotics of logic that studies the relationships between signs and systems of signs used in logic and the users of these signs and systems of signs, and these users include not only logicians, whose object of study is logic, but also those who practice logic in various fields (philosophy, science, humanities and everyday life, for example).

The development of the pragmatics of logic is accompanied by the creation of a conceptual epistemological model for analyzing the pragmatics of logic. The development of this model involves the elaboration of the basic concepts in the pragmatics of logic. The following concepts are included in the list of basic concepts of the pragmatics of logic:

"Sign". This concept is applied in all sections of the semiotics of logic, including syntax (syntactics), semantics, and pragmatics. The critical aspect here is the conception (theory) of a sign used in the analysis. There are many conceptions of signs, the most famous of which are those of Charles Sanders Peirce, Ferdinand de Saussure, and Charles William Morris. Different conceptions of the sign imply different definitions of the sign, different structures of the sign, different comprehension of the nature of signs, different classifications of signs, different comprehension of semiosis, and even different semiotics. In specific situations, what is conceptualized as a sign can affect the relationship between the sign and its user, that is, the kind of pragmatics that will be employed, including the pragmatics of logic.

"System of signs". This concept is used throughout the semiotics of logic. The organization, commonality, interdependence, and differentiation of signs depend on the understanding of "system of signs". Semiotics of logic is only interested in systems of signs and not in any other systems. Furthermore, it is only interested in systems of signs that are used in logic. The semiotics of logic is not limited to the study of "formal systems" or "logical systems" in logic. It includes the examination of formal (logical) languages, metalanguages, the use of natural language and writing in logic, the use of codes, and the use of symbolic representations of data in logic—in other words, all known semiotic resources of logic.

"Use of signs (or system of signs)". Any system of signs is used to perform specific acts. Using signs, such as speaking, writing, drawing, or articulating, means acting; for example, affecting or perceiving. Using signs is an act. These acts are usually characterized by interaction and transaction, as well as the actualization of the system of signs. Natural language is actualized through sounds (speaking and listening), writing through writing and reading written signs, logical symbolism through writing and reading logical signs, and visual representation of data through drawing and visual perception of geometric figures (e.g., graphs, Euler circles, Venn diagrams, tables, and figures). The pragmatics of logic, in particular, and the semiotics of logic, in general, are interested in those actions that are performed with signs in logic, both on the part of the producer of signs and on the part of the consumer of signs.

"User of signs (or of a system of signs)", i.e., the one who uses signs (performer, subject, sign producer, sign consumer, interpreter, speaker, listener, writer, reader, or perceiver). The concept of "user of signs" is closely related to the concept of "subjectivity in the system of signs", which is mainly manifested through the ability to appropriate this system through use. Those who use formal logic typically attempt to conceal the user of signs and their subjectivity within a specific system of signs through logical symbolism. It creates the illusion of uniformity and objectivity. Users of logic proceed from an intersubjective attitude: the sign producer creates signs based on the assumption that there is a consumer of these signs who has the same understanding of the system of signs as the producer. Intersubjectivity is actually responsible for the illusion of objectivity. Errors in the use of logical signs, such as logical fallacies, and communication failures between users of logical signs can attest to subjectivity in the system of logical signs.

"Context" and "situation". The use of signs (or systems of signs) has internal and external characteristics. The external characteristics of the use of signs include the situation, circumstances in which the place, time, and identity of the participants in a particular manifestation of semiosis must be considered. For example, in a dispute between logicians, they take into account the location of the dispute and its participants (Are only logicians participating, and can they only use resources understandable to logicians, such as logical terminology and symbols?). An internal characteristic of the use of signs is context, which is anchored in mental circumstances. Context refers to the user's subjectivity within the system of signs

and their assumptions about situations in which semiosis occurs. It is essential that the producer of signs perceives the sign situation in their own way and sets the context for the signs they produce. Likewise, it is crucial that the consumer of signs perceives the sign situation in their own way and reconstructs the context for the signs they perceive. The sign situations and contexts of the producer and consumer of signs may not coincide.

"Performance" and "competence". Performance is the realization, or fulfillment, of an action with signs in specific contexts and situations. In these contexts and situations, the system of signs (e.g., logical symbolism) and the user's competence in using signs are both actualized. Competence is the mastery of a code, or semiotic resource, or system of signs. It implies the ability to produce and consume the signs of a given code in specific contexts and situations.

I believe the basic concepts of the pragmatics of logic mentioned above can be related to the concept of "relevance". Due to this relationship, the concept of "relevance" can be added to the list of basic concepts of the pragmatics of logic.

"Relevance" is a concept that is important in many fields, including cognitive sciences, economic theories, information theories, jurisprudence, logic, philosophy, systems research, and related disciplines.

There are various interpretations of what relevance signifies. In cognitive linguistics and linguistic pragmatics, exceptionally, Dan Sperber and Deirdre Wilson provide a conception of relevance, the core of which is that the relevance of an object for a given purpose is measured by how well the object serves that purpose. For Sperber and Wilson, relevance is a measure of communicative effectiveness. It enables the conveyance of the latest information within a specific context. It requires minimal effort from the listener to obtain that information. Sperber and Wilson's conception of relevance is limited to language, speech, communication, and different sign systems, and they do not seek to be universal [Sperber & Wilson 1995].

There is also Arnold Tsofnas' conception of relevance. It is based on Aristotle's conditions for the possibility of one thing affecting another. For Tsofnas, one of these conditions, the condition of homogeneity, means the requirement of relevance. He interprets this requirement in terms of parametric general systems theory, stating that the requirement of relevance is "the requirement that the thing that affects and the thing that is affected be regarded (represented, presented) as systems in the same sense" [Raikhert 2025]. To use Tsofnas' conception of relevance, one must master the vocabulary and formal and logical apparatus (i.e., the ternary description language) of parametric general systems theory. In other words, Tsofnas' conception of relevance is not sufficiently relevant because mastering parametric general systems theory and the ternary description language requires considerable effort. Nevertheless, the conception is universal because it applies to any system.

A third conception of relevance piqued my interest because of its instrumentality, simplicity, and potential universality. Birger Hjørland and Frank Sayer Christensen proposed this conception. They suggest the following

characterization of "relevance": "Something (*A*) is relevant to a task (*T*) if it increases the likelihood of accomplishing the goal (*G*), which is implied by *T*. *A* should be regarded as a tool in the broadest possible sense of this word, including ideas, texts, and things" [Hjørland 2010: 229]. In this characterization, relevance is secured to a tool (the "something *A*") that is used to increase the likelihood of accomplishing a goal or task. It seems to me that this characterization of "relevance" (or the conception of relevance) is quite universal and one that does not require much effort to learn and apply.

I find that the conception of relevance proposed by Hjørland and Christensen can be further elaborated upon. Thus, relevance is associated with likelihood. However, likelihood is a synonym of possibility, and hence is related to probability. The latter, in essence, can be understood as a degree (or measure) of possibility (or likelihood). Relevance can then be related to probability and understood as follows: "Something (*A*) is relevant to a task (*T*) if it increases the probability of accomplishing the goal (*G*), which is implied by *T*".

For what reason is probability critical to relevance? To illustrate, consider the following example. Putting a nail into a board is a task. What tool is appropriate for this task? Usually, a hammer is the tool for this task. But what if a hammer is unavailable? In that case, the person would look for a substitute that could do the job. An axe could work. However, an axe is less relevant than a hammer for this task because its primary function is to split things, not nail them. If you don't have an axe, you can use a solid stone. Its relevance as a tool for the task will be lower than that of an axe. Thus, as one moves towards lower relevance, one can arrive at things that are not relevant at all to the specified task. For example, it is impossible to put a nail into a board with a piece of paper.

This example shows that, to some extent, relevance can be replaced by probability. In other words, the less a tool is designed for a specific task, the less likely it is to perform that task. In this interpretation, relevance as probability can be measured using probability theory on a scale from 0 to 1. 0 represents the impossibility and improbability of an event occurring, as well as the irrelevance of a tool in accomplishing a task. 1 represents the exact possibility and probability of an event occurring, as well as the exact relevance of a tool in accomplishing a task. In probability theory, 1 is the label for a particular event. Here, "1" labels an obligatory (or necessary) event. The relevance associated with a credible event is the relevance of a tool whose use is obligatory, necessary, and guaranteed to lead to the accomplishment of a task. A tool that accomplishes a task as a credible event is the most reliable, efficient, and optimal tool for that task.

In the context of what has been said, "relevance" can be characterized as follows: "Something (*A*) is relevant to a task (*T*) if it increases the probability of accomplishing the goal (*G*), which is implied by *T*. The higher the relevance, the more reliable, efficient, and optimal something (*A*) as an instrument of task (*T*) accomplishment, and the higher is the obligation, necessity, and guarantee of the result (*G*) achieved".

One more point to mention: Arnold Tsofnas sees relevance as being tied to adequacy. He believes that relevance is a part of what makes something adequate, and that adequacy cannot exist without relevance [Raikhert 2025]. Consider the relationship between relevance and adequacy from a different angle. On a probability scale, adequacy is equivalent to relevance, except that this relevance is set to 1. In my example, the hammer is not just a relevant tool for putting nails into boards; it is an adequate tool. It is not the case with an axe or a stone, for example. Adequacy refers to a tool's purpose, which encompasses the range of tasks that the tool must perform efficiently, reliably, and optimally. In other words, a hammer is an adequate tool for putting nails in. So, if adequacy is a kind of relevance, it can be characterized as follows: "Something (*A*) is adequate to a task (*T*) if it increases the probability of accomplishing the goal (*G*), which is implied by *T*, to 1".

Proceeding from the above considerations regarding relevance and adequacy, I attempt to introduce how the concept of "relevance" can be applied in the pragmatics of logic. Any logic (formal or informal) has its own scope of applicability – the sphere within which the logic is applied most effectively and yields a guaranteed result. Users know that if they apply a specific logic within its scope of applicability, they will obtain a guaranteed, necessary result. In other words, if logic provides guaranteed, necessary results (i.e., performs as an algorithm) in a particular sphere, then one can speak of this logic as adequate for this scope (of applicability). It means that all the semiotic resources used in this logic are also adequate for its scope of applicability. It also means that the selected logical signs and systems of these signs, as well as their use, are adequate for this scope. Furthermore, the competence of the user of this logic is best demonstrated when applying it within its scope of applicability. The scope of applicability provides adequate opportunities for the use of this logic. The logic and scope of applicability are mutually adequate.

If the application of logic extends beyond its established scope, then the relevance of this logic to the new scope becomes a question. Here, at least initially, logic is not used as an algorithm to obtain guaranteed results. Rather, logic is used as a heuristic, where the outcome is uncertain and unpredictable. Here, the pragmatics of logic should be studied in terms of how likely it is to achieve a successful, reliable, or optimal result. In other words, the degree of relevance of this logic should be studied. It means discussing the relevance of logic, the expanded scope of its applicability, and the significance of using signs and systems of signs. It also means examining the semiotic resources of this logic as applied to a new field of study. It will also address the competence of users of this logic in the new scope of its applicability and the relevance of this new scope to this logic.

In conclusion, the concept of "relevance" is essential for the pragmatics of logic in cases where logic is employed as a system of signs, and this use is inherently heuristic. In other words, when logics go beyond their scope of applicability and become heuristics, the pragmatics of logic must examine these logics for their relevance to new scopes of applicability. As long as logic remains within its scope of applicability, it is adequate.

Notes

[1] The terms of multimodal semiotics, semiotic resource and multisemiotic construction were borrowed from the Kay L. O'Halloran's multimodal semiotics of mathematics [O'Halloran 2005].

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Костянтин Райхерт

«РЕЛЕВАНТНІСТЬ» ЯК ПОНЯТТЯ ПРАГМАТИКИ ЛОГІКИ

Стаття пропонує поняття «релевантність» як вихідне поняття прагматики логіки, її концептуальної епістемологічної моделі аналізу. На підставі концепції релевантності Б. Хьорланда та Ф. С. Крістенсена «релевантність» характеризується як щось, що є релевантним для завдання, якщо воно збільшує ймовірність досягнення мети, передбаченої цим завданням. Чим більша релевантність, тим надійнішим, ефективнішим і оптимальнішим є щось як інструмент виконання завдання, та тим більша обов'язковість, необхідність і гарантія досягнення результату. Окрім того, поняття «адекватність» характеризується як щось адекватне завданню, якщо воно збільшує ймовірність досягнення мети, передбаченої завданням, до 1 (з огляду на теорію ймовірностей). Якщо логіка (формальна чи неформальна) використовується в межах своєї встановленої та перевіреної сфери застосування, то така логіка вважається адекватною. Якщо логіка (формальна чи неформальна) використовується за межами своєї встановленої та перевіреної сфери застосування, то така логіка має бути розглянута з огляду на її релевантність до її нової сфери застосування. Релевантність логіки є індикатором того, що логіка використовується як евристика.

Ключові слова: *адекватність, евристика, знак, логіка, релевантність, прагматика логіки, семіотика логіки.*

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