

FUZZY LOGIC AND DETERMINERS IN TEXTS

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Abstract

Fuzzy logic is a form of multivalued logic in which the truth value of variables can be any real number between 0 and 1. It is used to handle the concept of partial truth, where the truth value can vary between completely true and completely false. The fuzzy inference process usually consists of several parts.

Fuzzy logic originated in the context of fuzzy set theory introduced by Lotfi Zadeh. A fuzzy set defines the degree of membership of elements of the universe, usually a real number from the interval $[0,1][0,1]$. Fuzzy logic is created by assigning degrees of truth to propositions.

Fuzzy logic is characterized as "logic based on real numbers". This is taken as a logic in which degrees of truth are taken from the real line and connectives are interpreted as functions on it.

Key words: logic, fuzzy, significance, Kitabi-Dede Korkut, artistic, text

Fuzzy logic originated in the context of fuzzy set theory introduced by Lotfi Zadeh (1965). A fuzzy set defines the degree of membership of elements of the universe, usually a real number from the interval $[0,1][0,1]$. Fuzzy logic is created by assigning degrees of truth to propositions. The standard set of truth values (degrees) is the true unit interval $[0,1][0,1]$, where 00 is "completely false", 11 is "completely true" and other values represent partial truth, i.e., average degrees of truth [1, s. 338].

Fuzzy logic is characterized as "logic based on real numbers". This is taken as a logic in which degrees of truth are taken from the real line and connectives are interpreted as functions on it. Such logics are usually designed with applications in mind, such as the workforce of the broader enterprise of fuzzy logic, which arises from the formalization of fuzzy sets by Lotfi Zadeh. Fuzzy logics provide the basis for logical systems that deal with uncertainty, i.e. to formalize common natural language predicates such as "tall" or "fast".

Fuzzy logic is used in natural language processing for tasks such as sentiment analysis and text classification; natural language shows uncertainty in the meaning of the text and enables decisions to be made based on this uncertainty.

The general term fuzzy quantifier is used in this work to denote a set of quantifiers whose elements are represented in natural languages: *several, most, much, not many, very many, not very many, few, quite a few, large number, small number, close to five, approximately ten, frequently, etc.*

Ambiguous determiners in texts can be defined as following:

- 1) Quantitative words (all, most, some ...);
- 2) Adverbs (approximately, somewhat, mainly, essentially, etc.);
- 3) Presumptive statements (assume, suspect, hypothesize, etc.);
- 4) Nouns (hypothesis, doubt, suggestions, etc.) [2, p.45].

K.Abdullayev writes that these phrases and words can be found in the "Kitabi-Dede Korkut" text either in the visible or in the hidden layer. Fuzzy logic is known to express some doubt and hesitation. Therefore, the scientist notes that the text "Dede Korkut" is a text that does not allow hesitation and doubts in its upper layer [2, p. 46]. However, in the general mood and ideology of the text, one can find cases such as doubt and hesitation. Therefore, the mentioned text should be carefully analyzed and necessary doubt, hesitation, etc. such cases should be revealed. When

you read it, you can see that the text of "Kitabi-Dede Korkut" as a whole has an intonation, a spirit that goes along the path of directness, far from ambiguity. However, this does not mean that doubt and hesitation cannot be found in the text of "Kitabi-Dede Korkut". Of course, if you read the text carefully, you can find situations such as doubt and hesitation, even if it is not obvious. These situations are hidden in the text, not in the open, but in secret. Revealing it becomes possible as a result of dispelling certain stereotypes [2, p.45].

People who communicate in natural language or any specific language have their own semantics and pragmatics to express their feelings, judgments, and behaviors. The human brain is an amazing machine that can translate and understand text (voice) into natural language. It should also be taken into account that natural language has features such as vague, fuzzy, ambiguous (ambiguous) and non-descriptive. Therefore, K.Abdulla writes that uncertainty can be solved by fuzzy logic. By understanding the existence of vagueness and uncertainty, fuzzy logic can provide useful insights to a natural language processing system [2, p.52]. In fuzzy set theory, the process of text (voice) evaluation in natural language (for example, in the language of "Kitabi-Dede Korkut") includes three main steps: 1) Categorization (for example, "Finding the reference of the exception of the third in the text of Dede Korkut"); 2) prioritization (processing frequency); 3) detection of a special topic (point of targeting) [2, p.53].

Some scientists think that it is difficult to argue against the idea that "fuzzy logic will enter our lives in the future". K.Abdulla specially emphasizes that in any ancient literary text, including initially in "Kitabi-Dede Korkut", in other words, the spirit of fuzzy logic was present in the "soul" of natural language from the very beginning [2, p. 54]. According to him, in the prehistoric mythological period, even our ancestors thought with the principles of fuzzy logic [2, p.54]. K. Abdullah's conclusion is that fuzzy logic is more a function of the "Nature" era. It is either petrified or forgotten and continues to live in our consciousness, albeit only forgotten.

Thus, fuzzy logic attempts to solve problems with an open, imprecise spectrum of data that allows for a range of precise results. Fuzzy logic is designed to solve problems by considering all available information and making the best possible decision based on the input. Fuzzy logic is based on the principles of set theory, which makes the reasoning quite simple to understand. Because it mimics human thinking and decision making, it serves as a highly effective solution to complex problems in all areas of our lives.

REFERENCES

1. Zadeh L. A. Fuzzy sets. *Information and Control*, 8:338–353, 1965.
2. Abdulla K., Aliyev R. "Kitabi Dede Korkut" and fuzzy logic. *Baku: 525th newspaper*, 2022, 120 p.
3. https://link.springer.com/chapter/10.1007/978-1-4615-3640-6_8