LEXICAL AND SEMANTIC PROBLEMS IN SCIENTIFIC TRANSLATION

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Abstract: *This article, we will consider and analyze the problems of scientific translation.*

We will examine how to find solutions to lexical and semantic problems in scientific translation using the examples of scientists' works.

We will also consider a number of works for the advancement of scientific translation.

Keywords: *translation, scientific translation, lexical translation, semantic translation.*

Аннотация: *В этой статье мы рассмотрим и проанализируем проблемы научного перевода.*

Мы рассмотрим, как найти решение лексико-семантических проблем в научном переводе, на примерах работ ученых.

Мы также рассмотрим ряд работ по развитию научного перевода.

Ключевые слова: *перевод, научный перевод, лексический перевод, смысловой перевод.*

INTRODUCTION

The science of translation, as a recent scientific discipline, was divided by Holmes into the branches of descriptive and applied studies. The first was concerned with concrete translational phenomena, and the second related to translator training, translation criticism, and translation aids.

Translation science, also known as implementation science, is testing implementation interventions to improve uptake and use of evidence to improve patient outcomes and population health. It also helps clarify what implementation strategies work for whom, in what settings, and why.

This is especially important if professional translating services are required to translate articles and papers to be published in peer-reviewed scientific journals, textbooks, laboratory protocols, device manuals, documents, or specific instructions; thus, it is of the utmost importance to know and correctly use.

The scientific method is an empirical method for acquiring knowledge that has characterized the development of science since at least the 17th century (with notable practitioners in previous centuries; see the article history of scientific method for additional detail.) It involves careful observation, applying rigorous skepticism about what is observed, given that cognitive assumptions can distort how one interprets the observation. It involves formulating hypotheses, via induction, based on such observations; the testability of hypotheses, experimental and the measurement-based statistical testing of deductions drawn from the hypotheses; and refinement (or elimination) of the hypotheses based on the experimental findings. These are principles of the scientific method, as distinguished from a definitive series of steps applicable to all scientific enterprises.

The scientific method is often represented as an ongoing process. This diagram represents one variant, and there are many others.

Although procedures vary from one field of inquiry to another, the underlying process is frequently the same from one field to another. The process in the scientific method involves making conjectures (hypothetical explanations), deriving predictions from the hypotheses as logical consequences, and then carrying out experiments or empirical observations based on those predictions. A hypothesis is a conjecture, based on knowledge obtained while seeking answers to the question. The hypothesis might be very specific, or it might be broad. Scientists then test hypotheses by conducting experiments or studies. A scientific hypothesis must be falsifiable, implying that it is possible to identify a possible outcome of an experiment or observation that conflicts with predictions deduced from the hypothesis; otherwise, the hypothesis cannot be meaningfully tested.

The purpose of an experiment is to determine whether observations agree with or conflict with the expectations deduced from a hypothesis. Book I Experiments can take place anywhere from a garage to a remote mountaintop to CERN's Large Hadron Collider. There are difficulties in a formulaic statement of method, however. Though the scientific method is often presented as a fixed sequence of steps, it represents rather a set of general principles. Not all steps take place in every scientific inquiry nor to the same degree, and they are not always in the same order.

Classical model

The classical model of scientific inquiry derives from Aristotle,who distinguished the forms of approximate and exact reasoning, set out the threefold scheme of abductive, deductive, and inductive inference, and also treated the compound forms such as reasoning by analogy.

Hypothetico-deductive model

The hypothetico-deductive model or method is a proposed description of the scientific method. Here, predictions from the hypothesis are central: if you assume the hypothesis to be true, what consequences follow?

If a subsequent empirical investigation does not demonstrate that these consequences or predictions correspond to the observable world, the hypothesis can be concluded to be false.

Pragmatic model

See also: Pragmatic theory of truth

In 1877, Charles Sanders Peirce (1839–1914) characterized inquiry in general not as the pursuit of truth per se but as the struggle to move from irritating, inhibitory doubts born of surprises, disagreements, and the like, and to reach a secure belief, the belief being that on which one is prepared to act. He framed scientific inquiry as part of a broader spectrum and as spurred, like inquiry generally, by actual doubt, not mere verbal or hyperbolic doubt, which he held to be fruitless.He outlined four methods of settling opinion, ordered from least to most successful:

The method of tenacity (policy of sticking to initial belief) – which brings comforts and decisiveness but leads to trying to ignore contrary information and others' views as if truth were intrinsically private, not public. It goes against the social impulse and easily falters since one may well notice when another's opinion is as good as one's own initial opinion. Its successes can shine but tend to be transitory.

The method of authority – which overcomes disagreements but sometimes brutally. Its successes can be majestic and long-lived, but it cannot operate thoroughly enough to suppress doubts indefinitely, especially when people learn of other societies' present and past.

The method of the a priori – which promotes conformity less brutally but fosters opinions as something like tastes, arising in conversation and comparisons of perspectives in terms of "what is agreeable to reason." Thereby it depends on fashion in paradigms and goes in circles over time. It is more intellectual and respectable but, like the first two methods, sustains accidental and capricious beliefs, destining some minds to doubt it.

The scientific method – the method wherein inquiry regards itself as fallible and purposely tests itself and criticizes, corrects, and improves itself.

Peirce held that slow, stumbling ratiocination can be dangerously inferior to instinct and traditional sentiment in practical matters, and that the scientific method is best suited to theoretical research, which in turn should not be trammeled by the other methods and practical ends; reason's "first rule" is that, in order to learn, one must desire to learn and, as a corollary, must not block the way of inquiry. The scientific method excels the others by being deliberately designed to arrive eventually – at the most secure beliefs, upon which the most successful practices can be based. Starting from the idea that people seek not truth per se but instead to subdue irritating, inhibitory doubt, Peirce showed how, through the struggle, some can come to submit to the truth for the sake of belief's integrity, seek as truth the guidance of potential practice correctly to its given goal, and wed themselves to the scientific method.

For Peirce, rational inquiry implies presuppositions about truth and the real; to reason is to presuppose (and at least to hope), as a principle of the reasoner's self-regulation, that the real is discoverable and independent of our vagaries of opinion. In that vein, he defined truth as the correspondence of a sign (in particular, a proposition) to its object and, pragmatically, not as the actual consensus of some definite, finite community (such that to inquire would be to poll the experts), but instead as that final opinion which all investigators would reach sooner or later but still inevitably, if they were to push investigation far enough, even when they start from different points. In tandem he defined the real as a true sign's object (be that object a possibility or quality, or an actuality or brute fact, or a necessity or norm or law), which is what it is independently of any finite community's opinion and, pragmatically, depends only on the final opinion destined in a sufficient investigation. That is a destination as far, or near, as the truth itself to you or me or the given finite community. Thus, his theory of inquiry boils down to "Do the science." Those conceptions of truth and the real involve the idea of a community both without definite limits (and thus potentially self-correcting as far as needed) and capable of definite increase of knowledge. As inference, "logic is rooted in the social principle" since it depends on a standpoint that is, in a sense, unlimited.

Paying special attention to the generation of explanations, Peirce outlined the scientific method as coordination of three kinds of inference in a purposeful cycle aimed at settling doubts, as follows "A Neglected Argument" except as otherwise.

parts as clear as possible.

Demonstration: Deductive argumentation, Euclidean in procedure. Explicit deduction of hypothesis's consequences as predictions, for induction to test, about evidence to be found. Corollarial or, if needed, theorematic.

Induction. The long-run validity of the rule of induction is deducible from the principle presuppositional to reasoning, in general, that the real is only the object of the final opinion to which adequate investigation would lead; anything to which no such process would ever lead would not be real. Induction involving ongoing tests or observations follows a method which, sufficiently persisted in, will diminish its error below any predesignate degree. Three stages:

Classification. Unclearly premised, but inductive, classing of objects of experience under general ideas.

Probation: direct inductive argumentation. Crude (the enumeration of instances) or gradual (new estimate of the proportion of truth in the hypothesis after each test). Gradual induction is qualitative or quantitative; if qualitative, then dependent on weightings of qualities or characters; if quantitative, then dependent on measurements, or on statistics, or on countings.

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Sentential Induction. "... which, by inductive reasonings, appraises the different probations singly, then their combinations, then makes self-appraisal of these very appraisals themselves, and passes final judgment on the whole result".

Semantic Translation can be understood as the method of sense-for-sense translation. It takes into its consideration the context and the various linguistic features of the source text while transmitting it to the target language.

Following this, the relationship between words in a sentence is examined to provide clear understanding of the context.

When fueled by natural language processing and

machine learning, systems of semantic analysis tend to achieve human-level accuracy. Several companies rely heavily on semantic analysis-driven tools that automatically draw valuable data from unstructured data such as emails, client reports, and customer reviews.

Advantages of semantic analysis

Semantic analysis tech is highly beneficial for the customer service department of any company. Moreover, it is also helpful to customers as the technology enhances the overall customer experience at different levels. Let’s understand these key advantages in greater detail.

The semantic analysis method begins with a language-independent step of analyzing the set of words in the text to understand their meanings. This step is termed “lexical semantics” and refers to fetching the dictionary definition for the words in the text. Subsequently, words or elements are parsed. Each element is designated a grammatical role, and the whole structure is processed to cut down on any confusion caused by ambiguous words having multiple meanings.

Upon parsing, the analysis then proceeds to the interpretation step, which is critical for

artificial intelligence algorithms

For example, the word ‘Blackberry’ could refer to a fruit, a company, or its products, along with several other meanings. Moreover, context is equally important while processing the language, as it takes into account the environment of the sentence and then attributes the correct meaning to it.

For example, ‘Blackberry is known for its sweet taste’ may directly refer to the fruit, but ‘I got a blackberry’ may refer to a fruit or a Blackberry product. As such, context is vital in semantic analysis and requires additional information to assign a correct meaning to the whole sentence or language.

Semantic translation is the process of using semantic information to aid in the translation of data in one representation or data model to another representation or data model. Semantic translation takes advantage of semantics that associate meaning with individual data elements in one dictionary to create an equivalent meaning in a second system.

An example of semantic translation is the conversion of data from one data model to a second data model using formal ontologies for each system such as the Web Ontology Language. This is frequently required by intelligent agents that wish to perform searches on remote computer systems that use different data models to store their data elements. The process of allowing a single user to search multiple systems with a single search request is also known as federated search.

Semantic translation should be differentiated from data mapping tools that do simple one-to-one translation of data from one system to another without actually associating meaning with each data element.

Semantic translation requires that data elements in the source and destination systems have "semantic mappings" to a central registry or registries of data elements. The simplest mapping is of course where there is equivalence. There are three types of Semantic equivalence:

Class Equivalence - indicating that class or "concepts" are equivalent. For example: "Person" is the same as "Individual"

Property Equivalence - indicating that two properties are equivalent. For example: "Person Given Name" is the same as "First Name"

Instance Equivalence - indicating that two individual instances of objects are equivalent. For example: "Dan Smith" is the same person as "Daniel Smith"

Semantic translation is very difficult if the terms in a particular data model do not have direct one-to-one mappings to data elements in a foreign data model. In that situation, an alternative approach must be used to find mappings from the original data to the foreign data elements. This problem can be alleviated by centralized metadata registries that use the ISO-11179 standards such as the National Information.

Lexical corpus or lexis, a complete set of all words in a language

Lexical item, a basic unit of lexicographical classification

Lexicon, the vocabulary of a person, language, or branch of knowledge

Lexical (semiotics) or content word, words referring to things, as opposed to having only grammatical meaning

Lexical verb, a member of an open class of verbs that includes all verbs except auxiliary verbs

Lexical aspect, a characteristic of the meaning of verbs

Lexical form, the canonical form of a word, under which it appears in dictionaries

Lexical definition or dictionary definition, the meaning of a term in common usage

Lexical semantics, a subfield of linguistic semantics that studies how and what the words of a language denote

Summary

In conclusion, it should be said that this article is written based on the scientific works of several scientists.

In addition, lexical and semantic problems that arise in scientific translations are also presented. The article is enriched with specific ideas of lexical translation in scientific translations.

In this article we can also see the solution to lexical and semantic problems.

REFERENCES:

1. https://en.m.wikipedia.org/wiki/Scientific_method
2. https://www.spiceworks.com/tech/artificial-intelligence/articles/what-is-semantic-analysis/amp/
3. https://en.m.wikipedia.org/wiki/Semantic_translation
4. https://en.m.wikipedia.org/wiki/Lexical